

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No. 5641 - 123371

First Inventor James J. Wassel

Title "Lighting Fixture"

Express Mail Label No. N/A

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☐ **Fee Transmittal Form.**
(PTO/SB/17 or equivalent)
2. ☒ **Applicant claims small entity status.**
See 37 CFR 1.27.
3. ☒ **Specification.** [Total Pages 32]
Both the claims and abstract must start on a new page
(For information on the preferred arrangement, see MPEP § 608.01(a))
4. ☒ **Drawing(s).** (35 U.S.C. 113) [Total Sheets 24]
5. **Inventor's Oath or Declaration.** [Total Sheets]
(including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e))
 - a. ☐ Newly executed (original or copy)
 - b. ☐ A copy from a prior application (37 CFR 1.63(d))
6. ☒ **Application Data Sheet.** *See Note below.
See 37 CFR 1.76 (PTO/AIA/14 or equivalent)
7. ☐ **CD-ROM or CD-R.**
in duplicate, large table or Computer Program (Appendix)
☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission.**
(if applicable, items a. - c. are required)
 - a. ☐ Computer Readable Form (CRF)
 - b. ☐ Specification Sequence Listing on:
 - i. ☐ CD-ROM or CD-R (2 copies); or
 - ii. ☐ Paper
 - c. ☐ Statements verifying identity of above copies

ADDRESS TO:

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers.**
(cover sheet & document(s))
Name of Assignee _____
10. ☐ **37 CFR 3.73(c) Statement.** ☐ **Power of Attorney.**
(when there is an assignee)
11. ☐ **English Translation Document.**
(if applicable)
12. ☐ **Information Disclosure Statement.**
(PTO/SB/08 or PTO-1449)
☐ Copies of citations attached
13. ☐ **Preliminary Amendment.**
14. ☐ **Return Receipt Postcard.**
(MPEP § 503) (Should be specifically itemized)
15. ☐ **Certified Copy of Priority Document(s).**
(if foreign priority is claimed)
16. ☐ **Nonpublication Request.**
Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ **Other:** _____

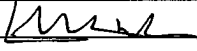
19. CORRESPONDENCE ADDRESS

☒ The address associated with Customer Number:

28289

OR ☐ Correspondence address below

Name	The Webb Law Firm				
Address	One Gateway Center 420 Ft. Duquesne Blvd., Suite 1200				
City	Pittsburgh	State	PA	Zip Code	15222
Country	U.S.A.	Telephone	412-471-8815	Email	patents@webblaw.com

Signature		Date	December 3, 2012
Name (Print/Type)	Kirk M. Miles	Registration No. (Attorney/Agent)	37,891

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

LIGHTING FIXTURE

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of United States Patent Application No. 12/341,798, filed December 22, 2008, which claims the benefit of United States Provisional Patent Application No. 61/015,713 entitled “Lighting Fixture” filed December 21, 2007, United States Provisional Patent Application No. 61/094,558 entitled “Lighting Fixture with Improved Cover and Mounting Assembly” filed September 5, 2008 and United States Provisional Patent Application No. 61/094,571 entitled “Reflectors for Use with a Lighting Fixture” filed September 5, 2008, which are all hereby incorporated by reference in their entirety.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention relates, in general, to lighting fixtures (luminaires) that utilize light emitting diodes (LEDs) as a light source and, more particularly, to lighting fixtures incorporating LEDs configured in a manner to amplify and direct light produced by such lighting fixtures.

Description of Related Art

[0003] Conventional lighting fixtures such as streetlights and office lights have typically utilized incandescent, halogen, or fluorescent bulbs to provide light. The use of incandescent and halogen bulbs has been problematic in a number of ways. First, incandescent light bulbs are very energy inefficient. A large percentage of the energy incandescent light bulbs consume is released as heat, rather than light. Although fluorescent bulbs are more efficient than incandescent light bulbs, fluorescent bulbs raise environmental concerns, and are still very inefficient when compared to LEDs or other similar solid state light emitters.

[0004] Additionally, incandescent and fluorescent light bulbs have short life spans when compared to solid state emitters. This requires lighting devices to be replaced more frequently. Such short life spans are particularly more problematic when used in overhead lighting in office buildings or in streetlights, where access may be difficult. Replacement is not only time consuming, but can be dangerous.

[0005] Furthermore, the unwanted heat produced in these lighting systems adds not only to additional energy costs but may also requires additional air conditioning to lower the temperature of the area lit by the system. For example, in large buildings, overhead lighting is typically provided by lights placed near the ceiling and directed downward. These buildings often require additional air conditioning to compensate for this energy produced as heat.

[0006] Although solid state emitters, such as LEDs, are known to be more energy efficient, LEDs have not been considered in the past as an option for providing quality light in many applications, such as streetlights and office lighting systems, because LEDs do not provide enough useful light at a distance. Moreover, LEDs are a new technology, and therefore are more expensive. Accordingly, extending the use of LEDs is a particularly desirable goal. More recently, high-powered LEDs have been developed, thereby providing useful light output for incorporating LEDs into lighting fixtures for use as streetlights and office lights. However, the use of LEDs in such lighting fixtures typically requires a large number of LEDs clustered closely together to provide useful light output. Accordingly, lighting fixtures incorporating LEDs in this manner generate a large amount of heat energy when the LEDs emit light. This heat energy has to be dissipated. If this heat energy is not effectively removed, the high temperature caused by the heat energy will reduce the luminance and life span of the LEDs. Therefore, each of the foregoing-described lighting fixtures requires a complex heat dissipating mechanism to adequately remove the heat energy produced by the large number of LEDs.

[0007] In view of the foregoing, a need exists for a lighting fixture for use, for example, as a streetlight or an office light that utilizes a minimal number of LEDs to produce useful light at a distance without creating excessive heat within the lighting fixture. A further need exists for an LED lighting fixture having a relatively simple heat dissipating mechanism. A need also exists for an LED lighting fixture that accomplishes amplified lighting with the use of a minimal number of LEDs.

SUMMARY OF THE INVENTION

[0008] As described in detail herein, a lighting fixture for use, for example, as a streetlight or an office light is disclosed and which provides useful light at a distance using only a small number of LEDs. Such a light fixture incorporates a relatively simple heat dissipating mechanism in accordance with this disclosure. In one embodiment, a light emitting diode (LED) lighting arrangement for a lighting fixture is provided. The LED arrangement includes a lighting

strip having a plurality of light emitting diodes (LEDs) and a reflector that can be mounted to the lighting strip comprising multi-faceted side walls extending away from the light strip. Each of the light emitting diodes desirably has a diode base and a light emitting portion. The multi-faceted side walls of the reflector cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

[0009] The lighting strip may also include an electrical connector that allows the lighting strip to be operatively connected to a power supply, such as through driver circuitry and control circuitry. The reflector may be constructed from silver-coated aluminum with a protective polymer coating. The plurality of light emitting diodes (LEDs) may be arranged in a linear row.

[0010] The side walls of the reflector may be configured to extend away from a base member that defines a plurality of openings receiving at least the light emitting portion of the plurality of light emitting diodes (LEDs), respectively. The side walls may be formed integral with the base member. The multi-faceted side walls may comprise multi-angle side walls. As an example, the side walls may include a first portion defining a first angle with the light emitting portion of the plurality of light emitting diodes (LEDs) and a second portion defining a second angle with the first portion. The first angle and second angle may be different angles.

[0011] Alternatively, the side walls of the reflector may extend away from a base member and may be symmetrical about an axis of symmetry that runs through a center of the base member. In addition, the side walls may extend away from a base member and each have a plurality of angles formed therein. The side walls may each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion. The first angle and second angle may be different angles. The multi-faceted side walls may include multi-angle side walls.

[0012] Another embodiment is directed to a light emitting diode (LED) lighting fixture. The lighting fixture includes a base plate having a front side and a rear side. A plurality of lighting strips is mounted on the front side of the base plate. A reflector is mounted to each of the lighting strips and comprises multi-faceted side walls extending away from the light strip. The lighting strips are interconnected with a power supply through driver circuitry and control circuitry. For example, the power supply may be mounted to the rear side of the base plate within an enclosure, and may be connected to control circuitry, which is connected to driver circuitry, which is electrically coupled to the plurality of light emitting diodes (LEDs). Each of the lighting strips

includes a plurality of light emitting diodes (LEDs), and each of the light emitting diodes desirably has a diode base and a light emitting portion. The multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam. The plurality of light emitting diodes (LEDs) in each of the lighting strips may be arranged in a linear row.

[0013] The reflector may be constructed from silver-coated aluminum with a protective polymer coating. The side walls may be configured to extend away from a base member defining a plurality of openings receiving at least the light emitting portion of the plurality of light emitting diodes (LEDs), respectively. The side walls may include a first portion defining a first angle with the light emitting portion of the plurality of LEDs and a second portion defining a second angle with the first portion. The first angle and second angle may be different angles.

[0014] Alternatively, the side walls may extend away from a base member and may be symmetrical about an axis of symmetry that runs through a center of the base member. The side walls may extend away from the base member and each have a plurality of angles formed therein. The side walls may each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion. The first angle and second angle may be different angles, and the multi-faceted side walls may be multi-angle side walls.

[0015] The lighting strips are connected to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate. Heat transfer fins may be provided on at least one side of the base plate to conduct heat to the ambient environment. The base plate may be formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture. The lighting strips may be connected to the base plate such that inter-contacting surfaces between the lighting strips and base plate are separated by less than ten hundredth of an inch (0.01 inches). Desirably, the inter-contacting surfaces between the lighting strips and base plate may be separated by less than about one thousandth of an inch (0.001 inches). The lighting strips may be mounted to mounting stages upstanding from the base plate.

[0016] In addition, a method of manufacturing a light emitting diode (LED) lighting arrangement for a lighting fixture is disclosed and detailed herein. The method generally includes the steps of providing a lighting strip having a plurality of light emitting diodes (LEDs), each desirably comprising a diode base and a light emitting portion; providing a reflector blank;

forming a plurality of linearly arranged openings in the base member; bending the reflector blank to form a base member and multi-faceted side walls extending away from the base member to form a reflector; and associating the lighting strip with the reflector such that the plurality of openings respectively receive at least the light emitting portion of the plurality of light emitting diodes (LEDs).

[0017] The reflector blank may be manufactured from silver-coated aluminum with a protective polymer coating. The multi-faceted side walls may be formed as multi-angle side walls.

[0018] The side walls may be formed to have a first portion defining a first angle with the light emitting portion of the plurality of LEDs and a second portion defining a second angle with the first portion. The first angle and second angle may be different angles. Alternatively, the side walls may be formed to be symmetrical about an axis of symmetry that runs through a center of the base member.

[0019] The foregoing and other features and characteristics, as well as the methods of operation and functions of the related elements of structures and the combination of parts and economies of manufacture will become more apparent upon consideration of the following description with reference to the accompanying drawings, all of which form a part of this specification, wherein like reference numerals designate corresponding parts in the various figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] **FIG. 1** is a front view of a first embodiment of a lighting fixture for exemplary use as a streetlight.

[0021] **FIG. 2** is a rear view of the lighting fixture of **FIG. 1**.

[0022] **FIG. 3** is a transverse cross-sectional view of the lighting fixture of **FIG. 1**.

[0023] **FIG. 4A** is a front view of a second embodiment of a lighting fixture for exemplary use as a streetlight.

[0024] **FIG. 4B** is a front perspective view of the second embodiment of a lighting fixture for exemplary use as a streetlight shown in **FIG. 4A**.

[0025] **FIG. 5** is a cross-sectional view of the lighting fixture of **FIGS. 4A-4B** taken along line 5-5 in **FIG. 4A**.

[0026] **FIG. 6A** is a portion of the cross-sectional view of **FIG. 5** enlarged for viewing.

- [0027] **FIG. 6B** is an enlarged view of a mounting clip in one embodiment.
- [0028] **FIG. 7A** is a rear view of the lighting fixture of **FIGS. 4A-4B**.
- [0029] **FIG. 7B** is a rear perspective view of the lighting fixture of **FIGS. 4A-4B**.
- [0030] **FIG. 8** is a side view of a pole mounting assembly for use with the lighting fixture of **FIGS. 4A-4B**.
- [0031] **FIG. 9** is an exploded top view of the pole mounting assembly of **FIG. 8**.
- [0032] **FIG. 10A** is a top view of a light emitting diode (LED) lighting strip for use in the lighting fixture of **FIGS. 4A-4B**.
- [0033] **FIG. 10B** is a cross-sectional view of the light emitting diode (LED) lighting strip of **FIG. 10A** taken along line **10B-10B** in **FIG. 10A**.
- [0034] **FIG. 10C** is a cross-sectional view of the light emitting diode (LED) lighting strip of **FIG. 10A** taken along line **10C-10C** in **FIG. 10A**.
- [0035] **FIG. 11A** is a top view of another embodiment of a light emitting diode (LED) lighting strip for use in the lighting fixture of **FIGS. 4A-4B**.
- [0036] **FIG. 11B** is a cross-sectional view of the light emitting diode (LED) lighting strip of **FIG. 11A** taken along line **11B-11B** in **FIG. 11A**.
- [0037] **FIG. 12** is a schematic diagram of an exemplary embodiment of a driver circuit for use with the lighting fixture of **FIGS. 4A-4B**.
- [0038] **FIGS. 13A-13D** are schematic diagrams of an exemplary computer circuit for use with the lighting fixture of **FIGS. 4A-4B**.
- [0039] **FIG. 14** is an exemplary flow diagram illustrating a possible control sequence for controlling operation of the lighting fixture of **FIGS. 4A-4B**.
- [0040] **FIG. 15** is a side perspective view of the lighting fixture **FIGS. 4A-4B** used as a streetlight.
- [0041] **FIG. 16** is cross-sectional view of the lighting emitting diode (LED) lighting strip adapted for use with the lighting fixture of **FIGS. 4A-4B** illustrating details of a reflector associated with the lighting strip.
- [0042] **FIG. 17** is a cross-sectional view of another embodiment of the lighting emitting diode (LED) lighting strip adapted for use with the lighting fixture of **FIGS. 4A-4B** and comprising an alternative reflector.

- [0043] FIG. 18 is a top view of a blank used to manufacture the reflector of FIG. 17.
- [0044] FIG. 19 is a cross-sectional view of additional embodiment of the lighting emitting diode (LED) lighting strip adapted for use with the lighting fixture of FIGS. 4A-4B and comprising an additional embodiment of the reflector.
- [0045] FIG. 20 is a cross-sectional view of a further embodiment of the lighting emitting diode (LED) lighting strip adapted for use with the lighting fixture of FIGS. 4A-4B and comprising a further embodiment of the reflector.
- [0046] FIG. 21 is a top view of a blank used to manufacture the reflector of FIG. 20.
- [0047] FIG. 22 is a front view of a lighting fixture in accordance with an embodiment adapted for use as an office lighting fixture.
- [0048] FIG. 23 is a rear view of the office lighting fixture of FIG. 22.
- [0049] FIG. 24 is a side view of the office lighting fixture of FIG. 22.
- [0050] FIG. 25 is a cross-sectional view of a reflector adapted for used with a light emitting diode (LED) lighting strip used in lighting fixture of FIG. 22.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

- [0051] For purposes of the description hereinafter, spatial orientation terms, as used, shall relate to the referenced embodiment as it is oriented in the accompanying drawing figures or otherwise described in the following detailed description. However, it is to be understood that the embodiments described hereinafter may assume many alternative variations and configurations. It is also to be understood that the specific devices, features, and components illustrated in the accompanying drawing figures and described herein are simply exemplary and should not be considered as limiting.
- [0052] Generally speaking, an embodiment of the present invention involves a lighting arrangement incorporating one or more lighting strips comprising a plurality of light emitting diodes LEDs to provide a light emitting sub-assembly or device. A lighting fixture may be provided that incorporates the LED lighting strips and desirably utilizes a shell or housing assembly of the lighting fixture as an integrated heat transfer device, often described herein as a thermal radiator, thereby effectively dissipating any heat created by the LEDs so as to prevent heat buildup within the lighting fixture and, thereby, permitting the LEDs to operate more efficiently for a longer life span. Additional embodiments are directed to amplifying reflectors that may be associated with the lighting strips so that light produced by the plurality of light

emitting diodes (LEDs) may be amplified and formed into a uniform beam which may be a focused beam useful, for example, as a spotlight, or a diffused beam useful, for example, as an overhead streetlight or possibly as an overhead office light. The combination of reflectors for amplifying or intensifying the light and the heat dissipation provided through the thermal radiation properties of the housing provides for a lighting fixture adapted to provide effective light output for use as a street light, while not overheating and reducing the life span or safety of the street light.

[0053] With reference generally to **FIGS. 1-3**, features of the invention are described herein with reference to a lighting fixture **1** in accordance with one embodiment of the invention. In the following example, lighting fixture **1** is described in the context of an overhead streetlight for exemplary purposes. Lighting fixture **1** generally includes a housing **2** comprising a base plate **3** having a front side **5** and a rear side **7**. Base plate **3** includes at least one and, preferably, a plurality of light emitting sub-assemblies **4**, also referred to herein as a lighting arrangement, particularly an LED lighting arrangement. Each light emitting sub-assembly **4** is comprised of a lighting strip **9**, each including one or more surface-mounted LEDs **11** mounted thereto, and each light emitting sub-assembly may further include a reflector **13** mounted in a manner extending away from the lighting strip **9**, as will be described in more detail herein.

[0054] In the embodiment depicted in **FIGS 1-3**, three lighting strips **9** are mounted to front side **5** of base plate **3**. Lighting strips **9** may be mounted directly on front side **5** of base plate **3**, or may be mounted to a separate u-shaped channel or mounting stage that is directly mounted to base plate **3**, as described in more detail in connection with the embodiment of **FIGS. 4-7**. Each lighting strip **9** includes a plurality of surface-mount LEDs **11** mounted thereto, and may be constructed from any suitable material for mounting LEDs and associated circuitry, and is desirably constructed from aluminum. Base plate **3** and the base of lighting strip **9** may be constructed from any suitable material adapted for radiating and transferring thermal energy. Desirably, base plate **3** and lighting strip **9** are constructed of aluminum or an aluminum alloy, such as aluminum alloy 1100 or aluminum alloy 3003 and, in particular, aluminum alloys subjected to an anodizing treatment. Lighting strip **9** may have an exemplary overall thickness of about 1/8 inch thick, and base plate **3** may have an exemplary thickness about 1/8 to 1/4 inch thick. Base plate **3** may also be formed in a representative iconic shape, such as a football, baseball glove, hockey stick, and the like to provide a decorative beam of light.

[0055] LEDs 11 are desirably high-power LEDs such as the LUXEON® REBEL manufactured by Phillips Lumileds Lighting Company or the CREE® XLAMP® XR-E LED manufactured by Cree, Inc. Alternatively, plasma emitter bulbs may be used instead of LEDs 11. Plasma emitter bulbs are typically the size of a dime. Each bulb is filled with a gas and metal halide materials. In operation, an electric field is applied to the bulb, which ionizes the gas molecules to create a gas plasma. The metal halides then completely join the gas plasma which emits a powerful white light. Such plasma emitter bulbs are currently manufactured by Luxim® Corporation.

[0056] Desirably, lighting fixture 1 also includes a transparent cover 6 coupled to front side 5 of base plate 3. Cover 6 may be constructed of any suitable transparent material for passing light emitted by LEDs 11 therethrough, and is desirably selected from a polymeric material such as acrylic, ballistic acrylic, thermoplastic, polycarbonate, and the like. One particularly suitable material is LEXAN. The material forming cover 6 is desirably shatterproof and otherwise weatherproof so as to prevent damage when exposed to the exterior environment.

[0057] Transparent cover 6 may be coupled to base plate 3 using any suitable fastening mechanism, such as using bolts 8, so long as a generally airtight seal is maintained about the perimeter of housing 2, thereby maintaining the interior portion of lighting fixture 1 as a sealed internal environment. In the illustrated exemplary embodiment of FIGS. 1-3, a mounting bracket in the form of mounting member 10 is coupled to rear side 7 of base plate 3 for mounting of lighting fixture 1 to an appropriate surface. Mounting member 10 may comprise any general form for mounting to a particular surface, such as a plurality of mounting holes 12 for receiving a fastening member (not shown) which allows the lighting fixture 1 to be adjustably mounted to a pole. In the illustrated exemplary embodiment, lighting fixture 1 is configured to be mounted at a height sufficient to provide adequate lighting to a street or surface below. For instance, if lighting fixture 1 is mounted on a pole at a height of 30 feet above a street, lighting fixture 1 provides a lighting pattern that extends about 50 feet from the base of the pole and about 65 feet on either side of the pole.

[0058] Each sub-assembly 4 further includes a reflector 13 mounted so as to extend from the front side 5 of base plate 3 such that side walls 41 of reflector 13 extend at an angle from each of lighting strips 9. Each reflector 13 desirably includes a base portion (discussed in more detail herein) with a pair of side walls 41 extending from opposite sides thereof at an angle. Desirably, side walls 41 are integral with the base portion of reflector 13. Reflector 13 may be constructed

of any reflective material, and may include a protective polymer coating thereon. Desirably, the material forming each reflector **13** has a reflectivity that is on the order of 95% to 98% reflective. Additionally, the polymer coating prevents corrosion on reflector **13**. An exemplary reflective material is silver-coated aluminum, which is not to be construed as limiting, and any highly-reflective material may be used to construct the reflector assemblies.

[0059] With specific reference to **FIGS. 2 and 3**, lighting fixture **1** further includes a power supply and control circuitry (not shown) positioned within a rear housing **17** mounted on rear side **7** of base plate **3**. The power supply and control circuitry are electrically coupled to the plurality of LEDs **11** to provide effective lighting control, as described in more detail with respect to the embodiment of **FIGS. 4-7**. Housing **17** may also include a window **19** with a light detector in the form of a photoelectric eye **21** positioned thereunder. In order to efficiently transfer light from window **19** to photoelectric eye **21**, an acrylic rod or fiber optic array (not shown) may be positioned between window **19** and photoelectric eye **21**. In the present non-limiting embodiment, photoelectric eye **21** provides electronic signal(s) to the control circuitry which causes LEDs **11** to turn on when surrounding ambient light has dropped below a predetermined level as will be described hereinafter.

[0060] An LED light (not shown) may also be mounted on rear side **7** of base plate **3** and be coupled to the power supply and control circuitry for when, for example, utility workers are working on the pole where light fixture **1** is mounted. Such a separate, rear-mounted LED provides utility workers with appropriate lighting above lighting fixture **1**. This additional LED light may be turned on manually through the use of a magnetic switch, by an infrared sensor or by an ultrasonic sensor, as examples.

[0061] With reference to **FIGS. 4-7**, an alternative embodiment of a lighting fixture **101** is illustrated. Lighting fixture **101** generally includes a housing **102** defined by a base plate **103** having a front side **105** forming a generally interior housing surface and a rear side **107** forming a generally outer housing surface for the lighting fixture. Lighting fixture **101** includes at least one and, preferably, a plurality of light emitting sub-assemblies **104**, again also referred to herein as a lighting arrangement, particularly an LED lighting arrangement. Each light emitting sub-assembly **104** includes a lighting strip **109** comprised of one or more surface-mounted LEDs **111** mounted to a circuit board substrate or base member **142** and each light emitting sub-assembly **104** may further include a reflector **141** mounted in a manner extending away from the lighting

strip **109**, as will be described in more detail herein. Each lighting strip **109** is mounted either directly or indirectly to base plate **103** in a manner permitting effective and efficient heat transfer between the LEDs **111** mounted to base member **142** and base plate **103**, as will be described in further detail herein. It is desirable for the LEDs **111** to be mounted in a linear row or arrangement so that reflector **141** may effectively reflect light emitted by the LEDs **111**, amplify this light and direct the light in a manner effective for the intended purpose of the lighting fixture **101**, for example, as use as streetlight in the instant example or for other applications such as a spotlight, office overhead light, and other applications. The reflector **141** may be configured to reflect and amplify the light from the LEDs **111** to achieve the light characteristics that are desired for the lighting fixture **101**.

[0062] While it is noted that the number of lighting strips **109** may be dependent upon the intended use of the lighting fixture, the embodiment of **FIGS 4-7** includes four lighting strips **109**, shown to be effective in the intended use of the present lighting fixture as a streetlight. Moreover, each lighting strip **109** includes a plurality of linearly-arranged, surface-mount LEDs **111** mounted to base member **142**. Base member **142** is desirably constructed, at least in part, of a similar material as base plate **103**, such as aluminum or aluminum alloy, preferably an anodized aluminum alloy. In the illustrated embodiment, each lighting strip **109** includes eight linearly-arranged LEDs **111** mounted to base member **142**. However, this is not to be construed as limiting, as any suitable number of LEDs **111** may be mounted to each lighting strip **109**. As with the previous embodiment, LEDs **111** are desirably high-power LEDs such as the LUXEON® REBEL manufactured by Phillips Lumileds Lighting Company or the CREE® XLAMP® XR-E LED manufactured by Cree, Inc. Alternatively, plasma emitter bulbs may be used instead of LEDs **111**. Such plasma emitter bulbs are currently manufactured by Luxim® Corporation, as noted previously.

[0063] Base plate **103** along with transparent cover **106** essentially forms the complete housing **102** of lighting fixture **101**. Base plate **103** is typically constructed of a suitable material to structurally support lighting fixture **101** and to provide effective protection for the components and circuitry within lighting fixture **101**. Moreover, base plate **103** serves at least another purpose in that it also acts as a material for effectively and efficiently transferring thermal energy from LEDs **111** to dissipate heat therefrom, as will be further detailed herein. Briefly, it is envisioned that the interaction of base plate **103** and base member **142** effectively and efficiently

conducts heat away from LEDs **111** and base plate **103** is desirably adapted to transfer the heat energy to the ambient environment using any one or more of conductive, convective, and radiation heat transfer modes to the ambient environment. To achieve effective and efficient heat transfer, base plate **103** may be constructed from any structurally supportive material that is adapted for transferring thermal energy. Base plate **103** is desirably constructed of aluminum or an aluminum alloy, such as aluminum alloy 1100 or aluminum alloy 3003 and, in particular, aluminum alloys subjected to an anodizing treatment. Base plate **103** may have an exemplary thickness about 1/8 to 1/4 inch thick. By anodizing the aluminum used to construct base plate **103**, the base plate **103** is provided with a heat-transferring surface texture, typically a non-uniform or non-smooth, somewhat roughened surface texture that increases the ability of the base plate **103** to transfer heat energy to the ambient environment and, accordingly, the anodizing process enhances the heat dissipating properties of base plate **103**, thereby allowing it to function as a particularly effective and efficient heat transfer device or mechanism, also termed herein as a “thermal radiator”. Moreover, base plate **103** may further include a plurality of thermal radiating fins **114** on rear side **107** to provide additional surface area for convective heat transfer and dissipation to the ambient environment, such that the LEDs **111** stay cool regardless of the outdoor temperature. Additionally, base plate **103** has an outer peripheral edge **112** that is curved away from a body of the base plate **103** at an angle of approximately 90°.

[0064] Desirably, lighting fixture **101** includes a transparent cover **106**. Transparent cover **106** may be manufactured from any suitable material such as, but not limited to, a polymeric material, such as acrylic, ballistic acrylic, thermoplastic, polycarbonate, and the like. Cover **106** is coupled with base plate **103** using any suitable mechanical fastening arrangement, so long as a generally airtight seal is maintained about the perimeter of housing **102**, thereby maintaining the interior portion of lighting fixture **101** as a sealed interior environment.

[0065] With specific reference to **FIGS. 6A-6B**, and with continuing reference to **FIGS. 4A-4B, 5** and **7A-7B**, transparent cover **106** may be fitted such that an outer edge **108** is positioned adjacent to outer peripheral edge **112** of base plate **103**. Desirably, a gasket **113** is positioned between outer edge **108** of transparent cover **106** and outer peripheral edge **112** of base plate **103** to provide a generally fluid-tight seal therebetween. Transparent cover **106** may also include at least one protective vent **118**. Protective vent **118** provides an effective barrier against harsh weather conditions (e.g., rain, snow, high winds), while allowing water vapor to exit effectively

from within transparent cover **106**, thereby reducing the likelihood of condensation accumulating beneath transparent cover **106**. Protective vent **118** equalizes pressure between the transparent cover and the ambient environment and is desirably able to vent moisture that becomes trapped within the interior enclosure of housing **102** generally defined by transparent cover **106** and base plate **103**, while allowing only dry air to enter into the enclosure created by transparent cover **106**. An example of such a protective vent **118** is the GORE™ Protective Vent manufactured by W.L. Gore & Associates, Inc.

[0066] Once transparent cover **106** is fitted to base plate **103**, a suitable clamp arrangement, such as a plurality of spring clips **115**, is positioned over outer edge **108** of transparent cover **106** and outer peripheral edge **111** of base plate **103** to fixedly hold transparent cover **106** to base plate **103**. Spring clips **115** are desirably formed with securing structure **117**, such as teeth, positioned on an inner surface thereof. Spring clips **115** are desirably adapted to allow for transparent cover **106** to be quickly and easily removed. For example, a special tool may be provided for use with spring clips **115** to open and remove spring clips **115** from association with transparent cover **106** and base plate **103**. It is desirable that, if this specialized tool is not used, securing structure **117** on spring clips **115** will scratch and otherwise damage transparent cover **106** when removal of spring clip **115** is attempted. This visible damage to transparent cover **106** can provide clear evidence to an authorized repair technician that someone has tampered with lighting fixture **101**.

[0067] With reference to **FIGS. 8** and **9** and with continuing reference to **FIGS. 4-7**, a further embodiment of a mounting bracket in the form of pole mounting member **119** is coupled to rear side **107** of base plate **103**. Pole mounting member **119** includes a first clamp member **121** and a second clamp member **123**. First clamp member defines a first arcuate surface **125** and second clamp member defines a second, opposing arcuate surface **127**. First arcuate surface **125** and second arcuate surface **127** are configured to face one another and capture a pole (not shown) therebetween. Once the pole is captured between first clamp member **121** and second clamp member **123**, a first bolt **129** and a second bolt **131** may be inserted and tightened thereby securing the pole between first clamp member **121** and second clamp member **123**. First clamp member **121** and second clamp member **123** desirably each have an inside surface having a waffle pattern thereon. This waffle-pattern grips the pole when it is positioned between first clamp member **121** and second clamp member **123** thereby preventing rotation of the lighting

fixture **101** relative to the pole. First clamp member **121** and second clamp member **123** each also define a pair of arcuate slots **133**, **135**. Arcuate slots **133**, **135** are configured to receive respective bars **137**. Mounting bars **137** are designed to move within arcuate slots **133**, **135** to allow lighting fixture **101** to be angularly adjusted for use in directing light output from lighting fixture **101**. In a typical mounting scenario, lighting fixture **101** is mounted to an extension pole extending from an upstanding pole (such as a telephone-style pole) and it is desired that lighting fixture **101** be positioned with the transparent cover **106** thereof facing downward and generally parallel to the ground surface, thereby directing light output directly downwardly. The arrangement of mounting bars **137** and arcuate slots **133**, **135** provide lighting fixture to be mounted in such a manner regardless of the angle that the extension pole extends from the upstanding pole, as will be appreciated by those skilled in the art. It is also contemplated that alternative mounting clamps may be utilized with the present lighting fixture, depending upon the particular installation application.

[0068] With reference to **FIGS. 10** and **11**, and with continuing reference to **FIGS. 4-7**, lighting fixture **101** includes a plurality of light emitting sub-assemblies **104** including LED lighting strips **109** on front side **105** of base plate **103**. Each lighting strip **109** includes a plurality of surface-mount LEDs **111** mounted onto circuit board or base member **142** in electrical contact/connection therewith and a reflector **141** mounted thereto. In the present embodiment, reflector **141** defines multiple facets formed therein that amplify the light provided by LEDs **111** as will be discussed in greater detail hereinafter. Such facets may be angled formations in the body of the reflector **141** but reflector **141** is not intended to be limited to such facets. Facets should be read broadly in connection with this disclosure as a formation(s) in the body of reflector **141** that amplify the light output of the LEDs **111** and direct the amplified and desirably uniform light outward from the light fixture **101** for any desirable application. This sets forth certain exemplary and non-limiting applications for light fixture **101** such as street-lighting or office overhead lighting, as mentioned previously. It is noted that in **FIG. 4B**, reflectors **141** are omitted for clarity purposes.

[0069] The incorporation of LEDs into conventional lighting fixtures can be problematic due to excessive heat build-up within the lighting fixture, which can deleteriously affect performance and lifespan of the LEDs. Lighting fixtures **1**, **101** in accordance with this disclosure exhibit effective and efficient dissipation of the heat generated by LEDs **11**, **111**. In particular, this heat

dissipation is accomplished utilizing the entire housing of the lighting fixture **1**, **101** as a heat transfer device which effectively transfers heat energy generated LEDs **1**, **111** to the external environment. In the foregoing, it was noted that base plate **103** may be formed of specific materials having suitable heat transfer characteristics and this material may be anodized and coated to provide a surface texture on the base plate **103** having enhanced heat transferring properties. Heat-transfer fins **114** are also provided on base plate **103** for improving heat transferring attributes of base plate **103**. A further aspect of the heat transferring ability of light fixture **101** in particular is the arrangement of LEDs **111** with circuit board base member **142** and the mounting of the base member **142** to the base plate **103**. As described next herein, this arrangement enhances the heat transfer from LEDs **111** to base plate **103**.

[0070] More particularly, as noted previously, each lighting strip **109** includes a singular line of LEDs **111** mounted onto base member **142**. Base member **142** is desirably constructed of the same material as base plate **103**. As shown in **FIGS. 10A-10C**, base member **142** represents a circuit substrate for LEDs **111**, including a metallic base supporting substrate layer **142a**, such as anodized aluminum oxide, with a non-conductive layer **142b** on a surface thereof, such as a ceramic layer or enamel layer. Electronic circuitry is then printed onto the non-conductive layer **142b**, with a second non-conductive layer positioned over the circuitry. Such a configuration is generally known in the semi-conductor art and the illustration of metallic base supporting substrate layer **142a** and non-conductive layer **142b** is for explanatory purposes only. If desired, a fiberglass layer may also be provided between the circuitry and the second non-conductive layer. The LEDs **111** are mounted to the surface of base member **142** in electrical contact with the circuitry therein, thereby forming each lighting strip **109**.

[0071] Reflector **141** is further mounted on the surface of base member **142**, with LEDs **111** extending through openings **144** through the base portion of reflector **141**. In particular, each reflector **141** comprises opposed side walls defining facets, as mentioned previously; various embodiments of reflector **141** are described herein but each such embodiment is generally in the form of an elongated channel structure having a base portion or member and side walls defining said facets. The base portion or member is desirably positioned flush with the top surface of base member **142** of lighting strip **109** and is mounted thereon using suitable fastening means, such as an adhesive, bolts, rivets, and the like. As noted, reflector **141** defines openings **144** through the base portion such that when reflector **141** is mounted to base member **142**, light from

LEDs 111 can reflect off the interior surfaces of the side walls of the reflector 141, as will be described in greater detail with reference to the reflector embodiments depicted in FIGS. 16-21. Each lighting strip 109 with reflector 141 mounted thereto thereby forms each light emitting sub-assembly 104. Each lighting strip 109 also includes an electrical connector 149 that allows the lighting strip 109 of the light emitting sub-assembly 104 to be operatively connected to a driver circuit 150. As will be discussed in greater detail hereinafter, driver circuit 150 divides the power output from a power supply 151 equally among the plurality of lighting strips 109, such as four lighting strips 109 in the instant embodiment, with little to no variation in amperage between the respective lighting strips 109. This division is effective in extending the lifespan of LEDs 111.

[0072] Returning to the heat transfer attributes of lighting fixture 101, base plate 103 of entire housing 102 forms a mechanism for dissipating thermal energy to the ambient environment, essentially creating a heat transfer mechanism for dissipating heat generated by the LEDs 111 in each lighting strip 109. An aspect of the mounting of LEDs 111 on lighting strip 109 is that there is significant physical contact between the bottom surface of lighting strip 109 and base plate 103 which provides robust heat transfer between the lighting strip 109 and base plate 103 and heat produced the LEDs 111 on the lighting strip 109 is effectively conducted to base plate 103 for transfer to the ambient environment. Accordingly, in summary, the housing 102 of lighting fixture 101 acts as a thermal radiating mechanism or device in accordance with this disclosure. To further explain the foregoing, direct physical contact between the portion of lighting strip 109 and base plate 103 generally comprises base member 142 being in significant surface area contact with base plate 103 such that any gap between the inter-contacting surfaces is less than one hundredth of an inch (0.01 inches), and preferably less than about one thousandth of an inch (0.001 inches). This inter-contacting surface engagement is effective in achieving the desired heat transfer from the respective lighting strips 109 to base plate 103. Accordingly, this disclosure contemplates the foregoing-described engagement of each lighting strip 109 with base plate 103 to achieve the desired cooling of LEDs 111. As noted, base member 142 for each lighting strip 109 may be mounted directly to base plate 103 or indirectly to base plate 103 by some intervening structure. Any such intervening structure is desirably connected to base plate 103 so as not to inhibit substantially the heat transfer between base member 142 and base plate 103 of housing 102.

[0073] In order to secure and maintain the substantial surface area contact between each lighting strip 109 and base plate 103 for each of the light emitting sub-assemblies 104, conventional fastening methods may be used to mount the respective lighting strips 109 to the front side 105 of base plate 103. Such conventional fastening methods include, for example, using mechanical fasteners such as screws, bolts or rivets, conductive adhesives, welding, or other known attachment means. In certain embodiments, portions of light emitting sub-assembly 104 may be interconnected using mechanical fasteners that extend below the bottom surface of the sub-assembly 104, such that the bottom surface of the thus-prepared light emitting sub-assembly 104 includes a discontinuous surface. For example, reflector 141 may be attached to lighting strip 109 through a rivet, which extends through respective holes in base member 142 of lighting strip 109 below the bottom thereof creating a protrusion, thereby preventing the bottom surface of lighting strip 109 from providing a smooth surface for direct contact with a separate surface, such as base plate 103. In such embodiments, it is contemplated that a separate mounting bracket may be used to support the lighting strips 109 on base plate 103 so as to maintain effective contact for heat transfer, and such intervening structure should not inhibit heat transfer from the lighting strips 109 to the base plate 103 in accordance with this disclosure. For example, as depicted in FIGS. 4-5, lighting strips 109 may be mounted to a separate mounting stage 148, such as in the form of a u-shaped channel, which is directly mounted to base plate 103. In particular, base plate 103 may include a series of mounting stages 148 as a u-shaped channel that is unitarily formed with base plate 103 or otherwise connected thereto, such as through welding, for providing effective heat transfer therebetween. Mounting stages 148 desirably conduct heat energy effectively and efficiently from lighting strips 109 to the main body of base plate 103.

[0074] Moreover, each lighting strip 109 may further be mounted onto a separate mounting member 143. In particular, each light emitting sub-assembly 104 may further include a mounting member 143 acting as a support plate for mounting base member 142 of lighting strip 109 (including electrically connected LEDs 111) thereto. Mounting member 143 may be formed of any suitable material adapted for providing structural support to lighting strip 109, and is desirably formed of the same material as base member 142 of lighting strip 109, such as an anodized aluminum alloy, having the desirable heat transfer characteristics described previously. Mounting member 143 generally has the same thickness as base member 142, and is desirably of

the same general length as base member **142** and desirably has a width greater than 1.5 times that of base member **142** and, more desirably, a width equal to or greater than two times that of base member **142**. In this manner, any protrusion formed from a fastening member extending through base member **142** will be offset from the attachment between mounting member **143** and stage **148**. Thus, light emitting sub-assembly **104** may be effectively attached to base plate **103** via stage **148** with substantially the entire bottom surface of lighting strip **109** contacting mounting member **143**, and with mounting member **143** effectively contacting the entire upper surface of stage **148**. Accordingly, stage **148** provides a mechanism for offset attachment of light emitting sub-assembly **104** so as to provide for sufficient contact between mounting member **143** and the upper surface of stage **148** for effect thermal transfer.

[0075] In addition, the general shape of stage **148** (shown as a general u-shape) can further provide a mechanism for additional surface area for heat transfer so as to further dissipate heat generated by LEDs **111** through mounting member **143**. In such embodiments, mounting member **143** (including lighting strip **109** attached thereto) may be connected to stage **148** in any known manner. In one particular embodiment as shown in **FIGS. 4** and **10A**, mounting member **143** defines a plurality of spaced grooves **145** formed along one longitudinal end thereof. Each of the grooves **145** is configured to receive a fastening member **147** to mount lighting strip **109** to stage **148** and, thereby, to the front side **105** of base plate **103**. By providing a plurality of grooves in a spaced manner, a plurality of fastening members can be used to mount lighting strip **109**, thereby ensuring proper contact between the bottom surface area of mounting member **143** and stage **148** to provide effective heat transfer therebetween, which is effectively accomplished by limiting the gap between the bottom surface of mounting member **143** and the top surface of stage **148** to less than about 0.01 inches.

[0076] It will be appreciated from, for example, **FIG. 5** that each of the lighting strips **109** is mounted to an individual stages **148** provided on the front side **105** of base plate **103**. By mounting lighting strips **109** to such individual stages **148**, the individual lighting strips **109** can easily be mounted or removed from base plate **103** expediting replacement of a defective and/or damaged lighting strip **109**. Accordingly, in addition to providing effective heat transfer between LED lighting strips **109** to base plate **103**, the foregoing mounting configuration allows for a quick and easy change of LED lighting strips **109**, for example, if one of LED lighting strips **109** is damaged or defective. It is known that in conventional incandescent lighting

fixtures, replacement of a worn out or defective lamp involves mere replacement of the bulb unit. LED lights, however, represent circuit chips that are electrically mounted onto a circuit board. Accordingly, replacement of a worn or defective LED chip involves replacement of the entire LED board. The attachment and mounting configuration contemplated through the various embodiments in this disclosure provides a mechanism for quick and easy replacement of one or more LED lighting strips 109, without requiring significant modification or rebuilding of the lighting fixture. Moreover, by providing multiple strips of LEDs in a single fixture, if one LED light or strip fails, the fixture will still be able to provide light output through the remaining functional lighting strips, albeit at a reduced level, until such time that the malfunctioning lighting strip or individual lighting assembly can be replaced.

[0077] In particular, in order to gain access to the interior of the lighting fixture, 101, transparent cover 106 is removed by removal of clamps 115. Fastening members 147 positioned in grooves 145 can then be loosened and removed using an appropriate tool. Next, the defective or damaged LED lighting strip 109 is removed from front side 105 of base plate 103. Then, electrical connector 149 is disconnected from driver circuit 150. Finally, a new LED lighting strip 109 is supplanted for the defective or damaged LED lighting strip 109. Transparent cover 106 is then reassembled to base plate 103.

[0078] In a variation shown in FIGS. 11A and 11B, lighting strips 109 may be configured to be mounted to stages 148 in a slightly different manner. Lighting strip 109 of FIGS. 11A-11B is identical to that disclosed in previous embodiments, with the exception that “keyhole” shaped openings 156 extend through the surface of lighting strip 109. Such keyhole openings 156 provide a mechanism for attachment of lighting strip 109 to base plate 103 of housing 102. In particular, in such an embodiment, mechanical fasteners, such as screws, may be inserted into keyhole openings 156 and extend through corresponding openings 158 in underlying mounting member 143 to engage a stage 148 on base plate 103. The mechanical engagement is desirably sufficient to enable effective and efficient heat transfer between the lighting strip 109 and base plate 103. The keyhole openings 156 allow lateral adjustment of lighting strip 109 relative to mounting member 143 to allow for proper attachment of a reflector 141 to the lighting strip 109. Moreover, a plurality of spaced fasteners are desirably used so as provide for effective surface contacting engagement between the bottom surface of lighting strip 109 and the top surface of stage 148 on base plate 103 for effective heat transfer therebetween, as discussed previously. It

will be clear that the use of individual stages 148 for mounting the respective lighting strips 109 to base plate 103 may be eliminated such that the lighting strips 109 are mounted directly to base plate 103.

[0079] With reference to FIGS. 12 and 13, and with continuing reference to FIGS. 4-7, lighting fixture 101 includes a power supply 151, driver circuit 150 and computer circuit 160. Power supply 151 is desirably positioned within a housing 153 mounted on rear side 107 of base plate 103. Driver circuit 150 and computer circuit 160 are desirably mounted on front side 105 of base plate 103 beneath transparent cover 106, thereby providing effective protection from the environment. Power supply 151 is electrically coupled to a control board in the form of computer circuit 160 via a wire 155 extending through base plate 103. Computer circuit 160 is, in turn, coupled to a driver circuit board 150. Driver circuit 150 is electrically coupled to each lighting strip 109 via individual electrical connectors 149. Driver circuit 150 divides the power output from a power supply 151 equally among the four lighting strips 109 in the present embodiment. Driver circuit 150 is electrically coupled to and controlled by computer circuit 160 to control operation of the individual lighting strips 109.

[0080] Each individual LED 111 is electrically connected in series on each respective lighting strip 109. Moreover, each respective lighting strip is connected in parallel to driver circuit 150. Such an arrangement provides the driver circuit 150 with the ability to maintain the amperage constant even in the event that one or more LEDs 111 in any of the respective lighting strips 109 should fail. Such an arrangement also prevents an overload of power to any of the lighting strips 109 or other LEDs 111 thereon in the event of such a failure of one or more LEDs, thereby preventing premature burn out and failure of the remaining working LEDs, such as to prior to replacement of and individual lighting strip 109.

[0081] When lighting fixture 101 is used as a street lighting fixture, as an example, a light detector is desirably provided in association with the light fixture 101. In one exemplary form, the light detector comprises a photoelectric eye 170 that is mounted on housing 153 of power supply 151 and is electrically coupled to computer circuit 160. Photoelectric eye 170 is provided to turn on the LEDs 111 when surrounding ambient light has dropped below a predetermined level as will be described hereinafter. An exemplary embodiment of computer circuit 160 is illustrated in FIG. 13. Computer circuit 160 utilizes a microcontroller chip 1300 as the primary means for controlling the light output by lighting fixture 101. However, this is not to be

construed as limiting as the use of other circuitry configurations, microprocessors, and microcontrollers may be substituted. Likewise an exemplary embodiment of driver circuit **150** is illustrated in **FIG. 12**.

[0082] As may be inferred from the foregoing, computer circuit **160** is provided for automated control of various functions of lighting fixture **101**. For example, computer circuit **160** may include circuitry for controlling a remote camera (not shown) that may be provided with lighting fixture **101**. Additionally, computer circuit **160** may include circuitry for interaction with a separate wireless device that is adapted for programming the control board for operation of the lighting fixture. For example, computer circuit **160** may include circuitry to communicate with a separate remote control device via two-way radio-frequency (RF) so as to program the lighting fixture **101**. Other communication vehicles for communication with computer circuit **160**, such as via infrared (IR) light, are intended to be encompassed by this disclosure. Moreover, lighting fixture **101** may include a solar-power capability for powering computer circuit **160** and lighting strips **109**.

[0083] Desirably, computer circuit **160** works in conjunction with photoelectric eye **170** to automatically turn exemplary street lighting fixture **101** on and off based on ambient light conditions, and to adjust the lighting at predetermined time periods. With reference to **FIG. 14**, the on-off and power adjustment features of lighting fixture **101** are schematically illustrated. First, power is supplied to computer circuit **160** thereby initializing the computer circuit **160** at block **1400**. Next, at block **1410**, photoelectric eye **170** looks for diminished ambient light, signaling, for example, the arrival of dusk, if the lighting fixture **101** is intended for use as a street lamp, and this information is provided as an input to computer circuit **160**. Once sufficiently diminished light (such as at dusk), as detected by photoelectric eye **170**, is determined by computer circuit **160**, the computer circuit **160** turns lighting fixture **101** on at full power at block **1420**.

[0084] As an option, at blocks **1430** and **1440**, after a predetermined period of time, the power of the light output may be reduced by a predetermined amount for further energy conservation, for example, in the middle of the night when fewer people are likely to be in the vicinity of street lighting fixture **101**. For example, if computer circuit **160** turns on the lighting fixture **101** at, for example, dusk, a counter in the computer circuit **160** may begin counting. After a preprogrammed period of time has elapsed, such as six hours, the computer circuit **160** may

reduce power to the LEDs 111 to save power. As another alternative, computer circuit 160 may be programmed to turn on the lighting fixture 109 at a scheduled time, such as at 6:00 PM. Then, after a preprogrammed period of time has elapsed, power to the LEDs is reduced by a certain amount, thereby providing for reduced light output and reducing power consumption. The amount of power reduction may be programmed in advance, for example, by reducing power consumption to about 25% to 75% of the full power output at selected point in time after the counting has begun. With the present lighting fixture 101, it has been discovered that the power reduction to light output ratio is not a 1:1 ratio, such that, for example, a 50% reduction in power output continues to provide for an overall light output of the lighting fixture of about 75% of the normal light output, thereby resulting in only about a 25% reduction in light output with a 50% reduction in power.

[0085] Thereafter, at block 1450, photoelectric eye 170 looks for increased ambient light signaling, for example, the arrival of dawn. Once sufficient ambient light (such as at dawn) is detected by photoelectric eye 170 at block 1460, LEDs 111 of lighting fixture 101 are turned off by the computer circuit 160 and the process returns to block 1410. In accordance with the foregoing, by reducing power by 25% to 75% after lighting fixture 101 has been on for a predetermined period of time, a savings of up to 90% of power over a current mercury vapor streetlight or high pressure sodium streetlight can be achieved. Additionally, this process extends the life of LEDs 111.

[0086] In addition, the controller of computer circuit 160 also provides a safety start feature. The safety start feature allows the LEDs 111 to turn on slowly over a predetermined time interval. The LEDs 111 start at an off position. Once the computer circuit 160 sends a signal to turn on the LEDs 111, the LEDs are turned on at a low power and the power is gradually increased over a predetermined period, such as a 2 to 3 second interval, until full power is reached. The purpose of this safety start feature is to protect the human eye from sudden brightness created when the LEDs 111 are turned on at full power. This feature also prevents “welder’s flash” when the LEDs 111 are turned on.

[0087] With reference to FIG. 15, and continuing reference to FIGS. 4-7, an exemplary use of lighting fixture 101 is as a streetlight 180. Lighting fixture 101 is configured to be mounted by pole mounting member 119 to a pole 181 at a height sufficient to provide adequate lighting to a street 183 or surface below. For instance, if lighting fixture 101 is mounted on a pole at a height

of about 30 feet above a street, lighting fixture **101** provides a lighting pattern that extends about 50 feet from the base of the pole and about 65 feet on either side of the pole. It is further contemplated that lighting fixture **101** can be adapted for other attachment mechanisms, such as a rectangular pole, a surface mount, etc.

[0088] In the foregoing use of lighting fixture **101** as a streetlight, the inventors have determined that for providing effective light output at a conventional distance for a streetlight (such as about 25-40 feet from the ground surface), four lighting strips **109** including 8 separate LED chips mounted thereon is particularly useful, with each LED chip rated at 80-120 lumens. For example, the light output with such an arrangement having individual LED chips rated at 107 lumens each represents about 2.5 foot-candles at a distance of 32 feet without any reflectors attached to the lighting strips. When the reflectors are attached to the lighting strips, a similar arrangement with individual LED chips rated at 107 lumens each represents about 6.7 foot-candles at a distance of 32 feet. Accordingly, the reflector arrangement significantly amplifies and intensifies the light output for the lighting fixture **101**.

[0089] Lighting fixture **101** may be assembled by the following general and non-limiting procedure. First, driver circuit **150** and control circuit **160** are mounted to base plate **103** and electrically interconnected. Then, lighting strips **109** are mounted to base plate **103** via the individual mounting members **143** and/or stages **148** and using suitable fastening means such as mechanical fasteners and the like. Next, each lighting strip **109** is electrically coupled to driver circuit **150** by individual electrical connectors **149**. Next, individual reflectors **141** are mounted onto lighting strips **109** as discussed hereinafter with reference to **FIG. 16**. Transparent cover **106** may then be positioned over base plate **103** and secured thereto with spring clips **115**. Pole mounting member **119** is mounted to rear side **107** of base plate **103**, and is adapted to cooperate with pole **181** as shown in **FIG. 15**. Power supply **151** is installed within housing **153** and is electrically connected to control circuit **160** through base plate **103**, and light detector **170** is attached to housing **153** and electrically connected to control circuit **160**.

[0090] With reference to **FIG. 16**, a cross-sectional view of an exemplary lighting strip **109** having LEDs **111** mounted thereon and a reflector assembly **141** extending therefrom is illustrated. In this exemplary embodiment, the reflector assembly includes a base member **184** and a pair of desirably integral side walls **185** extend from opposite sides of the base member **184** at an angle. Each LED **111** includes a light emitting portion **187**. Reflector assembly **141** is

mounted to lighting strip 109 such that a bottom edge of each side wall 185 extends from a bottom portion of light emitting portion 187 of LED 111. Each side wall 185 of reflector assembly 141 includes a first facet or first portion 186 defining a first angle θ with the base portion 184 of reflector 141 adjacent the bottom portion of light emitting portion 187 of LED 111, and a second facet or second portion 188 that defines a second angle Φ with first portion 186. The combination of these angles creates facets in side walls 185, thereby creating a multi-faceted side wall which amplifies the light provided by LEDs 111. It is contemplated that the multiple facets reflect the light that is output from the LEDs back toward other facets of the walls of reflector 141, thereby amplifying the light. However, this is not to be construed as limiting as this definition of a multi-faceted reflector may also include reflectors having a parabolic shape. In addition, the arrangement of reflector 141 extending from base member 184 allows all of the light produced by LEDs 111 to be reflected and amplified by reflector 141. The angles in side walls 185 of reflector 141 along with the arrangement of reflector 141 such that it extends from the bottom portion of light emitting portion 187 of LED 111 allows lighting fixture 101 to produce useable light while using a small number of LEDs 111 (e.g., the exemplary embodiment illustrated in FIG. 4 has eight LEDs 111 per lighting strip 109 and four lighting strips 109 for a total of thirty-two LEDs 111).

[0091] With reference to FIGS. 17 through 21, exemplary alternative reflectors for use with lighting fixture 1 and lighting fixture 101 are illustrated. FIG. 17 provides a cross-sectional view of a first reflector, generally denoted as reference numeral 200 that is also desirably used when lighting fixture 1 or lighting fixture 101 is used as a streetlight but provides a different effect from the previously discussed embodiment. Reflector 200 includes a base portion or member 201 with a pair of integral side walls 203 extending from opposite sides thereof at an angle. Base member 201 includes a plurality of holes 205 used to fasten reflector 200 to lighting strip 9 or lighting strip 109 using any suitable fastening means. Base member 201 also defines a plurality of gaps or openings 207 formed therein. Base member 201 of reflector 200 is mounted over one of the lighting strips 9 or lighting strips 109 such that surface-mount LEDs 11 or LEDs 111 positioned on lighting strips 9 or strips 109 extend through gaps 207 and side walls 203 of reflector 200 extend at an angle from lighting strip 9 or strip 109.

[0092] Each of side walls 203 of reflector 200 has several angles therein as shown in FIG. 17. Each side wall 203 of reflector 200 includes a first portion 209 that extends from base member

201 at a first angle θ of, for example, about 115° to about 130° , such as about 123° . Side walls **203** further include a second portion **211** that defines a second angle Φ with the first portion **209**; this angle is approximately between 160° to about 180° , such as about 170° . Finally, side walls **203**, in the present configuration, include a third portion **213** that defines a third angle α with the second portion **211**; this angle is again about 160° to about 180° , such as about 170° . This configuration creates an overall angle of about 40° between ends **215** of each of side walls **203** of reflector **200**. The combination of these angles creates facets in the reflector which amplify the light provided by LEDs **11** or LEDs **111**. In addition, side walls **203** of reflector assemblies **200** amplifies the light from each of the plurality of strips **9** or strips **109** of LEDs **11** or LEDs **111** and spreads the light into what appears to be a wash or bath of light.

[0093] Reflector **200** is desirably constructed from a sheet of silver-coated aluminum with a protective polymer coating. Such a material has a reflectivity that is from about 95% to 98% reflective. Additionally, the polymer coating prevents corrosion on reflector **200**. However, the use of silver-coated aluminum reflectors is not to be construed as limiting as any highly-reflective material may be used to construct the reflector assemblies. Once the sheet of silver-coated aluminum is obtained, each reflector **200** is cut from the sheet desirably using a laser thereby forming a reflector blank, denoted generally as reference numeral **217**. Reflector blank **217** is a flat sheet that that shaped to form side walls **203** extending from base member **201**, and a plurality of holes **205** and a plurality of gaps **207** are cut in the reflector blank **217** using, for example, a laser. Reflector blank **217** is then bent into the shape discussed hereinabove using a brake press.

[0094] With reference to **FIG. 19**, another possible configuration for a reflector is shown. This reflector **300** includes a base portion or member **301** with a pair of integral side walls **303** extending from opposite sides thereof at an angle. Each of side walls **303** of reflector **300** has several angles therein as shown in **FIG. 19**. Each side wall **303** of reflector **300** includes a first portion **305** that extends from lighting strip **9** or strip **109** at an initial or first angle θ of, for example, about 115° to about 130° , such as about 121° . Side walls **305** of reflector **300** further include a second portion **307** that defines a second angle Φ with the first portion **305**; this angle is approximately between 160° to about 180° , such as about 170° . This configuration creates an overall angle of about 60° between ends **309** of each side wall **303** of reflector **300**.

[0095] The combination of these angles creates facets in side walls **303** of reflector **300** which amplify the light provided by LEDs **11** or LEDs **111**. In addition, side walls **303** of reflector **300** direct the light from each of the plurality of lighting strips **9** of LEDs **11** or strips **109** of LEDs **111** and focus the light into what outwardly appears to be a uniform beam of light. Reflector assemblies **300** are constructed from silver-coated aluminum with a protective polymer coating as described previously.

[0096] With reference to **FIGS. 20** and **21**, yet another possible configuration for a reflector is shown and is denoted generally as reference numeral **400**. This reflector **400** includes a base portion or member **401** with a pair of integral side walls **403** extending from opposite sides thereof at an angle. Each side wall **403** of reflector **400** has several angles therein as shown in **FIG. 20**. Each side wall **403** of reflector **400** includes a first portion **405** that extends from base member **401** at a first angle θ of, for example, about 110° to about 120° , such as about 115° . Side walls **403** further include a second portion **407** that defines a second angle Φ with the first portion **405**; this angle is, for example, about 170° to about 180° , such as about 177° . The combination of the foregoing angles creates facets in the reflector **400** that amplify the light provided by LEDs **11** or LEDs **111**. In addition, side walls **403** of reflector assemblies **400** direct the light from each of the plurality of lighting strips **9** of LEDs **11** or strips **109** of LEDs **111** and focus the light into what outwardly appears to be a uniform beam of light. Reflector assemblies **400** are also constructed from silver-coated aluminum with a protective polymer coating in like manner to previous embodiments.

[0097] While **FIGS. 17-21** illustrate possible configurations of the reflector assemblies, this is not to be construed as limiting the present invention as other suitable configurations may be constructed. Various other types of reflectors for use in LED lighting fixtures have been envisioned. For instance, the reflectors may be of a rounded-type with multiple facet angles.

[0098] With reference to **FIGS. 22-24**, a lighting fixture **501**, for use as office lighting, includes a base plate **503** having a front side **505** and a rear side **507** defined by a periphery **512**. Three strips **509** are mounted on front side **505** of base plate **503**. Each strip **509** includes a plurality of surface-mount LEDs **511** mounted thereto. Base plate **503** functions as a heat sink for LEDs **511** and is oversized compared to lighting strips **509** to ensure that LEDs **511** stay cool; base plate **503** has the same heat cooling attributes of base plate **103** discussed previously and the previous discussion of base plate **103** is equally applicable to base plate **503**. Base plate

503 provides surface area for cooling LEDs **511** which extends LED life. Lighting fixture **500** is typically intended for indoor use. Accordingly, a sealed cover is not required. A housing **521** is mounted to front side **501** of base plate **503**, which also houses a power supply and driver circuitry and a lens cover (not shown). The housing itself is used for installing the fixture in office ceilings and the like.

[0099] With reference to **FIG. 25**, and with continuing reference to **FIGS. 22-24**, reflectors **513** is mounted to front side **505** of base plate **503** such that side walls **517** extend from each of the lighting strips **509**. Each reflector **513** includes a base portion or member **515** with a pair of integral side walls **517** extending from opposite sides thereof at an angle. Base member **515** of reflector **513** is mounted on front side **505** of base plate **503** over one of the strips **509** such that surface-mount LEDs **511** positioned on strips **509** extend through gaps or openings formed in base **515**, and side walls **517** of reflector **513** extend at an angle from each of the lighting strips **519**. Each side wall **517** of reflector **513** extends from base member **515** at an angle θ of, for example, about 115° . This configuration creates an overall angle of about, for example, 90° between ends **519** of each side wall **517** of reflector **513**. Side walls **517** of reflector **513** amplify the light provided by LEDs **511**. In addition, side walls **517** of reflector **513** direct the light from each of the three strips **509** of LEDs **511** and focus the light into what appears to be a uniform beam of light. Reflectors **513** are desirably constructed from silver-coated aluminum with a protective polymer coating in like manner to previous embodiments.

[00100] Although the invention has been described in detail for the purpose of illustration based on what is currently considered to be the most practical and preferred embodiments, it is to be understood that such detail is solely for that purpose and that the invention is not limited to the disclosed embodiments, but, on the contrary, is intended to cover modifications and equivalent arrangements. Furthermore, it is to be understood that this disclosure contemplates that, to the extent possible, one or more features of any embodiment can be combined with one or more features of any other embodiment.

THE INVENTION CLAIMED IS

1. A light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a substantially planar surface of the lighting strip;

a first multi-faceted side wall reflector extending along the lighting arrangement adjacent a first side of the lighting strip at an angle such that the first multi-faceted side wall reflector extends along an entire length of the lighting strip and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs); and

a second multi-faceted side wall reflector extending along the lighting arrangement adjacent a second, opposite side of the lighting strip at an angle such that the second multi-faceted side wall reflector extends along an entire length of the lighting strip away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs),

wherein the first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

2. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 1, wherein the light emitting diodes (LEDs) are arranged in a linear row along the length of the lighting strip.

3. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 1, wherein the first and second multi-faceted side wall reflectors extend away from a base member defining a plurality of openings receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs), respectively.

4. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 3, wherein the first and second multi-faceted side wall reflectors are formed integral with the base member.

5. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 3, wherein the first and second multi-faceted side wall reflectors comprise multi-angle side walls.

6. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 1, wherein the first and second multi-faceted side wall reflectors extend away from a base member and are symmetrical about an axis of symmetry that runs through a center of the base member.

7. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 6, wherein the first and second multi-faceted side wall reflectors each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion.

8. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 7, wherein the first angle and second angle are different angles.

9. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 1, wherein the first and second multi-faceted side wall reflectors comprise multi-angle side walls.

10. A light emitting diode (LED) lighting fixture, comprising:

a base plate having a front side and a rear side;

a plurality of lighting strips mounted on the front side of the base plate, each of the lighting strips comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; and

driver circuitry and control circuitry electrically coupled to the plurality of light emitting diodes (LEDs) for providing power to the light emitting diodes (LEDs),

wherein each of the lighting strips includes:

a first multi-faceted side wall reflector extending from a first side of the lighting strip at an angle such that the first multi-faceted side wall reflector extends along an entire length of the lighting strip and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs);

a second multi-faceted side wall reflector extending from a second, opposite side of the lighting strip at an angle such that the second multi-faceted side wall reflector extends along an entire length of the lighting strip away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs), and

wherein the first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

11. The light emitting diode (LED) lighting fixture as claimed in Claim 10, wherein the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate.

12. The light emitting diode (LED) lighting fixture as claimed in Claim 11, wherein the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

13. The light emitting diode (LED) lighting fixture as claimed in Claim 10, wherein each light emitting diode (LED) of each lighting strip is electrically connected in series, and each lighting strip is electrically connected to the driver circuitry in parallel.

14. The light emitting diode (LED) lighting fixture as claimed in Claim 10, wherein each plurality of lighting strips is individually removably mounted to the base plate, so as to permit individual replacement of each lighting strip irrespective of the other lighting strips.

15. The light emitting diode (LED) lighting fixture as claimed in Claim 10, wherein the light emitting diodes (LEDs) in each of the lighting strips are arranged in a linear row along the length of the lighting strip.

16. A light emitting diode (LED) lighting fixture, comprising:

a substantially planar base plate having a front side and a rear side;

a plurality of lighting strips connected to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate; and

a reflector mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam,

wherein physical contact between the bottom surface of the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of light emitting diodes (LEDs) on the lighting strip to be conducted to the base plate for transfer to the ambient environment.

17. The light emitting diode (LED) lighting fixture as claimed in Claim 16, further comprising heat transfer fins on at least one side of the base plate to conduct heat to the ambient environment.

18. The light emitting diode (LED) lighting fixture as claimed in Claim 16, wherein the base plate is formed of aluminum.

19. The light emitting diode (LED) lighting fixture as claimed in Claim 18, wherein the base plate is formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture.

20. The light emitting diode (LED) lighting fixture as claimed in Claim 16, wherein inter-contacting surfaces between the lighting strips and base plate are separated by less than about one hundredth of an inch (0.01 inches).

ABSTRACT OF THE INVENTION

A light emitting diode (LED) lighting arrangement for a lighting fixture includes: a lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; a first multi-faceted side wall reflector extending from a first side of the lighting strip at an angle such that the first multi-faceted side wall reflector extends along an entire length of the lighting strip and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs); and a second multi-faceted side wall reflector extending from a second, opposite side of the lighting strip at an angle such that the second multi-faceted side wall reflector extends along an entire length of the lighting strip away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs). The first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5641-123371
		Application Number	
Title of Invention	Lighting Fixture		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	James	J.	Wassel			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Fombell	State/Province	PA	Country of Residence ⁱ	US	
Mailing Address of Inventor:						
Address 1		1595 N. Tower Road				
Address 2						
City	Fombell	State/Province	PA			
Postal Code	16123	Country ⁱ	US			
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.						
Add						

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	28289		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	Lighting Fixture		
Attorney Docket Number	5641-123371	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	24	Suggested Figure for Publication (if any)	10B

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5641-123371
		Application Number	
Title of Invention	Lighting Fixture		

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.											
<table border="1"> <tr> <td>Please Select One:</td> <td>☒ Customer Number</td> <td>☐ US Patent Practitioner</td> <td>☐ Limited Recognition (37 CFR 11.9)</td> </tr> <tr> <td>Customer Number</td> <td colspan="3">28289</td> </tr> </table>				Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)	Customer Number	28289		
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)								
Customer Number	28289										

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.			
Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	12341798	2008-12-22
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			Add

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).			
			Remove
Application Number	Country i	Filing Date (YYYY-MM-DD)	Priority Claimed
			☐ Yes ☒ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5641-123371
		Application Number	
Title of Invention	Lighting Fixture		

Authorization to Permit Access:

☐	Authorization to Permit Access to the Instant Application by the Participating Offices
If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application. In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application. In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.	
Applicant 1	
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.	
Remove	
☒ Assignee	☐ Legal Representative under 35 U.S.C. 117
☐ Person to whom the inventor is obligated to assign.	☐ Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:	
Name of the Deceased or Legally Incapacitated Inventor :	
If the Assignee is an Organization check here. ☒	
Organization Name	Appalachian Lighting Systems, Inc.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5641-123371
		Application Number	
Title of Invention	Lighting Fixture		

Mailing Address Information:			
Address 1		101 Randolph Street	
Address 2			
City	Ellwood City	State/Province	PA
Country i	US	Postal Code	16117
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Signature:				Remove	
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/Kirk M. Miles/			Date (YYYY-MM-DD)	2012-12-03
First Name	Kirk M.	Last Name	Miles	Registration Number	37891
Additional Signature may be generated within this form by selecting the Add button. Add					

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

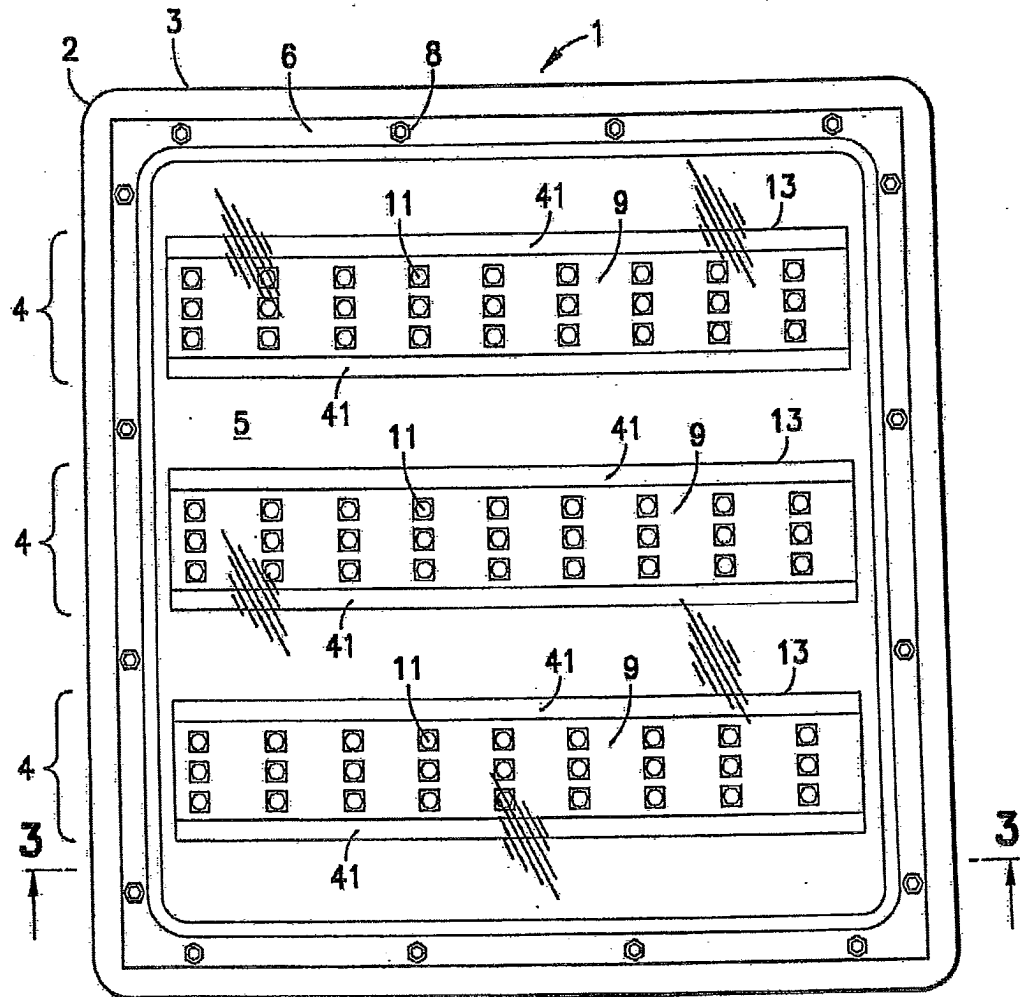


FIG. 1

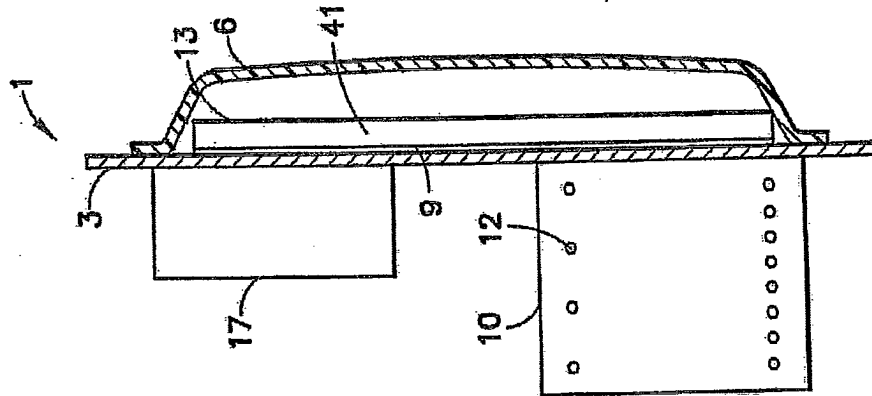


FIG.3

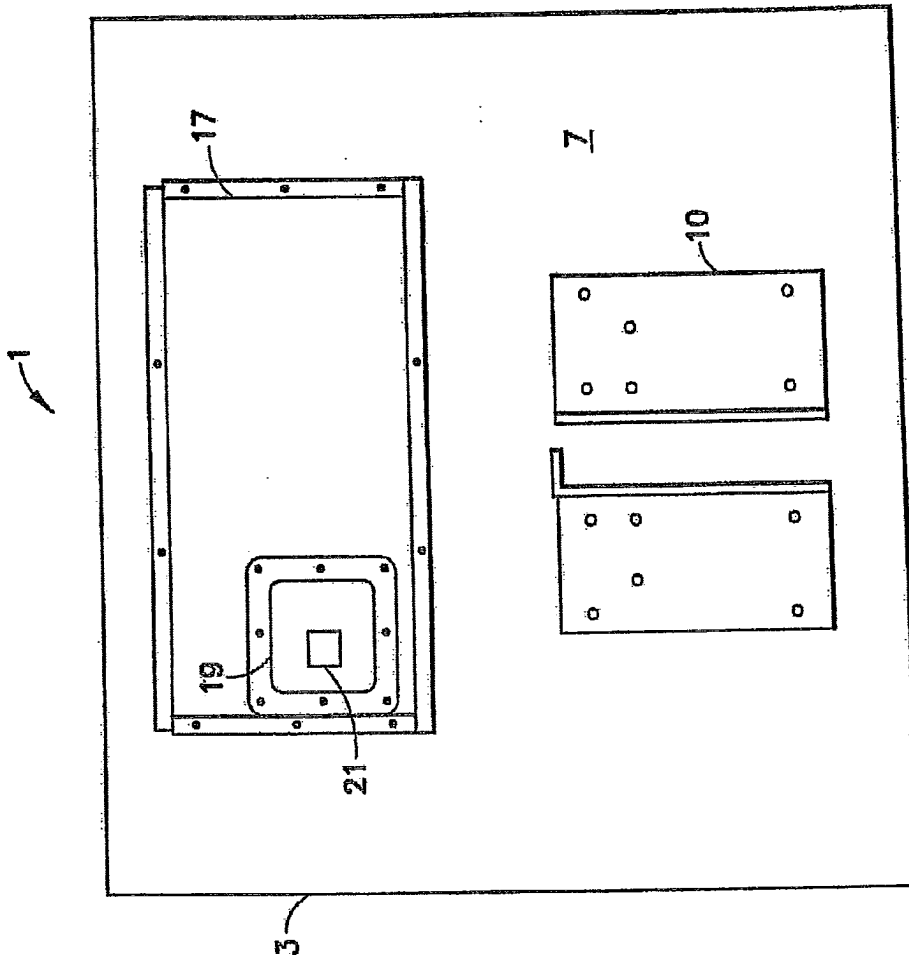


FIG.2

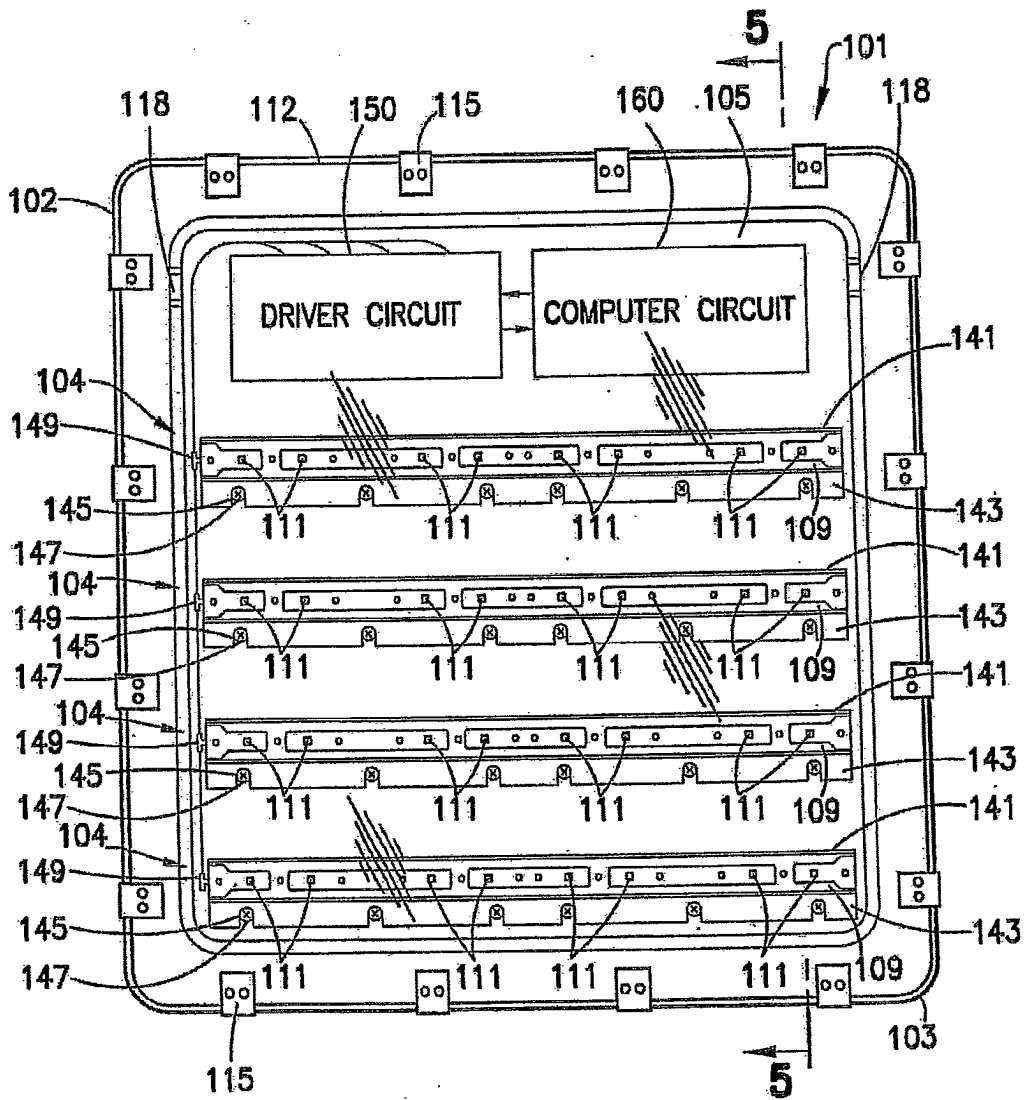
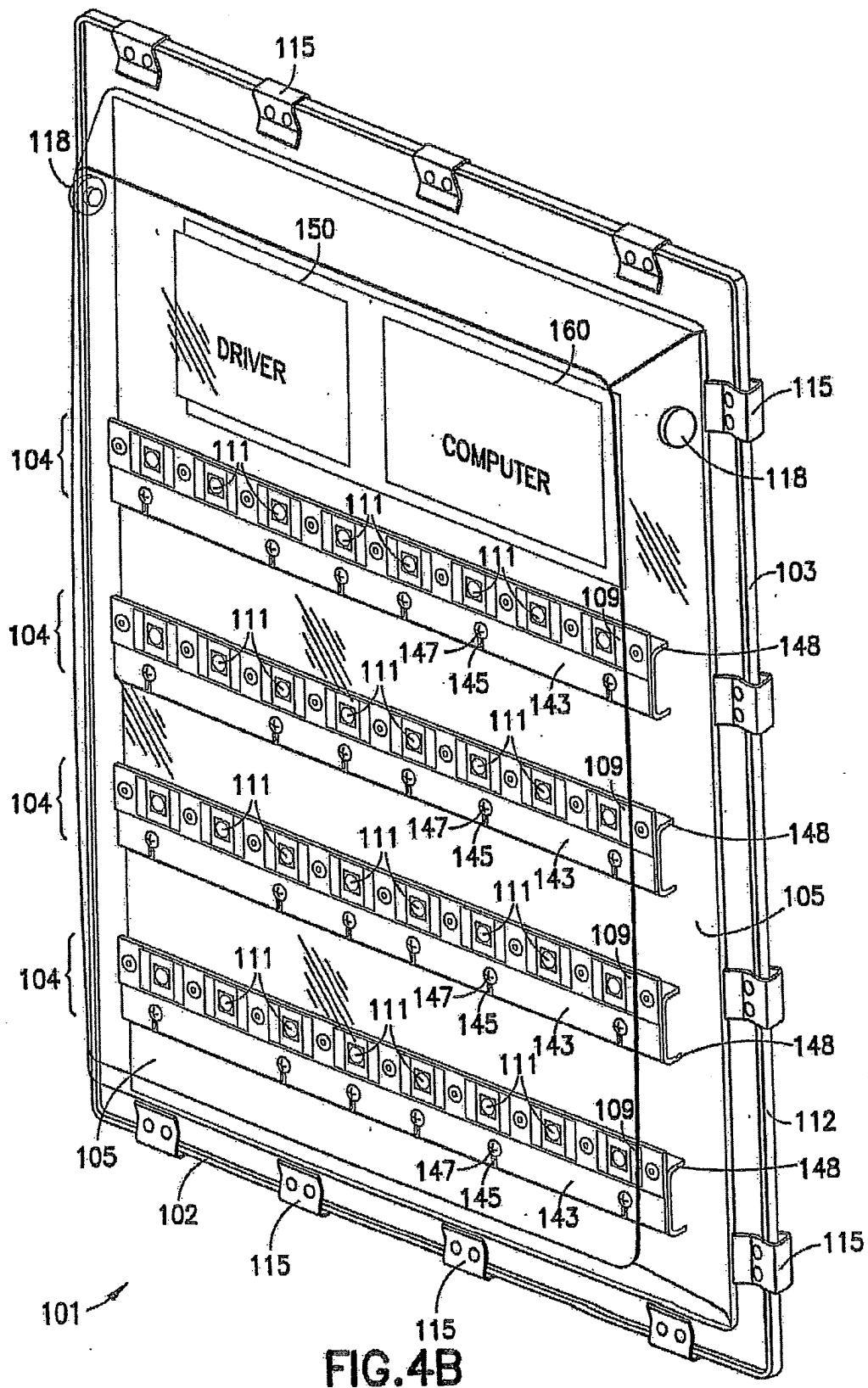


FIG. 4A



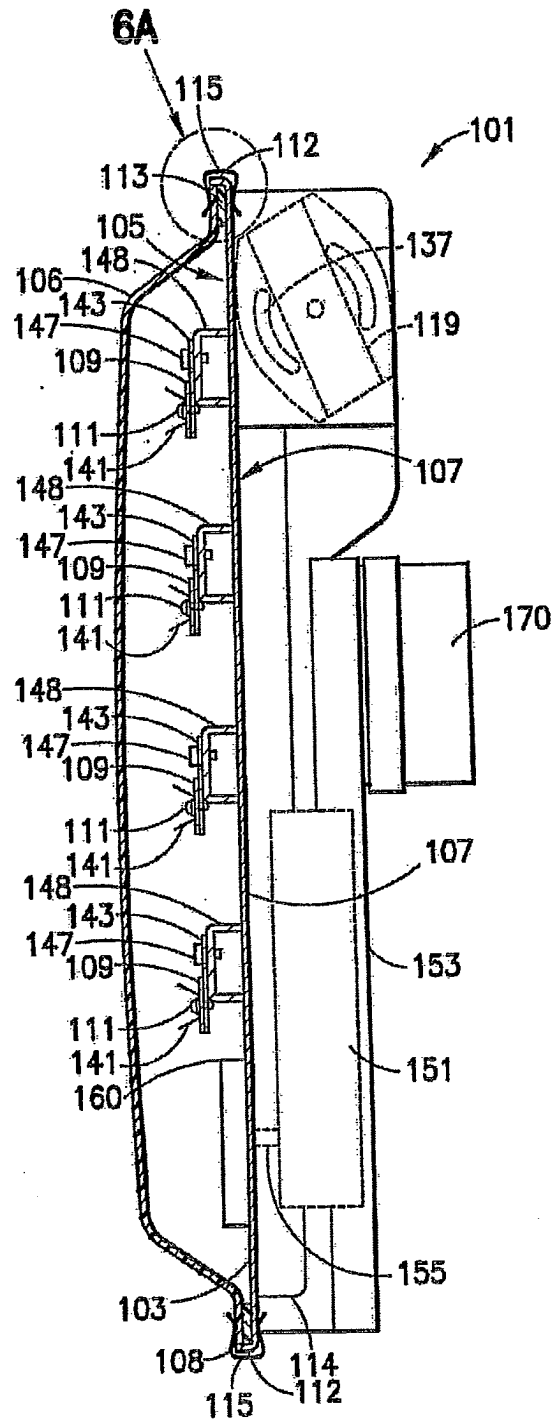


FIG.5

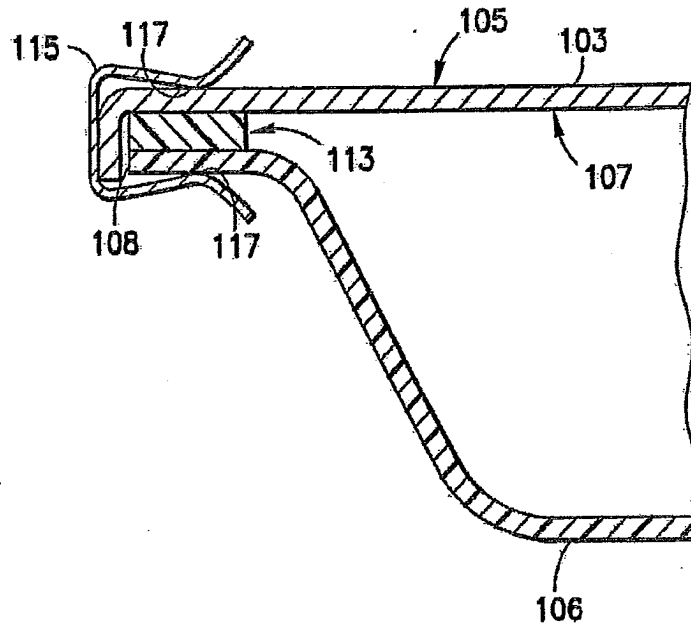


FIG. 6A

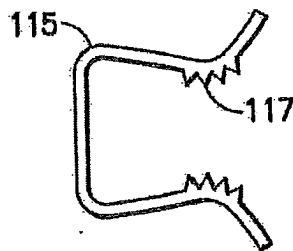


FIG. 6B

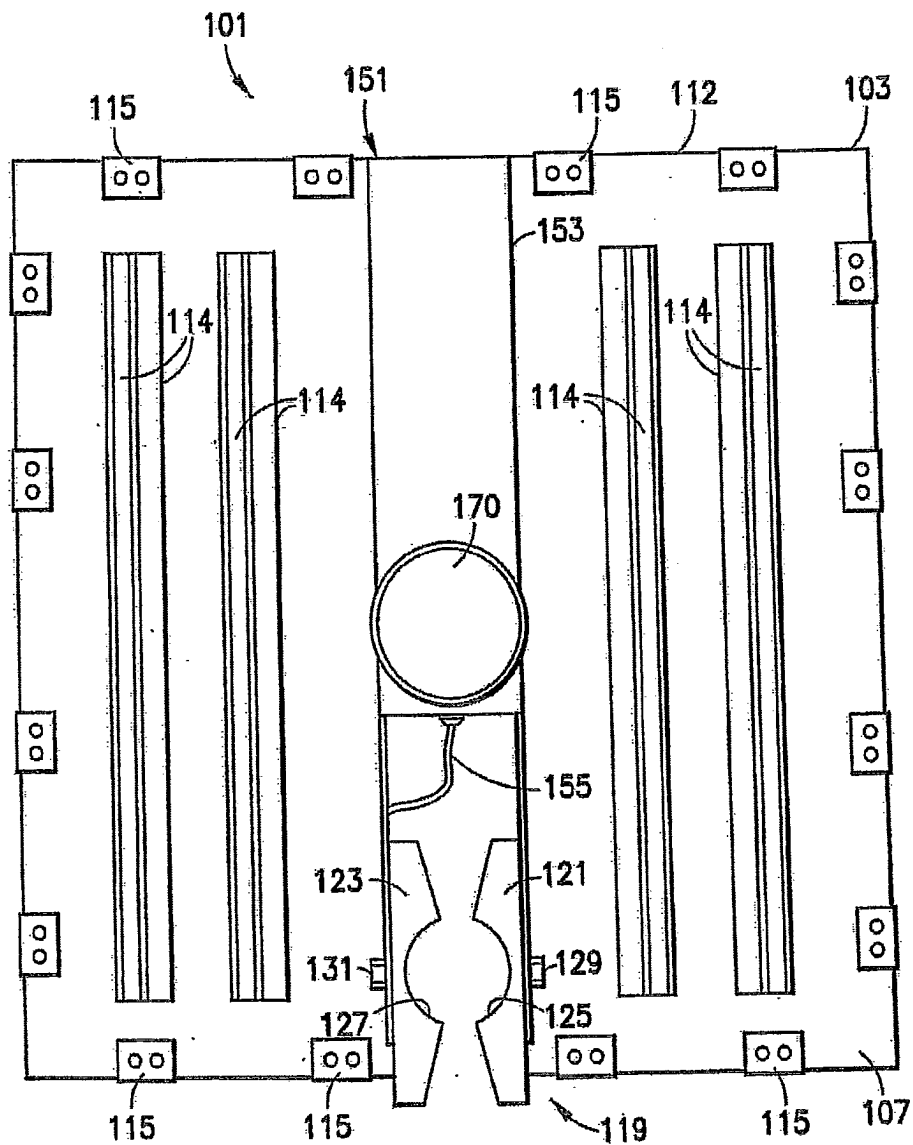


FIG. 7A

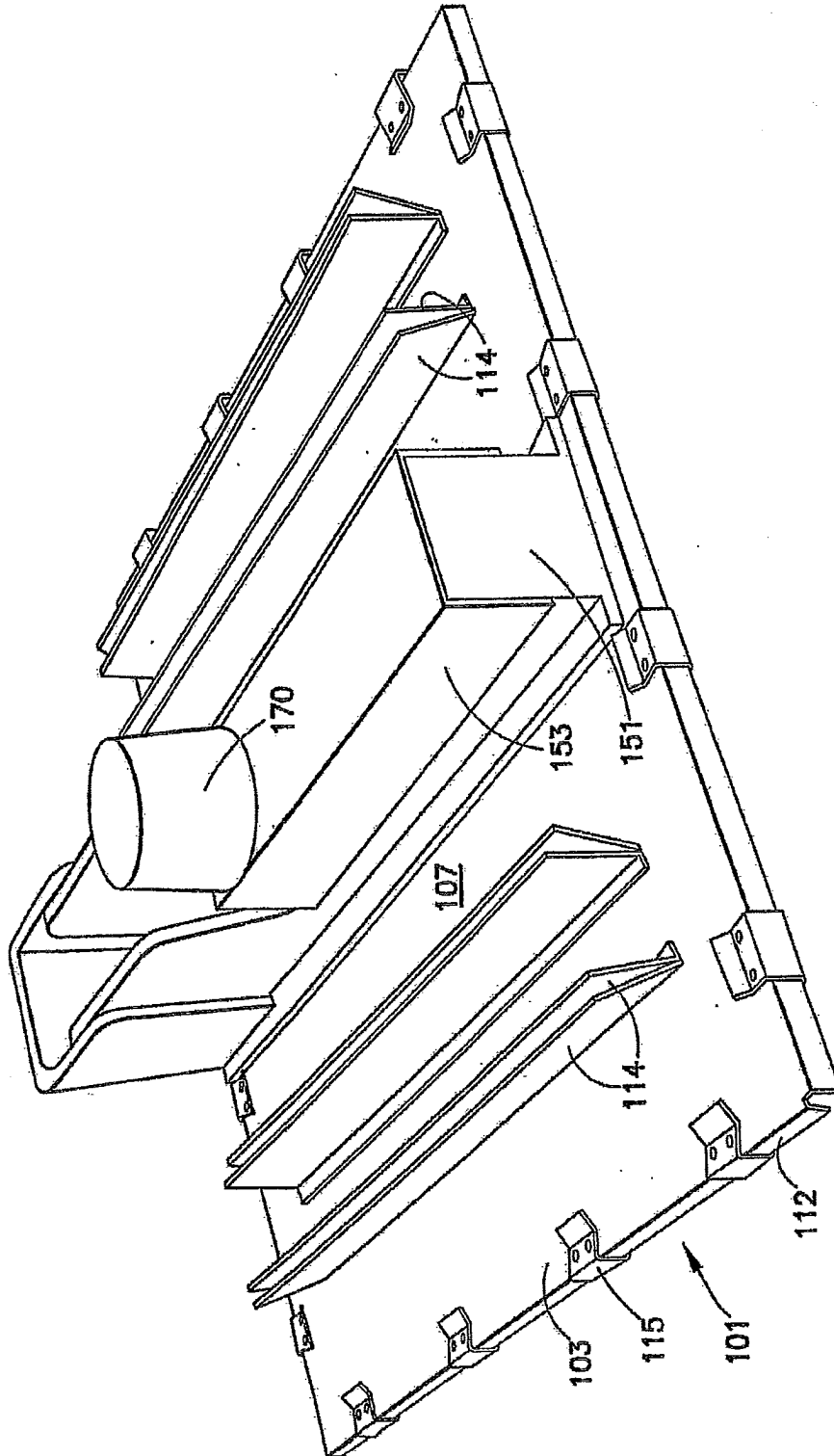


FIG.7B

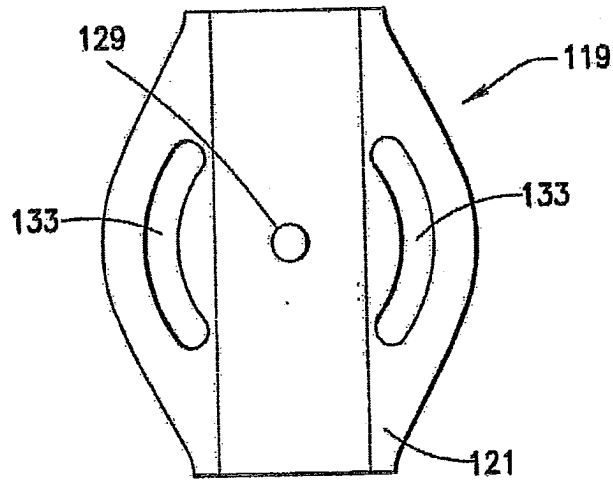


FIG. 8

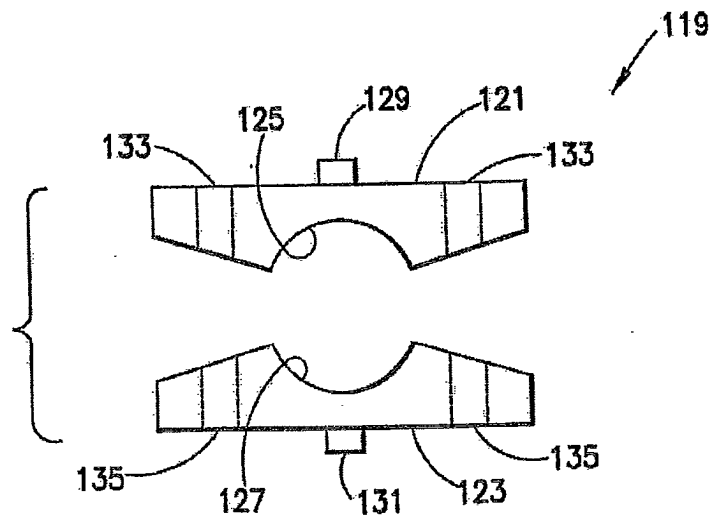


FIG. 9

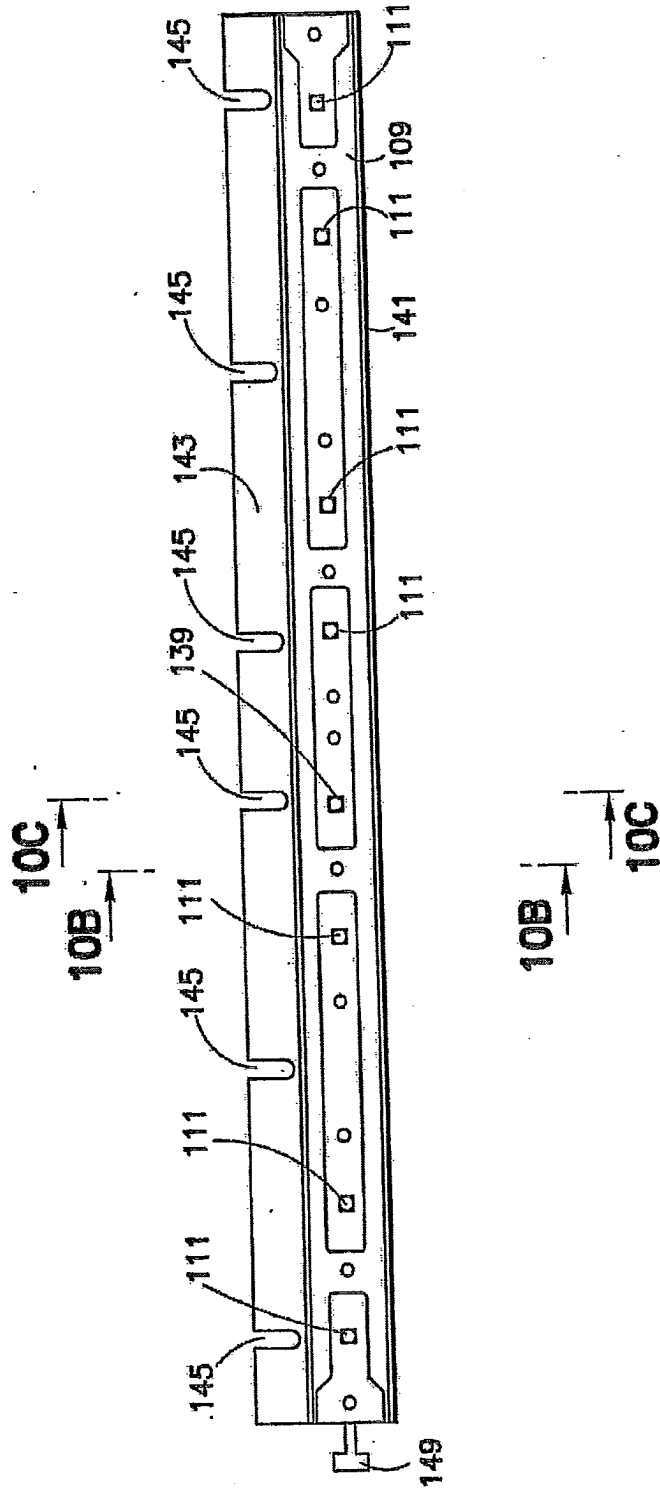


FIG. 10A

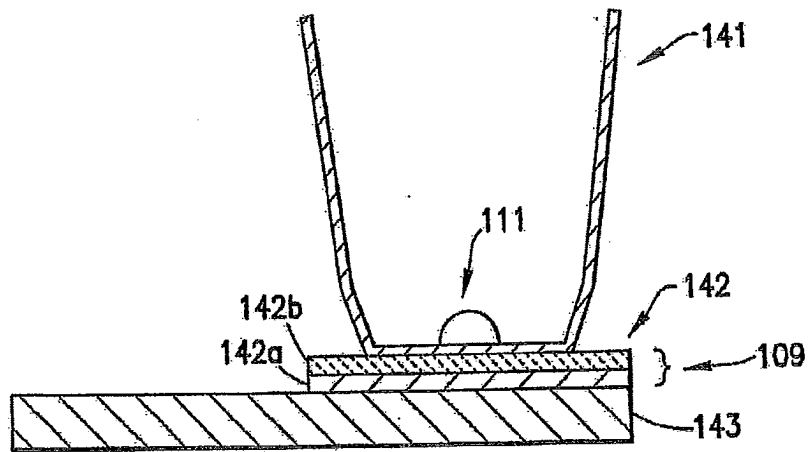


FIG.10B

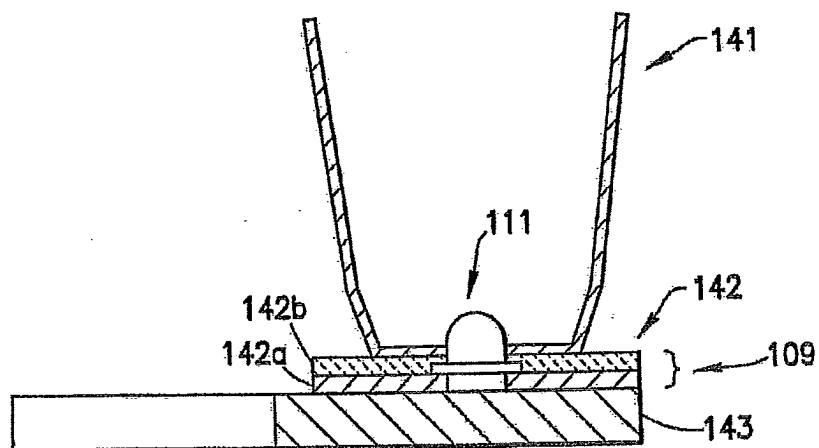
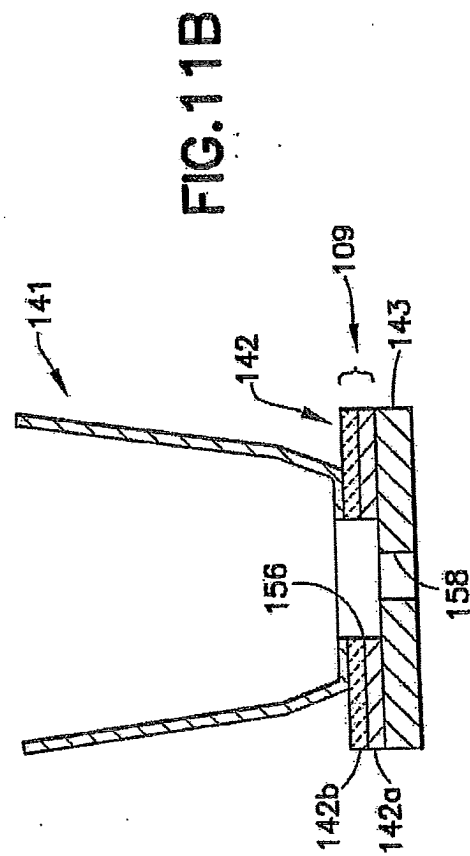
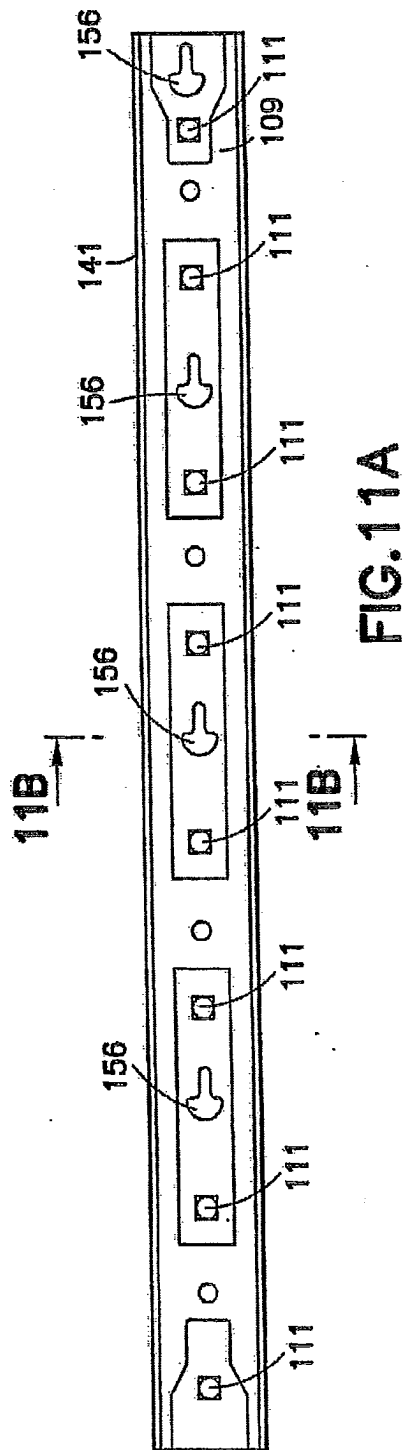
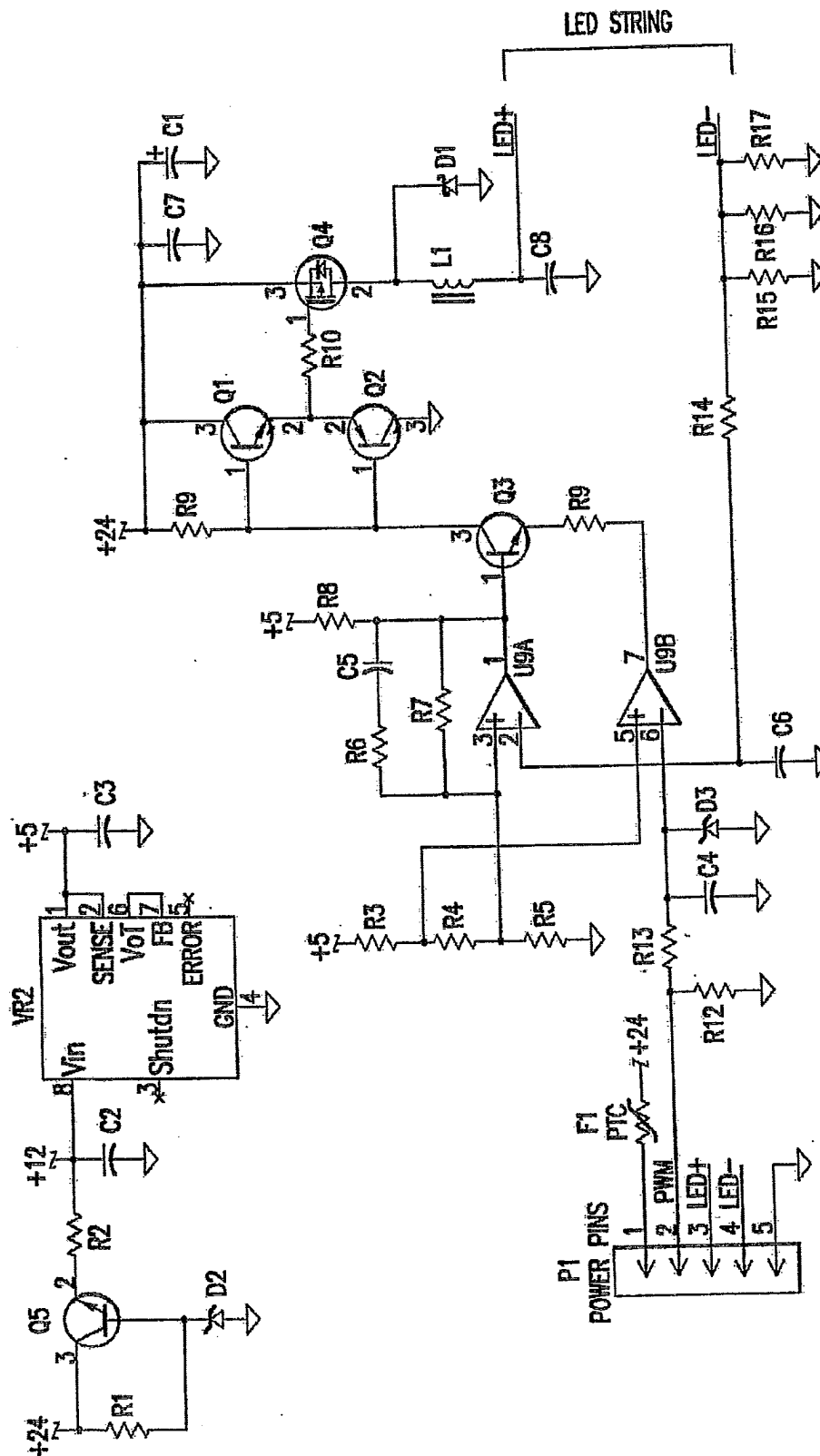
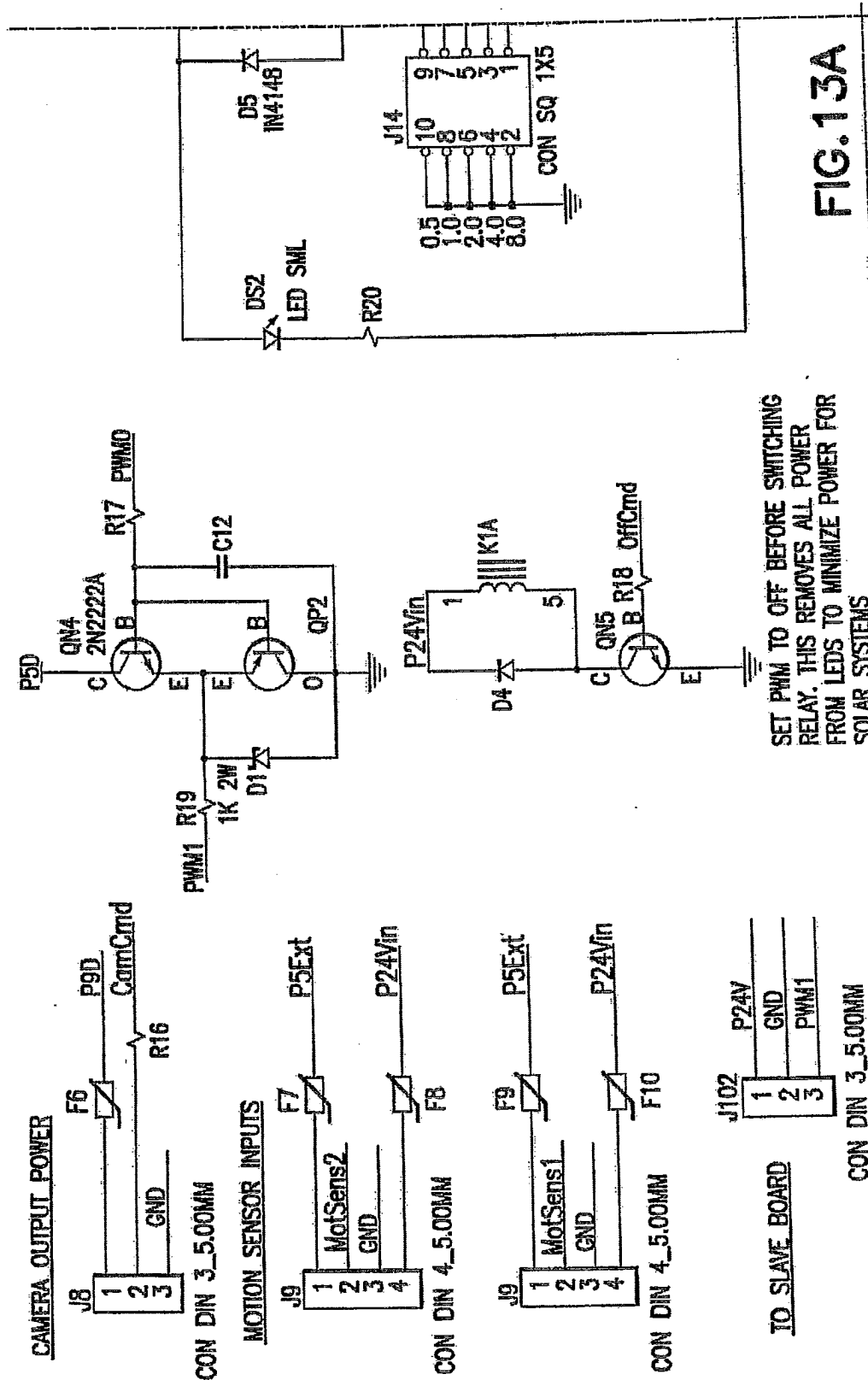


FIG.10C





216



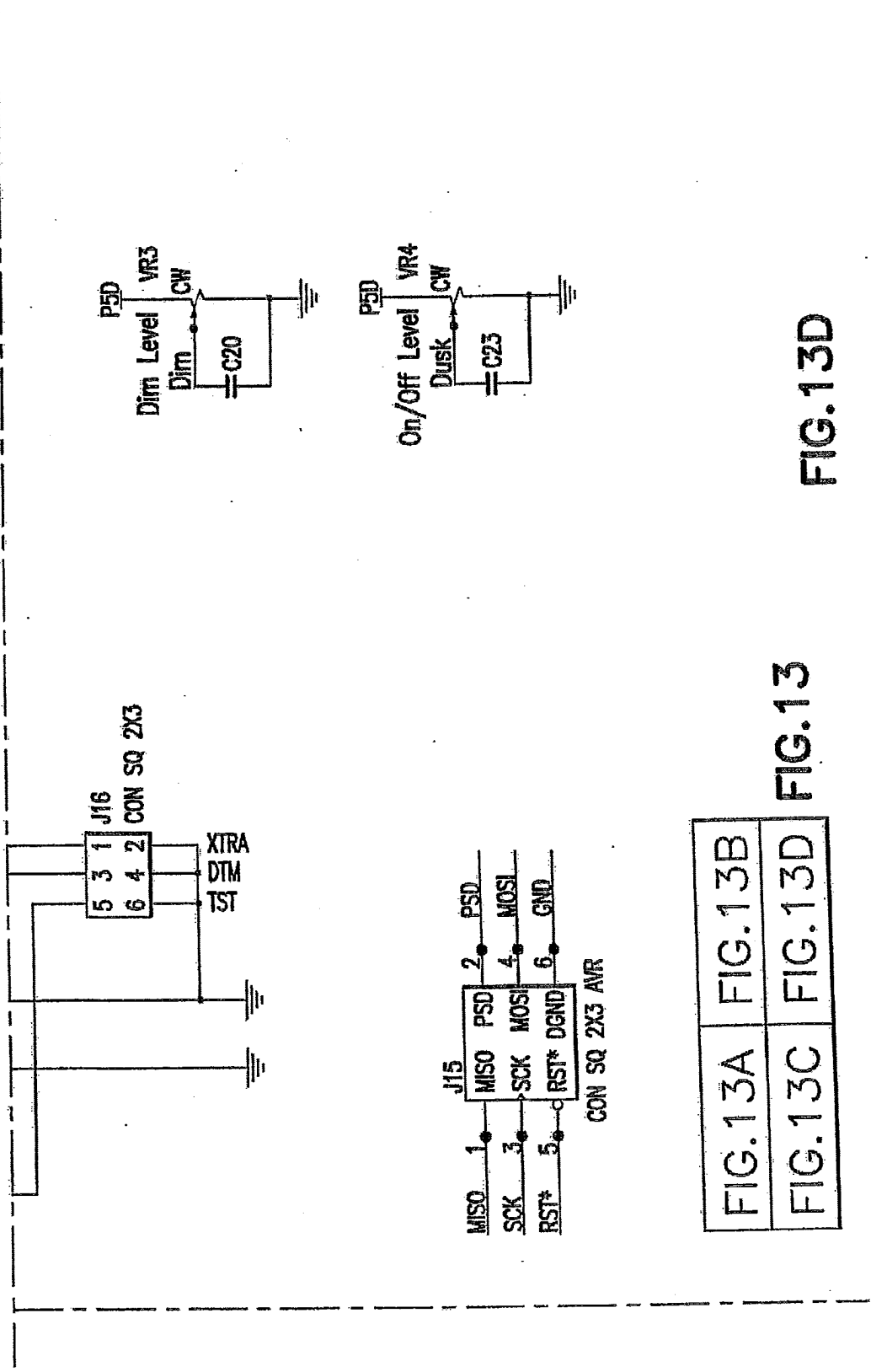


FIG.13A	FIG.13B
FIG.13C	FIG.13D

FIG.13D

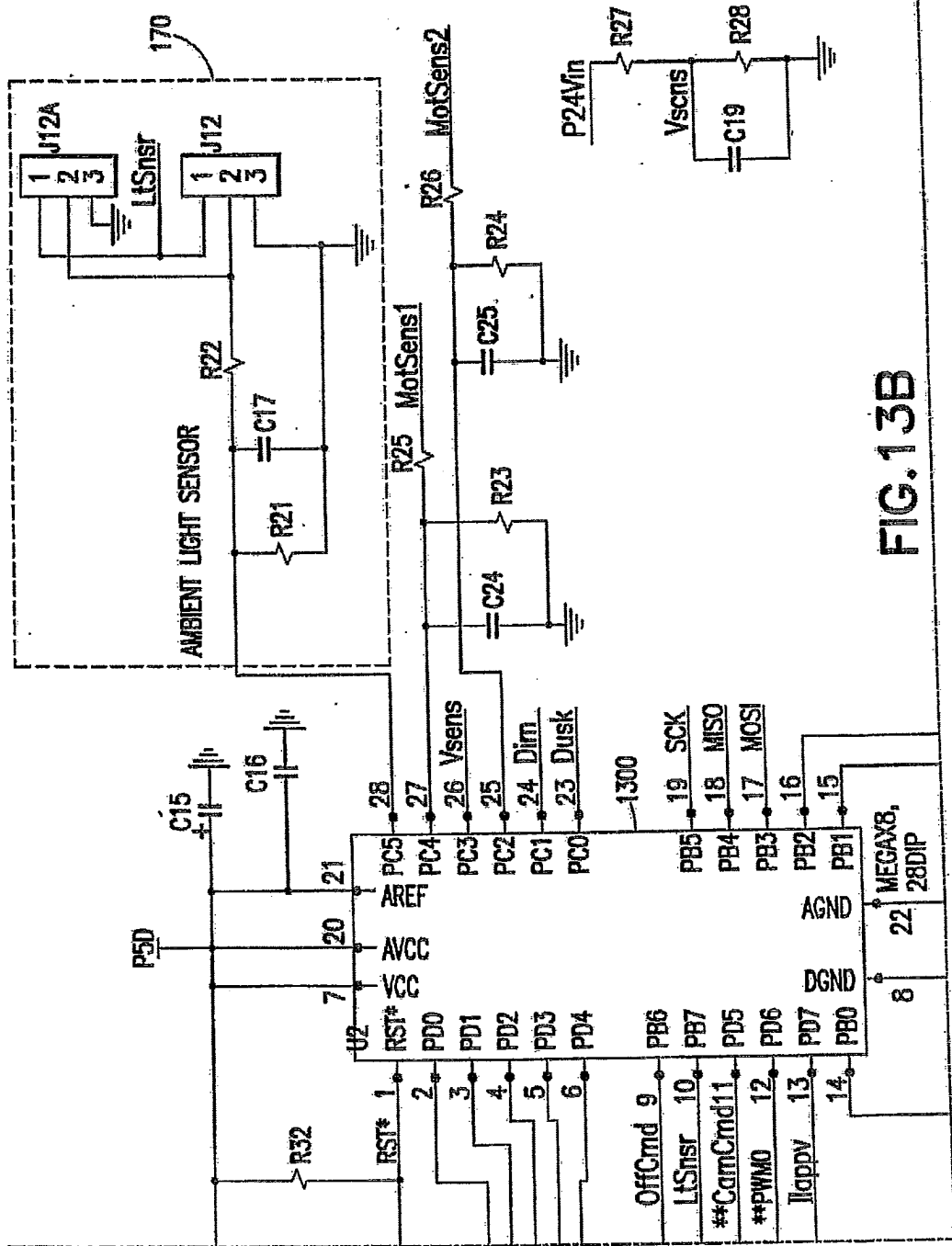


FIG.13B

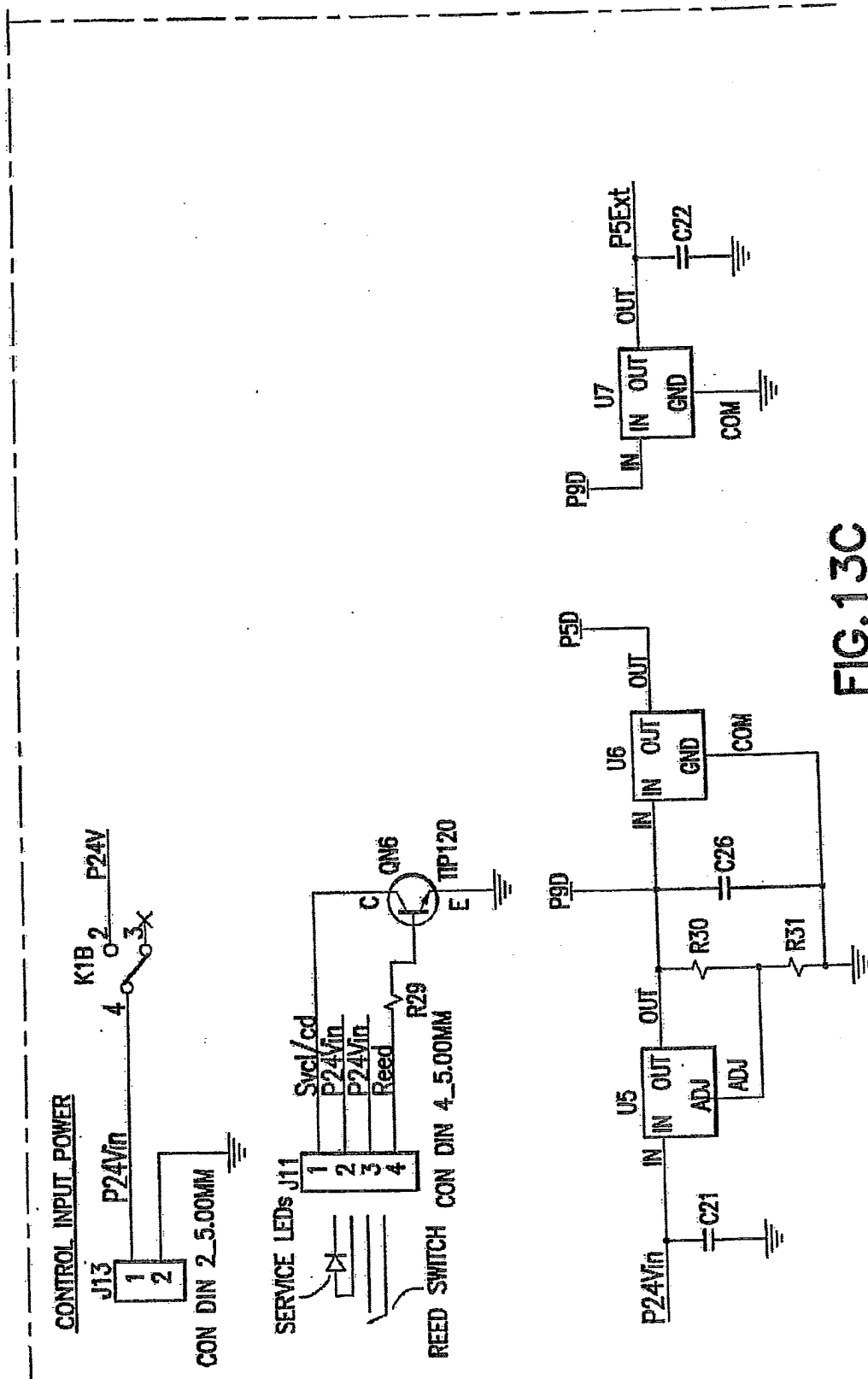


FIG. 13C

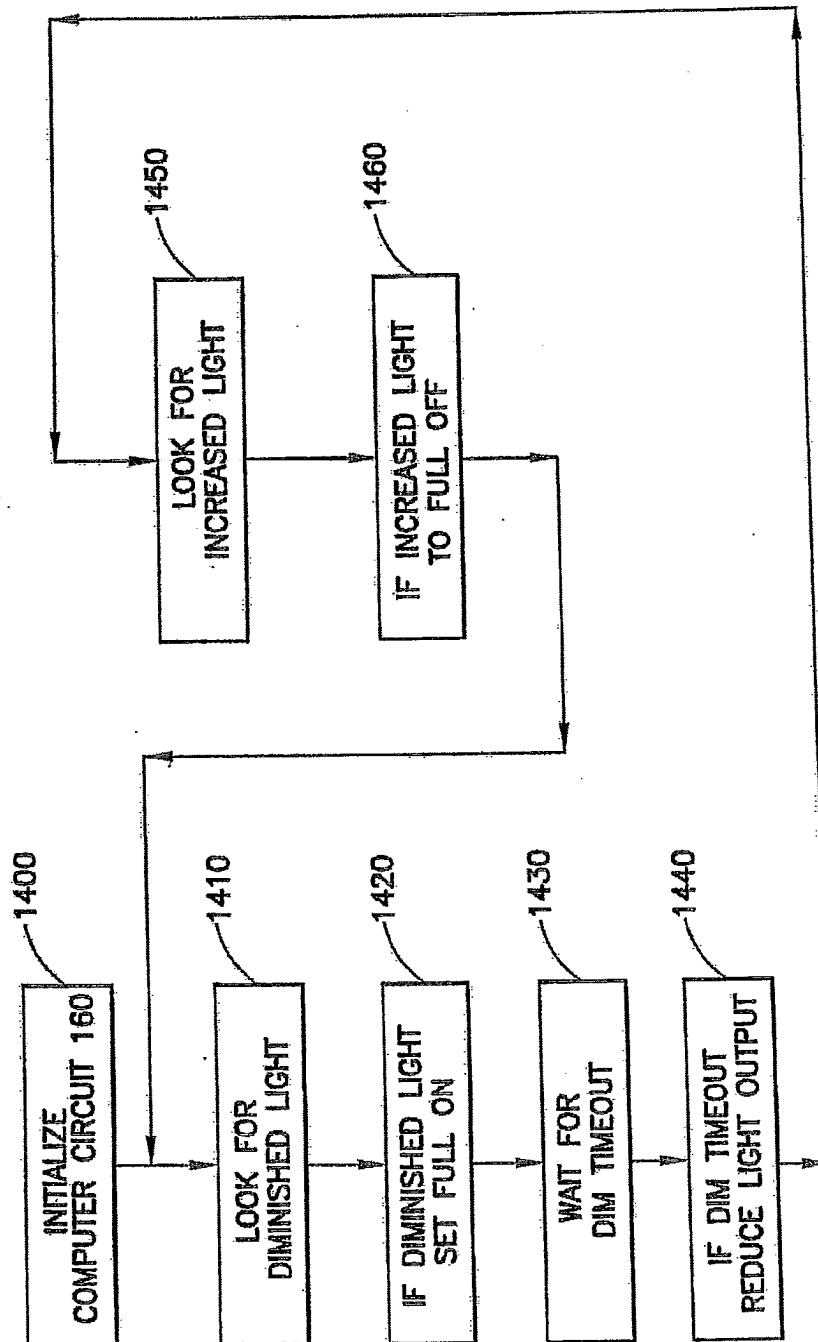


FIG.14

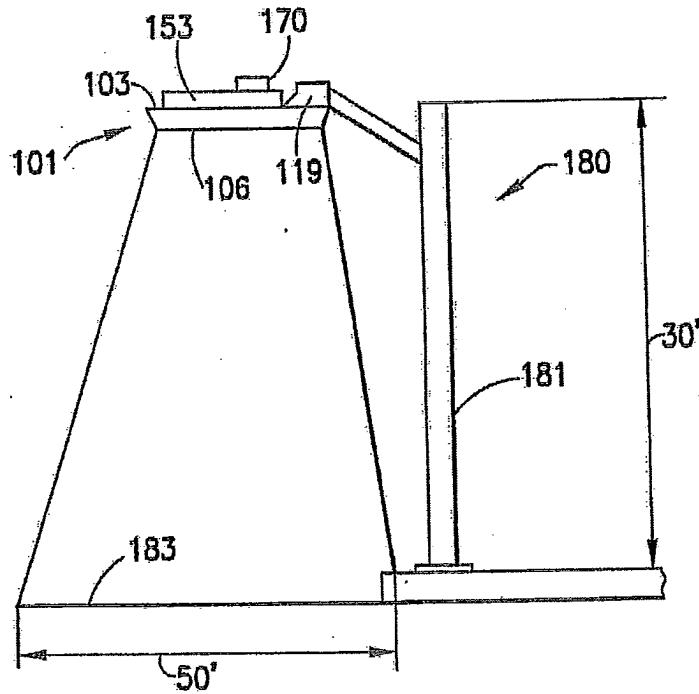


FIG. 15

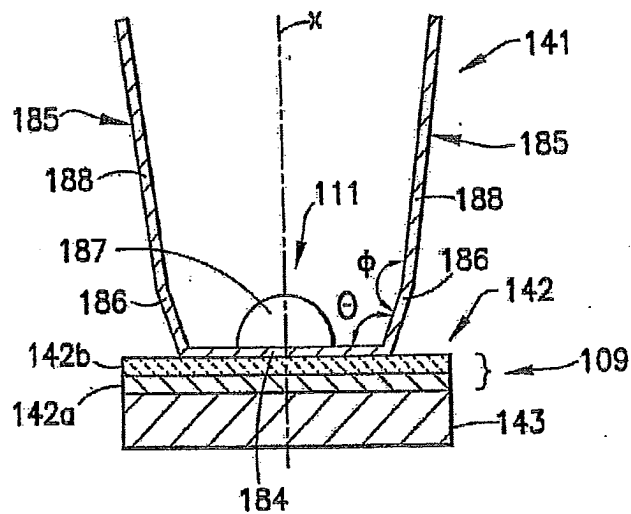


FIG. 16

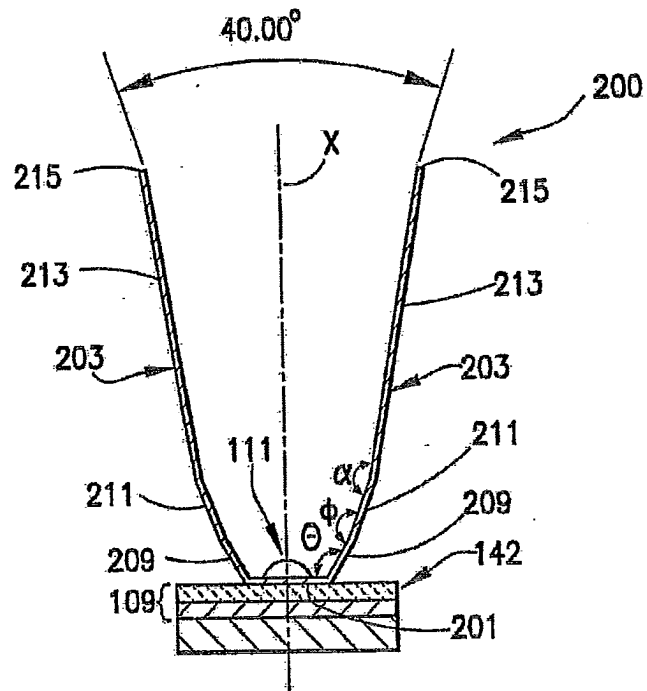


FIG. 17

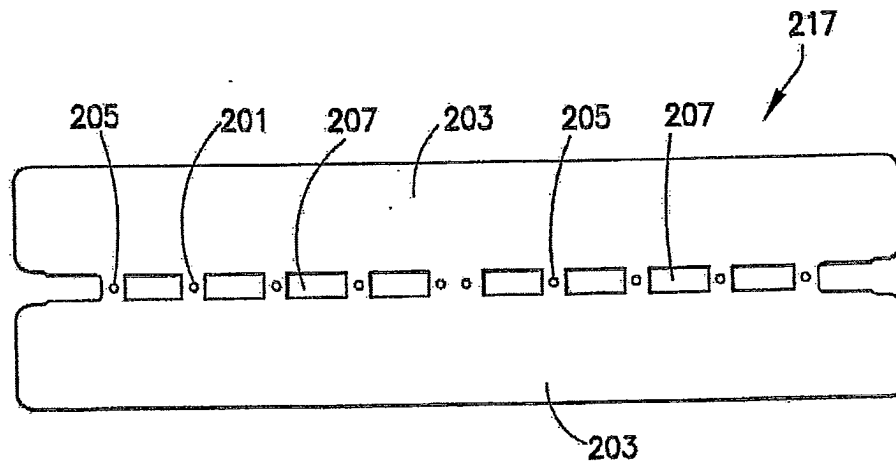


FIG. 18

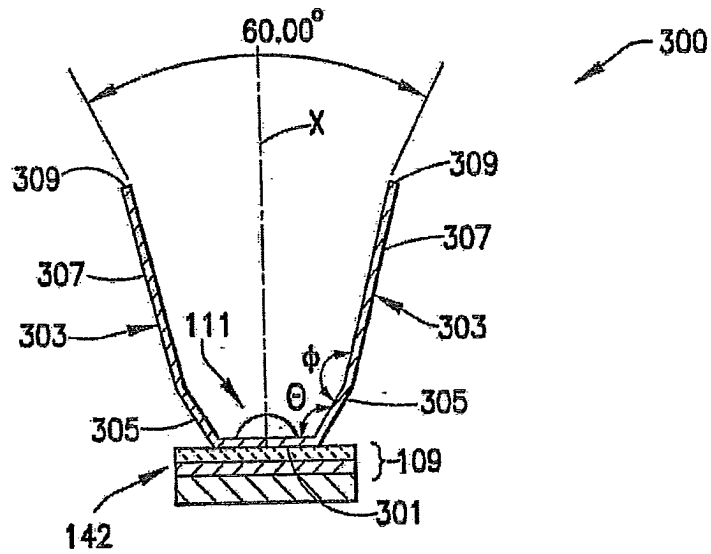


FIG. 19

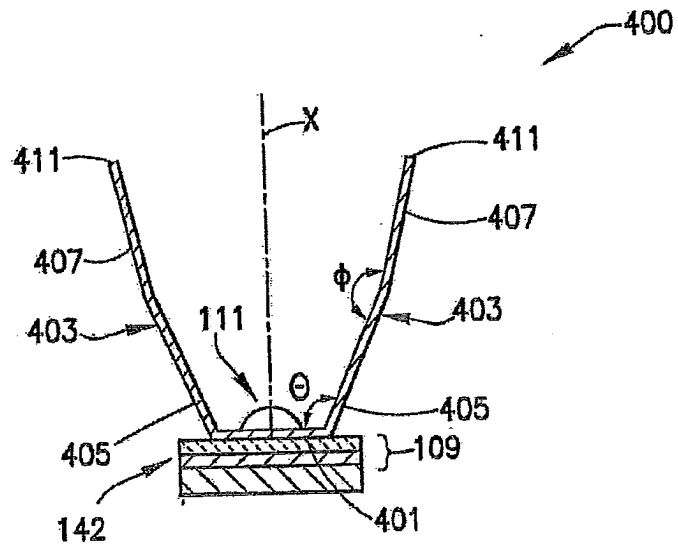


FIG. 20

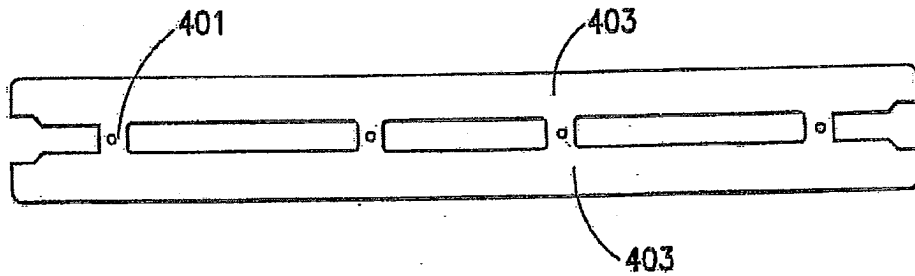


FIG.21

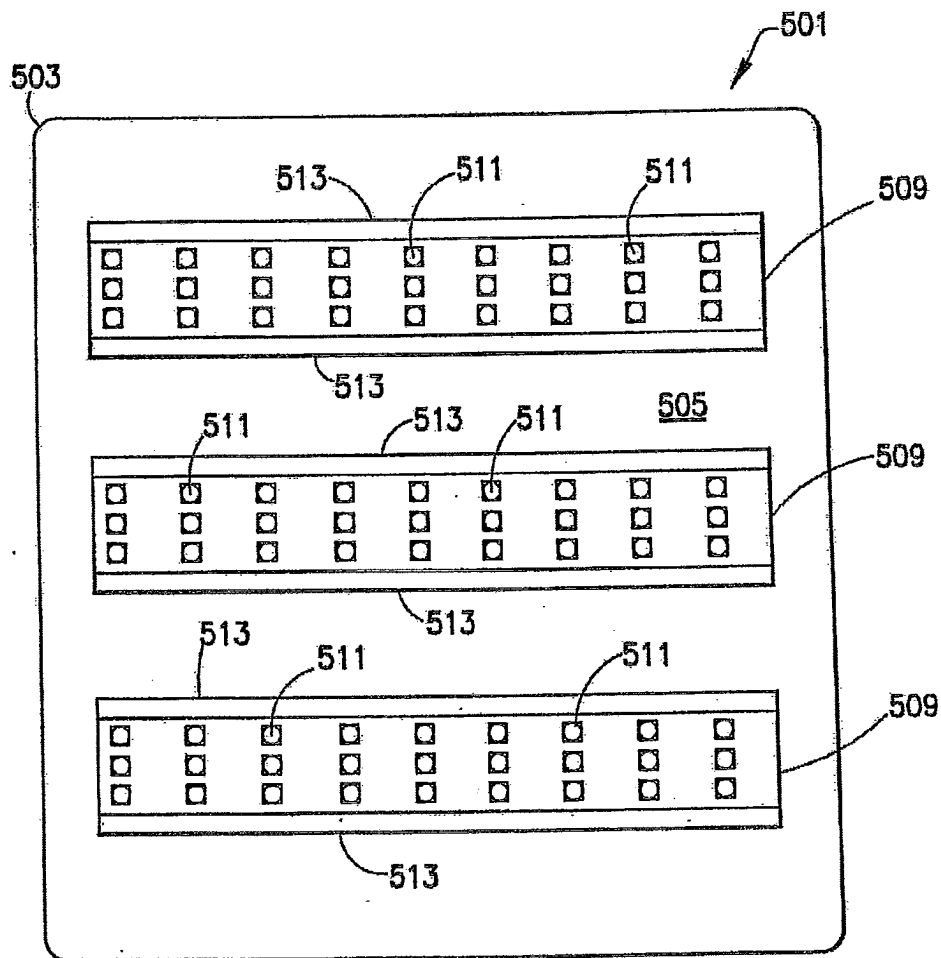


FIG.22

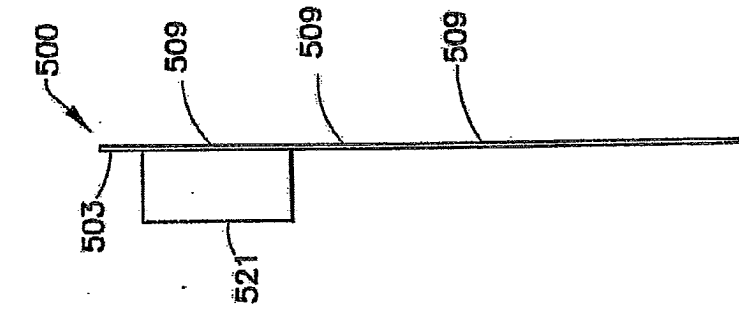


FIG. 24

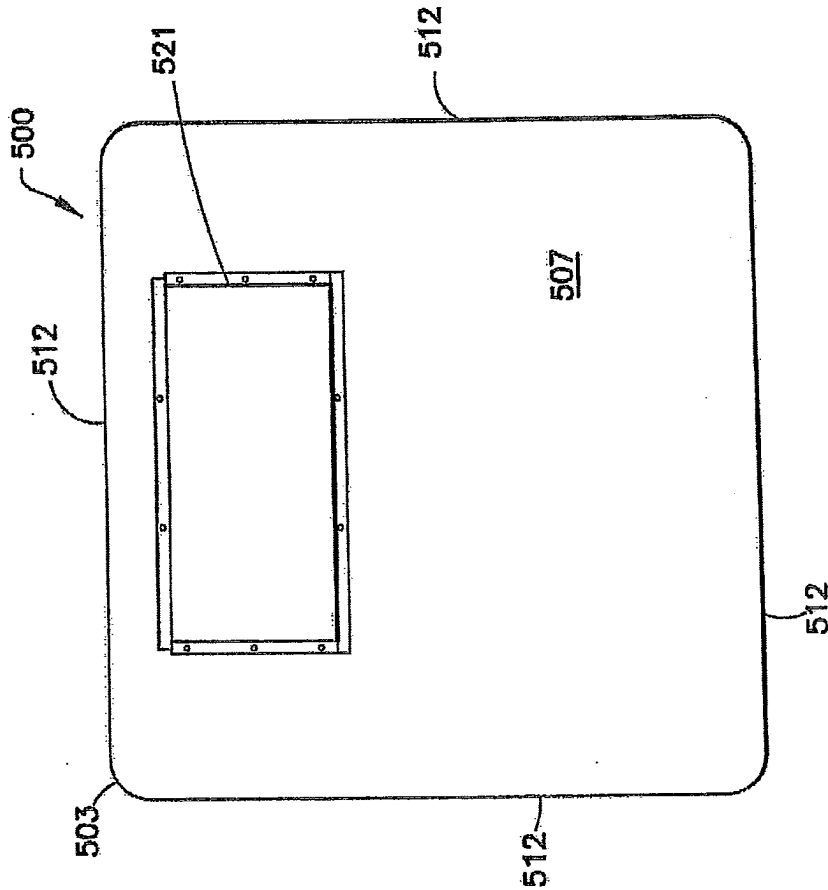


FIG. 23

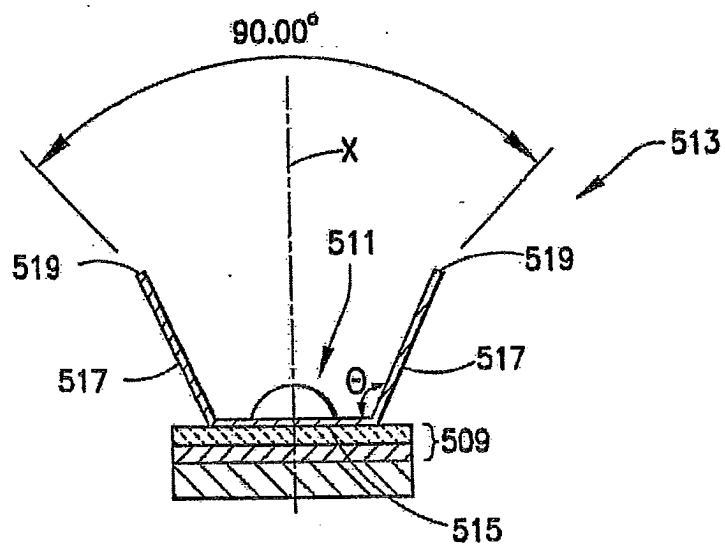


FIG.25

Electronic Acknowledgement Receipt

EFS ID:	14368887
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	28289
Filer:	Kirk M. Miles/Sharyn Beck
Filer Authorized By:	Kirk M. Miles
Attorney Docket Number:	5641-123371
Receipt Date:	03-DEC-2012
Filing Date:	
Time Stamp:	16:08:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Application.pdf	1997393 b462f240bd9c3bf95d3d6cc25d7b95c46b57dcb0	yes	33

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Transmittal of New Application	1	1
	Specification	2	28
	Claims	29	32
	Abstract	33	33

Warnings:

Information:

2	Application Data Sheet	ApplicationDataSheet.PDF	1013071	no	5
			5b22ae7cd83e3b6a2f36e57f133c03ef3c6e8bfd		

Warnings:

Information:

3	Drawings-only black and white line drawings	Drawings.PDF	811283	no	24
			c8f37596808ebff9ffee2edd02dbd2056715c237		

Warnings:

Information:

Total Files Size (in bytes):			3821747

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/692,402	12/03/2012	James J. Wassel	5641-123371

CONFIRMATION NO. 2398

FORMALITIES LETTER



OC000000058406306

28289
THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

Date Mailed: 01/07/2013

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
Applicant must submit \$98 to complete the basic filing fee for a small entity.

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
 - The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) 7A-7B, 8, 10A, 11A, 15.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- A surcharge (for late submission of the basic filing fee, search fee, examination fee or inventor's oath or declaration) as set forth in 37 CFR 1.16(f) of \$ 65 for a small entity in compliance with 37 CFR 1.27, must be submitted.

SUMMARY OF FEES DUE:

Total fee(s) required within **TWO MONTHS** from the date of this Notice is \$ 598 for a small entity

- \$ 98 Statutory basic filing fee.
- \$ 65 Surcharge.

- The application search fee has not been paid. Applicant must submit \$ **310** to complete the search fee.
- The application examination fee has not been paid. Applicant must submit \$ **125** to complete the examination fee for a small entity in compliance with 37 CFR 1.27.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
James J. Wassel
Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/kung/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 13/692,402				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	98		N/A				
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	310		N/A				
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	125		N/A				
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *	x 31	= 0.00	OR					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *	x 125	= 0.00						
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00						
			TOTAL	533		TOTAL				
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/692,402	12/03/2012	2875	0.00	5641-123371	20	3

CONFIRMATION NO. 2398

28289

THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

FILING RECEIPT



Date Mailed: 01/07/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

James J. Wassel, Fombell, PA;

Applicant(s)

Appalachian Lighting Systems, Inc., Ellwood City, PA

Assignment For Published Patent Application

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881 *

(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 12/31/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/692,402**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Lighting Fixture

Preliminary Class

362

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER**Title 35, United States Code, Section 184****Title 37, Code of Federal Regulations, 5.11 & 5.15****GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

Application No. 13/692,402
Paper Dated: February 27, 2013
In Reply to USPTO Correspondence of January 7, 2013
Attorney Docket No. 5641-123371

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 13/692,402 Confirmation No. 2398
First Named Inventor : JAMES J. WASSEL
Filed : December 3, 2012
Title : LIGHTING FIXTURE
Group Art Unit : 2875
Examiner : Not Yet Assigned
Customer No. : 28289

Mail Stop Missing Parts
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

LETTER

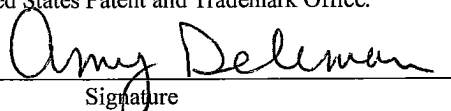
Sir:

In response to the "Notice to File Missing Parts of Nonprovisional Application" mailed January 7, 2013, attached hereto are the following for filing in the above-identified United States patent application:

1. executed Declaration;
2. Power of Attorney by Applicant with Transmittal;
4. Replacement drawings; and
3. fees in the total amount of **\$598** to cover the patent application filing fee (\$533) and the late oath or declaration surcharge (\$65), to be paid by credit card via EFS-Web.

I hereby certify that this correspondence is being electronically submitted to the United States Patent and Trademark Office.

02/27/2013
Date


Signature

Amy Deliman

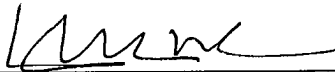
Typed Name of Person Signing Certificate

Application No. 13/692,402
Paper Dated: February 27, 2013
In Reply to USPTO Correspondence of January 7, 2013
Attorney Docket No. 5641-123371

The Commissioner for Patents is hereby authorized to charge any additional fees which may be required to Deposit Account No. 23-0650. Please refund any overpayment to Deposit Account No. 23-0650.

Respectfully submitted,

THE WEBB LAW FIRM

By  _____
Kirk M. Miles
Registration No. 37,891
Attorney for Applicant
One Gateway Center
420 Fort Duquesne Boulevard, Suite 1200
Pittsburgh, PA 15222
Telephone: (412) 471-8815
Facsimile: (412) 471-4094
E-mail: patents@webblaw.com



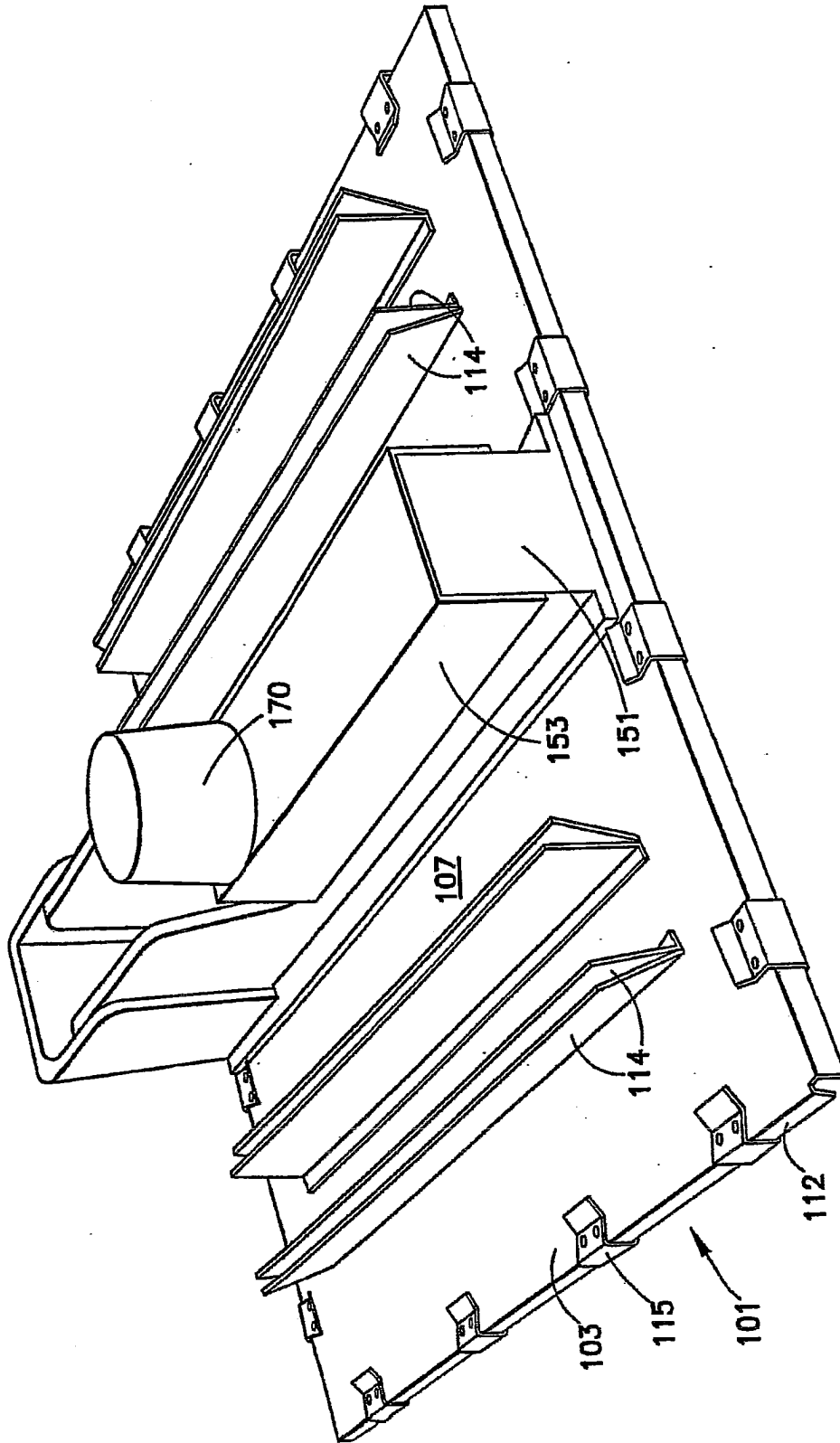


FIG. 7B

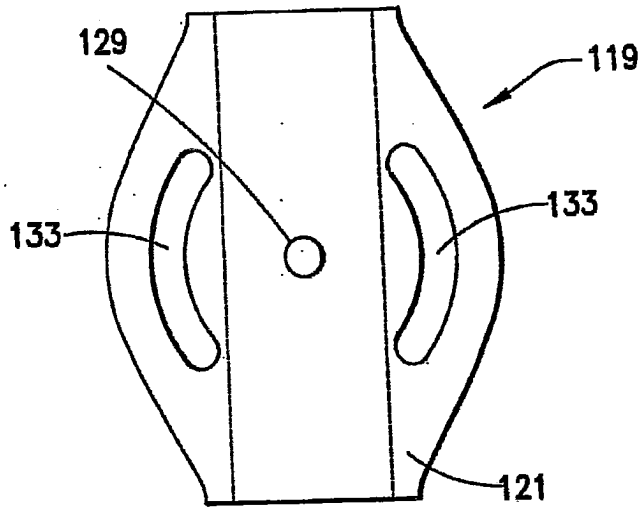


FIG. 8

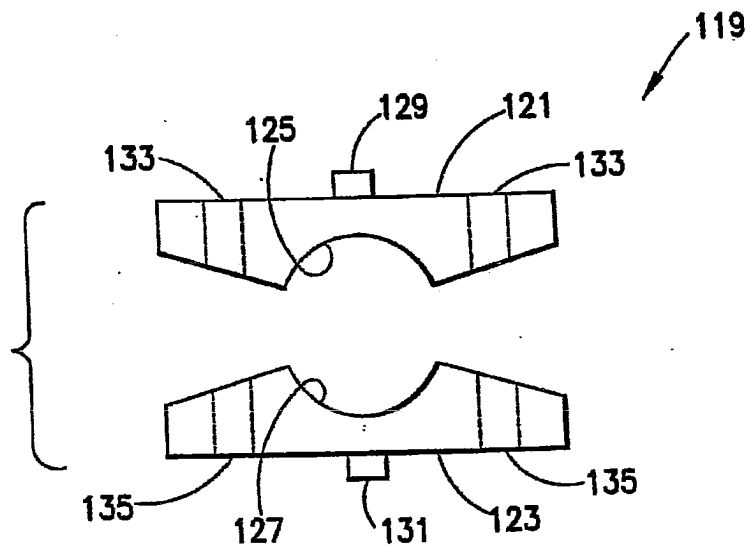


FIG. 9

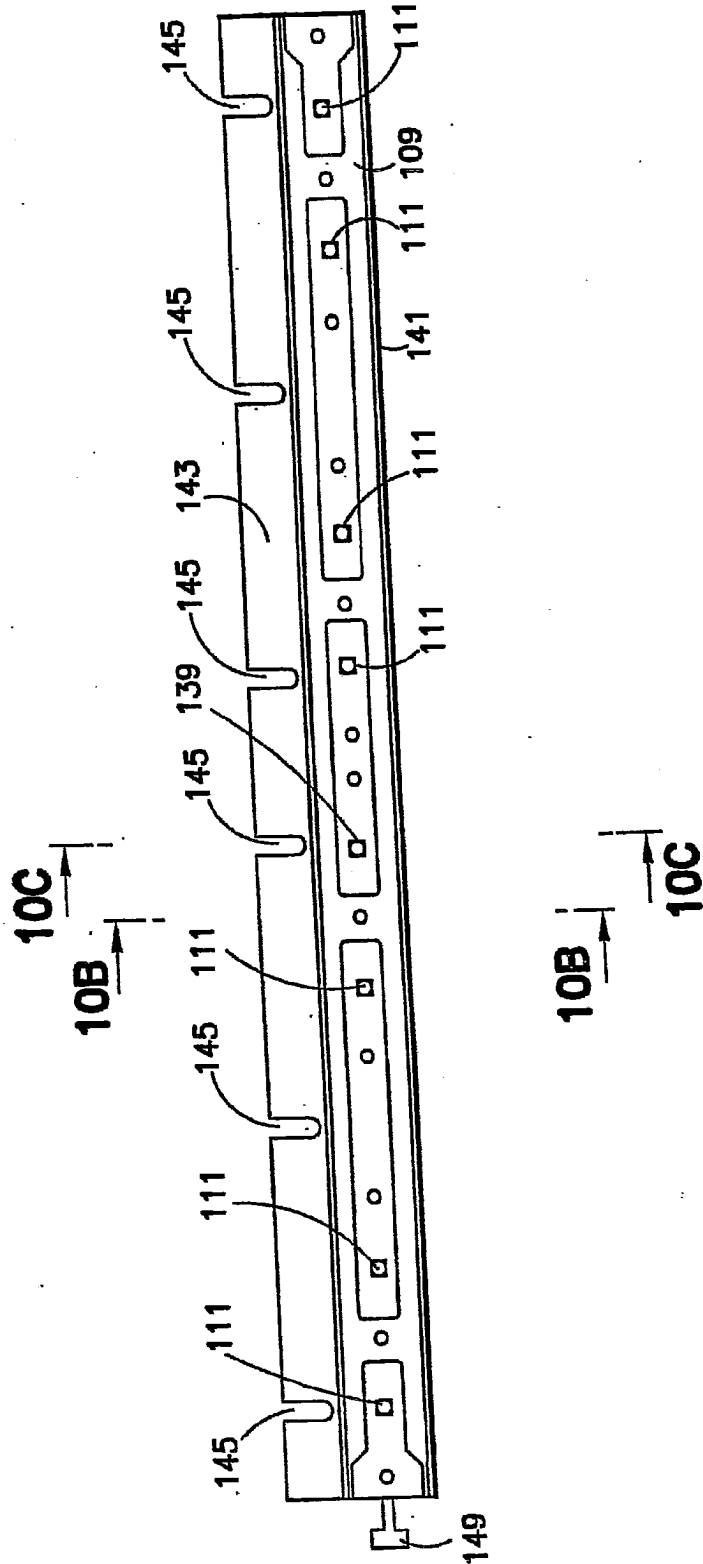
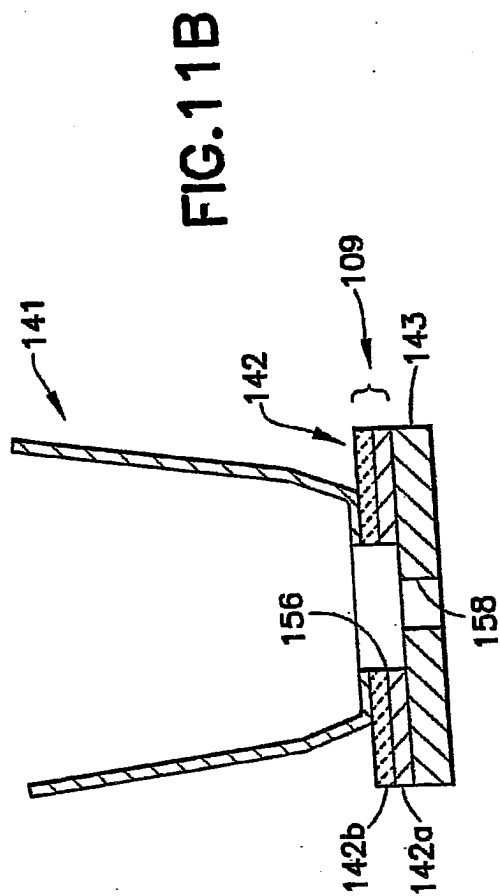
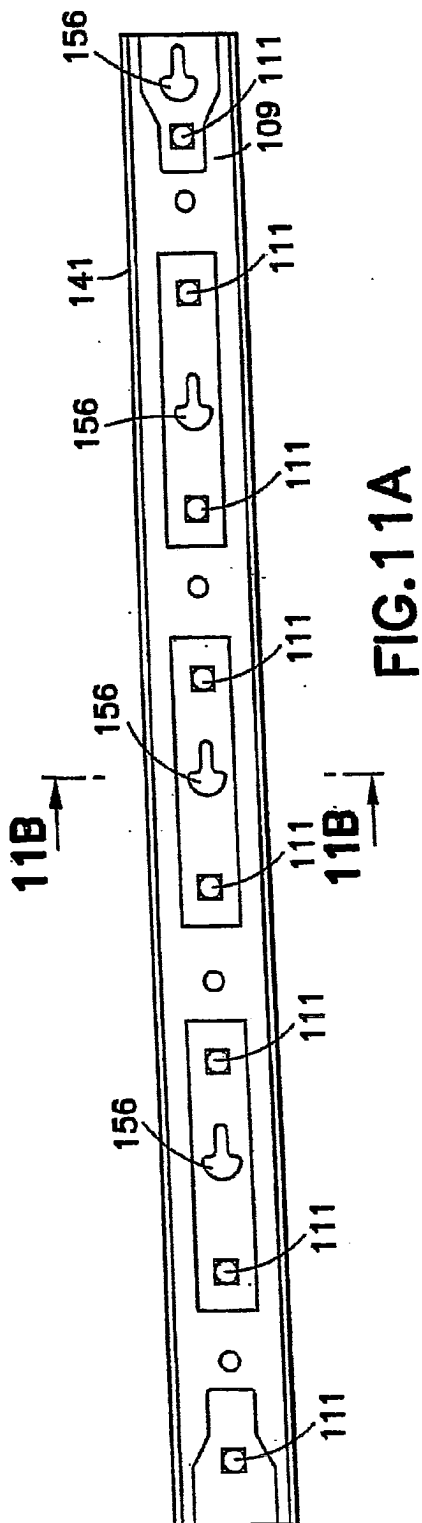


FIG. 10A



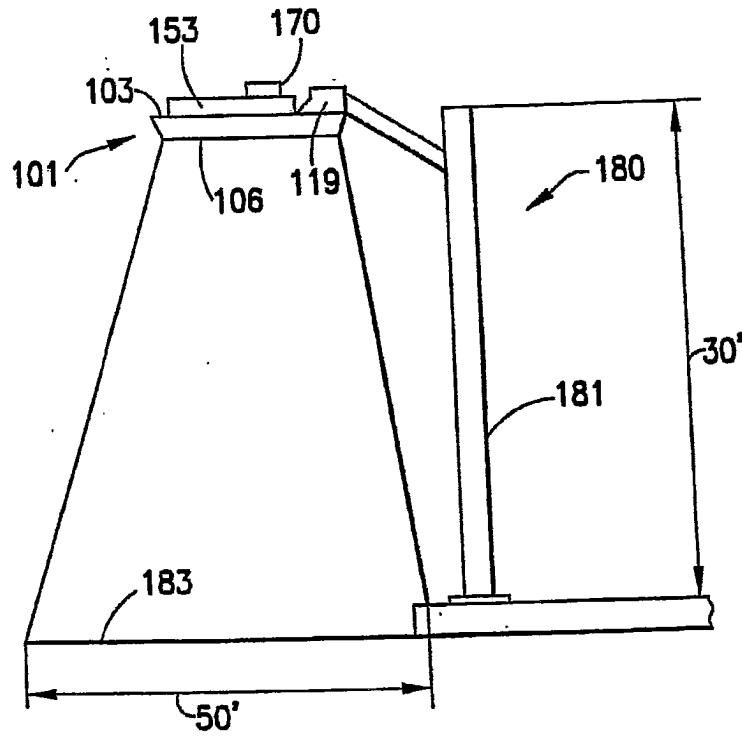


FIG. 15

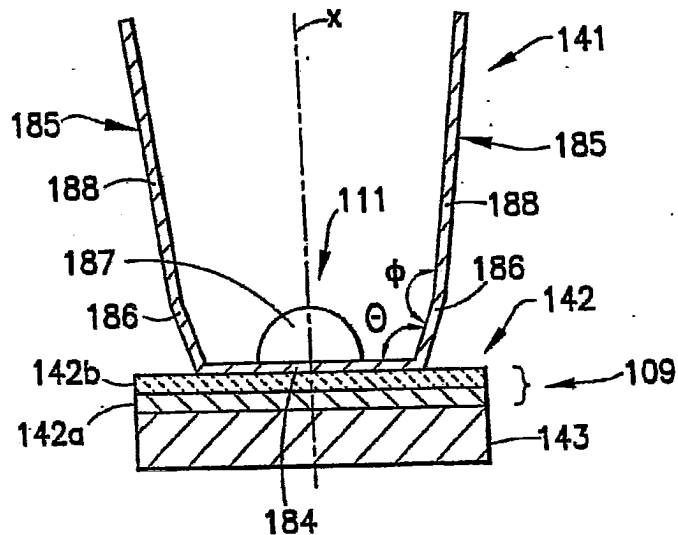


FIG. 16

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	Lighting Fixture

As the below named inventor, I hereby declare that:

This declaration is directed to: ☐ The attached application, or ☒ United States application or PCT international application number 13/692,402 filed on December 3, 2012.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

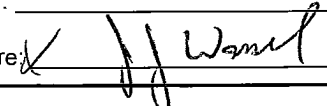
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: James J. Wassel Date (Optional): 2/12/13

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

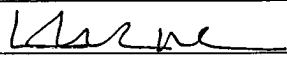
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B or equivalent) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5. If the Power of Attorney by Applicant form is not accompanied by this transmittal form or an equivalent, the Power of Attorney will not be recognized in the application.

Application Number	13/692,402
Filing Date	12/03/2012
First Named Inventor	James J. Wassel
Title	"Lighting Fixture"
Art Unit	2875
Examiner Name	Not Yet Assigned
Attorney Docket Number	5641 - 123371

SIGNATURE of Applicant or Patent Practitioner

Signature		Date	February 27, 2013
Name	Kirk M. Miles	Telephone	412-471-8815
Registration Number	37,891		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications.

☒ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in the attached transmittal letter.

- ☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

28289

OR

- ☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

Name Registration	Number	Name Registration	Number

Please recognize or change the correspondence address for the above-identified patent to:

- ☒ The address associated with the above-mentioned Customer Number.

OR

- ☐ The address associated with Customer Number:

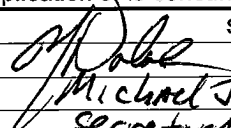
OR

☐ Firm or Individual Name	The Webb Law Firm		
Address	One Gateway Center, 420 Ft. Duquesne Blvd., Suite 1200		
City	Pittsburgh	State	PA Zip 15222
Country	U.S.A.		
Telephone	412-471-8815	Email	patents@webblaw.com

I am the Applicant:

- ☐ Inventor or Joint Inventor
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign
- ☐ Person Who Otherwise Shows Sufficient *Proprietary* Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document)

SIGNATURE of Applicant for Patent

Signature		Date	2/12/13
Name	Michael J. Dols	Telephone	570 947 4901
Title and Company	Secretary Appalachian Lighting Systems, Inc.		

NOTE: Signature - This form must be signed by the applicant or applicant's representative in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms for more than one signature, see below *.

- ☒ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal

Application Number:	13692402			
Filing Date:	03-Dec-2012			
Title of Invention:	Lighting Fixture			
First Named Inventor/Applicant Name:	James J. Wassel			
Filer:	Kirk M. Miles/Amy Deliman			
Attorney Docket Number:	5641-123371			
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	98	98
Utility Search Fee	2111	1	310	310
Utility Examination Fee	2311	1	125	125
Pages:				
Claims:				
Miscellaneous-Filing:				
Late filing fee for oath or declaration	2051	1	65	65
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				598

Electronic Acknowledgement Receipt

EFS ID:	15065092
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	28289
Filer:	Kirk M. Miles/Amy Deliman
Filer Authorized By:	Kirk M. Miles
Attorney Docket Number:	5641-123371
Receipt Date:	27-FEB-2013
Filing Date:	03-DEC-2012
Time Stamp:	14:19:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$598
RAM confirmation Number	803
Deposit Account	
Authorized User	

File Listing:

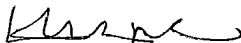
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

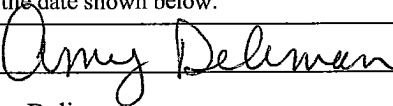
1		MissingParts.pdf	421486 5c548250ce3df7bff5317e68a527aeb666fd1d74	yes	13
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Transmittal Letter		1	1	
	Fee Worksheet (SB06)		2	2	
	Applicant Response to Pre-Exam Formalities Notice		3	4	
	Drawings-only black and white line drawings		5	10	
	Oath or Declaration filed		11	11	
	Power of Attorney		12	13	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	36453 f32fbca2e743b657a2f9cc292b8079c6d708a03d	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			457939		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>		Application Number	13/692,402
		Filing Date	12/03/2012
		First Named Inventor	James J. Wassel
		Art Unit	2875
		Examiner Name	Not Yet Assigned
Total Number of Pages in This Submission		Attorney Docket Number	5641 - 123371

ENCLOSURES (check all that apply)		
☒ Fee Transmittal Form ☒ Fee Attached ☐ Amendment / Reply ☐ After Final ☐ Affidavits/declaration(s) ☐ Extension of Time Request ☐ Express Abandonment Request ☐ Information Disclosure Statement ☐ Certified Copy of Priority Document(s) ☐ Reply to Missing Parts/Incomplete Application ☒ Reply to Missing Parts Under 37 CFR 1.52 or 1.53	☒ Drawing(s) ☐ Licensing-related Papers ☐ Petition ☐ Petition to convert to a Provisional Application ☐ Power of Attorney, Revocation Change of Correspondence Address ☐ Terminal Disclaimer ☐ Request for Refund ☐ CD, Number of CD(s) _____ ☐ Landscape Table on CD	☐ After Allowance communication to TC ☐ Appeal Communication to Board of Appeals and Interferences ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) ☐ Proprietary Information ☐ Status Letter ☒ Other Enclosure(s) (please identify below): Declaration, Power of Attorney and Transmittal of Power of Attorney
☐ Remarks		☐ Claim Fees Previously Paid: Total Claims _____ Total Indpen. Claims _____ ☐ Claim Fees Due (see Fee Transmittal Form)

The Commissioner for Patents is hereby authorized to charge any additional fees or underpayment of fees under 37 CFR 1.16 and 1.17 to Deposit Account No. 23-0650.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	The Webb Law Firm		
Signature			
Printed Name	Kirk M. Miles		
Date	February 27, 2013	Reg. No.	37,891

CERTIFICATE OF TRANSMISSION / MAILING			
I hereby certify that this correspondence is being electronically transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature			
Typed or printed name	Amy Deliman	Date	February 27, 2013

FEE TRANSMITTAL

Complete if Known

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$598.00)

Application Number 13/692,402
Filing Date 12/03/2012
First Named Inventor James J. Wassel
Examiner Name Not Yet Assigned
Art Unit 2875
Attorney Docket 5641 - 123371

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____
☒ Deposit Account Deposit Account Number: 23-0650 Deposit Account Name: _____
For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)
☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee
☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION (All the fees below are due upon filing or may be subject to a surcharge.)

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	
Utility	390	98	620	310	250	125	533.00
Design	250	125	120	60	160	80	
Plant	250	125	380	190	200	100	
Reissue	390	195	620	310	760	380	
Provisional	250	125	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 (including Reissues)	62	31
Each independent claim over 3 (including Reissues)	250	125
Multiple dependent claims	460	230
Total Claims - 20 or HP	Fee (\$)	Fee Paid (\$)
HP = highest number of total claims paid for, if greater than 20.		

Indep. Claims - 3 or HP	Extra Claims	Fee (\$)	Fee Paid (\$)
HP = highest number of independent claims paid for, if greater than 3.			

3. APPLICATION SIZE FEE

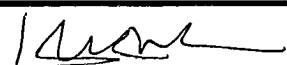
If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$320 (\$160 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =	/ 50 =	(round up to a whole number) x	=	

4. OTHER FEE(S)

Non-English Specification,	\$130 fee (no small entity discount)	
Other (e.g., late filing surcharge):	Late Filing of Oath or Declaration (\$65.00)	598.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 37,891	Telephone 412-471-8815
Name (Print/Type)	Kirk M. Miles	Date	February 27, 2013

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 13/692,402	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	98		N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	310		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	125		N/A	
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *	x 31	= 0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *	x 125	= 0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
			TOTAL	533		TOTAL	
* If the difference in column 1 is less than zero, enter "0" in column 2.							
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x	=	OR
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x	=	OR
	Application Size Fee (37 CFR 1.16(s))						OR
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						OR
				TOTAL ADD'L FEE			OR
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x	=	OR
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x	=	OR
	Application Size Fee (37 CFR 1.16(s))						OR
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						OR
				TOTAL ADD'L FEE			OR
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/692,402	12/03/2012	2875	598	5641-123371	20	3

CONFIRMATION NO. 2398

28289

THE WEBB LAW FIRM, P.C.

ONE GATEWAY CENTER

420 FT. DUQUESNE BLVD, SUITE 1200

PITTSBURGH, PA 15222

UPDATED FILING RECEIPT



Date Mailed: 03/13/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

James J. Wassel, Fombell, PA;

Applicant(s)

Appalachian Lighting Systems, Inc., Ellwood City, PA

Assignment For Published Patent Application

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Power of Attorney: The patent practitioners associated with Customer Number 28289

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881 *

(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 12/31/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/692,402**

Projected Publication Date: 06/20/2013

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Lighting Fixture

Preliminary Class

362

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER**Title 35, United States Code, Section 184****Title 37, Code of Federal Regulations, 5.11 & 5.15****GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/692,402	12/03/2012	James J. Wassel	5641-123371

28289
THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

CONFIRMATION NO. 2398
POA ACCEPTANCE LETTER



Date Mailed: 03/13/2013

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/27/2013.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/dgela/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13692402
	Filing Date		2012-12-03
	First Named Inventor	James J. Wassel	
	Art Unit	2875	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	5641-123371	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7802902	B2	2010-09-28	Moss et al.	
	2	7438447	B2	2008-10-21	Holder et al.	
	3	7420811	B2	2008-09-02	Chan	
	4	7407307	B2	2008-08-05	Hiratsuka	
	5	7347706	B1	2008-03-25	Wu et al.	
	6	7278761	B2	2007-10-09	Kuan	
	7	7275841	B2	2007-10-02	Kelly	
	8	7233115	B2	2007-06-19	Lys	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		13692402
Filing Date		2012-12-03
First Named Inventor	James J. Wassel	
Art Unit		2875
Examiner Name	Not Yet Assigned	
Attorney Docket Number		5641-123371

	9	7217009	B2	2007-05-15	Klose	
	10	7202608	B2	2007-04-10	Robinson et al.	
	11	7172319	B2	2007-02-06	Holder et al.	
	12	7119498	B2	2006-10-10	Baldwin et al.	
	13	7114832	B2	2006-10-03	Holder et al.	
	14	7090370	B2	2006-08-15	Clark et al.	
	15	7067992	B2	2006-06-27	Leong et al.	
	16	6971781	B2	2005-12-06	Guy	
	17	6942361	B1	2005-09-13	Kishimura et al.	
	18	6784357	B1	2004-08-31	Wang	
	19	6648490	B2	2003-11-18	Klose	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		13692402
Filing Date		2012-12-03
First Named Inventor	James J. Wassel	
Art Unit		2875
Examiner Name	Not Yet Assigned	
Attorney Docket Number		5641-123371

	20	6644841	B2	2003-11-11	Martineau	
	21	6586890	B2	2003-07-01	Min et al.	
	22	6577512	B2	2003-06-10	Tripathi et al.	
	23	6547416	B2	2003-04-15	Pashley et al.	
	24	5580156		1996-12-03	Suzuki et al.	
	25	D578698	S	2008-10-14	Zheng	
	26	D578697	S	2008-10-14	Zheng et al.	
	27	D578696	S	2008-10-14	Wang et al.	
	28	D578695	S	2008-10-14	Zheng et al.	
	29	D577847	S	2008-09-30	Ruud et al.	
	30	D576332	S	2008-09-02	Ruud et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		13692402
Filing Date		2012-12-03
First Named Inventor	James J. Wassel	
Art Unit		2875
Examiner Name	Not Yet Assigned	
Attorney Docket Number		5641-123371

31	D576331	S	2008-09-02	Ruud et al.	
32	D576330	S	2008-09-02	Ruud et al.	
33	D574549	S	2008-08-05	Kinnune et al.	
34	D574548	S	2008-08-05	Wilcox et al.	
35	7963664	B2	2011-06-21	Bertram et al.	
36	5723868		1998-03-03	Hammond, Jr. et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

[Add](#)

U.S.PATENT APPLICATION PUBLICATIONS

[Remove](#)

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20080253125	A1	2008-10-16	Kang et al.	
	2	20080253122	A1	2008-10-16	Hancock et al.	
	3	20080247170	A1	2008-10-09	Peck	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		13692402
Filing Date		2012-12-03
First Named Inventor	James J. Wassel	
Art Unit		2875
Examiner Name	Not Yet Assigned	
Attorney Docket Number		5641-123371

4	20080239722	A1	2008-10-02	Wilcox	
5	20080231201	A1	2008-09-25	Higley et al.	
6	20080219001	A1	2008-09-11	Russell	
7	20080212329	A1	2008-09-04	Duguay et al.	
8	20080198572	A1	2008-08-21	Medendorp	
9	20080192476	A1	2008-08-14	Hiratsuka	
10	20080136661	A1	2008-06-12	Pederson et al.	
11	20080123340	A1	2008-05-29	McClellan	
12	20080089070	A1	2008-04-17	Wang	
13	20080089069	A1	2008-04-17	Medendorp	
14	20080080196	A1	2008-04-03	Ruud et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		13692402
Filing Date		2012-12-03
First Named Inventor	James J. Wassel	
Art Unit		2875
Examiner Name	Not Yet Assigned	
Attorney Docket Number		5641-123371

	15	20080080162	A1	2008-04-03	Wilcox et al.	
	16	20080078524	A1	2008-04-03	Wilcox et al.	
	17	20080062691	A1	2008-03-13	Villard et al.	
	18	20080062689	A1	2008-03-13	Villard	
	19	20080055908	A1	2008-03-06	Wu et al.	
	20	20080002399	A1	2008-01-03	Villard et al.	
	21	20070285927	A1	2007-12-13	Chen	
	22	20070263388	A1	2007-11-15	Lai et al.	
	23	20070247856	A1	2007-10-25	Wang et al.	
	24	20070230171	A1	2007-10-04	Hiratsuka	
	25	20070211463	A1	2007-09-13	Chevalier et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		13692402
Filing Date		2012-12-03
First Named Inventor	James J. Wassel	
Art Unit		2875
Examiner Name	Not Yet Assigned	
Attorney Docket Number		5641-123371

	26	20070201225	A1	2007-08-30	Holder et al.	
	27	20070195527	A1	2007-08-23	Russell	
	28	20070153526	A1	2007-07-05	Lim	
	29	20060237738	A1	2006-10-26	Salam	
	30	20060056169	A1	2006-03-16	Lodhie et al.	
	31	20090168395	A1	2009-07-02	Mrakovich et al.	
	32	20080239751	A1	2008-10-02	Chang	
	33	20080239750	A1	2008-10-02	Chang	
	34	20070081339	A1	2007-04-12	Chung et al.	
	35	20050111220	A1	2005-05-26	Smith	

If you wish to add additional U.S. Published Application citation information please click the Add button. [Add](#)

FOREIGN PATENT DOCUMENTS

[Remove](#)

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	13692402
Filing Date	2012-12-03
First Named Inventor	James J. Wassel
Art Unit	2875
Examiner Name	Not Yet Assigned
Attorney Docket Number	5641-123371

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	101191591	CN	A	2008-06-04	Du		☐
	2	101101096	CN	A	2008-01-09	Tong et al.		☐
	3	2007088665	WO	A1	2007-08-09	Michio et al.		☐
	4	2004200102	JP	A	2004-07-15	Fumio et al.		☐

If you wish to add additional Foreign Patent Document citation information please click the Add button [Add](#)

NON-PATENT LITERATURE DOCUMENTS

[Remove](#)

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	"power light source: LUXEON® Rebel", Technical Datasheet DS56, Philips, 2007.	☐
	2	"Cree® XLamp® XR-E LED Data Sheet", Cree LED Light, 2006-2007.	☐
	3	Bibee, Greg, "Lighting Class' LED Design Basics", 2008.	☐

If you wish to add additional non-patent literature document citation information please click the Add button [Add](#)

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	13692402
Filing Date	2012-12-03
First Named Inventor	James J. Wassel
Art Unit	2875
Examiner Name	Not Yet Assigned
Attorney Docket Number	5641-123371

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	13692402
Filing Date	2012-12-03
First Named Inventor	James J. Wassel
Art Unit	2875
Examiner Name	Not Yet Assigned
Attorney Docket Number	5641-123371

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

- ☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

- ☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- ☐ See attached certification statement.
- ☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- ☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Kirk M. Miles/	Date (YYYY-MM-DD)	2013-04-23
Name/Print	Kirk M. Miles	Registration Number	37891

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	15588032
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	28289
Filer:	Kirk M. Miles/Amy Deliman
Filer Authorized By:	Kirk M. Miles
Attorney Docket Number:	5641-123371
Receipt Date:	23-APR-2013
Filing Date:	03-DEC-2012
Time Stamp:	12:53:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		IDS.pdf	108300 bffa23c5e955aba8a1bba6199fab2fd51bad85448	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Transmittal Letter	1	1
	Transmittal Letter	2	3

Warnings:

Information:

2	Information Disclosure Statement (IDS) Form (SB08)	sb08.pdf	1429871	no	11
			6e68a8dc30a94df5376746a4962dd5df1421210		

Warnings:

Information:

Total Files Size (in bytes):		1538171

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

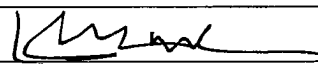
New International Application Filed with the USPTO as a Receiving Office

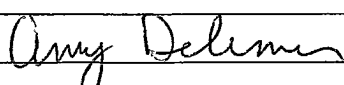
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>		Application Number	13/692,402
		Filing Date	12/03/2012
		First Named Inventor	James J. Wassel
		Art Unit	2875
		Examiner Name	Not Yet Assigned
Total Number of Pages in This Submission		Attorney Docket Number	5641 - 123371

ENCLOSURES (check all that apply)		
☐ Fee Transmittal Form ☐ Fee Attached ☐ Amendment / Reply ☐ After Final ☐ Affidavits/declaration(s) ☐ Extension of Time Request ☐ Express Abandonment Request ☒ Information Disclosure Statement ☐ Certified Copy of Priority Document(s) ☐ Reply to Missing Parts/ Incomplete Application ☐ Reply to Missing Parts Under 37 CFR 1.52 or 1.53	☐ Drawing(s) ☐ Licensing-related Papers ☐ Petition ☐ Petition to convert to a Provisional Application ☐ Power of Attorney, Revocation Change of Correspondence Address ☐ Terminal Disclaimer ☐ Request for Refund ☐ CD, Number of CD(s) _____ ☐ Landscape Table on CD	☐ After Allowance communication to TC ☐ Appeal Communication to Board of Appeals and Interferences ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) ☐ Proprietary Information ☐ Status Letter ☒ Other Enclosure(s) (please identify below):
Remarks _____ ☐ Claim Fees Previously Paid: Total Claims _____ Total Indpen. Claims _____ ☐ Claim Fees Due (see Fee Transmittal Form)		

The Commissioner for Patents is hereby authorized to charge any additional fees or underpayment of fees under 37 CFR 1.16 and 1.17 to Deposit Account No. 23-0650.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	The Webb Law Firm		
Signature			
Printed Name	Kirk M. Miles		
Date	April 23, 2013	Reg. No.	37,891

CERTIFICATE OF TRANSMISSION / MAILING			
I hereby certify that this correspondence is being electronically transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature			
Typed or printed name	Amy Deliman	Date	April 23, 2013

Application No. 13/692,402
Paper Dated: April 23, 2013
Attorney Docket No. 5641-123371

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 13/692,402 Confirmation No. 2398
First Named Inventor : JAMES J. WASSEL
Filed : December 3, 2012
Title : LIGHTING FIXTURE
Group Art Unit : 2875
Examiner : Not Yet Assigned
Customer No. : 28289

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

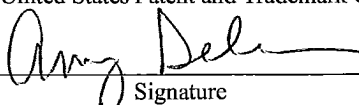
INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to the requirements of 37 C.F.R. §§ 1.56, 1.97, and 1.98, Applicant hereby submits this Information Disclosure Statement, which includes a completed Form PTO/SB/08a.

This application is a continuation of United States Patent Application 12/341,798 filed December 22, 2008, now U.S. Patent No. 8,322,881. Each reference cited in this Information Disclosure Statement was previously cited by or submitted to the United States Patent and Trademark Office during prosecution of parent United States Patent Application No. 12/341,798.

I hereby certify that this correspondence is being electronically submitted to the United States Patent and Trademark Office.

04/23/2013 
Date Signature
Amy Deliman
Typed Name of Person Signing Certificate

Pursuant to 37 C.F.R. §1.98(d)(1) and (2), copies of the non-U.S. Patent references are not submitted herewith because the earlier filed application is properly identified in this Information Disclosure Statement and is relied on for an earlier effective filing date under 35 U.S.C. § 120, and the Information Disclosure Statements submitted in the earlier application complied with paragraphs (a) through (c) of this section.

Pursuant to 37 C.F.R. § 1.97(b)(3), no fee is due for the submission of this Information Disclosure Statement, which is being filed before the mailing of a first Office Action on the merits. Nevertheless, the Commissioner for Patents is hereby authorized to charge any fees which may be required to Deposit Account No. 23-0650.

Respectfully submitted,

THE WEBB LAW FIRM

By



Kirk M. Miles
Registration No. 37,891
Attorney for Applicant
One Gateway Center
420 Ft. Duquesne Blvd., Suite 1200
Pittsburgh, PA 15222
Telephone: (412) 471-8815
Facsimile: (412) 471-4094
Email: webblaw@webblaw.com



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/692,402	12/03/2012	James J. Wassel	5641-123371

CONFIRMATION NO. 2398

PUBLICATION NOTICE



OC00000062095106

28289
THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

Title:Lighting Fixture

Publication No.US-2013-0155675-A1

Publication Date:06/20/2013

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	5641-123371	2398

28289 7590 06/24/2013
THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT	PAPER NUMBER

2885

NOTIFICATION DATE	DELIVERY MODE

06/24/2013

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@webblaw.com

Office Action Summary	Application No. 13/692,402	Applicant(s) WASSEL ET AL.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2885	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3 December 2012.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-20 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) _____ is/are allowed.
- 7) ☒ Claim(s) 1-20 is/are rejected.
- 8) ☐ Claim(s) _____ is/are objected to.
- 9) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 02/27/2013 and 12/03/2012 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Interim copies:

- a) ☐ All b) ☐ Some c) ☐ None of the: Interim copies of the priority documents have been received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>23 April 2013</u>	4) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 23 April 2013 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

It is noted that the IDS contains an extremely large number of references. The examiner has considered all of the references that have been initialed, but has not found any to be particularly relevant. If applicant is aware of pertinent material in the references, an official statement should be made in a response to this Office action. Applicant is reminded of applicant's duty of disclosure pursuant MPEP § 2004:

It is desirable to avoid the submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant and marginally pertinent cumulative information. If a long list is submitted, highlight those documents which have been specifically brought to applicant's attention and/or are known to be of most significance. See *Penn Yan Boats, Inc. v. Sea Lark Boats, Inc.*, 359 F. Supp. 948, 175 USPQ 260 (S.D. Fla. 1972), *aff 'd*, 479 F.2d 1338, 178 USPQ 577 (5th Cir. 1973), *cert. denied*, 414 U.S. 874 (1974). But cf. *Molins PLC v. Textron Inc.*, 48 F.3d 1172, 33 USPQ2d 1823 (Fed. Cir. 1995).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 5, 7, and 9-17 of U.S. Patent No. 8,322,881 (hereinafter ‘881). Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Art Unit: 2885

- Regarding instant claims 1 and 10, claims 1 and 12, respectively, of '881 indicates that the reflector is formed from bent planar sheet material whilst instant claim 1 does not. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a planar sheet material bent to form the multi-faceted side walls of the instant invention to simplify the manufacturing process.
- Regarding instant claims 2 and 15, the instant claim specifies that the linear row of LEDs extends along the length of the lighting strip; however, this is an obvious modification to claims 2 and 17, respectively, of '881.
- There is no significant difference between:
 - Instant claim 3 and '881's claim 4;
 - Instant claim 4 and '881's claim 5;
 - Instant claim 6 and '881's claim 7;
 - Instant claim 7 and '881's claim 9;
 - Instant claim 8 and '881's claim 10;
 - Instant claim 9 and '881's claim 11;
 - Instant claim 11 and '881's claim 13;
 - Instant claim 12 and '881's claim 14;
 - Instant claim 13 and '881's claim 15; and
 - Instant claim 14 and '881's claim 16.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (US 2005/0111220; hereinafter ‘Smith’).

Regarding claim 1, Smith, in at least figures 1 and 3, discloses a light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a substantially planar surface of the lighting strip [106,108];

a first multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the left of opening 12] extending along the lighting arrangement adjacent a first side of the lighting strip [106,108] at an angle such that the first multi-faceted side wall reflector [20, 30 to the left of opening 12] extends along an entire length of the lighting strip [106,108] and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs) [108]; and

a second multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the right of opening 12] extending along the lighting arrangement adjacent a second, opposite side of the lighting strip [106,108] at an angle such that the

Art Unit: 2885

second multi-faceted side wall reflector [20, 30 to the right of opening 12] extends along an entire length of the lighting strip [106,108] away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs) [108],

wherein the first and second multi-faceted side wall reflector [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18].

Regarding claim 2, Smith, in at least figures 1, 3 and 13, discloses the light emitting diodes (LEDs) [108] are arranged in a linear row along the length of the lighting strip [106,108].

Regarding claim 3, Smith discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] defining a plurality of openings [12] receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs) [108], respectively.

Regarding claim 4, Smith, in at least figures 1 and 3, discloses the first and second multi-faceted side wall reflector [20, 30] are formed integral with the base member [102].

Regarding claim 5, Smith discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Art Unit: 2885

Regarding claim 6, Smith, as seen in at least figure 3, discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] and are symmetrical about an axis of symmetry that runs through a center of the base member [102].

Regarding claim 7, Smith discloses the first and second multi-faceted side wall reflector [20, 30] each comprise a first portion [20] defining a first angle with the base member [102] and a second portion [30] defining a second angle with the first portion.

Regarding claim 8, Smith discloses the first angle and second angle are different angles [as seen in at least figure 5].

Regarding claim 9, Smith, as shown in at least figure 5, discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith.

Regarding claim 10, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] mounted on the front side of the base plate [110], each of the lighting strips [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a length of the lighting strip [106,108]; and

wherein each of the lighting strips [106,108] includes:

a first multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the left of opening 12] extending from a first side of the lighting strip [106,108] at an angle such that the first multi-faceted side wall reflector [20, 30 to the left of opening 12] extends along an entire length of the lighting strip [106,108] and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs) [108];

a second multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the right of opening 12] extending from a second, opposite side of the lighting strip [106,108] at an angle such that the second multi-faceted side wall reflector [20, 30 to the right of opening 12] extends along an entire length of the lighting strip [106,108] away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs) [108], and

wherein the first and second multi-faceted side wall reflector [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18].

Smith does not expressly disclose driver circuitry.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have driver circuitry and control circuitry coupled to the LEDs.

One would have been motivated to do so because it is clear to those in the art that both circuits (driver and control) are, not only well-known, but necessary to LED devices to properly power and control LED arrays.

Regarding claims 11 and 12, Smith, as modified above, discloses the claimed invention as indicated above.

However, Smith does not expressly disclose the arrangement of the various circuitry components.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try the arrangement of the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate and the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

One would have been motivated to do so because providing the drive circuit and control circuit on the front side and the power supply on the rear side of the lighting strip would result in a desirable compact system.

Regarding claim 13, Smith discloses the claimed invention as indicated above.

Smith does not expressly disclose how the LEDs are electrically connected.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to electrically wire Smith's two lighting strips, shown in at least figure 13, such that each LED of each lighting strip [106, 108] is electrically connected in series, and each lighting strip [106, 108] is electrically connected to the driver circuitry in parallel.

One would have been motivated to do so because it is well-known that producing Smith's individual series-connected arrays are easier to mass produce. Furthermore, connecting several of these arrays in parallel, rather than in series, will yield a more efficient light emitter.

Regarding claim 14, Smith discloses each plurality of lighting strips [106,108] is individually removably mounted to the base plate [110], so as to permit individual replacement of each lighting strip [106,108] irrespective of the other lighting strips [106,108].

Regarding claim 15, Smith, in at least figures 1, 3, and 13, discloses the light emitting diodes (LEDs) [108] in each of the lighting strips [106,108] are arranged in a linear row along the length of the lighting strip [106,108].

Regarding claim 16, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a substantially planar base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] connected to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110]; and

a reflector [20, 30] mounted to each of the lighting strips [106,108] and comprising multi-faceted side walls [20, 30] extending away from the lighting strip [106,108] such that the multi-faceted side walls [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18],

wherein physical contact between the bottom surface of the lighting strips [106,108] and the base plate [110] provides heat transfer between the lighting strips [106,108] and the base plate [110] such that heat produced by the plurality of light emitting diodes (LEDs) [108] on the lighting strip [106,108] to be conducted to the base plate [110] for transfer to the ambient environment [see at least paragraph 31].

Regarding claim 17, Smith discloses heat transfer fins on at least one side of the base plate [110] to conduct heat to the ambient environment [as seen in at least figure 13].

Regarding claim 20, Smith discloses the claimed invention as indicated above.

Smith does not disclose the distance between the lighting strips [106, 108] and base plate [110].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the inter-contacting surfaces between the lighting strips [106,108] and base plate [110] are separated by less than about one hundredth of an inch (0.01 inches).

One would have been motivated to do so since the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). Further, one would have been motivated to based on figure 13 which indicates a direct contact between the lighting strips [106, 108] and the base plate [110].

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith as applied to claim 16 above, and further in view of Reo et al. (US 2007/0076427; hereinafter 'Reo').

Regarding claim 18, Smith discloses the claimed invention as indicated above. Smith further teaches the base plate is formed of plastic.

Smith does not disclose the base plate is formed of aluminum.

Reo teaches an anodized aluminum base plate [110; see at least paragraph 23].

Art Unit: 2885

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize Reo's anodized aluminum material for Smith's base plate.

One would have been motivated to do so because of the ease of manufacture associated with extruded, anodized aluminum and for the improved heat transferring capabilities of aluminum versus plastic.

Regarding claim 19, Smith, as modified by Reo, discloses the claimed invention as indicated above.

Smith, as modified by Reo, does not expressly disclose that the anodized aluminum base plate has a surface texture.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to try an enhanced conductive non-uniform heat-transferring surface texture.

One would have been motivated to do so because it is old and well-known in the art that a non-uniform heat-transferring surface, even as slight as minute deformations formed in the manufacturing process, add to the heat-transferring abilities of a surface.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEAH S. MACCHIAROLO whose telephone number is (571)272-2719. The examiner can normally be reached on Monday through Friday 9 a.m. until 5:30 p.m.

Art Unit: 2885

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Macchiarolo
Examiner, AU 2885
/L.M./

/Jong-Suk (James) Lee/
Supervisory Patent Examiner, Art Unit 2885

Notice of References Cited	Application/Control No. 13/692,402	Applicant(s)/Patent Under Reexamination WASSEL ET AL.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2885	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2007/0076427	04-2007	Reo et al.	362/555
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S48	71	("20050111220" "20060056169" "20060237738" "20070081339" "20070153526" "20070195527" "20070201225" "20070211463" "20070230171" "20070247856" "20070263388" "20070285927" "20080002399" "20080055908" "20080062689" "20080062691" "20080078524" "20080080162" "20080080196" "20080089069" "20080089070" "20080123340" "20080136661" "20080192476" "20080198572" "20080212329" "20080219001" "20080231201" "20080239722" "20080239750" "20080239751" "20080247170" "20080253122" "20080253125" "20090168395" "5580156" "5723868" "6547416" "6577512" "6586890" "6644841" "6648490" "6784357" "6942361" "6971781" "7067992" "7090370" "7114832" "7119498" "7172319" "7202608" "7217009" "7233115" "7275841" "7278761" "7347706" "7407307" "7420811" "7438447" "7802902" "7963664" "D574548" "D574549" "D576330" "D576331" "D576332" "D577847" "D578695" "D578696" "D578697" "D578698").PN.	US-PGPUB; USPAT	OR	ON	2013/05/28 16:17
S49	1	12/341798.app.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 16:53
S61	1530	(S50 S51 S52 S53 S54 S55 S56 S57 S58 S59 S60) and @pd> "20120715"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 17:24
S60	112	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4 and 362/294,373.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 17:24
S59	2057	"362"/\$.ccls. and (linear near4 (LED.U/C.	US-PGPUB;	OR	ON	2013/05/28

		light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			17:24
S58	224	(street\$1light street\$1lamp) and linear	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 17:24
S57	2397	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 17:24
S56	8474	362/247,249.02,346,347-349,297,296.05,296.02,217.05.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 17:24
S55	151	S54 and LED.u/c.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 17:24
S54	261	S53 and reflect\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 17:24
S53	305	"362"/\$.ccls. and linear.ti.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 17:24
S52	1321	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board)) and (uniform\$3 near2 (beam light emission))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 17:24
S51	3155	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2013/05/28 17:24

			IBM_TDB			
S50	481	("362"/\$.ccls. "313"/\$.ccls.) and series and parallel and LED.u/c. and (fluorescen\$3 florescen\$3 flourescen\$3) and ((double both opposite) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 17:24
S62	0	13/692402.app.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 18:30
L2	1553	362/294,373.ccls. and (heat with aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 20:44
L3	39	362/294,373.ccls. and (heat with aluminum) and (anodized adj aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 20:45
L5	1	14 and (anodized adj aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/05/28 20:51
L4	112	(US-20080192476-\$ or US-20080089069-\$ or US-20070247856-\$ or US-20070230171-\$ or US-20110044036-\$ or US-20100271827-\$ or US-20090323334-\$ or US-20090168395-\$ or US-20050201097-\$ or US-20040264188-\$ or US-20080204888-\$ or US-20110149578-\$ or US-20110090684-\$ or US-20100302790-\$ or US-20090135597-\$ or US-20080074884-\$ or US-20030007359-\$ or US-20050111220-\$ or US-20060176695-\$ or US-20130107553-\$ or US-20130107527-\$ or US-20130107518-\$ or US-20130094225-\$ or US-20130094213-\$ or US-20080239751-\$ or US-20080239750-\$).did. or (US-20070285927-\$ or US-20070211463-\$ or US-20070081339-\$ or US-20080212329-\$ or US-20080253122-\$ or US-20080231201-\$ or US-20070201225-\$ or US-20080253125-\$ or US-20070263388-\$ or US-20070153526-\$ or US-20060056169-\$ or US-20080123340-\$ or US-20080198572-\$ or US-20080247170-\$ or US-20080136661-\$ or US-20080219001-\$ or US-20070195527-\$ or	US-PGPUB; USPAT	OR	ON	2013/05/28 20:51

		US-20080080196-\$ or US-20060237738-\$ or US-20080062689-\$ or US-20080062691-\$ or US-20080002399-\$ or US-20080089070-\$ or US-20080078524-\$ or US-20080239722-\$ or US-20080080162-\$ or US-20080055908-\$).did. or (US-7438447-\$ or US-7407307-\$ or US-7172319-\$ or US-6644841-\$ or US-6547416-\$ or US-5580156-\$ or US-7857482-\$ or US-7810955-\$ or US-7641365-\$ or US-7008079-\$ or US-6880952-\$ or US-7938561-\$ or US-7850347-\$ or US-7780314-\$ or US-7654703-\$ or US-7618157-\$ or US-6641284-\$ or US-8011804-\$ or US-7976196-\$ or US-7963664-\$ or US-7959331-\$ or US-7959322-\$ or US-7789531-\$ or US-7772604-\$ or US-7722221-\$ or US-7547126-\$).did. or (US-7040782-\$ or US-7021799-\$ or US-5723868-\$ or US-5001609-\$ or US-4742432-\$ or US-7119498-\$ or US-7420811-\$ or US-7090370-\$ or US-6971781-\$ or US-7114832-\$ or US-7275841-\$ or US-D574549-\$ or US-6942361-\$ or US-7217009-\$ or US-6648490-\$ or US-7278761-\$ or US-7067992-\$ or US-7233115-\$ or US-6586890-\$ or US-7802902-\$ or US-7202608-\$ or US-D577847-\$ or US-D576332-\$ or US-D576331-\$ or US-D576330-\$ or US-6577512-\$ or US-6784357-\$).did. or (US-D578696-\$ or US-D574548-\$ or US-7347706-\$ or US-D578698-\$ or US-D578697-\$ or US-D578695-\$).did.				
L7	1	(11/605576).APP.	US-PGPUB; USOCR	OR	ON	2013/05/28 20:53
L6	1	(11/605576).APP.	US-PGPUB; USOCR	OR	ON	2013/05/28 20:53

EAST Search History (Interference)

< This search history is empty >

5/ 28/ 2013 10:02:06 PM
C:\ Users\ llovell\ Documents\ EAST\ Workspaces\ 13692402 continuation of 12341798
Lighting Fixture.wsp

Search Notes 	Application/Control No. 13692402	Applicant(s)/Patent Under Reexamination WASSEL ET AL.
	Examiner LEAH S MACCHIAROLO	Art Unit 2885

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
362	247,249.02,346,347-349,297,296.05,296.02,217.05	28 MAY 2013	LSM

SEARCH NOTES		
Search Notes	Date	Examiner
See attached EAST search history printout.	28 MAY 2013	LSM
INVENTOR search. See attached EAST search history printout.	28 MAY 2013	LSM
CLASS/SUBCLASS searching. See attached EAST search history printout.	28 MAY 2013	LSM
TEXT searching. See attached EAST search history printout.	28 MAY 2013	LSM
FORWARD and BACKWARD citation searches on relevant art. See attached EAST search history printout.	28 MAY 2013	LSM
FOR COMPLETE SEARCH NOTES, see the search notes in the parent case(s).	28 MAY 2013	LSM

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

Receipt date: 04/23/2013

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

13692402 - GAI: 2885

P.O. 05/05a (01-19)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13692402
	Filing Date		2012-12-03
	First Named Inventor	James J. Wassel	
	Art Unit	2075 2885	
	Examiner Name	Not Yet Assigned Leah Macchiarolo	
	Attorney Docket Number	5641-123371	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7802902	B2	2010-09-28	Moss et al.	
	2	7438447	B2	2008-10-21	Holder et al.	
	3	7420811	B2	2008-09-02	Chan	
	4	7407307	B2	2008-08-05	Hiratsuka	
	5	7347706	B1	2008-03-25	Wu et al.	
	6	7278761	B2	2007-10-09	Kuan	
	7	7275841	B2	2007-10-02	Kelly	
	8	7233115	B2	2007-06-19	Lys	

Receipt date: 04/23/2013 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13692402	13692402 - GAU: 2885
	Filing Date		2012-12-03	
	First Named Inventor	James J. Wassel		
	Art Unit	~~2875~~ 2885		
	Examiner Name	~~Not Yet Assigned~~ Leah Macchiarolo		
	Attorney Docket Number	5641-123371		

9	7217009	B2	2007-05-15	Klose	
10	7202608	B2	2007-04-10	Robinson et al.	
11	7172319	B2	2007-02-06	Holder et al.	
12	7119498	B2	2006-10-10	Baldwin et al.	
13	7114832	B2	2006-10-03	Holder et al.	
14	7090370	B2	2006-08-15	Clark et al.	
15	7067992	B2	2006-06-27	Leong et al.	
16	6971781	B2	2005-12-06	Guy	
17	6942361	B1	2005-09-13	Kishimura et al.	
18	6784357	B1	2004-08-31	Wang	
19	6648490	B2	2003-11-18	Klose	

Receipt date: 04/23/2013 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13692402	13692402 - GAU: 2885
	Filing Date		2012-12-03	
	First Named Inventor	James J. Wassel		
	Art Unit	~~2875~~ 2885		
	Examiner Name	~~Not Yet Assigned~~ Leah Macchiarolo		
	Attorney Docket Number	5641-123371		

	20	6644841	B2	2003-11-11	Martineau	
	21	6586890	B2	2003-07-01	Min et al.	
	22	6577512	B2	2003-06-10	Tripathi et al.	
	23	6547416	B2	2003-04-15	Pashley et al.	
	24	5580156		1996-12-03	Suzuki et al.	
	25	D578698	S	2008-10-14	Zheng	
	26	D578697	S	2008-10-14	Zheng et al.	
	27	D578696	S	2008-10-14	Wang et al.	
	28	D578695	S	2008-10-14	Zheng et al.	
	29	D577847	S	2008-09-30	Ruud et al.	
	30	D576332	S	2008-09-02	Ruud et al.	

Receipt date: 04/23/2013 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13692402	13692402 - GAU: 2885
	Filing Date		2012-12-03	
	First Named Inventor	James J. Wassel		
	Art Unit	2075 2885		
	Examiner Name	~~Not Yet Assigned~~ Leah Macchiarolo		
	Attorney Docket Number	5641-123371		

	31	D576331	S	2008-09-02	Ruud et al.	
	32	D576330	S	2008-09-02	Ruud et al.	
	33	D574549	S	2008-08-05	Kinnune et al.	
	34	D574548	S	2008-08-05	Wilcox et al.	
	35	7963664	B2	2011-06-21	Bertram et al.	
	36	5723868		1998-03-03	Hammond, Jr. et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

Add

U.S.PATENT APPLICATION PUBLICATIONS

Remove

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20080253125	A1	2008-10-16	Kang et al.	
	2	20080253122	A1	2008-10-16	Hancock et al.	
	3	20080247170	A1	2008-10-09	Peck	

Receipt date: 04/23/2013 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13692402	13692402 - GAU: 2885
	Filing Date		2012-12-03	
	First Named Inventor	James J. Wassel		
	Art Unit	~~2875~~ 2885		
	Examiner Name	~~Not Yet Assigned~~ Leah Macchiarolo		
	Attorney Docket Number	5641-123371		

4	20080239722	A1	2008-10-02	Wilcox	
5	20080231201	A1	2008-09-25	Higley et al.	
6	20080219001	A1	2008-09-11	Russell	
7	20080212329	A1	2008-09-04	Duguay et al.	
8	20080198572	A1	2008-08-21	Medendorp	
9	20080192476	A1	2008-08-14	Hiratsuka	
10	20080136661	A1	2008-06-12	Pederson et al.	
11	20080123340	A1	2008-05-29	McClellan	
12	20080089070	A1	2008-04-17	Wang	
13	20080089069	A1	2008-04-17	Medendorp	
14	20080080196	A1	2008-04-03	Ruud et al.	

Receipt date: 04/23/2013 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13692402	13692402 - GAU: 2885
	Filing Date		2012-12-03	
	First Named Inventor	James J. Wassel		
	Art Unit	2875 2885		
	Examiner Name	~~Not Yet Assigned~~ Leah Macchiarolo		
	Attorney Docket Number	5641-123371		

15	20080080162	A1	2008-04-03	Wilcox et al.	
16	20080078524	A1	2008-04-03	Wilcox et al.	
17	20080062691	A1	2008-03-13	Villard et al.	
18	20080062689	A1	2008-03-13	Villard	
19	20080055908	A1	2008-03-06	Wu et al.	
20	20080002399	A1	2008-01-03	Villard et al.	
21	20070285927	A1	2007-12-13	Chen	
22	20070263388	A1	2007-11-15	Lai et al.	
23	20070247856	A1	2007-10-25	Wang et al.	
24	20070230171	A1	2007-10-04	Hiratsuka	
25	20070211463	A1	2007-09-13	Chevalier et al.	

Receipt date: 04/23/2013 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13692402	13692402 - GAU: 2885
	Filing Date		2012-12-03	
	First Named Inventor	James J. Wassel		
	Art Unit	~~2875~~ 2885		
	Examiner Name	~~Not Yet Assigned~~ Leah Macchiarolo		
	Attorney Docket Number	5641-123371		

	26	20070201225	A1	2007-08-30	Holder et al.	
	27	20070195527	A1	2007-08-23	Russell	
	28	20070153526	A1	2007-07-05	Lim	
	29	20060237738	A1	2006-10-26	Salam	
	30	20060056169	A1	2006-03-16	Lodhie et al.	
	31	20090168395	A1	2009-07-02	Mrakovich et al.	
	32	20080239751	A1	2008-10-02	Chang	
	33	20080239750	A1	2008-10-02	Chang	
	34	20070081339	A1	2007-04-12	Chung et al.	
	35	20050111220	A1	2005-05-26	Smith	

If you wish to add additional U.S. Published Application citation information please click the Add button. [Add](#)

FOREIGN PATENT DOCUMENTS

[Remove](#)

Receipt date: 04/23/2013 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13692402	13692402 - GAU: 2885
	Filing Date		2012-12-03	
	First Named Inventor	James J. Wassel		
	Art Unit	2075 2885		
	Examiner Name	~~Not Yet Assigned~~ Leah Macchiarolo		
	Attorney Docket Number	5641-123371		

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	101191591	CN	A	2008-06-04	Du		☐
	2	101101096	CN	A	2008-01-09	Tong et al.		☐
	3	2007088665	WO	A1	2007-08-09	Michio et al.		☐
	4	2004200102	JP	A	2004-07-15	Fumio et al.		☐

If you wish to add additional Foreign Patent Document citation information please click the Add button **Add**

NON-PATENT LITERATURE DOCUMENTS

Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	"power light source: LUXEON® Rebel", Technical Datasheet DS56, Philips, 2007.	☐
	2	"Cree® XLamp® XR-E LED Data Sheet", Cree LED Light, 2006-2007.	☐
	3	Bibee, Greg, "Lighting Class' LED Design Basics", 2008.	☐

If you wish to add additional non-patent literature document citation information please click the Add button **Add**

Receipt date: 04/23/2013 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13692402	13692402 - GAU: 2885
	Filing Date		2012-12-03	
	First Named Inventor	James J. Wassel		
	Art Unit	~~2875~~ 2885		
	Examiner Name	~~Not Yet Assigned~~ Leah Macchiarolo		
	Attorney Docket Number	5641-123371		

EXAMINER SIGNATURE			
Examiner Signature	/Leah Macchiarolo/	Date Considered	05/28/2013
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			
¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.			

UNITED STATES PATENT AND TRADEMARK OFFICE
COMMISSIONER FOR PATENTS
P.O.BOX 1450
ALEXANDRIA VA 22313-1451

PRESORTED
FIRST-CLASS MAIL
U.S. POSTAGE PAID
POSTEDIGITAL
NNNNN

THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222



**Courtesy Reminder for
Application Serial No: 13/692,402**

Attorney Docket No: 5641-123371

Customer Number: 28289

Date of Electronic Notification: 06/24/2013

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:
patents@webblaw.com

To view your correspondence online or update your email addresses, please visit us anytime at <https://portal.uspto.gov/secure/myportal/privatepair>. If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov or call 1-866-217-9197.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	5641-123371	2398

28289 7590 10/22/2013
THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT	PAPER NUMBER

2885

NOTIFICATION DATE	DELIVERY MODE

10/22/2013

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@webblaw.com

<i>Applicant-Initiated Interview Summary</i>	Application No. 13/692,402	Applicant(s) WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2885	

All participants (applicant, applicant's representative, PTO personnel):

(1) Ryan Miller, U.S. Reg. 56,236. (3) Leah Macchiarolo, Examiner.

(2) Ismael Negron, Primary Examiner. (4) _____.

Date of Interview: 15 October 2013.

Type: ☒ Telephonic ☐ Video Conference
 ☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.
 If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☒102 ☒103 ☐Others
 (For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1 and 16.

Identification of prior art discussed: Smith (US 2005/0111220).

Substance of Interview
 (For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant's Representative argued Smith fails to meet the limitations of claims 1, 10, and 16. Specifically, regarding claims 1 and 10, Smith's reflecting surfaces [20] fails to extend the entire length of the lighting strip. The Examiner respectfully disagreed because the other portion of the reflector [30] does. Further, regarding claim 16, Applicant's Representative alleges Smith fails to disclose a base plate in physical contact with the lighting strip as claimed. The Examiners respectfully disagreed as the exploded view in Smith's figure 13 does not show any component between the lighting strip and base, paragraph 31 of Smith indicates the thermal transmission between the two; and based on thermodynamic principles contact is required between the two components for such thermal transmissions to be facilitated. No agreement was made on any proposed amendments to the claims.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

	/Ismael Negron/ Primary Examiner, Art Unit 2885

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

**TERMINAL DISCLAIMER TO OBIATE A DOUBLE PATENTING
REJECTION OVER A "PRIOR" PATENT**

Docket Number (Optional)

In re Application of: James J. Wassel

Application No.: 13/692,402

Filed: December 3, 2012

For: "LIGHTING FIXTURE"

The applicant, Appalachian Lighting Systems, Inc., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 8,322,881 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for any during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

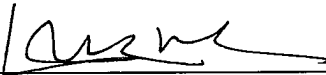
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☒ The undersigned is an attorney or agent of record. Reg. No. 37,891



Signature

October 23, 2013

Date

Kirk M. Miles

Typed or printed name

Esquire

Title

412-471-8815

Telephone Number

- ☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Application No. 13/692,402
Paper Dated: October 23, 2013
In Reply to USPTO Correspondence of June 24, 2013
Attorney Docket No. 5641-123371

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 13/692,402 Confirmation No. 2398
First Named Inventor : James J. Wassel
Filed : December 3, 2012
Title : LIGHTING FIXTURE
Group Art Unit : 2875
Examiner : Leah Simone Macchiarolo
Customer No. : 28289

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

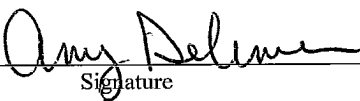
AMENDMENT

Sir:

In response to the Office Action dated June 24, 2013, the Applicant submits the following amendments and remarks, along with a Terminal Disclaimer to Obviate a Double Patenting Rejection Over a "Prior" Patent, a One-Month Petition for Extension of Time, and the requisite fees.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 7 of this paper.

I hereby certify that this correspondence is being electronically submitted to the United States Patent and Trademark Office.	
10/23/2013	
Date	Signature
Amy Deliman	
Typed Name of Person Signing Certificate	

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Original) A light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a substantially planar surface of the lighting strip;

a first multi-faceted side wall reflector extending along the lighting arrangement adjacent a first side of the lighting strip at an angle such that the first multi-faceted side wall reflector extends along an entire length of the lighting strip and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs); and

a second multi-faceted side wall reflector extending along the lighting arrangement adjacent a second, opposite side of the lighting strip at an angle such that the second multi-faceted side wall reflector extends along an entire length of the lighting strip away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs),

wherein the first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

2. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 1, wherein the light emitting diodes (LEDs) are arranged in a linear row along the length of the lighting strip.

3. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 1, wherein the first and second multi-faceted side wall reflectors extend away from a base member defining a plurality of openings receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs), respectively.

4. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 3, wherein the first and second multi-faceted side wall reflectors are formed integral with the base member.

5. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 3, wherein the first and second multi-faceted side wall reflectors comprise multi-angle side walls.

6. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 1, wherein the first and second multi-faceted side wall reflectors extend away from a base member and are symmetrical about an axis of symmetry that runs through a center of the base member.

7. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 6, wherein the first and second multi-faceted side wall reflectors each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion.

8. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 7, wherein the first angle and second angle are different angles.

9. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in Claim 1, wherein the first and second multi-faceted side wall reflectors comprise multi-angle side walls.

10. (Original) A light emitting diode (LED) lighting fixture, comprising:

a base plate having a front side and a rear side;

a plurality of lighting strips mounted on the front side of the base plate, each of the lighting strips comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; and

driver circuitry and control circuitry electrically coupled to the plurality of light emitting diodes (LEDs) for providing power to the light emitting diodes (LEDs),

wherein each of the lighting strips includes:

a first multi-faceted side wall reflector extending from a first side of the lighting strip at an angle such that the first multi-faceted side wall reflector extends along an entire length of the lighting strip and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs);

a second multi-faceted side wall reflector extending from a second, opposite side of the lighting strip at an angle such that the second multi-faceted side wall reflector extends along an entire length of the lighting strip away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs), and

wherein the first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

11. (Original) The light emitting diode (LED) lighting fixture as claimed in Claim 10, wherein the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate.

12. (Original) The light emitting diode (LED) lighting fixture as claimed in Claim 11, wherein the power supply is electrically connected to the control circuitry, the

control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

13. (Original) The light emitting diode (LED) lighting fixture as claimed in Claim 10, wherein each light emitting diode (LED) of each lighting strip is electrically connected in series, and each lighting strip is electrically connected to the driver circuitry in parallel.

14. (Original) The light emitting diode (LED) lighting fixture as claimed in Claim 10, wherein each plurality of lighting strips is individually removably mounted to the base plate, so as to permit individual replacement of each lighting strip irrespective of the other lighting strips.

15. (Original) The light emitting diode (LED) lighting fixture as claimed in Claim 10, wherein the light emitting diodes (LEDs) in each of the lighting strips are arranged in a linear row along the length of the lighting strip.

16. (Currently Amended) A light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate having a front side and a rear side;

~~a plurality of at least four lighting strips comprising a substantially planar base member; and a plurality of light emitting diodes (LEDs) arranged along a length of the base member, the base member connected in direct physical contact~~ to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate; and

a reflector mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam,

wherein physical contact between the bottom surface of the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of light emitting diodes (LEDs) on the lighting strip to be conducted to the base plate for transfer to the ambient environment.

17. (Original) The light emitting diode (LED) lighting fixture as claimed in Claim 16, further comprising heat transfer fins on at least one side of the base plate to conduct heat to the ambient environment.

18. (Cancelled)

19. (Cancelled)

20. (Original) The light emitting diode (LED) lighting fixture as claimed in Claim 16, wherein inter-contacting surfaces between the lighting strips and base plate are separated by less than about one hundredth of an inch (0.01 inches).

REMARKS

I. Introduction

The Office Action of June 24, 2013 has been reviewed and the Examiner's comments carefully considered. The present Amendment amends claim 16 in accordance with the originally-filed specification. No new matter has been added by this Amendment. In addition, the present amendment cancels claims 18 and 19. Accordingly, claims 1-17 and 20 are currently pending in this application, and claims 1, 10, and 16 are in independent form. Based on the above amendments and the following remarks, the Applicant respectfully requests reconsideration of the rejections set forth in the Office Action of June 24, 2013.

II. Interview of October 15, 2013

The Applicant would like to thank Examiner Macchiarolo for the courtesies extended to the Applicant's representative during the telephonic interview of October 15, 2013. During the interview, the Applicant's representative discussed the differences between the claimed invention and the cited prior art. No agreements were reached as the result of this interview.

III. Double Patenting Rejection

Claims 1-15 stand rejected on the grounds of non-statutory, obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 5, 7, and 9-17 of United States Patent No. 8,322,881 to Wassel (hereinafter "the Wassel patent").

In response to this rejection, the Applicant submits herewith a Terminal Disclaimer to Obviate a Double Patenting Rejection Over a "Prior" Patent showing that the Wassel patent and the instant application are commonly owned. Therefore, the rejection of claims 1-15 has been overcome. In addition, that Applicant would like to note that the Wassel patent was not cited on the Notice of References Cited form attached to the Office Action. The Applicant respectfully requests that the Examiner list the Wassel patent on a Notice of References Cited form in the next Office Communication.

Based on the foregoing remarks and the accompanying Terminal Disclaimer, reconsideration and withdrawal of the double patenting rejection of claims 1-15 are respectfully requested.

IV. Prior Art Rejections

Claims 1-9 stand rejected under 35 U.S.C. § 102(b) as being anticipated by United States Patent Application Publication No. 2005/0111220 to Smith (hereinafter “the Smith publication”). Claims 10-17 and 20 stand rejected under 35 U.S.C. § 103(a) for obviousness over the Smith publication. Claims 18 and 19 stand rejected under 35 U.S.C. § 103(a) for obviousness over United States Patent Application Publication No. 2007/0076427 to Reo et al. (hereinafter “the Reo publication”). In view of the above amendments and the following remarks, the Applicant respectfully requests reconsideration of these rejections.

As defined by independent claim 1, the claimed invention is directed to a light emitting diode (LED) lighting arrangement for a lighting fixture, comprising: a lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a substantially planar surface of the lighting strip; a first multi-faceted side wall reflector extending along the lighting arrangement adjacent a first side of the lighting strip at an angle such that the first multi-faceted side wall reflector extends along an entire length of the lighting strip and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs); and a second multi-faceted side wall reflector extending along the lighting arrangement adjacent a second, opposite side of the lighting strip at an angle such that the second multi-faceted side wall reflector extends along an entire length of the lighting strip away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs). The first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

As defined by independent claim 10, the claimed invention is directed to a light emitting diode (LED) lighting fixture, comprising: a base plate having a front side and a rear side; a plurality of lighting strips mounted on the front side of the base plate, each of the lighting strips comprising a plurality of light emitting diodes (LEDs) arranged along a length of the

lighting strip; and driver circuitry and control circuitry electrically coupled to the plurality of light emitting diodes (LEDs) for providing power to the light emitting diodes (LEDs). Each of the lighting strips includes: a first multi-faceted side wall reflector extending from a first side of the lighting strip at an angle such that the first multi-faceted side wall reflector extends along an entire length of the lighting strip and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs); and a second multi-faceted side wall reflector extending from a second, opposite side of the lighting strip at an angle such that the second multi-faceted side wall reflector extends along an entire length of the lighting strip away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs).

As defined by amended independent claim 16, the claimed invention is directed to a light emitting diode (LED) lighting fixture, comprising: a substantially planar and flat base plate formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture. The base plate has a front side and a rear side. The LED lighting fixture also includes at least four lighting strips comprising a substantially planar base member and a plurality of light emitting diodes (LEDs) arranged along a length of the base member. The base member is connected in direct physical contact to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate. The LED lighting fixture also includes a reflector mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam. Physical contact between the bottom surface of the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of light emitting diodes (LEDs) on the lighting strip to be conducted to the base plate for transfer to the ambient environment.

The Smith publication is directed to a composite reflecting surface for a linear LED array that incorporates a *truncated circular parabolic reflector surrounding each LED* and a trough axially above the circular parabolic reflectors defined between parallel longitudinal reflecting surfaces. The short circular parabolic reflectors collimate wide angle light from the LED into a direction parallel to the LED optical axis. The longitudinal reflecting surfaces are

linear parabolic surfaces altered to improve the vertical spread of the light radiation pattern. Longitudinal convex ribs project inwardly from the basic linear parabolic shape (see FIG. 12).

Regarding independent claims 1 and 10, the Smith publication does not teach or suggest a first multi-faceted side wall reflector extending along the lighting arrangement adjacent a first side of the lighting strip at an angle such that the first multi-faceted side wall reflector extends *along an entire length* of the lighting strip and *away from a bottom portion* of a light emitting portion of each of the light emitting diodes (LEDs), and a second multi-faceted side wall reflector extending along the lighting arrangement adjacent a second, opposite side of the lighting strip at an angle such that the second multi-faceted side wall reflector extends *along an entire length* of the lighting strip *away from the bottom portion of the light emitting portion* of each of the light emitting diodes (LEDs). The Examiner contends that the circular parabolic reflecting surfaces (20) and longitudinal reflecting surfaces (30) of the Smith publication correspond to the claimed multi-faceted side walls. However, the circular parabolic reflecting surfaces (20) do *not* extend along an entire length of the lighting strip as required by independent claims 1 and 10. Instead, these circular parabolic reflecting surfaces (20) extend around a single LED entering through opening (12) as shown in FIG. 12. Accordingly, these circular parabolic reflecting surfaces (20) cannot be considered to correspond to the claimed multi-faceted sidewalls of claims 1 and 10.

In addition, while the longitudinal reflecting surfaces (30) of the Smith publication extend along an entire length of the linear array of LEDs (106) as the Examiner indicated during the interview of October 15, 2013, these longitudinal reflecting surfaces do not extend away from the bottom portion of the light emitting portion of the LEDs. Instead, as clearly shown in FIG. 5 of the Smith publication, these longitudinal reflecting portions (30) extend away from the upper edge of the circular parabolic reflecting surfaces (20). Accordingly, these longitudinal reflecting portions (30) cannot be considered to correspond to the claimed multi-faceted sidewalls of independent claims 1 and 10.

Regarding independent claim 16, the Smith publication fails to teach or suggest that physical contact between the bottom surface of the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the

plurality of light emitting diodes (LEDs) on the lighting strip to be conducted to the base plate for transfer to the ambient environment. The Examiner is relying on the thermally conductive plastic heat sink (110) as corresponding to the claimed base plate. However, the only description of this heat sink (110) is provided in paragraph [0031] of the Smith publication. This portion of the Smith publication merely describes that the heat sink (110) covers the back of the assembly and provides a thermal pathway for heat generated by the LEDs (108). There is simply no teaching or suggestion in the Smith publication that there is physical contact between the bottom surfaces of the linear arrays (106, 108) of LEDs and the heat sink (110) as required by independent claim 16.

However, in order to expedite prosecution, independent claim 16 has been amended hereinabove to further define the base plate and the manner in which the lighting strips are connected to the base plate. For instance, independent claim 16 has been amended to require the base plate to be flat. The thermally conductive plastic heat sink (110) of the Smith publication is clearly not flat as shown in FIG. 13 of the Smith publication. In addition, independent claim 16 has been amended to require the lighting fixture to include at least four lighting strips. The Smith publication only illustrates the use of two LED arrays. The use of at least four lighting strips is important in the present invention in that the present invention is intended for use as a street light and the use of at least four lighting strips, along with the amplification of the light provided by the reflectors, allows for sufficient light output for such an application as described in paragraph [0088] of the specification of the present application. The Smith publication provides no teaching or suggestion of using the light described therein as a street light.

In addition, the Reo publication, whether considered alone or in combination with the Smith publication, does not cure the above described deficiencies.

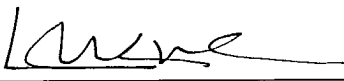
For the foregoing reasons, the Applicant believes that the subject matter of independent claims 1, 10, and 16 is not anticipated or rendered obvious by the Smith publication. Reconsideration of the rejection of claims 1, 10, and 16 is respectfully requested.

Claims 2-9, 11-15, 17, and 20 depend from and add further limitations to independent claim 1, independent claim 10, amended independent claim 16, or a subsequent dependent claim, and are believed to be patentable for at least the reasons discussed hereinabove in connection with amended independent claims 1, 10, and 16. Reconsideration of the rejection of claims 2-9, 11-15, 17, and 20 is respectfully requested.

V. Conclusion

Based on the foregoing amendments and remarks, the Applicant respectfully requests allowance of pending claims 1-17 and 20. Should the Examiner have any questions, or wish to discuss the application in further detail, the Examiner is invited to contact Applicant's undersigned representative by telephone at 412-471-8815.

Respectfully submitted,
THE WEBB LAW FIRM

By 
Kirk M. Miles
Registration No. 37,891
Attorney for Applicant
One Gateway Center
420 Ft. Duquesne Blvd., Suite 1200
Pittsburgh, PA 15222
Telephone: (412) 471-8815
Facsimile: (412) 471-4094
Email: webblaw@webblaw.com

Electronic Patent Application Fee Transmittal

Application Number:	13692402			
Filing Date:	03-Dec-2012			
Title of Invention:	Lighting Fixture			
First Named Inventor/Applicant Name:	James J. Wassel			
Filer:	Kirk M. Miles/Amy Deliman			
Attorney Docket Number:	5641-123371			
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	2251	1	100	100

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Statutory or Terminal Disclaimer	1814	1	160	160
Total in USD (\$)				260

Electronic Acknowledgement Receipt

EFS ID:	17207165
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	28289
Filer:	Kirk M. Miles/Amy Deliman
Filer Authorized By:	Kirk M. Miles
Attorney Docket Number:	5641-123371
Receipt Date:	23-OCT-2013
Filing Date:	03-DEC-2012
Time Stamp:	15:09:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$260
RAM confirmation Number	1736
Deposit Account	
Authorized User	

File Listing:

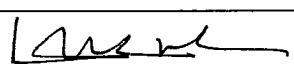
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

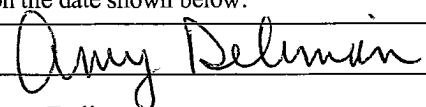
1		Amendment.pdf	860585 8492669743bfc8bdc0dccb72dcd3d4ee9371e6	yes	17				
	Multipart Description/PDF files in .zip description								
	Document Description		Start	End					
	Transmittal Letter		1	1					
	Fee Worksheet (SB06)		2	2					
	Extension of Time		3	3					
	Terminal Disclaimer Filed		4	5					
	Amendment/Req. Reconsideration-After Non-Final Reject		6	17					
Warnings:									
Information:									
2	Fee Worksheet (SB06)	fee-info.pdf	31762 42d721e9ea5685740e7dcc1ec6d08562b1e92b57	no	2				
Warnings:									
Information:									
Total Files Size (in bytes):			892347						
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.									

TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>	Application Number	13/692,402
	Filing Date	12/03/2012
	First Named Inventor	James J. Wassel
	Art Unit	2875
	Examiner Name	Leah Simone Macchiarolo
Total Number of Pages in This Submission	Attorney Docket Number	5641 - 123371

ENCLOSURES (check all that apply)		
☒ Fee Transmittal Form ☒ Fee Attached ☒ Amendment / Reply ☐ After Final ☐ Affidavits/declaration(s) ☒ Extension of Time Request ☐ Express Abandonment Request ☐ Information Disclosure Statement ☐ Certified Copy of Priority Document(s) ☐ Reply to Missing Parts/ Incomplete Application ☐ Reply to Missing Parts Under 37 CFR 1.52 or 1.53	☐ Drawing(s) ☐ Licensing-related Papers ☐ Petition ☐ Petition to convert to a Provisional Application ☐ Power of Attorney, Revocation Change of Correspondence Address ☒ Terminal Disclaimer ☐ Request for Refund ☐ CD, Number of CD(s) _____ ☐ Landscape Table on CD	☐ After Allowance communication to TC ☐ Appeal Communication to Board of Appeals and Interferences ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) ☐ Proprietary Information ☐ Status Letter ☐ Other Enclosure(s) (please identify below):
Remarks		
☒ Claim Fees Previously Paid: Total Claims 20 Total Indpen. Claims 3 ☐ Claim Fees Due (see Fee Transmittal Form)		

The Commissioner for Patents is hereby authorized to charge any additional fees or underpayment of fees under 37 CFR 1.16 and 1.17 to Deposit Account No. 23-0650.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	The Webb Law Firm		
Signature			
Printed Name	Kirk M. Miles		
Date	October 23, 2013	Reg. No.	37,891

CERTIFICATE OF TRANSMISSION / MAILING			
I hereby certify that this correspondence is being electronically transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature			
Typed or printed name	Amy Deliman	Date	October 23, 2013

Under the Paperwork Reduction Act of 1995 no persons are required to respond to a collection of information unless it displays a valid OMB control number

FEE TRANSMITTAL		Complete if known	
		Application Number	13/692,402
		Filing Date	12/03/2012
☒ Applicant asserts small entity status. See 37 CFR 1.27.		First Named Inventor	James J. Wassel
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.		Examiner Name	Leah Simone Macchiarolo
		Art Unit	2875
TOTAL AMOUNT OF PAYMENT	(\$ 260)	Practitioner Docket No.	5641 - 123371

METHOD OF PAYMENT (check all that apply)
☐ Check ☒ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 23-0650 Deposit Account Name: _____

For the above-identified deposit account, the Director is hereby authorized to (check all that apply):

☐ Charge fee(s) indicated below☐ Charge fee(s) indicated below, **except for the filing fee**
☒ Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17
☒ Credit any overpayment of fee(s)
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.
FEE CALCULATION**1. BASIC FILING, SEARCH, AND EXAMINATION FEES (U = undiscounted fee; S = small entity fee; M = micro entity fee)**

Application Type	FILING FEES			SEARCH FEES			EXAMINATION FEES			Fees Paid (\$)
	U (\$)	S (\$)	M (\$)	U (\$)	S (\$)	M (\$)	U (\$)	S (\$)	M (\$)	
Utility	280	140*	70	600	300	150	720	360	180	
Design	180	90	45	120	60	30	460	230	115	
Plant	180	90	45	380	190	95	580	290	145	
Reissue	280	140	70	600	300	150	2,160	1,080	540	
Provisional	260	130	65	0	0	0	0	0	0	

* The \$140 small entity status filing fee for a utility application is further reduced to \$70 for a small entity status applicant who files the application via EFS-Web.

2. EXCESS CLAIM FEES

Fee Description	Undiscounted Fee (\$)	Small Entity Fee (\$)	Micro Entity Fee (\$)
Each claim over 20 (including Reissues)	80	40	20
Each independent claim over 3 (including Reissues)	420	210	105
Multiple dependent claims	780	390	195

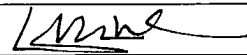
Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
-20 or HP =	x	=	
HP = highest number of total claims paid for, if greater than 20.			
Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
-3 or HP =	x	=	
HP = highest number of independent claims paid for, if greater than 3.			

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$400 (\$200 for small entity) (\$100 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
- 100 =	/ 50 =	(round up to a whole number) x	=	

SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	37,891	Telephone	412-471-8815
Name (Print/Type)	Kirk M. Miles	Date	October 23, 2013		

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) 5641 - 123371
Application Number 13/692,402	Filed 12/03/2012	
For "Lighting Fixture"		
Art Unit 2875	Examiner Leah Simone Macchiarolo	

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	Micro Entity Fee	
☒ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ <u>100</u>
☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____
☐ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ _____
☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____
☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____

☒ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to
Deposit Account Number 23-0650.

☒ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☒ attorney or agent of record. Registration number 37,891

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____



 Signature
 Kirk M. Miles

 Typed or printed name

October 23, 2013

 Date
 412-471-8815

 Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☒ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Application Number 	Application/Control No. 13/692,402	Applicant(s)/Patent under Reexamination WASSEL, JAMES J.	
Document Code - DISQ		Internal Document – DO NOT MAIL	

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 10/23/13	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:

Janice Ford

U.S. Patent and Trademark Office



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	5641-123371	2398

28289 7590 02/20/2014
THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT	PAPER NUMBER

2885

NOTIFICATION DATE	DELIVERY MODE

02/20/2014

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@webblaw.com

Office Action Summary	Application No. 13/692,402	Applicant(s) WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2885	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 OCT 2013.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-17 and 20 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-17 and 20 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. ____.
2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date ____.	4) ☐ Other: ____.

Art Unit: 2885

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

The amendment filed 23 October 2013 consists of changes to the claims and a response to the previous office action.

The amendment filed 23 October 2013 has been considered and entered.

Terminal Disclaimer

The terminal disclaimer filed on 23 October 2013 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 8,322,881 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (US 2005/0111220; hereinafter ‘Smith’).

Regarding claim 1, Smith, in at least figures 1 and 3, discloses a light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a substantially planar surface of the lighting strip [106,108];

a first multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the left of opening 12] extending along the lighting arrangement adjacent a first side of the lighting strip [106,108] at an angle such that the first multi-faceted side wall reflector [20, 30 to the left of opening 12] extends along an entire length of the lighting strip [106,108; at least reflector 30 extends the entire length] and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs) [108]; and

a second multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the right of opening 12] extending along the lighting arrangement adjacent a second, opposite side of the lighting strip [106,108] at an angle such that the second multi-faceted side wall reflector [20, 30 to the right of opening 12] extends along an entire length of the lighting strip [106,108] away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs) [108],

wherein the first and second multi-faceted side wall reflector [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18].

Art Unit: 2885

Regarding claim 2, Smith, in at least figures 1, 3 and 13, discloses the light emitting diodes (LEDs) [108] are arranged in a linear row along the length of the lighting strip [106,108].

Regarding claim 3, Smith discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] defining a plurality of openings [12] receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs) [108], respectively.

Regarding claim 4, Smith, in at least figures 1 and 3, discloses the first and second multi-faceted side wall reflector [20, 30] are formed integral with the base member [102].

Regarding claim 5, Smith discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Regarding claim 6, Smith, as seen in at least figure 3, discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] and are symmetrical about an axis of symmetry that runs through a center of the base member [102].

Regarding claim 7, Smith discloses the first and second multi-faceted side wall reflector [20, 30] each comprise a first portion [20] defining a first angle with the base member [102] and a second portion [30] defining a second angle with the first portion.

Art Unit: 2885

Regarding claim 8, Smith discloses the first angle and second angle are different angles [as seen in at least figure 5].

Regarding claim 9, Smith, as shown in at least figure 5, discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith.

Regarding claim 10, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] mounted on the front side of the base plate [110], each of the lighting strips [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a length of the lighting strip [106,108]; and

wherein each of the lighting strips [106,108] includes:

a first multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the left of opening 12] extending from a first side of the lighting strip [106,108] at an angle such that the first multi-faceted side wall reflector [20, 30 to the left of opening 12] extends along an entire length of the lighting strip [106,108] and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs) [108];

a second multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the right of opening 12] extending from a second, opposite side of the lighting strip [106,108] at an angle such that the second multi-faceted side wall reflector [20, 30 to the right of opening 12] extends along an entire length of the lighting strip [106,108] away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs) [108], and

wherein the first and second multi-faceted side wall reflector [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18].

Smith does not expressly disclose driver circuitry.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have driver circuitry and control circuitry coupled to the LEDs.

One would have been motivated to do so because it is clear to those in the art that both circuits (driver and control) are, not only well-known, but necessary to LED devices to properly power and control LED arrays.

Regarding claims 11 and 12, Smith, as modified above, discloses the claimed invention as indicated above.

However, Smith does not expressly disclose the arrangement of the various circuitry components.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try the arrangement of the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate and the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

One would have been motivated to do so because providing the drive circuit and control circuit on the front side and the power supply on the rear side of the lighting strip would result in a desirable compact system.

Regarding claim 13, Smith discloses the claimed invention as indicated above.

Smith does not expressly disclose how the LEDs are electrically connected.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to electrically wire Smith's two lighting strips, shown in at least figure 13, such that each LED of each lighting strip [106, 108] is electrically connected in series, and each lighting strip [106, 108] is electrically connected to the driver circuitry in parallel.

One would have been motivated to do so because it is well-known that producing Smith's individual series-connected arrays are easier to mass produce. Furthermore, connecting several of these arrays in parallel, rather than in series, will yield a more efficient light emitter.

Regarding claim 14, Smith discloses each plurality of lighting strips [106,108] is individually removably mounted to the base plate [110], so as to permit individual replacement of each lighting strip [106,108] irrespective of the other lighting strips [106,108].

Regarding claim 15, Smith, in at least figures 1, 3, and 13, discloses the light emitting diodes (LEDs) [108] in each of the lighting strips [106,108] are arranged in a linear row along the length of the lighting strip [106,108].

Claims 16, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith and further in view of Reo et al. (US 2007/0076427; hereinafter 'Reo').

Regarding claim 16, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate [110] comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] comprising a substantially planar base member [106]; and a plurality of light emitting diodes (LEDs) [108] arranged along a length of the base member [106], the base member [108]

Art Unit: 2885

connected to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110]; and

a reflector [20, 30] mounted to each of the lighting strips [106,108] and comprising multi-faceted side walls [20, 30] extending away from the lighting strip [106,108] such that the multi-faceted side walls [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18],

wherein physical contact between the bottom surface of the lighting strips [106,108] and the base plate [110] provides heat transfer between the lighting strips [106,108] and the base plate [110] such that heat produced by the plurality of light emitting diodes (LEDs) [108] on the lighting strip [106,108] to be conducted to the base plate [110] for transfer to the ambient environment [see at least paragraph 31].

Smith does not disclose the base plate is formed of aluminum.

Reo teaches an anodized aluminum base plate [110; see at least paragraph 23].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize Reo's anodized aluminum material for Smith's base plate.

One would have been motivated to do so as anodized aluminum is old and well-known in the art for being inexpensive, easily shapeable (via molding or extrusion), light-weight and being more durable than plastic.

Smith teaches in at least figure 13, which is an exploded view of the LED light fixture, the base member [108] connected to the base plate [110] so as to permit at least conductive heat

Art Unit: 2885

transfer from the lighting strips [106,108] to the base plate [110]. From at least exploded figure 13, it can be inferred that there is direct contact between the base member [108] and base plate [110].

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made that Smith's base member [108] is in direct physical contact to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110].

Smith does not disclose more than two lighting strips.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least four lighting strips, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

One would be motivated to do so to achieve a desired brightness from Smith's lighting device.

Regarding claim 17, Smith discloses heat transfer fins on at least one side of the base plate [110] to conduct heat to the ambient environment [as seen in at least figure 13].

Regarding claim 20, Smith discloses the claimed invention as indicated above.

Smith does not disclose the distance between the lighting strips [106, 108] and base plate [110].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the inter-contacting surfaces between the lighting strips [106,108] and base plate [110] are separated by less than about one hundredth of an inch (0.01 inches).

One would have been motivated to do so since the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). Further, one would have been motivated to based on figure 13 which indicates a direct contact between the lighting strips [106, 108] and the base plate [110].

Response to Arguments

At the request of the Applicant, Wassel (US 8,322,881) is cited on a PTO-892: Notice of References Cited accompanying the instant communication.

Applicant's arguments filed 23 October 2013 have been fully considered but they are not persuasive.

Regarding independent claims 1 and 10, Applicant alleges Smith's first multi-faceted side wall reflector [20, 30] does not extend the entire length of the lighting strip and away from a bottom portion of a light emitting portion of the lighting strip. Upon further consideration, the Examiner disagrees. At least portion 30 of the reflector [20, 30] extends the entire length of the

Art Unit: 2885

lighting strip. The Examiner notes that the claim language does not require every element of the reflector to extend; further, portion 30 alone would meet the limitations set forth in at least claim 1. Secondly, regarding the extension of the reflector away from the bottom portion of the light emitting portion, the Examiner asserts that there is no claim language to indicate that the reflector must originate at the same level/position as the light-emitting portion. Thus, the Examiner maintains the rejection as the walls of Smith's reflector [20, 30] extend away from the bottom portion of the light emitting portion of the LEDs.

Regarding claim 16, Applicant alleges Smith fails to disclose the physical contact between the base plate and base member. The Examiner respectfully disagrees as the exploded view of Smith's figure 13 does not show any intervening component between the base member [106] and base plate [106]; thus, direct physical contact can be inferred.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2885

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEAH S. MACCHIAROLO whose telephone number is (571)272-2719. The examiner can normally be reached on Monday and Tuesday 9 a.m. until 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Macchiarolo
Examiner, AU 2885
/LSM/

/Jong-Suk (James) Lee/
Supervisory Patent Examiner, Art Unit 2885

Notice of References Cited	Application/Control No. 13/692,402	Applicant(s)/Patent Under Reexamination WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2885	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-8,322,881	12-2012	Wassel, James J.	362/247
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S82	2199	(S69 S70 S71 S72 S73 S74 S75 S76 S77 S78 S79 S80 S81) and @pd> "20130615"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S81	41	362/294,373.ccls. and (heat with aluminum) and (anodized adj aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S80	1752	362/294,373.ccls. and (heat with aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S79	124	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4 and 362/294,373.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S78	2265	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S77	277	(street\$1light street\$1lamp) and linear	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S76	2683	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S75	10441	362/247,249.02,346,347-	US-PGPUB;	OR	ON	2014/02/05

		349,297,296.05,296.02,217.05.ccls.	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			15:05
S74	176	S73 and LED.u/c.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S73	304	S72 and reflect\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S72	412	"362"/\$.ccls. and linear.ti.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S71	1529	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board)) and (uniform\$3 near2 (beam light emission))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S70	3668	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05
S69	554	("362"/\$.ccls. "313"/\$.ccls.) and series and parallel and LED.u/c. and (fluorescen\$3 florescen\$3 flourescen\$3) and ((double both opposite) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/02/05 15:05

EAST Search History (Interference)

< This search history is empty >

2/ 10/ 2014 4:44:14 PM
C:\Users\llovell\Documents\EAST\Workspaces\13692402 continuation of 12341798
Lighting Fixture.wsp

Search Notes 	Application/Control No. 13692402	Applicant(s)/Patent Under Reexamination WASSEL ET AL.
	Examiner LEAH S MACCHIAROLO	Art Unit 2885

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
362	247,249.02,346,347-349,297,296.05,296.02,217.05	10 FEB 2014	LSM

SEARCH NOTES		
Search Notes	Date	Examiner
See attached EAST search history printout.	28 MAY 2013	LSM
INVENTOR search. See attached EAST search history printout.	28 MAY 2013	LSM
CLASS/SUBCLASS searching. See attached EAST search history printout.	28 MAY 2013	LSM
TEXT searching. See attached EAST search history printout.	28 MAY 2013	LSM
FORWARD and BACKWARD citation searches on relevant art. See attached EAST search history printout.	28 MAY 2013	LSM
FOR COMPLETE SEARCH NOTES, see the search notes in the parent case(s).	28 MAY 2013	LSM
UPDATED previous searches. See attached EAST search history printout.	10 FEB 2014	LSM

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL **(Submitted Only via EFS-Web)**

Application Number	13/692,402	Filing Date	2012-12-03	Docket Number (if applicable)	029950-00022	Art Unit	2885
First Named Inventor	James J. WASSEL			Examiner Name	Leah Simone Macchiarolo		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
 (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
 Deposit Account No 012300

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

Signature of Registered U.S. Patent Practitioner			
Signature	/Sheree T. Rowe/	Date (YYYY-MM-DD)	2014-07-10
Name	Sheree T. Rowe	Registration Number	59068

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	13692402			
Filing Date:	03-Dec-2012			
Title of Invention:	Lighting Fixture			
First Named Inventor/Applicant Name:	James J. Wassel			
Filer:	Sheree T. Rowe/Jennifer Hardin-Cole			
Attorney Docket Number:	5641-123371			
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 2 months with \$0 paid	2252	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Request for Continued Examination	2801	1	600	600
Total in USD (\$)				900

Electronic Acknowledgement Receipt

EFS ID:	19547790
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	28289
Filer:	Sheree T. Rowe/Jennifer Hardin-Cole
Filer Authorized By:	Sheree T. Rowe
Attorney Docket Number:	5641-123371
Receipt Date:	10-JUL-2014
Filing Date:	03-DEC-2012
Time Stamp:	16:56:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$900
RAM confirmation Number	3644
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Response After Final Action	029950_00022_Resp_07102014.pdf	115506 64d37375b830af5f2166f5d8e23f93bfa43e86ae	no	10
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	029950_00022_RCE_07102014.pdf	36158 5d15b0b84e0f1783c4eb1be194fda42348dae373	no	3
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	31785 535c7438345c4a9c363670142c60a586b0901d1f	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			183449		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Attorney Docket No.: 029950-00022

James J. WASSEL

Confirmation No.: 2398

Application No.: 13/692,402

Art Unit: 2885

Filed: December 3, 2012

Examiner: Leah Simone Macchiarolo

For: LIGHTING FIXTURE

AMENDMENT ACCOMPANYING A REQUEST FOR CONTINUED EXAMINATION

Mail Stop: RCE

Commissioner for Patents

P.O. Box 1450

Alexandria, Va. 22313-1450

Date: July 10, 2014

Sir:

Responsive to the Office Action dated February 20, 2014, the period for response having been extended by payment of the appropriate fee, and in connection with the accompanying Request for Continued Examination, entry of the following amendments and consideration of the following remarks are respectfully requested.

Amendments to the Claims are reflected in a listing of the claims, which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

AMENDMENTS TO THE CLAIMS**Listing of the claims:**

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

1. (Currently Amended) A light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a substantially planar surface of the lighting strip;

a first multi-faceted side wall reflector extending along the lighting arrangement adjacent a first side of the lighting strip at an angle such that an edge of the first multi-faceted side wall reflector adjacent the lighting strip extends along an entire length of the lighting strip ~~and away~~ from a position approximately level with a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs); and

a second multi-faceted side wall reflector extending along the lighting arrangement adjacent a second, opposite side of the lighting strip at an angle such that an edge of the second multi-faceted side wall reflector adjacent the lighting strip extends along an entire length of the lighting strip ~~away~~ from a position approximately level with the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs),

wherein the first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

2. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the light emitting diodes (LEDs) are arranged in a linear row along the length of the lighting strip.

3. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side wall reflectors extend away from a base member defining a plurality of openings receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs), respectively.

4. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side wall reflectors are formed integral with the base member.

5. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side wall reflectors comprise multi-angle side walls.

6. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side wall reflectors extend away from a base member and are symmetrical about an axis of symmetry that runs through a center of the base member.

7. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 6, wherein the first and second multi-faceted side wall

reflectors each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion.

8. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 7, wherein the first angle and second angle are different angles.

9. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side wall reflectors comprise multi-angle side walls.

10. (Currently Amended) A light emitting diode (LED) lighting fixture, comprising:

a base plate having a front side and a rear side; a plurality of lighting strips mounted on the front side of the base plate, each of the lighting strips comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; and

driver circuitry and control circuitry electrically coupled to the plurality of light emitting diodes (LEDs) for providing power to the light emitting diodes (LEDs),

wherein each of the lighting strips includes:

a first multi-faceted side wall reflector extending from a first side of the lighting strip at an angle such that an edge of the first multi-faceted side wall reflector adjacent the lighting strip extends along an entire length of the lighting strip ~~and away~~ from a position approximately level with a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs);

a second multi-faceted side wall reflector extending along the lighting arrangement adjacent a second, opposite side of the lighting strip at an angle such that an edge of the second multi-faceted side wall reflector adjacent the lighting strip extends along an entire length of the lighting strip ~~away~~ from a position approximately level with the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs), and

wherein the first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

11. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate.

12. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 11, wherein the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

13. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein each light emitting diode (LED) of each lighting strip is electrically connected in series, and each lighting strip is electrically connected to the driver circuitry in parallel.

14. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein each plurality of lighting strips is individually removably mounted to the base plate, so as to permit individual replacement of each lighting strip irrespective of the other lighting strips.

15. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein the light emitting diodes (LEDs) in each of the lighting strips are arranged in a linear row along the length of the lighting strip.

16. (Currently Amended) A light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate having a front side and a rear side;

at least four lighting strips comprising a substantially planar base member; and a plurality of light emitting diodes (LEDs) arranged along a length of the base member, the base member connected in direct physical contact to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate; and

a reflector mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, wherein an edge of the multi faceted side walls adjacent the lighting strip extends along an entire length of the lighting strip and away from a

position approximately level with a bottom portion of a light emitting portion of each of the LEDs,

wherein physical contact between the bottom surface of the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of light emitting diodes (LEDs) on the lighting strip to be conducted to the base plate for transfer to the ambient environment.

17. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 16, further comprising heat transfer fins on at least one side of the base plate to conduct heat to the ambient environment.

18. (Cancelled)

19. (Cancelled)

20. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 16, wherein inter-contacting surfaces between the lighting strips and base plate are separated by less than about one hundredth of an inch (0.01 inches).

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

By the foregoing amendment, claims 1, 10, and 16 have been amended. No new matter has been added. The claim amendments are fully supported by the application as originally filed. Claims 18 and 19 were previously cancelled. Thus, claims 1-17 and 20 are currently pending in the application and subject to examination.

Rejections Under 35 U.S.C. §§ 102(b) and 103(a)

Claims 1-9 were rejected under 35 U.S.C. § 102(b) as being anticipated by Smith (US Publication No. 2005/0111220, hereinafter, "Smith"). Claims 10-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith. Claims 16, 17 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith and further in view of Reo et al. (US Publication No. 2007/0076427, hereinafter, "Reo").

It is noted that claims 1, 10, and 16 have been amended. To the extent that the rejections remain applicable to the claims currently pending, the Applicant hereby traverses the rejection, as follows.

In the Response to Arguments section of the Office Action, the Examiner maintained the rejection, indicating that "the claim language does not require every element of the reflector to extend the entire length of the lighting strip," and "there is no claim language to indicate that the reflector must originate at the same level/position as the light-emitting portion." See Office Action at pages 11-12.

Responsive to the Examiner's comments, claim 1 has been amended to recite that the LED lighting arrangement includes "a first multi-faceted side wall reflector extending along the lighting arrangement adjacent a first side of the lighting strip at an

angle such that an edge of the first multi-faceted side wall reflector adjacent the lighting strip extends along an entire length of the lighting strip from a position approximately level with a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs).” A similar amendment is made with regard to the second side wall reflector in claim 1.

In contrast to amended claim 1, in Smith as cited, the circular parabolic surfaces form the edge of the reflector “adjacent the lighting strip.” The parabolic surfaces of Smith do not extend along an entire length of the lighting strip, as in claim 1, but instead extend around a single LED entering through opening 12, as illustrated in FIG. 12.

For a prior art reference to anticipate, 35 U.S.C. §102 requires that “each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (quoting Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)).

Smith fails to disclose or suggest all of the subject matter of amended claim 1.

Reo, cited in connection with other subject matter, fails to cure the deficiency in Smith.

For at least the above combination of reasons, the Applicant submits that amended claim 1 is allowable over the cited art. While differing in scope, at least similar arguments with regard to amended claims 10 and 16 may be made to those arguments made with respect to amended claim 1. Therefore, the Applicant submits that amended claims 10 and 16 are likewise allowable. As claims 1, 10, and 16 are allowable, as amended, the Applicant submits that claims 2-9, 11-15, 17, and 20, which depend from allowable claims 1, 10, and 16, are likewise allowable for at least the

reasons set forth above with respect to claim 1 and for the additional subject matter recited therein.

Conclusion

For all of the above reasons, it is respectfully submitted that claims 1-17 and 20 are in condition for allowance and a Notice of Allowability is earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is invited to contact the undersigned representative at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicant hereby petitions for an appropriate extension of time. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300 referencing client matter number 029950-00022.

Respectfully submitted,

Arent Fox LLP

/Sheree T. Rowe/

Sheree T. Rowe

Registration No. 59,068

Customer No. 004372

1717 K Street, N.W.

Washington, D.C. 20036-5342

Telephone No. (202) 857-6000

Facsimile No. (202) 857-6395

Email: DCIPDocket@arentfox.com

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 13/692,402		Filing Date 12/03/2012		☐ To be Mailed			
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO												
APPLICATION AS FILED – PART I												
(Column 1)			(Column 2)									
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)				
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A						
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A						
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A						
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =						
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =						
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).										
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))												
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL						
APPLICATION AS AMENDED – PART II												
(Column 1)			(Column 2)			(Column 3)						
AMENDMENT	07/10/2014		CLAIMS REMAINING AFTER AMENDMENT			HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))		* 18		Minus	** 20	= 0		X \$40 =		0	
	Independent (37 CFR 1.16(h))		* 2		Minus	*** 3	= 0		X \$210 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))											
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))											
									TOTAL ADD'L FEE		0	
(Column 1)			(Column 2)			(Column 3)						
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT			HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))		*		Minus	**	=		X \$ =			
	Independent (37 CFR 1.16(h))		*		Minus	***	=		X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))											
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))											
									TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.												

LIE
/LAJUAN HICKSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:



Practitioners associated with Customer Number:

04372

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:



The address associated with Customer Number:

04372

OR

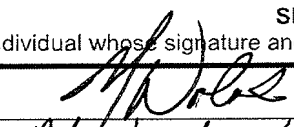
☐	Firm or Individual Name			
	Address			
	City		State	Zip
	Country			
	Telephone	Email		

Assignee Name and Address: APPALACHIAN LIGHTING SYSTEMS, INC.
101 Randolph Street
Elwood, PA 16117

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	9/5/14
Name	Michael J. Dolan	Telephone	570 947 4901
Title	Secretary / Treasurer		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	20088613
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	28289
Filer:	Wilburn Chesser/Natasha Brown
Filer Authorized By:	Wilburn Chesser
Attorney Docket Number:	5641-123371
Receipt Date:	09-SEP-2014
Filing Date:	03-DEC-2012
Time Stamp:	18:12:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	029950_00022_Supplemental_ ADS_as_filed.PDF	390844 802bb8b461e24f1bbec47b537b38f3fd0f704219	no	5

Warnings:

Information:

This is not an USPTO supplied ADS fillable form					
2	Assignee showing of ownership per 37 CFR 3.73.	029950_00022_373_Statement_as_filed.PDF	209079 7f282557c5a242a11488353e8b57b3a628936621	no	3
Warnings:					
Information:					
3		029950_00022_POA_as_filed.PDF	168175 f554c0125ef84c246ec3d94c60f75d6c79c66c3	yes	2
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Transmittal Letter		1	1	
	Power of Attorney		2	2	
Warnings:					
Information:					
Total Files Size (in bytes):			768098		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123371~~ <u>029950.00022</u>
		Application Number	<u>13/692,402</u>
Title of Invention	Lighting Fixture		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	James	J.	Wassel	
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service				
City	Fornbell	State/Province	PA	Country of Residence i US
Mailing Address of Inventor:				
Address 1		1595 N. Tower Road		
Address 2				
City	Fornbell	State/Province	PA	
Postal Code	16123	Country i	US	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence Information of this application.	
Customer Number	~~28289~~ <u>04372</u>
Email Address	<u>dcipdocket@arentfox.com</u> Add Email Remove Email

Application Information:

Title of the Invention	Lighting Fixture		
Attorney Docket Number	~~5641-123371~~ <u>029950.00022</u>	Small Entity Status Claimed ☒	
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	24	Suggested Figure for Publication (if any)	10B

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5644-123374~~ <u>029950.00022</u>
		Application Number	<u>13/692,402</u>
Title of Invention	Lighting Fixture		

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	~~28289~~ <u>04372</u>		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.			
Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	12341798	2008-12-22
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			Add

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).			
Remove			
Application Number	Country i	Filing Date (YYYY-MM-DD)	Priority Claimed
			☐ Yes ☒ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123374~~ 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices
If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application. In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application. In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.	
Applicant 1	
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section. Remove	
☒ Assignee	☐ Legal Representative under 35 U.S.C. 117
☐ Person to whom the inventor is obligated to assign.	☐ Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:	
Name of the Deceased or Legally Incapacitated Inventor :	
If the Assignee is an Organization check here. ☒	
Organization Name	Appalachian Lighting Systems, Inc.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123371~~ 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Mailing Address Information:			
Address 1		101 Randolph Street	
Address 2			
City		Ellwood City	State/Province PA
Country i	US	Postal Code	16117
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature				Date (YYYY-MM-DD)	2014-09-09
First Name	Wilburn L.	Last Name	Chesser	Registration Number	41,668
Additional Signature may be generated within this form by selecting the Add button.					Add

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: James J. WASSELApplication No./Patent No.: 13/692,402 Filed/Issue Date: December 03, 2012Titled: LIGHTING FIXTUREAPPALACHIAN LIGHTING SYSTEMS, INC., a Corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is ____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 029886, Frame 0129, or for which a copy thereof is attached.
- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

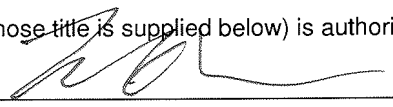
☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Signature


 Wilburn L. Chesser

Printed or Typed Name

September 09, 2014

Date

41,668

Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	13/692,402
Filing Date	December 03, 2012
First Named Inventor	James J. WASSEL
Title	LIGHTING FIXTURE
Art Unit	2885
Examiner Name	Leah Simone MACCHIAROLO
Attorney Docket Number	029950.00022

SIGNATURE of Applicant or Patent Practitioner

Signature		Date (Optional)	September 09, 2014
Name	Wilburn L. Chesser	Registration Number	41,668
Title (if Applicant is a juristic entity)	Attorney		
Applicant Name (if Applicant is a juristic entity)		APPALACHIAN LIGHTING SYSTEMS, INC.	

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/692,402	12/03/2012	James J. Wassel	029950.00022

4372
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20036-5342

CONFIRMATION NO. 2398
POA ACCEPTANCE LETTER



Date Mailed: 09/15/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/09/2014.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/ytdemisse/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/692,402	12/03/2012	James J. Wassel	5641-123371

28289
THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

CONFIRMATION NO. 2398 POWER OF ATTORNEY NOTICE



Date Mailed: 09/15/2014

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/09/2014.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/ytdemisse/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Docket No.: 029950.00022
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	Attorney Docket No.: 029950.00022
James J. WASSEL	Confirmation No.: 2398
Application No.: 13/692,402	Art Unit: 2885
Filed: December 03, 2012	Examiner: Leah Simone MACCHIAROLO
For: LIGHTING FIXTURE	

REQUEST FOR CORRECTED FILING RECEIPT

**Office of Initial Patent Examination's Filing
Receipt Corrections**

Date: January 06, 2015

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant hereby requests that a corrected Filing Receipt be issued in the above-identified patent application. The Official Filing Receipt received by Applicant, a copy of which is attached hereto, has the following error:

ATTY. DOCKET NO.
5641-123371

Customer Number
28289

Firm and Firm Address
THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

should read as follows:

ATTY. DOCKET NO.
029950.00022

Customer Number
4372

Firm and Firm Address
ARENT FOX LLP
1717 K Street NW
WASHINGTON, DC 20006-5344

Applicant additionally requests that all pertinent U.S. Patent and Trademark Office records relating to the subject application be changed to reflect this correction.

Applicant believes no fee is due with this request. However, if a fee is due, please charge our Deposit Account Number 01-2300, under number 029950.00022 from which the undersigned is authorized to draw.

Customer No.: 04372
Arent Fox LLP
1717 K Street, NW
Washington, DC 20006
Telephone: (202) 857-6000
Facsimile: (202) 857-6395
DCIPDocket@arentfox.com

Respectfully submitted,

By 

Wilburn L. Chesser
Registration No.: 41,668



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY DOCKET NO	TOT CLAIMS	IND CLAIMS
13/692,402	12/03/2012	2875	598	~~5641-123371~~ 029950.00022	20	3

CONFIRMATION NO. 2398
UPDATED FILING RECEIPT

~~28289-4372~~
~~THE WEBB LAW FIRM, P.C. ARENT FOX LLP~~
~~ONE GATEWAY CENTER 1717 K Street, NW~~
~~420 FT. DUQUESNE BLVD, SUITE 1200~~
~~PITTSBURGH, PA 15222~~

WASHINGTON, DC 20006-5344



Date Mailed: 03/13/2013

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

James J. Wassel, Fombell, PA;

Applicant(s)

Appalachian Lighting Systems, Inc., Ellwood City, PA

Assignment For Published Patent Application

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Power of Attorney: The patent practitioners associated with Customer Number 28289

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881 *

(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 12/31/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/692,402**

Projected Publication Date: 06/20/2013

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Lighting Fixture

Preliminary Class

362

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER**Title 35, United States Code, Section 184****Title 37, Code of Federal Regulations, 5.11 & 5.15****GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

page 2 of 3

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-12337+~~ <u>029950.00022</u>
		Application Number	<u>13/692,402</u>
Title of Invention	Lighting Fixture		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	James	J.	Wassel	
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service				
City	Fornbell	State/Province	PA	Country of Residence i US
Mailing Address of Inventor:				
Address 1	1595 N. Tower Road			
Address 2				
City	Fornbell	State/Province	PA	
Postal Code	16123	Country i	US	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).		
☐ An Address is being provided for the correspondence information of this application.		
Customer Number	~~28289~~ <u>04372</u>	
Email Address	<u>dcipdocket@arentfox.com</u>	Add Email Remove Email

Application Information:

Title of the Invention	Lighting Fixture		
Attorney Docket Number	~~5641-12337+~~ <u>029950.00022</u>	Small Entity Status Claimed ☒	
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	24	Suggested Figure for Publication (if any)	10B

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123374~~ 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One:			
☒	Customer Number	☐	US Patent Practitioner
☐	Limited Recognition (37 CFR 11.9)		
Customer Number	~~28289~~ 04372		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.			
Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	12341798	2008-12-22
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			Add

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).			
			Remove
Application Number	Country i	Filing Date (YYYY-MM-DD)	Priority Claimed
			☐ Yes ☒ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	-5641-123374 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices
If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application. In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application. In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

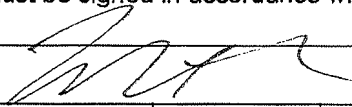
Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.	
Applicant 1	
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section. Remove	
☒ Assignee	☐ Legal Representative under 35 U.S.C. 117
☐ Person to whom the inventor is obligated to assign.	☐ Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:	
Name of the Deceased or Legally Incapacitated Inventor :	
If the Assignee is an Organization check here. ☒	
Organization Name	Appalachian Lighting Systems, Inc.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123371~~ 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Mailing Address Information:			
Address 1		101 Randolph Street	
Address 2			
City	Ellwood City	State/Province	PA
Country ⁱ	US	Postal Code	16117
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Signature:Remove

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature				Date (YYYY-MM-DD)	2014-09-09
First Name	Wilburn L.	Last Name	Chesser	Registration Number	41,668
Additional Signature may be generated within this form by selecting the Add button. Add					

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	21118647
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	4372
Filer:	Wilburn Chesser/Gianna Aponte
Filer Authorized By:	Wilburn Chesser
Attorney Docket Number:	029950.00022
Receipt Date:	06-JAN-2015
Filing Date:	03-DEC-2012
Time Stamp:	15:54:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		029950-00022_RequestforCorrectedOFR.pdf	657001 37e6c3a9c883a114fdffe603acbd004918fb45a6f	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Request for Corrected Filing Receipt	1	5
	Application Data Sheet	6	10
Warnings:			
Information:			
Total Files Size (in bytes):		657001	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/692,402	12/03/2012	2875	598	029950.00022	20	3

CONFIRMATION NO. 2398

CORRECTED FILING RECEIPT

4372
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344



Date Mailed: 01/09/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

James J. Wassel, Fombell, PA;

Applicant(s)

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Assignment For Published Patent Application

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Power of Attorney: The patent practitioners associated with Customer Number 04372

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881 *

(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 12/31/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/692,402**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Lighting Fixture

Preliminary Class

362

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	029950.00022	2398

4372 7590 01/23/2015
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT	PAPER NUMBER

2875

NOTIFICATION DATE	DELIVERY MODE

01/23/2015

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCIPDocket@arentfox.com
IPMatters@arentfox.com
Patent_Mail@arentfox.com

Office Action Summary	Application No. 13/692,402	Applicant(s) WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2875	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 JUL 2014.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-17 and 20 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-17 and 20 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)	3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. ____.
2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date ____.	4) ☐ Other: ____.

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10 July 2014 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (US 2005/0111220; hereinafter ‘Smith’).

Regarding claim 1, Smith, in at least figures 1 and 3, discloses a light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a substantially planar surface of the lighting strip [106,108];

a first multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the left of opening 12] extending along the lighting arrangement adjacent a first side of the lighting strip [106,108] at an angle such that an edge of the first multi-faceted side wall reflector [20, 30 to the left of opening 12] adjacent the lighting strip [106, 108] extends along an entire length of the lighting strip [106,108; at least reflector 30 extends the entire length] from a position approximately level with a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs) [108]; and

a second multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the right of opening 12] extending along the lighting arrangement adjacent a second, opposite side of the lighting strip [106,108] at an angle such that an edge of the second multi-faceted side wall reflector [20, 30 to the right of opening 12] adjacent the lighting strip [106, 108] extends along an entire length of the lighting strip [106,108] from a position approximately level with the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs) [108],

wherein the first and second multi-faceted side wall reflector [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18].

Regarding claim 2, Smith, in at least figures 1, 3 and 13, discloses the light emitting diodes (LEDs) [108] are arranged in a linear row along the length of the lighting strip [106,108].

Regarding claim 3, Smith discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] defining a plurality of openings [12] receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs) [108], respectively.

Regarding claim 4, Smith, in at least figures 1 and 3, discloses the first and second multi-faceted side wall reflector [20, 30] are formed integral with the base member [102].

Regarding claim 5, Smith discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Regarding claim 6, Smith, as seen in at least figure 3, discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] and are symmetrical about an axis of symmetry that runs through a center of the base member [102].

Regarding claim 7, Smith discloses the first and second multi-faceted side wall reflector [20, 30] each comprise a first portion [20] defining a first angle with the base member [102] and a second portion [30] defining a second angle with the first portion.

Art Unit: 2875

Regarding claim 8, Smith discloses the first angle and second angle are different angles [as seen in at least figure 5].

Regarding claim 9, Smith, as shown in at least figure 5, discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith.

Regarding claim 10, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] mounted on the front side of the base plate [110], each of the lighting strips [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a length of the lighting strip [106,108]; and

wherein each of the lighting strips [106,108] includes:

a first multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the left of opening 12] extending from a first side of the lighting strip [106,108] at an angle such that an edge of the first multi-faceted side wall reflector [20, 30 to the left of opening 12] adjacent the lighting strip [106, 108] extends along an entire length of the lighting strip [106,108] from a position approximately level with a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs) [108];

a second multi-faceted side wall reflector [in figure 3, the reflector 20, 30 to the right of opening 12] extending from a second, opposite side of the lighting strip [106,108] at an angle such that an edge of the second multi-faceted side wall reflector [20, 30 to the right of opening 12] adjacent the lighting strip extends along an entire length of the lighting strip [106,108] from a position approximately level with the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs) [108], and

wherein the first and second multi-faceted side wall reflector [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18].

Smith does not expressly disclose driver circuitry.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have driver circuitry and control circuitry coupled to the LEDs.

Art Unit: 2875

One would have been motivated to do so because it is clear to those in the art that both circuits (driver and control) are, not only well-known, but necessary to LED devices to properly power and control LED arrays.

Regarding claims 11 and 12, Smith, as modified above, discloses the claimed invention as indicated above.

However, Smith does not expressly disclose the arrangement of the various circuitry components.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try the arrangement of the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate and the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

One would have been motivated to do so because providing the drive circuit and control circuit on the front side and the power supply on the rear side of the lighting strip would result in a desirable compact system.

Regarding claim 13, Smith discloses the claimed invention as indicated above.

Smith does not expressly disclose how the LEDs are electrically connected.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to electrically wire Smith's two lighting strips, shown in at least figure

Art Unit: 2875

13, such that each LED of each lighting strip [106, 108] is electrically connected in series, and each lighting strip [106, 108] is electrically connected to the driver circuitry in parallel.

One would have been motivated to do so because it is well-known that producing Smith's individual series-connected arrays are easier to mass produce. Furthermore, connecting several of these arrays in parallel, rather than in series, will yield a more efficient light emitter.

Regarding claim 14, Smith discloses each plurality of lighting strips [106,108] is individually removably mounted to the base plate [110], so as to permit individual replacement of each lighting strip [106,108] irrespective of the other lighting strips [106,108].

Regarding claim 15, Smith, in at least figures 1, 3, and 13, discloses the light emitting diodes (LEDs) [108] in each of the lighting strips [106,108] are arranged in a linear row along the length of the lighting strip [106,108].

Claims 16, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith and further in view of Reo et al. (US 2007/0076427; hereinafter 'Reo').

Regarding claim 16, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate [110] comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] comprising a substantially planar base member [106]; and a plurality of light emitting diodes (LEDs) [108]

Art Unit: 2875

arranged along a length of the base member [106], the base member [108] connected to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110]; and

a reflector [20, 30] mounted to each of the lighting strips [106,108] and comprising multi-faceted side walls [20, 30] extending away from the lighting strip [106,108] such that the multi-faceted side walls [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18], wherein an edge of the multi faceted side walls [20, 30] adjacent the lighting strip [106, 108] extends along an entire length of the lighting strip and away from a position approximately level with a bottom portion of a light emitting portion of each of the LEDs [108],

wherein physical contact between the bottom surface of the lighting strips [106,108] and the base plate [110] provides heat transfer between the lighting strips [106,108] and the base plate [110] such that heat produced by the plurality of light emitting diodes (LEDs) [108] on the lighting strip [106,108] to be conducted to the base plate [110] for transfer to the ambient environment [see at least paragraph 31].

Smith does not disclose the base plate is formed of aluminum.

Reo teaches an anodized aluminum base plate [110; see at least paragraph 23].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize Reo's anodized aluminum material for Smith's base plate.

One would have been motivated to do so as anodized aluminum is old and well-known in the art for being inexpensive, easily shapeable (via molding or extrusion), light-weight and being more durable than plastic.

Smith teaches in at least figure 13, which is an exploded view of the LED light fixture, the base member [108] connected to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110]. From at least exploded figure 13, it can be inferred that there is direct contact between the base member [108] and base plate [110].

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made that Smith's base member [108] is in direct physical contact to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110].

Smith does not disclose more than two lighting strips.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least four lighting strips, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

One would be motivated to do so to achieve a desired brightness from Smith's lighting device.

Regarding claim 17, Smith discloses heat transfer fins on at least one side of the base plate [110] to conduct heat to the ambient environment [as seen in at least figure 13].

Regarding claim 20, Smith discloses the claimed invention as indicated above.

Smith does not disclose the distance between the lighting strips [106, 108] and base plate [110].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the inter-contacting surfaces between the lighting strips [106,108] and base plate [110] are separated by less than about one hundredth of an inch (0.01 inches).

One would have been motivated to do so since the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). Further, one would have been motivated to based on figure 13 which indicates a direct contact between the lighting strips [106, 108] and the base plate [110].

Response to Arguments

Applicant's arguments filed 10 July 2014 have been fully considered but they are not persuasive. Applicant alleges Smith and Reo, taken alone or in combination, fails to disclose or teach 'an edge of the first multi-faceted side wall reflector adjacent the lighting strip extends

Art Unit: 2875

along an entire length of the lighting strip from a position approximately level with a bottom portion of the light emitting portion'. The Examiner respectfully disagrees. As indicated above, Smith teaches an edge extending along an entire length of the lighting strip. The bottom edge of the reflector 100 is positioned along the length of the lighting strip.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEAH S. MACCHIAROLO whose telephone number is (571)272-2719. The examiner can normally be reached on Monday and Tuesday 9 a.m. until 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2875

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Macchiarolo
Examiner, AU 2875
/LSM/

/Jong-Suk (James) Lee/
Supervisory Patent Examiner, Art Unit 2875

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S96	3216	(S83 S84 S85 S86 S87 S88 S89 S90 S91 S92 S93 S94 S95) and @pd> "20140215"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S95	44	362/294,373.ccls. and (heat with aluminum) and (anodized adj aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S94	2018	362/294,373.ccls. and (heat with aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S93	147	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4 and 362/294,373.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S92	2609	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S91	335	(street\$1light street\$1lamp) and linear	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S90	3113	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S89	12294	362/247,249.02,346,347-	US-PGPUB;	OR	ON	2015/01/13

		349,297,296.05,296.02,217.05.ccls.	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			10:59
S88	221	S87 and LED.u/c.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S87	359	S86 and reflect\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S86	532	"362"/\$.ccls. and linear.ti.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S85	1822	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board)) and (uniform\$3 near2 (beam light emission))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S84	4327	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S83	682	("362"/\$.ccls. "313"/\$.ccls.) and series and parallel and LED.u/c. and (fluorescen\$3 florescen\$3 flourescen\$3) and ((double both opposite) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 10:59
S97	1	13/692402.app.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/01/13 11:37

EAST Search History (I nterference)

< This search history is empty >

Lighting Fixture.wsp

Search Notes 	Application/Control No. 13692402	Applicant(s)/Patent Under Reexamination WASSEL ET AL.
	Examiner LEAH S MACCHIAROLO	Art Unit 2885

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
362	247,249.02,346,347-349,297,296.05,296.02,217.05	10 FEB 2014	LSM

SEARCH NOTES		
Search Notes	Date	Examiner
See attached EAST search history printout.	28 MAY 2013	LSM
INVENTOR search. See attached EAST search history printout.	28 MAY 2013	LSM
CLASS/SUBCLASS searching. See attached EAST search history printout.	28 MAY 2013	LSM
TEXT searching. See attached EAST search history printout.	28 MAY 2013	LSM
FORWARD and BACKWARD citation searches on relevant art. See attached EAST search history printout.	28 MAY 2013	LSM
FOR COMPLETE SEARCH NOTES, see the search notes in the parent case(s).	28 MAY 2013	LSM
UPDATED previous searches. See attached EAST search history printout.	10 FEB 2014	LSM
UPDATED previous searches. See attached EAST search history printout.	13 JAN 2015	LSM

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Attorney Docket No.: 029950-00022

James J. WASSEL

Confirmation No.: 2398

Application No.: 13/692,402

Art Unit: 2885

Filed: December 3, 2012

Examiner: Leah Simone Macchiarolo

For: LIGHTING FIXTURE

AMENDMENT

Mail Stop: Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Va. 22313-1450

Date: May 26, 2015

Sir:

Responsive to the Non-Final Office Action dated January 23, 2015, the period for response having been extended to May 26, 2015, May 23, 2015 having been a Saturday and May 25, 2015, having been a holiday, entry of the following amendments and consideration of the following remarks are respectfully requested.

Amendments to the Claims are reflected in a listing of the claims, which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

AMENDMENTS TO THE CLAIMSListing of the claims:

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

1. (Currently Amended) A light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a substantially planar surface of the lighting strip;

a first multi-faceted side wall reflector extending along the lighting arrangement along an entire length of the lighting strip, the first side wall reflector having a first edge adjacent a first side of the lighting strip at an angle ~~that~~ such that an edge of the first multi-faceted side wall reflector adjacent the lighting strip extends along an entire length of the lighting strip from a position approximately level with a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs); and

a second multi-faceted side wall reflector extending along the lighting arrangement along an entire length of the lighting strip, the first side wall reflector having a first edge adjacent a second, opposite side of the lighting strip at an angle [[such]] that an edge of the second multi-faceted side wall reflector adjacent the lighting strip extends along an entire length of the lighting strip from a position approximately level with the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs),

wherein the first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

2. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the light emitting diodes (LEDs) are arranged in a linear row along the length of the lighting strip.

3. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side wall reflectors extend away from a base member defining a plurality of openings receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs), respectively.

4. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side wall reflectors are formed integral with the base member.

5. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side wall reflectors comprise multi-angle side walls.

6. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side wall reflectors extend away from a base member and are symmetrical about an axis of symmetry that runs through a center of the base member.

7. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 6, wherein the first and second multi-faceted side wall reflectors each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion.

8. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 7, wherein the first angle and second angle are different angles.

9. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side wall reflectors comprise multi-angle side walls.

10. (Currently Amended) A light emitting diode (LED) lighting fixture, comprising:

a base plate having a front side and a rear side; a plurality of lighting strips mounted on the front side of the base plate, each of the lighting strips comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; and

driver circuitry and control circuitry electrically coupled to the plurality of light emitting diodes (LEDs) for providing power to the light emitting diodes (LEDs),

wherein each of the lighting strips includes:

a first multi-faceted side wall reflector extending from a first side of the lighting strip along an entire length of the lighting strip, the first side wall reflector having a first

edge at an angle such that ~~[[an]]~~ the first edge of the first multi-faceted side wall reflector adjacent ~~the lighting strip~~ extends along an entire length of the lighting strip from a position approximately level with a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs);

a second multi-faceted side wall reflector extending along the lighting arrangement adjacent a second, opposite side of the lighting strip along an entire length of the lighting strip, the first side wall reflector having a first edge at an angle such that ~~[[an]]~~ the first edge of the second multi-faceted side wall reflector adjacent the lighting strip extends along an entire length of the lighting strip ~~from a position approximately level with the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs), and~~

wherein the first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

11. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate.

12. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 11, wherein the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

13. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein each light emitting diode (LED) of each lighting strip is electrically connected in series, and each lighting strip is electrically connected to the driver circuitry in parallel.

14. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein each plurality of lighting strips is individually removably mounted to the base plate, so as to permit individual replacement of each lighting strip irrespective of the other lighting strips.

15. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein the light emitting diodes (LEDs) in each of the lighting strips are arranged in a linear row along the length of the lighting strip.

16. (Currently Amended) A light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate having a front side and a rear side;

at least four lighting strips comprising a substantially planar base member; and a plurality of light emitting diodes (LEDs) arranged along a length of the base member, the base member connected in direct physical contact to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate; and

a reflector mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, wherein the reflector comprises ~~[[an]]~~ a first edge of the multi-faceted side walls adjacent the lighting strip and a second edge opposite the first edge toward a light emission side of the lighting fixture, wherein the first edge of the reflector comprises the multi-faceted side walls extending ~~extends along an entire length of the lighting strip at an angle and away from a position approximately level with a bottom portion of a light emitting portion of each of the LEDs,~~

wherein physical contact between the bottom surface of the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of light emitting diodes (LEDs) on the lighting strip to be conducted to the base plate for transfer to the ambient environment.

17. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 16, further comprising heat transfer fins on at least one side of the base plate to conduct heat to the ambient environment.

18. (Cancelled)

19. (Cancelled)

20. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 16, wherein inter-contacting surfaces between the lighting strips and base plate are separated by less than about one hundredth of an inch (0.01 inches).

21. (New) The LED lighting arrangement of claim 1,
wherein the first multi-faceted side wall reflector adjacent the lighting strip extends along the entire length of the lighting strip from a position approximately level with a bottom portion of a light emitting portion of each of the LEDs, and
wherein the second multi-faceted side wall reflector adjacent the lighting strip extends along the entire length of the lighting strip on a side opposite the first multi-faceted side wall reflector from a position approximately level with a bottom portion of a light emitting portion of each of the LEDs.

22. (New) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall reflector and the second multi-faceted side wall reflector are separately coupled to the lighting arrangement.

23. (New) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall reflector comprises a first sheet bent to form first facets, and wherein the second multi-faceted side wall reflector comprises a second sheet bent to form second facets.

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

Claims 1-17 and 20-23 are currently pending in the application and subject to examination. By the foregoing amendment, claims 1, 10, and 16 are amended, and claims 21-23 are added. Claims 18 and 19 were previously cancelled. No new matter has been added. The claim amendments are fully supported by the application as originally filed.

Rejections Under 35 U.S.C. §§ 102(b) and 103(a)

Claims 1-9 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Smith (US Publication No. 2005/0111220, hereinafter, "Smith"). Claims 10-15 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Smith. Claims 16, 17 and 20 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Smith and further in view of Reo et al. (US Publication No. 2007/0076427, hereinafter, "Reo"). It is noted that claims 1, 10, and 16 have been amended. To the extent that the rejections remain applicable to the claims currently pending, the Applicant hereby traverses the rejection, as follows.

Smith fails to disclose or suggest a light emitting diode (LED) lighting arrangement or an LED lighting fixture as in at least independent claims 1, 9, and 16.

For example, claim 16, as amended is directed to a light emitting diode (LED) lighting fixture, comprising, in part:

a reflector mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, wherein the reflector comprises a first edge adjacent the lighting strip and

a second edge opposite the first edge toward a light emission side of the lighting fixture, wherein the first edge of the reflector comprises the multi-faceted side walls extending along an entire length of the lighting strip at an angle.

In claim 16, the reflector has two edges, one adjacent the lighting strip and the other, opposite edge toward a light emission side of the fixture. The first edge, adjacent the lighting strip, "comprises the multi-faceted side walls extending along an entire length of the lighting strip at an angle."

The Office Action cites reflector 20, 30 of Smith for the reflector of claim 16. See Office Action at page 9. However, reflector 30 of Smith is not comprised in an edge of the reflector adjacent the lighting strip. Instead, reflecting surface 30 in Smith is adjacent the LEDs and "defines a longitudinal trough **axially above** the row of circular parabolic reflecting surfaces 20." See Smith at paragraph [0036]. Reflecting surface 30 does not comprise "multi-faceted side walls extending along an entire length of the lighting strip at an angle," as does the reflector in claim 16. Instead, reflecting surface 20 includes parabolic reflecting surfaces formed around a single LED entering through opening 12, as illustrated in FIG. 12 of Smith.

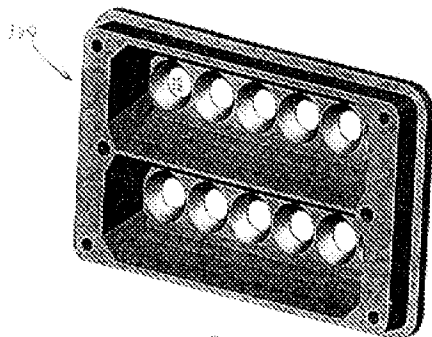


Figure 12

FIG. 22 of the present application illustrates an example reflector sidewall 513 extending the length of the lighting strip 509 of LEDs 511. FIG. 20 shows an example cross section of a reflector 411 and shows how the multifaceted reflector sidewall 403 is formed at a first edge of the reflector 411 adjacent the lighting strip and "extend[s] along an entire length of the lighting strip at an angle."

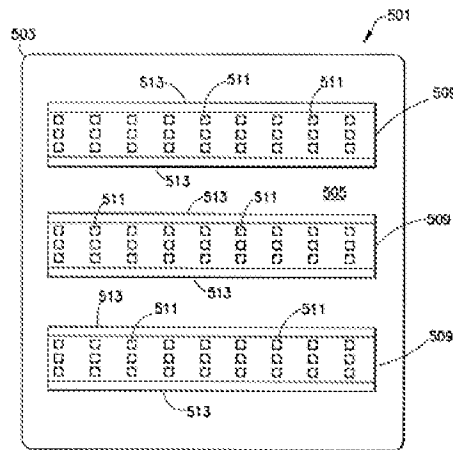


FIG.22

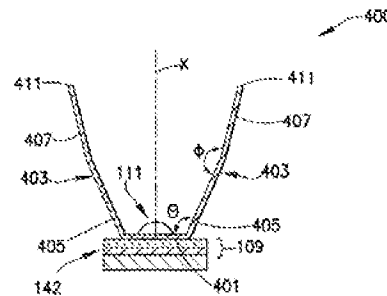


FIG.20

For a prior art reference to anticipate, 35 U.S.C. §102 requires that "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (quoting Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)).

Smith fails to disclose or suggest all of the subject matter of amended claim 16, because Smith fails to disclose or suggest at least, "a reflector mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, wherein the reflector comprises a first edge adjacent the lighting strip and a second edge opposite

the first edge toward a light emission side of the lighting fixture, wherein the first edge of the reflector comprises the multi-faceted side walls extending along an entire length of the lighting strip at an angle," as in claim 16.

Reo, cited in connection with other subject matter, fails to cure the deficiency in Smith.

For at least the above combination of reasons, the Applicant submits that amended claim 16 is allowable over the cited art. While differing in scope, at least similar arguments with regard to amended claims 1 and 10 may be made to those arguments made with respect to amended claim 16. Therefore, the Applicant submits that amended claims 1 and 10 are likewise allowable. As claims 1, 10, and 16 are allowable, as amended, the Applicant submits that claims 2-9, 11-15, 17, and 20, which depend from allowable claims 1, 10, and 16, are likewise allowable for at least the reasons set forth above with respect to claim 1 and for the additional subject matter recited therein.

Conclusion

For all of the above reasons, it is respectfully submitted that claims 1-17 and 20 are in condition for allowance and a Notice of Allowability is earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is invited to contact the undersigned representative at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicant hereby petitions for an appropriate extension of time. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this

Application No.: 13/692,402

Docket No.: 029950-00022

communication to Deposit Account No. 01-2300 referencing client matter number 029950-00022.

Respectfully submitted,

Arent Fox LLP

/Sheree T. Rowe/
Sheree T. Rowe
Registration No. 59,068

Customer No. 004372

1717 K Street, N.W.
Washington, D.C. 20036-5342
Telephone No. (202) 857-6000
Facsimile No. (202) 857-6395
Email: DCIPDocket@arentfox.com

Electronic Patent Application Fee Transmittal

Application Number:	13692402			
Filing Date:	03-Dec-2012			
Title of Invention:	Lighting Fixture			
First Named Inventor/Applicant Name:	James J. Wassel			
Filer:	Sheree T. Rowe/Joyce Hegeman			
Attorney Docket Number:	029950.00022			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	1	40	40
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Extension - 1 month with \$0 paid	2251	1	100	100
Miscellaneous:				
Total in USD (\$)				140

Electronic Acknowledgement Receipt

EFS ID:	22449112
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	4372
Filer:	Sheree T. Rowe/Joyce Hegeman
Filer Authorized By:	Sheree T. Rowe
Attorney Docket Number:	029950.00022
Receipt Date:	26-MAY-2015
Filing Date:	03-DEC-2012
Time Stamp:	17:52:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 140
RAM confirmation Number	8722
Deposit Account	012300
Authorized User	ROWE, SHEREE T.

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		029950-00022-ResponseNFOA.pdf	225755 c7cd4b3b1fdcca3ed8115b37eb7a796440c48918	yes	13

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	8
Applicant Arguments/Remarks Made in an Amendment	9	13

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	31720 a39da3ac2fd3f1e15b873d86351bd6715c0d116b	no	2

Warnings:

Information:

Total Files Size (in bytes):	257475

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/692,402		Filing Date 12/03/2012		☐ To be Mailed	
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	05/26/2015		CLAIMS REMAINING AFTER AMENDMENT			HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
	Total (37 CFR 1.16(i))		* 21		Minus	** 21	= 0		
	Independent (37 CFR 1.16(h))		* 3		Minus	*** 3	= 0		
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						RATE (\$)		ADDITIONAL FEE (\$)	
						X \$40 =		0	
						X \$210 =		0	
						TOTAL ADD'L FEE		0	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT			HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		
	Total (37 CFR 1.16(i))		*		Minus	**	=		
	Independent (37 CFR 1.16(h))		*		Minus	***	=		
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						RATE (\$)		ADDITIONAL FEE (\$)	
						X \$ =			
						X \$ =			
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.									

LIE
/DARLENE BROWN/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	029950.00022	2398

4372 7590 09/11/2015
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT	PAPER NUMBER

2875

NOTIFICATION DATE	DELIVERY MODE

09/11/2015

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCIPDocket@arentfox.com
IPMatters@arentfox.com
Patent_Mail@arentfox.com

Office Action Summary	Application No. 13/692,402	Applicant(s) WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2875	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2015.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-17 and 20 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-17 and 20 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)	3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. ____.
2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date ____.	4) ☐ Other: ____.

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

The amendment submitted 26 May 2015 consists of changes to the claims and a response to the previous office action.

The amendment submitted 26 May 2015 has been considered and entered.

Claim Objections

Claims 1 and 10 are objected to because of the following informalities:

The claims have been amended to recite "...a second multi-faceted side wall reflector..., the first side wall reflector having a first edge adjacent a second, opposite side..." However, it is believed that it should read "...a second multi-faceted side wall reflector..., the *second* side wall reflector having a first edge adjacent a second, opposite side..." [*emphasis added*] based on the similar amendment to claim 16 as well as in context with the remaining limitations of claims 1 and 10. For the purposes of examination, this limitation is understood as such.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2875

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (US

2005/0111220; hereinafter ‘Smith’).

Regarding claim 1, Smith, in at least figures 1 and 3, discloses a light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a substantially planar surface of the lighting strip [106,108];

a first multi-faceted side wall reflector [in figure 3, the reflector 30 to the left of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the first side wall reflector [in figure 3, the reflector 30 to the left of opening 12] having a first edge adjacent a first side of the lighting strip [106,108] at an angle that extends along an entire length of the lighting strip [106,108; at least reflector 30 extends the entire length]; and

a second multi-faceted side wall reflector [in figure 3, the reflector 30 to the right of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the second side wall adjacent a second, opposite side of the lighting strip [106,108] at an angle that extends along an entire length of the lighting strip [106,108],

wherein the first and second multi-faceted side wall reflector [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18].

Regarding claim 2, Smith, in at least figures 1, 3 and 13, discloses the light emitting diodes (LEDs) [108] are arranged in a linear row along the length of the lighting strip [106,108].

Regarding claim 3, Smith discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] defining a plurality of openings [12] receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs) [108], respectively.

Regarding claim 4, Smith, in at least figures 1 and 3, discloses the first and second multi-faceted side wall reflector [20, 30] are formed integral with the base member [102].

Regarding claim 5, Smith discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Regarding claim 6, Smith, as seen in at least figure 3, discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] and are symmetrical about an axis of symmetry that runs through a center of the base member [102].

Regarding claim 7, Smith discloses the first and second multi-faceted side wall reflector [20, 30] each comprise a first portion [20] defining a first angle with the base member [102] and a second portion [30] defining a second angle with the first portion.

Regarding claim 8, Smith discloses the first angle and second angle are different angles [as seen in at least figure 5].

Regarding claim 9, Smith, as shown in at least figure 5, discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith.

Regarding claim 10, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] mounted on the front side of the

base plate [110], each of the lighting strips [106,108] comprising a plurality of

light emitting diodes (LEDs) [108] arranged along a length of the lighting strip [106,108]; and

wherein each of the lighting strips [106,108] includes:

a first multi-faceted side wall reflector [in figure 3, the reflector 30 to the left of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the first side wall reflector [in figure 3, the reflector 30 to the left of opening 12] having a first edge [the lower edge] adjacent a first side of the lighting strip [106,108] at an angle that extends along an entire length of the lighting strip [106,108]; at least reflector 30 extends the entire length]; and

a second multi-faceted side wall reflector [in figure 3, the reflector 30 to the right of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the second side wall adjacent a second, opposite side of the lighting strip [106,108] at an angle such that the first edge of the second multi-faceted side wall reflector [30 to the right of opening 12] adjacent the lighting strip [106, 108] extends along an entire length of the lighting strip [106,108], and

wherein the first and second multi-faceted side wall reflector [30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18 and figure 6].

Smith does not expressly disclose driver circuitry.

Art Unit: 2875

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have driver circuitry and control circuitry coupled to the LEDs.

One would have been motivated to do so because it is clear to those in the art that both circuits (driver and control) are, not only well-known, but necessary to LED devices to properly power and control LED arrays.

Regarding claims 11 and 12, Smith, as modified above, discloses the claimed invention as indicated above.

However, Smith does not expressly disclose the arrangement of the various circuitry components.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try the arrangement of the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate and the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

One would have been motivated to do so because providing the drive circuit and control circuit on the front side and the power supply on the rear side of the lighting strip would result in a desirable compact system.

Regarding claim 13, Smith discloses the claimed invention as indicated above.

Smith does not expressly disclose how the LEDs are electrically connected.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to electrically wire Smith's two lighting strips, shown in at least figure 13, such that each LED of each lighting strip [106, 108] is electrically connected in series, and each lighting strip [106, 108] is electrically connected to the driver circuitry in parallel.

One would have been motivated to do so because it is well-known that producing Smith's individual series-connected arrays are easier to mass produce. Furthermore, connecting several of these arrays in parallel, rather than in series, will yield a more efficient light emitter.

Regarding claim 14, Smith discloses each plurality of lighting strips [106,108] is individually removably mounted to the base plate [110], so as to permit individual replacement of each lighting strip [106,108] irrespective of the other lighting strips [106,108].

Regarding claim 15, Smith, in at least figures 1, 3, and 13, discloses the light emitting diodes (LEDs) [108] in each of the lighting strips [106,108] are arranged in a linear row along the length of the lighting strip [106,108].

Claims 16, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith and further in view of Reo et al. (US 2007/0076427; hereinafter 'Reo').

Regarding claim 16, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate [110] comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] comprising a substantially planar base member [106]; and a plurality of light emitting diodes (LEDs) [108] arranged along a length of the base member [106], the base member [108] connected to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110]; and

a reflector [20, 30] mounted to each of the lighting strips [106,108] and comprising multi-faceted side walls [30] extending away from the lighting strip [106,108] such that the multi-faceted side walls [30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18 and figure 6], wherein the reflector [20, 30] comprises a first edge [edge of 30 closest to the lighting strip] adjacent the lighting strip [106, 108] and a second edge [edge of 30 furthest from the lighting strip] opposite the first edge toward a light emission side of the lighting fixture, wherein the first edge of the reflector comprises the multi-faceted side walls [32a-32d as shown in at least figure 6] extending along an entire length of the lighting strip at an angle,

wherein physical contact between the bottom surface of the lighting strips [106,108] and the base plate [110] provides heat transfer between the lighting strips [106,108] and the base plate [110] such that heat produced by the plurality of light emitting diodes (LEDs) [108] on the lighting strip [106,108] to be conducted to the base plate [110] for transfer to the ambient environment [see at least paragraph 31].

Art Unit: 2875

Smith does not disclose the base plate is formed of aluminum.

Reo teaches an anodized aluminum base plate [110; see at least paragraph 23].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize Reo's anodized aluminum material for Smith's base plate.

One would have been motivated to do so as anodized aluminum is old and well-known in the art for being inexpensive, easily shapeable (via molding or extrusion), light-weight and being more durable than plastic.

Smith teaches in at least figure 13, which is an exploded view of the LED light fixture, the base member [108] connected to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110]. From at least exploded figure 13, it can be inferred that there is direct contact between the base member [108] and base plate [110].

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made that Smith's base member [108] is in direct physical contact to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110].

Smith does not disclose more than two lighting strips.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least four lighting strips, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

One would be motivated to do so to achieve a desired brightness from Smith's lighting device.

Regarding claim 17, Smith discloses heat transfer fins on at least one side of the base plate [110] to conduct heat to the ambient environment [as seen in at least figure 13].

Regarding claim 20, Smith discloses the claimed invention as indicated above.

Smith does not disclose the distance between the lighting strips [106, 108] and base plate [110].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the inter-contacting surfaces between the lighting strips [106,108] and base plate [110] are separated by less than about one hundredth of an inch (0.01 inches).

One would have been motivated to do so since the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). Further, one would have been motivated to based on figure 13 which indicates a direct contact between the lighting strips [106, 108] and the base plate [110].

Response to Arguments

Applicant's arguments filed 26 May 2015 have been fully considered but they are not persuasive. Applicant alleges Smith and Reo, taken alone or in combination, fails to disclose or teach the invention as claimed because Smith discloses a 'trough' shaped reflector as opposed to Applicant's illustrated reflectors. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the non-trough shaped reflectors shown in Applicant's figures 22 and 20) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore, looking at figure 1, Smith's entire trough-shaped reflector is not being considered as the first and second multi-faceted sidewall reflectors, only the long, straight portions 30. It is noted that Smith also discloses portions 36 and 38 that connect the portions 30 on each side of the lighting arrangement 106, 108. These portions are not included in the interpretation of the first and second multi-faceted side wall reflectors.

Therefore, the previous rejection is maintained.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2875

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEAH S. MACCHIAROLO whose telephone number is (571)272-2719. The examiner can normally be reached on Monday and Tuesday 9 a.m. until 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2875

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Macchiarolo
Examiner, AU 2875
/LSM/

/ISMAEL NEGRON/
Primary Examiner, Art Unit 2875

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S98	750	("362"/\$.ccls. "313"/\$.ccls.) and series and parallel and LED.u/c. and (fluorescen\$3 florescen\$3 flourescen\$3) and ((double both opposite) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S99	4655	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S100	1946	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board)) and (uniform\$3 near2 (beam light emission))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S101	604	"362"/\$.ccls. and linear.ti.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S102	403	S101 and reflect\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S103	244	S102 and LED.u/c.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S104	13157	362/247,249.02,346,347-349,297,296.05,296.02,217.05.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S105	3332	"362"/\$.ccls. and (linear near4	US-PGPUB;	OR	ON	2015/08/25

		(LED.U/C. light\$1emitting illuminat\$3 diode LEDs))	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			09:14
S106	364	(street\$1light street\$1lamp) and linear	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S107	2780	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S108	156	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4 and 362/294,373.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S109	2136	362/294,373.ccls. and (heat with aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S110	45	362/294,373.ccls. and (heat with aluminum) and (anodized adj aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14
S111	1562	(S98 S99 S100 S101 S102 S103 S104 S105 S106 S107 S108 S109 S110) and @pd> "20150115"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/25 09:14

EAST Search History (Interference)

< This search history is empty >

8/ 25/ 2015 10:57:53 AM
C:\ Users\ llovell\ Documents\ EAST\ Workspaces\ 13692402 continuation of 12341798
Lighting Fixture.wsp

Search Notes 	Application/Control No. 13692402	Applicant(s)/Patent Under Reexamination WASSEL ET AL.
	Examiner LEAH S MACCHIAROLO	Art Unit 2885

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
362	247,249.02,346,347-349,297,296.05,296.02,217.05	10 FEB 2014	LSM

SEARCH NOTES		
Search Notes	Date	Examiner
See attached EAST search history printout.	28 MAY 2013	LSM
INVENTOR search. See attached EAST search history printout.	28 MAY 2013	LSM
CLASS/SUBCLASS searching. See attached EAST search history printout.	28 MAY 2013	LSM
TEXT searching. See attached EAST search history printout.	28 MAY 2013	LSM
FORWARD and BACKWARD citation searches on relevant art. See attached EAST search history printout.	28 MAY 2013	LSM
FOR COMPLETE SEARCH NOTES, see the search notes in the parent case(s).	28 MAY 2013	LSM
UPDATED previous searches. See attached EAST search history printout.	10 FEB 2014	LSM
UPDATED previous searches. See attached EAST search history printout.	13 JAN 2015	LSM
UPDATED previous searches. See attached EAST search history printout.	25 AUG 2015	LSM

INTERFERENCE SEARCH

US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL (Submitted Only via EFS-Web)

Application Number	13/692,402	Filing Date	2012-12-03	Docket Number (if applicable)	029950-00022	Art Unit	2885
First Named Inventor	James J. WASSEL			Examiner Name	Leah Simone Macchiarolo		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, to any international application that does not comply with the requirements of 35 U.S.C. 371, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV.

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
Deposit Account No 012300

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

Signature of Registered U.S. Patent Practitioner			
Signature	/Sheree Rowe/	Date (YYYY-MM-DD)	2016-02-10
Name	Sheree Rowe	Registration Number	59068

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	13692402			
Filing Date:	03-Dec-2012			
Title of Invention:	Lighting Fixture			
First Named Inventor/Applicant Name:	James J. Wassel			
Filer:	Sheree T. Rowe/Jennifer Hardin-Cole			
Attorney Docket Number:	029950.00022			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	1	40	40
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Extension - 1 month with \$0 paid	2251	1	100	100
Miscellaneous:				
RCE- 2nd and Subsequent Request	2820	1	850	850
Total in USD (\$)				990

Electronic Acknowledgement Receipt

EFS ID:	24883329
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	4372
Filer:	Sheree T. Rowe/Jennifer Hardin-Cole
Filer Authorized By:	Sheree T. Rowe
Attorney Docket Number:	029950.00022
Receipt Date:	10-FEB-2016
Filing Date:	03-DEC-2012
Time Stamp:	18:28:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$990
RAM confirmation Number	4974
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response After Final Action	029950_00022_ResponseFiled_Feb10_2016.pdf	118560	no	12
			077fc1adfa1616e83c2331fb3ab2ee7f4a1b11e		
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	029950_00022_RCE_Feb10_2016.pdf	36325	no	3
			5055952bb1873dbcf62bd9d5f5c9be87b2300b		
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	33629	no	2
			08c50b55962e762ab36c8bc7a0b5b0e5f7a555f2		
Warnings:					
Information:					
Total Files Size (in bytes):			188514		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	Attorney Docket No.: 029950-00022
James J. WASSEL	Confirmation No.: 2398
Application No.: 13/692,402	Art Unit: 2885
Filed: December 3, 2012	Examiner: Leah Simone Macchiarolo
For: LIGHTING FIXTURE	

AMENDMENT ACCOMPANYING A REQUEST FOR CONTINUED EXAMINATION

Mail Stop: RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, Va. 22313-1450

Date: February 10, 2016

Sir:

Responsive to the Final Office Action dated September 11, 2015, and in connection with the accompanying Request for Continued Examination, entry of the following amendments and consideration of the following remarks are respectfully requested.

Amendments to the Claims are reflected in a listing of the claims, which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

AMENDMENTS TO THE CLAIMS

Listing of the claims:

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

1. (Currently Amended) A light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a substantially planar surface of the lighting strip;

a first multi-faceted side wall reflector extending along the lighting arrangement along an entire length of the lighting strip, the first side wall reflector having a first edge adjacent a first side of the lighting strip at an angle that extends along an entire length of the lighting strip; and

a second multi-faceted side wall reflector extending along the lighting arrangement along an entire length of the lighting strip, the ~~[[first]]~~ second side wall reflector having a first edge adjacent a second, opposite side of the lighting strip at an angle that extends along an entire length of the lighting strip,

wherein the first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

2. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the light emitting diodes (LEDs) are arranged in a linear row along the length of the lighting strip.

3. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side wall reflectors extend away from a base member defining a plurality of openings receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs), respectively.

4. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side wall reflectors are formed integral with the base member.

5. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side wall reflectors comprise multi-angle side walls.

6. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side wall reflectors extend away from a base member and are symmetrical about an axis of symmetry that runs through a center of the base member.

7. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 6, wherein the first and second multi-faceted side wall reflectors each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion.

8. (Original) The light emitting diode (LED) lighting arrangement for a lighting

fixture as claimed in claim 7, wherein the first angle and second angle are different angles.

9. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side wall reflectors comprise multi-angle side walls.

10. (Currently Amended) A light emitting diode (LED) lighting fixture, comprising:

a base plate having a front side and a rear side; a plurality of lighting strips mounted on the front side of the base plate, each of the lighting strips comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; and driver circuitry and control circuitry electrically coupled to the plurality of light emitting diodes (LEDs) for providing power to the light emitting diodes (LEDs),

wherein each of the lighting strips includes:

a first multi-faceted side wall reflector extending from a first side of the lighting strip along an entire length of the lighting strip, the first side wall reflector having a first edge at an angle such that the first edge of the first multi-faceted side wall reflector extends along an entire length of the lighting strip;

a second multi-faceted side wall reflector extending along the lighting arrangement adjacent a second, opposite side of the lighting strip along an entire length of the lighting strip, the ~~[[first]]~~ second side wall reflector having a first edge at an angle such that the first edge of the second multi-faceted side wall reflector adjacent the lighting strip extends along an entire length of the lighting strip, and

wherein the first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

11. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate.

12. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 11, wherein the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

13. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein each light emitting diode (LED) of each lighting strip is electrically connected in series, and each lighting strip is electrically connected to the driver circuitry in parallel.

14. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein each plurality of lighting strips is individually removably mounted to the base plate, so as to permit individual replacement of each lighting strip irrespective of the other lighting strips.

15. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein the light emitting diodes (LEDs) in each of the lighting strips are arranged in a linear row along the length of the lighting strip.

16. (Previously Presented) A light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate having a front side and a rear side;

at least four lighting strips comprising a substantially planar base member; and a plurality of light emitting diodes (LEDs) arranged along a length of the base member, the base member connected in direct physical contact to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate; and

a reflector mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, wherein the reflector comprises a first edge adjacent the lighting strip and a second edge opposite the first edge toward a light emission side of the lighting fixture, wherein the first edge of the reflector comprises the multi-faceted side walls extending along an entire length of the lighting strip at an angle,

wherein physical contact between the bottom surface of the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of light emitting diodes (LEDs) on the lighting strip to be conducted to the base plate for transfer to the ambient environment.

17. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 16, further comprising heat transfer fins on at least one side of the base plate to conduct heat to the ambient environment.

18. (Cancelled)

19. (Cancelled)

20. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 16, wherein inter-contacting surfaces between the lighting strips and base plate are separated by less than about one hundredth of an inch (0.01 inches).

21. (Previously Presented) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall reflector adjacent the lighting strip extends along the entire length of the lighting strip from a position approximately level with a bottom portion of a light emitting portion of each of the LEDs, and wherein the second multi-faceted side wall reflector adjacent the lighting strip extends along the entire length of the lighting strip on a side opposite the first multi-faceted side wall reflector from a position approximately level with a bottom portion of a light emitting portion of each of the LEDs.

22. (Previously Presented) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall reflector and the second multi-faceted side wall reflector are separately coupled to the lighting arrangement.

23. (Previously Presented) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall reflector comprises a first sheet bent to form first facets, and wherein the second multi-faceted side wall reflector comprises a second sheet bent to form second facets.

24. (New) The LED lighting arrangement of claim 1, wherein the first side wall reflector and second side wall reflector each are formed by a reflector sheet.

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

Claims 1-17 and 20-24 are currently pending in the application and subject to examination. By the foregoing amendment, claims 1 and 10 are amended, and claim 24 is added. Claims 18 and 19 were previously cancelled. No new matter has been added. The claim amendments are fully supported by the application as originally filed.

Claim Objections

Claims 1 and 10 are objected to for informalities. Claims 1 and 10 have been amended responsive to this objection. Therefore, the Applicant respectfully requests a withdrawal of the objection of claims 1 and 10.

Rejections Under 35 U.S.C. §§ 102(b) and 103(a)

Claims 1-9 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Smith, US Publication No. 2005/0111220 ("Smith"). Claims 10-15 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Smith. Claims 16, 17 and 20 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Smith and further in view of Reo et al., US Publication No. 2007/0076427 ("Reo").

The Applicant hereby traverses the rejections, as follows.

Smith fails to disclose or suggest a light emitting diode (LED) lighting arrangement or an LED lighting fixture as in at least independent claims 1, 9, and 16.

In the Response to Arguments, the Examiner indicates that "Smith's entire trough-shaped reflector is not being considered as the first and second multi-faceted sidewall reflectors, only the long, straight portions 30." See Office Action at page 12.

The long straight portions 30 are not "adjacent a first side of a lighting strip, whereas in claim 1 "the first [and second] side wall reflector having a first edge ***adjacent a first side of the lighting strip*** at an angle that extends along an entire length of the lighting strip." (emphasis added). The side wall 30 of Smith is spaced from the lighting strip by the trough portion. Although the trough portion is not cited, it still spaces the side wall reflector so that it is not adjacent to a lighting strip.

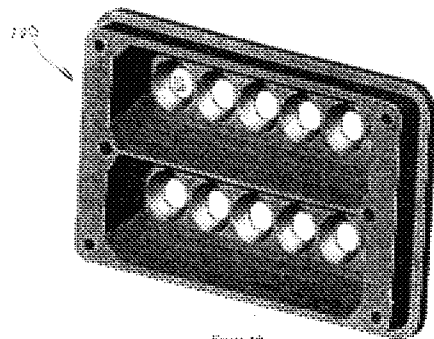


Figure 12

FIG. 12 of Smith

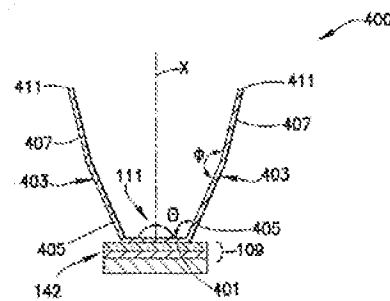


FIG.20

FIG. 20 of the present application

FIG. 20 shows an example cross section of a reflector 411 and shows how the multifaceted reflector sidewall 403 is formed at a first edge of the reflector 411 adjacent the lighting strip and "extend[s] along an entire length of the lighting strip at an angle."

For a prior art reference to anticipate, 35 U.S.C. §102 requires that "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949,

1950 (Fed. Cir. 1999) (quoting *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)).

Smith fails to disclose or suggest all of the subject matter of independent claims 1, 10, and 16, for at least this reason.

Reo, cited in connection with other subject matter, fails to cure the deficiency in Smith.

For at least the above combination of reasons, the Applicant submits that amended claims 1, 10, and 16 are allowable. As claims 1, 10, and 16 are allowable, as amended, the Applicant submits that claims 2-9, 11-15, 17, and 20, which depend from allowable claims 1, 10, and 16, are likewise allowable for at least the reasons set forth above with respect to claim 1 and for the additional subject matter recited therein.

Newly Added Claims 21-23

Claims 21-23, added in the previous response were not rejected in the Office Action. Therefore, the Applicant understands that these claims include allowable subject matter.

Conclusion

For all of the above reasons, it is respectfully submitted that claims 1-17 and 20 are in condition for allowance and a Notice of Allowability is earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is invited to contact the undersigned representative at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicant hereby petitions for an appropriate extension of time. The Commissioner is hereby authorized

Application No.: 13/692,402
Response dated February 10, 2016

Docket No.: 029950-00022

to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300 referencing client matter number 029950-00022.

Respectfully submitted,

Arent Fox LLP

/Sheree T. Rowe/
Sheree T. Rowe
Registration No. 59,068

Customer No. 004372
1717 K Street, N.W.
Washington, D.C. 20036-5342
Telephone No. (202) 857-6000
Facsimile No. (202) 857-6395
Email: DCIPDocket@arentfox.com

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/692,402	Filing Date 12/03/2012	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO**APPLICATION AS FILED – PART I**

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	02/10/2016	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 22	Minus	** 22	= 0	X \$40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE						0	

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/SULONDA D. STEVENSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	029950.00022	2398

4372 7590 03/01/2016
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT	PAPER NUMBER

2875

NOTIFICATION DATE	DELIVERY MODE

03/01/2016

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCIPDocket@arentfox.com
IPMatters@arentfox.com
Patent_Mail@arentfox.com

Office Action Summary	Application No. 13/692,402	Applicant(s) WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2875	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 Feb 2016.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-17 and 20-24 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) _____ is/are allowed.
- 7) ☒ Claim(s) 1-17 and 20-24 is/are rejected.
- 8) ☐ Claim(s) _____ is/are objected to.
- 9) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)	3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____	4) ☐ Other: _____

Art Unit: 2875

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Applicant's amendment filed on 10 February 2016 has been entered. Claims 1, 10 have been amended. Claim 24 has been added. Claims 1-17 and 20-24 are still pending in this application, with only claims 1 and 10 being independent.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10 February 2016 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (US

2005/0111220; hereinafter 'Smith').

Art Unit: 2875

Regarding claim 1, Smith, in at least figures 1 and 3, discloses a light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a substantially planar surface of the lighting strip [106,108];

a first multi-faceted side wall reflector [in figure 3, the reflector 30 to the left of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the first side wall reflector [in figure 3, the reflector 30 to the left of opening 12] having a first edge adjacent a first side of the lighting strip [106,108] at an angle that extends along an entire length of the lighting strip [106,108; at least reflector 30 extends the entire length]; and

a second multi-faceted side wall reflector [in figure 3, the reflector 30 to the right of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the second side wall adjacent a second, opposite side of the lighting strip [106,108] at an angle that extends along an entire length of the lighting strip [106,108],

wherein the first and second multi-faceted side wall reflector [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18].

Regarding claim 2, Smith, in at least figures 1, 3 and 13, discloses the light emitting diodes (LEDs) [108] are arranged in a linear row along the length of the lighting strip [106,108].

Regarding claim 3, Smith discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] defining a plurality of openings [12] receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs) [108], respectively.

Regarding claim 4, Smith, in at least figures 1 and 3, discloses the first and second multi-faceted side wall reflector [20, 30] are formed integral with the base member [102].

Regarding claim 5, Smith discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Regarding claim 6, Smith, as seen in at least figure 3, discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] and are symmetrical about an axis of symmetry that runs through a center of the base member [102].

Regarding claim 7, Smith discloses the first and second multi-faceted side wall reflector [20, 30] each comprise a first portion [20] defining a first angle with the base member [102] and a second portion [30] defining a second angle with the first portion.

Regarding claim 8, Smith discloses the first angle and second angle are different angles [as seen in at least figure 5].

Regarding claim 9, Smith, as shown in at least figure 5, discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith.

Regarding claim 10, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] mounted on the front side of the base plate [110], each of the lighting strips [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a length of the lighting strip [106,108]; and

wherein each of the lighting strips [106,108] includes:

a first multi-faceted side wall reflector [in figure 3, the reflector 30 to the left of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the first side wall reflector [in figure

Art Unit: 2875

3, the reflector 30 to the left of opening 12] having a first edge [the lower edge] adjacent a first side of the lighting strip [106,108] at an angle that extends along an entire length of the lighting strip [106,108; at least reflector 30 extends the entire length]; and

a second multi-faceted side wall reflector [in figure 3, the reflector 30 to the right of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the second side wall adjacent a second, opposite side of the lighting strip [106,108] at an angle such that the first edge of the second multi-faceted side wall reflector [30 to the right of opening 12] adjacent the lighting strip [106, 108] extends along an entire length of the lighting strip [106,108], and

wherein the first and second multi-faceted side wall reflector [30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18 and figure 6].

Smith does not expressly disclose driver circuitry.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have driver circuitry and control circuitry coupled to the LEDs.

One would have been motivated to do so because it is clear to those in the art that both circuits (driver and control) are, not only well-known, but necessary to LED devices to properly power and control LED arrays.

Art Unit: 2875

Regarding claims 11 and 12, Smith, as modified above, discloses the claimed invention as indicated above.

However, Smith does not expressly disclose the arrangement of the various circuitry components.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try the arrangement of the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate and the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

One would have been motivated to do so because providing the drive circuit and control circuit on the front side and the power supply on the rear side of the lighting strip would result in a desirable compact system.

Regarding claim 13, Smith discloses the claimed invention as indicated above.

Smith does not expressly disclose how the LEDs are electrically connected.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to electrically wire Smith's two lighting strips, shown in at least figure 13, such that each LED of each lighting strip [106, 108] is electrically connected in series, and each lighting strip [106, 108] is electrically connected to the driver circuitry in parallel.

One would have been motivated to do so because it is well-known that producing Smith's individual series-connected arrays are easier to mass produce. Furthermore, connecting several of these arrays in parallel, rather than in series, will yield a more efficient light emitter.

Regarding claim 14, Smith discloses each plurality of lighting strips [106,108] is individually removably mounted to the base plate [110], so as to permit individual replacement of each lighting strip [106,108] irrespective of the other lighting strips [106,108].

Regarding claim 15, Smith, in at least figures 1, 3, and 13, discloses the light emitting diodes (LEDs) [108] in each of the lighting strips [106,108] are arranged in a linear row along the length of the lighting strip [106,108].

Regarding claim 24, Smith discloses the claimed invention as indicated above.

Smith does not specify the first side wall reflector and the second side wall reflector each are formed by a reflector sheet.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to try Smith's first and second side wall reflectors formed from a reflector sheet.

One would have been motivated to do so because it is old and well-known in the art to utilize sheet materials to form reflectors because it is easily molded, bent, or formed into a desired shape as well as being readily available and inexpensive.

Art Unit: 2875

Claims 16, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith and further in view of Reo et al. (US 2007/0076427; hereinafter ‘Reo’).

Regarding claim 16, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate [110] comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] comprising a substantially planar base member [106]; and a plurality of light emitting diodes (LEDs) [108] arranged along a length of the base member [106], the base member [108] connected to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110]; and

a reflector [20, 30] mounted to each of the lighting strips [106,108] and comprising multi-faceted side walls [30] extending away from the lighting strip [106,108] such that the multi-faceted side walls [30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18 and figure 6], wherein the reflector [20, 30] comprises a first edge [edge of 30 closest to the lighting strip] adjacent the lighting strip [106, 108] and a second edge [edge of 30 furthest from the lighting strip] opposite the first edge toward a light emission side of the lighting fixture, wherein the first edge of the reflector comprises the multi-faceted side walls

Art Unit: 2875

[32a-32d as shown in at least figure 6] extending along an entire length of the lighting strip at an angle,

wherein physical contact between the bottom surface of the lighting strips [106,108] and the base plate [110] provides heat transfer between the lighting strips [106,108] and the base plate [110] such that heat produced by the plurality of light emitting diodes (LEDs) [108] on the lighting strip [106,108] to be conducted to the base plate [110] for transfer to the ambient environment [see at least paragraph 31].

Smith does not disclose the base plate is formed of aluminum.

Reo teaches an anodized aluminum base plate [110; see at least paragraph 23].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize Reo's anodized aluminum material for Smith's base plate.

One would have been motivated to do so as anodized aluminum is old and well-known in the art for being inexpensive, easily shapeable (via molding or extrusion), light-weight and being more durable than plastic.

Smith teaches in at least figure 13, which is an exploded view of the LED light fixture, the base member [108] connected to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110]. From at least exploded figure 13, it can be inferred that there is direct contact between the base member [108] and base plate [110].

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made that Smith's base member [108] is in direct physical contact to the base plate

Art Unit: 2875

[110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110].

Smith does not disclose more than two lighting strips.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least four lighting strips, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

One would be motivated to do so to achieve a desired brightness from Smith's lighting device.

Regarding claim 17, Smith discloses heat transfer fins on at least one side of the base plate [110] to conduct heat to the ambient environment [as seen in at least figure 13].

Regarding claim 20, Smith discloses the claimed invention as indicated above.

Smith does not disclose the distance between the lighting strips [106, 108] and base plate [110].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the inter-contacting surfaces between the lighting strips [106,108] and base plate [110] are separated by less than about one hundredth of an inch (0.01 inches).

One would have been motivated to do so since the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). Further, one would have been motivated to based on figure 13 which indicates a direct contact between the lighting strips [106, 108] and the base plate [110].

Response to Arguments

Applicant's arguments filed 10 February 2016 have been fully considered but they are not persuasive. Applicant alleges Smith and Reo, taken alone or in combination, fails to disclose or teach the invention as claimed because Smith's "long straight portions 30 are 'not adjacent a first side of the lighting strip'" The Examiner respectfully disagrees first and foremost "adjacent" is a relative term. Furthermore, the Examiner contends the first and second sidewall portions 30 as taught by Smith are, indeed, adjacent to the lighting strip as evidenced by their positioning as shown in figures 1, 3, and 13.

Regarding claims 2-9, 11-17, and 20-23, the Applicant presented no arguments, except stating that such claims depend directly, or indirectly, from independent claims 1 and 10, and would be allowable when/if the independent claim is allowed. Applicant's failure to distinctly and specifically traverse such rejections, as required by 37C.F.R. 1.111(b), has been interpreted as an admission that the individual features added by claims 2-9, 11-17, and 20-23 fail to further

Art Unit: 2875

distinguish the subject matter defined by the independent claims over the prior art already made of record.

Therefore, the previous rejection is maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEAH S. MACCHIAROLO whose telephone number is (571)272-2719. The examiner can normally be reached on Monday and Tuesday 9 a.m. until 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 13/692,402
Art Unit: 2875

Page 14

Leah Macchiarolo
Examiner, AU 2875

/LSM/

/EVAN DZIERZYNSKI/
Primary Examiner, Art Unit 2875

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S112	775	("362"/\$.ccls. "313"/\$.ccls.) and series and parallel and LED.u/c. and (fluorescen\$3 florescen\$3 flourescen\$3) and ((double both opposite) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S113	4799	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S114	2011	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board)) and (uniform\$3 near2 (beam light emission))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S115	622	"362"/\$.ccls. and linear.ti.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S116	416	S115 and reflect\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S117	256	S116 and LED.u/c.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S118	13338	362/247,249.02,346,347-349,297,296.05,296.02,217.05.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S119	3417	"362"/\$.ccls. and (linear near4	US-PGPUB;	OR	ON	2016/02/23

		(LED.U/C. light\$1emitting illuminat\$3 diode LEDs))	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			11:32
S120	403	(street\$1light street\$1lamp) and linear	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S121	2853	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S122	159	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4 and 362/294,373.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S123	2183	362/294,373.ccls. and (heat with aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S124	46	362/294,373.ccls. and (heat with aluminum) and (anodized adj aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32
S125	744	(S112 S113 S114 S115 S116 S117 S118 S119 S120 S121 S122 S123 S124) and @pd> "20150901"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/23 11:32

EAST Search History (Interference)

< This search history is empty >

2/ 23/ 2016 1:58:52 PM
C:\ Users\ llovell\ Documents\ EAST\ Workspaces\ 13692402 continuation of 12341798
Lighting Fixture.wsp

Search Notes 	Application/Control No. 13692402	Applicant(s)/Patent Under Reexamination WASSEL ET AL.
	Examiner LEAH S MACCHIAROLO	Art Unit 2885

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
362	247,249.02,346,347-349,297,296.05,296.02,217.05	10 FEB 2014	LSM

SEARCH NOTES		
Search Notes	Date	Examiner
See attached EAST search history printout.	28 MAY 2013	LSM
INVENTOR search. See attached EAST search history printout.	28 MAY 2013	LSM
CLASS/SUBCLASS searching. See attached EAST search history printout.	28 MAY 2013	LSM
TEXT searching. See attached EAST search history printout.	28 MAY 2013	LSM
FORWARD and BACKWARD citation searches on relevant art. See attached EAST search history printout.	28 MAY 2013	LSM
FOR COMPLETE SEARCH NOTES, see the search notes in the parent case(s).	28 MAY 2013	LSM
UPDATED previous searches. See attached EAST search history printout.	10 FEB 2014	LSM
UPDATED previous searches. See attached EAST search history printout.	13 JAN 2015	LSM
UPDATED previous searches. See attached EAST search history printout.	25 AUG 2015	LSM
UPDATED previous searches. See attached EAST search history printout.	23 FEB 2016	LSM

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner



UNITED STATES PATENT AND TRADEMARK OFFICE

USPTO Automated Interview Request (AIR)

Mar 8 2016

This paper requesting to schedule and/or conduct an interview is appropriate because:

This submission is requested to be accepted as an authorization for this interview to communicate via the internet. Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned concerning scheduling of the interview via video conference, instant messaging, or electronic mail, and to conduct the interview in accordance with office practice including video conferencing.

Name(s) :

Sheree Rowe

S-signature:

/Sheree Rowe/

Registration Number:

59068

U.S. Application Number:

13692402

Confirmation Number:

2398

E-mail Address:

sheree.rowe@arentfox.com

Phone Number:

4157575508

Proposed Time of Interview:

3-15-2016 2:00 PM ET

Preferred Interview Type:

Telephonic

I am the applicant or applicant's representative for this application.



UNITED STATES
PATENT AND TRADEMARK OFFICE

PALM-SILVER



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	029950.00022	2398

4372 7590 04/15/2016
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT	PAPER NUMBER

2875

NOTIFICATION DATE	DELIVERY MODE

04/15/2016

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCIPDocket@arentfox.com
IPMatters@arentfox.com
Patent_Mail@arentfox.com

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant's representative explained the difference between the instant application as claimed in claim 1 and the reflector of Smith. The Examiners agreed that, whilst comparing the figures of both the instant application and Smith, a discernable difference can be seen; however, it was noted that such differences are not expressly claimed in the instant set of claims.

The Examiner's noted that incorporations of the sheet-like qualities and shape may help differentiate over Smith, but would require further search and consideration.

Furthermore, Applicant's representative noted missing written rejection of claims 21-23. In response, the Examiner indicated that the lack of written rejection was accidental. The Examiners and Representative then discussed these rejections including how they are interpreted in light of Smith. For clarification, completion of the record, and compact prosecution, a supplemental office action is provided herewith to include the inadvertently left out detailed rejections of claims 21-23 and written as discussed in the instant interview. The Examiner notes claims 21-23 were previously indicated as rejected on the Office Action Summary (PTOL-326) from the Non-Final Rejection dated 1 March 2016..

Office Action Summary	Application No. 13/692,402	Applicant(s) WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2875	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-17 and 20-24 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) _____ is/are allowed.
- 7) ☒ Claim(s) 1-17 and 20-24 is/are rejected.
- 8) ☐ Claim(s) _____ is/are objected to.
- 9) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)	3) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date, <u>20160317</u> .
2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.	4) ☐ Other: _____.

The present application is being examined under the pre-AIA first to invent provisions.

SUPPLEMENTAL DETAILED ACTION

Applicant's amendment filed on 10 February 2016 has been entered. Claims 1, 10 have been amended. Claim 24 has been added. Claims 1-17 and 20-24 are still pending in this application, with only claims 1 and 10 being independent.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10 February 2016 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (US 2005/0111220; hereinafter 'Smith').

Regarding claim 1, Smith, in at least figures 1 and 3, discloses a light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a substantially planar surface of the lighting strip [106,108];

a first multi-faceted side wall reflector [in figure 3, the reflector 30 to the left of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the first side wall reflector [in figure 3, the reflector 30 to the left of opening 12] having a first edge adjacent a first side of the lighting strip [106,108] at an angle that extends along an entire length of the lighting strip [106,108; at least reflector 30 extends the entire length]; and

a second multi-faceted side wall reflector [in figure 3, the reflector 30 to the right of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the second side wall adjacent a second, opposite side of the lighting strip [106,108] at an angle that extends along an entire length of the lighting strip [106,108],

wherein the first and second multi-faceted side wall reflector [20, 30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18].

Regarding claim 2, Smith, in at least figures 1, 3 and 13, discloses the light emitting diodes (LEDs) [108] are arranged in a linear row along the length of the lighting strip [106,108].

Regarding claim 3, Smith discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] defining a plurality of openings [12] receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs) [108], respectively.

Regarding claim 4, Smith, in at least figures 1 and 3, discloses the first and second multi-faceted side wall reflector [20, 30] are formed integral with the base member [102].

Regarding claim 5, Smith discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Regarding claim 6, Smith, as seen in at least figure 3, discloses the first and second multi-faceted side wall reflector [20, 30] extend away from a base member [102] and are symmetrical about an axis of symmetry that runs through a center of the base member [102].

Regarding claim 7, Smith discloses the first and second multi-faceted side wall reflector [20, 30] each comprise a first portion [20] defining a first angle with the base member [102] and a second portion [30] defining a second angle with the first portion.

Regarding claim 8, Smith discloses the first angle and second angle are different angles [as seen in at least figure 5].

Regarding claim 9, Smith, as shown in at least figure 5, discloses the first and second multi-faceted side wall reflector [20, 30] comprise multi-angle side walls [see at least paragraphs 34 and 35].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-15, and claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith.

Regarding claim 10, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] mounted on the front side of the base plate [110], each of the lighting strips [106,108] comprising a plurality of light emitting diodes (LEDs) [108] arranged along a length of the lighting strip [106,108]; and

wherein each of the lighting strips [106,108] includes:

a first multi-faceted side wall reflector [in figure 3, the reflector 30 to the left of opening 12] extending along the lighting arrangement along

Art Unit: 2875

an entire length of the lighting strip, the first side wall reflector [in figure 3, the reflector 30 to the left of opening 12] having a first edge [the lower edge] adjacent a first side of the lighting strip [106,108] at an angle that extends along an entire length of the lighting strip [106,108; at least reflector 30 extends the entire length]; and

a second multi-faceted side wall reflector [in figure 3, the reflector 30 to the right of opening 12] extending along the lighting arrangement along an entire length of the lighting strip, the second side wall adjacent a second, opposite side of the lighting strip [106,108] at an angle such that the first edge of the second multi-faceted side wall reflector [30 to the right of opening 12] adjacent the lighting strip [106, 108] extends along an entire length of the lighting strip [106,108], and

wherein the first and second multi-faceted side wall reflector [30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18 and figure 6].

Smith does not expressly disclose driver circuitry.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have driver circuitry and control circuitry coupled to the LEDs.

One would have been motivated to do so because it is clear to those in the art that both circuits (driver and control) are, not only well-known, but necessary to LED devices to properly power and control LED arrays.

Regarding claims 11 and 12, Smith, as modified above, discloses the claimed invention as indicated above.

However, Smith does not expressly disclose the arrangement of the various circuitry components.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try the arrangement of the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate and the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

One would have been motivated to do so because providing the drive circuit and control circuit on the front side and the power supply on the rear side of the lighting strip would result in a desirable compact system.

Regarding claim 13, Smith discloses the claimed invention as indicated above.

Smith does not expressly disclose how the LEDs are electrically connected.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to electrically wire Smith's two lighting strips, shown in at least figure 13, such that each LED of each lighting strip [106, 108] is electrically connected in series, and each lighting strip [106, 108] is electrically connected to the driver circuitry in parallel.

One would have been motivated to do so because it is well-known that producing Smith's individual series-connected arrays are easier to mass produce. Furthermore, connecting several of these arrays in parallel, rather than in series, will yield a more efficient light emitter.

Regarding claim 14, Smith discloses each plurality of lighting strips [106,108] is individually removably mounted to the base plate [110], so as to permit individual replacement of each lighting strip [106,108] irrespective of the other lighting strips [106,108].

Regarding claim 15, Smith, in at least figures 1, 3, and 13, discloses the light emitting diodes (LEDs) [108] in each of the lighting strips [106,108] are arranged in a linear row along the length of the lighting strip [106,108].

Regarding claim 21, Smith, in at least figures 1, 3, and 13, discloses the first multi-faceted side wall reflector [in figure 3, the reflector 30 to the left of opening 12] adjacent the lighting strip [106, 108] extends along the entire length of the lighting strip [106, 108] from a position approximately level [the Examiner notes the term “approximately level” is a relative term without a defined meaning] with a bottom portion of a light emitting portion of each of the LEDs [when the lighting strips are positioned within the reflector 30, as interpreted in light of figures 1, 3, 12, and 13], and

wherein the second multi-faceted side wall reflector [in figure 3, the reflector 30 to the right of opening 12] adjacent the lighting strip [106, 108] extends along the entire length of the lighting strip [106, 108] on a side opposite the first multifaceted side wall reflector from a

Art Unit: 2875

position approximately level [the Examiner notes the term “approximately level” is a relative term without a defined meaning] with a bottom portion of a light emitting portion of each of the LEDs [when the lighting strips are positioned within the reflector 30, as interpreted in light of figures 1, 3, 12, and 13].

Regarding claim 22, Smith discloses the claimed invention as indicated above.

Smith does not expressly disclose the first multi-faceted side wall reflector [part of 30] and the second multi-faceted side wall reflector [part of 30] are separately coupled to the lighting arrangement.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to try having separate reflector portions such that Smith’s first multi-faceted side wall reflector and Smith’s second multi-faceted side wall reflector are separately coupled to the lighting arrangement.

One would have been motivated to do so to allow for a specific and customizable arrangement of each reflector. Furthermore, Applicant is advised that it has been held by the courts that the mere fact that a given structure is integral does not preclude its consisting of various elements, and that constructing a formerly integral structure in various portions involves only routine skill in the art.

Regarding claim 23, Smith discloses the claimed invention as indicated above.

Smith does not expressly disclose the first multi-faceted side wall reflector comprises a first sheet bent to form first facets, and wherein the second multi-faceted side wall reflector comprises a second sheet bent to form second facets.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make Smith's first multi-faceted side wall reflector from a first sheet bent to form first facets and Smith's second multi-faceted side wall reflector from a second sheet bent to form second facets.

One would have been motivated to do so because it is old and well-known in the art to utilize sheet materials to form reflectors because it is easily molded, bent, or formed into a desired shape as well as being readily available and inexpensive.

Regarding claim 24, Smith discloses the claimed invention as indicated above.

Smith does not specify the first side wall reflector and the second side wall reflector each are formed by a reflector sheet.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to try Smith's first and second side wall reflectors formed from a reflector sheet.

One would have been motivated to do so because it is old and well-known in the art to utilize sheet materials to form reflectors because it is easily molded, bent, or formed into a desired shape as well as being readily available and inexpensive.

Claims 16, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith and further in view of Reo et al. (US 2007/0076427; hereinafter 'Reo').

Art Unit: 2875

Regarding claim 16, Smith, in at least figures 1, 3, and 13, discloses a light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate [110] comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate [110] having a front side and a rear side;

a plurality of lighting strips [106,108] comprising a substantially planar base member [106]; and a plurality of light emitting diodes (LEDs) [108] arranged along a length of the base member [106], the base member [108] connected to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110]; and

a reflector [20, 30] mounted to each of the lighting strips [106,108] and comprising multi-faceted side walls [30] extending away from the lighting strip [106,108] such that the multi-faceted side walls [30] cause light produced by the plurality of light emitting diodes (LEDs) [108] to be amplified and formed into a uniform beam [see at least paragraph 18 and figure 6], wherein the reflector [20, 30] comprises a first edge [edge of 30 closest to the lighting strip] adjacent the lighting strip [106, 108] and a second edge [edge of 30 furthest from the lighting strip] opposite the first edge toward a light emission side of the lighting fixture, wherein the first edge of the reflector comprises the multi-faceted side walls [32a-32d as shown in at least figure 6] extending along an entire length of the lighting strip at an angle,

wherein physical contact between the bottom surface of the lighting strips [106,108] and the base plate [110] provides heat transfer between the lighting strips [106,108] and the base plate [110] such that heat produced by the plurality of light emitting diodes (LEDs) [108] on the lighting strip [106,108] to be conducted to the base plate [110] for transfer to the ambient environment [see at least paragraph 31].

Smith does not disclose the base plate is formed of aluminum.

Reo teaches an anodized aluminum base plate [110; see at least paragraph 23].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize Reo's anodized aluminum material for Smith's base plate.

One would have been motivated to do so as anodized aluminum is old and well-known in the art for being inexpensive, easily shapeable (via molding or extrusion), light-weight and being more durable than plastic.

Smith teaches in at least figure 13, which is an exploded view of the LED light fixture, the base member [108] connected to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110]. From at least exploded figure 13, it can be inferred that there is direct contact between the base member [108] and base plate [110].

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made that Smith's base member [108] is in direct physical contact to the base plate [110] so as to permit at least conductive heat transfer from the lighting strips [106,108] to the base plate [110].

Art Unit: 2875

Smith does not disclose more than two lighting strips.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least four lighting strips, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

One would be motivated to do so to achieve a desired brightness from Smith's lighting device.

Regarding claim 17, Smith discloses heat transfer fins on at least one side of the base plate [110] to conduct heat to the ambient environment [as seen in at least figure 13].

Regarding claim 20, Smith discloses the claimed invention as indicated above.

Smith does not disclose the distance between the lighting strips [106, 108] and base plate [110].

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the inter-contacting surfaces between the lighting strips [106,108] and base plate [110] are separated by less than about one hundredth of an inch (0.01 inches).

One would have been motivated to do so since the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform

Art Unit: 2875

differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984). Further, one would have been motivated to based on figure 13 which indicates a direct contact between the lighting strips [106, 108] and the base plate [110].

Response to Arguments

Applicant's arguments filed 10 February 2016 have been fully considered but they are not persuasive. Applicant alleges Smith and Reo, taken alone or in combination, fails to disclose or teach the invention as claimed because Smith's "long straight portions 30 are 'not adjacent a first side of the lighting strip'" The Examiner respectfully disagrees first and foremost "adjacent" is a relative term. Furthermore, the Examiner contends the first and second sidewall portions 30 as taught by Smith are, indeed, adjacent to the lighting strip as evidenced by their positioning as shown in figures 1, 3, and 13.

Regarding claims 2-9, 11-17, and 20-23, the Applicant presented no arguments, except stating that such claims depend directly, or indirectly, from independent claims 1 and 10, and would be allowable when/if the independent claim is allowed. Applicant's failure to distinctly and specifically traverse such rejections, as required by 37C.F.R. 1.111(b), has been interpreted as an admission that the individual features added by claims 2-9, 11-17, and 20-23 fail to further distinguish the subject matter defined by the independent claims over the prior art already made of record.

Therefore, the previous rejection is maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEAH S. MACCHIAROLO whose telephone number is (571)272-2719. The examiner can normally be reached on Monday and Tuesday 9 a.m. until 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Macchiarolo
Examiner, AU 2875

/LSM/

/EVAN DZIERZYNSKI/

Primary Examiner, Art Unit 2875

<i>Applicant-Initiated Interview Summary</i>	Application No. 13/692,402	Applicant(s) WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2875	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Sheree Rowe (US Reg. 59,068). (3) Leah Macchiarolo, Junior Examiner.
 (2) Evan Dzierzynski, Primary Examiner. (4) ____.

Date of Interview: 15 March 2016.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.
 If Yes, brief description: ____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☐Others
 (For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1 and 21-23.

Identification of prior art discussed: Smith (US 2005/0111220).

Substance of Interview

(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

See Continuation Sheet.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/EVAN DZIERZYNSKI/
 Primary Examiner, Art Unit 2875

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant's representative explained the difference between the instant application as claimed in claim 1 and the reflector of Smith. The Examiners agreed that, whilst comparing the figures of both the instant application and Smith, a discernable difference can be seen; however, it was noted that such differences are not expressly claimed in the instant set of claims.

The Examiner's noted that incorporations of the sheet-like qualities and shape may help differentiate over Smith, but would require further search and consideration.

Furthermore, Applicant's representative noted missing written rejection of claims 21-23. In response, the Examiner indicated that the lack of written rejection was accidental. The Examiners and Representative then discussed these rejections including how they are interpreted in light of Smith. For clarification, completion of the record, and compact prosecution, a supplemental office action is provided herewith to include the inadvertently left out detailed rejections of claims 21-23 and written as discussed in the instant interview. The Examiner notes claims 21-23 were previously indicated as rejected on the Office Action Summary (PTOL-326) from the Non-Final Rejection dated 1 March 2016..

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Attorney Docket No.: 029950-00022

James J. WASSEL

Confirmation No.: 2398

Application No.: 13/692,402

Art Unit: 2885

Filed: December 3, 2012

Examiner: Leah Simone Macchiarolo

For: LIGHTING FIXTURE

AMENDMENT

Mail Stop: Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Va. 22313-1450

Date: May 25, 2016

Sir:

Responsive to the Office Action dated March 1, 2016 and April 15, 2016, entry of the following amendments and consideration of the following remarks are respectfully requested.

Amendments to the Claims are reflected in a listing of the claims, which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

AMENDMENTS TO THE CLAIMS

Listing of the claims:

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

1. (Currently Amended) A light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a substantially planar surface of the lighting strip;

a sheet-like reflector comprising:

a first multi-faceted side wall ~~reflector~~-extending along the lighting arrangement along an entire length of the lighting strip ~~with, the first side wall reflector having~~ a first edge adjacent a first side of the lighting strip and extending at an angle ~~that extends~~ along an entire length of the lighting strip; and

a second multi-faceted side wall ~~reflector~~-extending along the lighting arrangement along an entire length of the lighting strip, the second side wall ~~reflector~~ having a first edge adjacent a second, opposite side of the lighting strip at an angle that extends along an entire length of the lighting strip,

wherein the first and second multi-faceted side walls ~~wall reflectors~~ cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

2. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the light emitting diodes (LEDs) are arranged in a linear row along the length of the lighting strip.

3. (Currently Amended) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side walls ~~wall reflectors~~ extend away from a base member defining a plurality of openings receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs), respectively.

4. (Currently Amended) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side walls ~~wall reflectors~~ are formed integral with the base member.

5. (Currently Amended) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side walls ~~wall reflectors~~ comprise multi-angle side walls.

6. (Currently Amended) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side walls ~~wall reflectors~~ extend away from a base member and are symmetrical about an axis of symmetry that runs through a center of the base member.

7. (Currently Amended) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 6, wherein the first and second multi-faceted side walls ~~wall reflectors~~ each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion.

8. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 7, wherein the first angle and second angle are different angles.

9. (Currently Amended) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side ~~walls~~ ~~wall reflectors~~ comprise multi-angle side walls.

10. (Currently Amended) A light emitting diode (LED) lighting fixture, comprising:

a base plate having a front side and a rear side; a plurality of lighting strips mounted on the front side of the base plate, each of the lighting strips comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; and driver circuitry and control circuitry electrically coupled to the plurality of light emitting diodes (LEDs) for providing power to the light emitting diodes (LEDs),

wherein each of the lighting strips includes a sheet-like reflector comprising:

a first multi-faceted side wall ~~reflector~~ extending at an angle from a first side of the lighting strip along an entire length of the lighting strip, the first side wall comprising a sheet bent to form the angle ~~reflector having a first edge at an angle such that the first edge of the first multi-faceted side wall reflector extends along an entire length of the lighting strip;~~

a second multi-faceted side wall ~~reflector~~ extending along the lighting arrangement adjacent a second, opposite side of the lighting strip along an entire length

of the lighting strip, ~~the second side wall reflector having a first edge at an angle such that the first edge of the second multi-faceted side wall reflector adjacent the lighting strip extends along an entire length of the lighting strip, and~~

wherein the first and second multi-faceted side walls ~~wall reflectors~~ cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

11. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate.

12. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 11, wherein the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

13. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein each light emitting diode (LED) of each lighting strip is electrically connected in series, and each lighting strip is electrically connected to the driver circuitry in parallel.

14. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein each plurality of lighting strips is individually removably mounted to the

base plate, so as to permit individual replacement of each lighting strip irrespective of the other lighting strips.

15. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein the light emitting diodes (LEDs) in each of the lighting strips are arranged in a linear row along the length of the lighting strip.

16. (Currently Amended) A light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate having a front side and a rear side;

at least four lighting strips comprising a substantially planar base member; and a plurality of light emitting diodes (LEDs) arranged along a length of the base member, the base member connected in direct physical contact to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate; and

a reflector sheet mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, wherein the reflector comprises a first edge adjacent the lighting strip and a second edge opposite the first edge toward a light emission side of the lighting fixture, wherein ~~the first edge of the reflector comprises~~ the multi-faceted side walls of the reflector extend ~~extending~~ along an entire length of the lighting strip at an angle,

wherein physical contact between the bottom surface of the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of light emitting diodes (LEDs) on the lighting strip to be conducted to the base plate for transfer to the ambient environment.

17. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 16, further comprising heat transfer fins on at least one side of the base plate to conduct heat to the ambient environment.

18. (Canceled)

19. (Canceled)

20. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 16, wherein inter-contacting surfaces between the lighting strips and base plate are separated by less than about one hundredth of an inch (0.01 inches).

21. (Currently Amended) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall ~~reflector~~-adjacent the lighting strip extends along the entire length of the lighting strip from a position ~~approximately level~~ with a bottom portion of a light emitting portion of each of the LEDs, and wherein the second multi-faceted side wall ~~reflector~~-adjacent the lighting strip extends along the entire length of the lighting strip on a side opposite the first multi-

faceted side wall ~~reflector~~ from a position ~~approximately~~ level with a bottom portion of a light emitting portion of each of the LEDs.

22. (Currently Amended) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall ~~reflector~~ and the second multi-faceted side wall ~~reflector~~ are separately coupled to the lighting arrangement.

23. (Currently Amended) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall ~~reflector~~ comprises a first sheet bent to form first facets, and wherein the second multi-faceted side wall ~~reflector~~ comprises a second sheet bent to form second facets.

24. (Currently Amended) The LED lighting arrangement of claim 1, wherein the first side wall ~~reflector~~ and second side wall ~~reflector~~ each are formed by a reflector sheet.

25. (New) The LED lighting fixture of claim 16, wherein the multi-faceted side walls are formed as bends in the sheet-like reflector.

26. (New) The LED lighting arrangement of claim 1, wherein the first and second multi-faceted side walls begin at a level of the lighting strip and extend away from the lighting strip.

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

Claims 1-17 and 20-24 were previously pending in the application and subject to examination. By the foregoing amendment, claims 1, 3-7, 9, 10, 16, and 21-24 are amended, and claims 25-26 are added. Claims 18 and 19 were previously canceled. No new matter has been added. The claim amendments are fully supported by the application as originally filed.

Examiner Interview

The Applicant thanks the Examiner for the Interview conducted on March 15, 2016, during which the differences between the present application and the cited art were discussed along with potential claim language. The claims are amended, as discussed during the interview to include that the reflector is sheet-like. Additional claims 25 and 26 have been added with additional language discussed during the Interview.

If the Examiner feels that any additional amendment is needed in order to place this application in condition for allowance, the Examiner is requested to contact the Applicant's representative.

Rejections Under 35 U.S.C. §§ 102(b) and 103(a)

Claims 1-9 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Smith, US Publication No. 2005/0111220 ("Smith"). Claims 10-15 and 21-24 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Smith. Claims 16, 17 and 20 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Smith and further in view of Reo et al., US Publication No.

2007/0076427 ("Reo"). It is noted that independent claims 1, 10, and 16 have been amended. To the extent that the rejections remain applicable to the claims currently pending, the Applicant hereby traverses the rejections, as follows.

Smith fails to disclose or suggest an lighting arrangement or an LED lighting fixture as in at least independent claims 1, 9, and 16.

Claim 1 for example, as amended, comprises a sheet-like reflector comprising a first multi-faceted side wall and a second multi-faceted side wall.

Smith does not include a "sheet like reflector" as in amended claim 1.

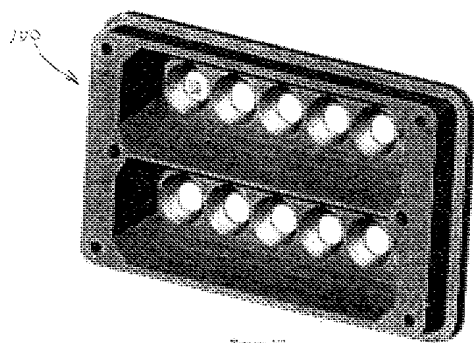


Figure 12

FIG. 12 of Smith

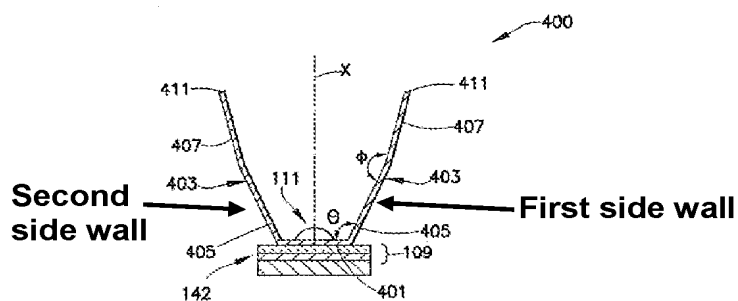


FIG.20

FIG. 20 of the present application

FIG. 20 of the present application shows an example cross section of a "sheet-like" reflector 411, and is annotated to indicate the first side wall and the second side wall, each of which extend at an angle along the entire length of the LED lighting strip on opposite sides of the LED lighting strip.

Claim 1, has been amended to state that the sheet-like reflector comprises "a first multi-faceted side wall extending along the lighting arrangement along an entire length of the lighting strip with a first edge adjacent a first side of the lighting strip and extending at an angle along an entire length of the lighting strip.

FIG. 20 also shows how the multifaceted side wall 403 is formed at a first edge of the reflector 411 **adjacent** the lighting strip and "**extend[s] at an angle** along an entire length of the lighting strip."

The Applicant maintains that the side wall 30 of Smith is spaced from the lighting strip by the trough portion of Smith's composite reflector and therefore is not "adjacent" the lighting strip. Furthermore, the reflector portion that is adjacent the lighting strip forms a parabolic structure that surrounds only a single light and does not "extend at an angle along an entire length of the lighting strip," as in amended claim 1.

The differences between the sheet-like reflector of claim 1 and the composite reflector of Smith affect not only the reflection and focus of light, but also provide improved heat dissipation and a simplified manufacturing process that cannot be accomplished using the disclosure of Smith.

For a prior art reference to anticipate, 35 U.S.C. §102 requires that "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (quoting Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)).

Smith fails to disclose or suggest all of the subject matter of independent claims 1, 10, and 16, for at least this reason.

Reo, cited in connection with other subject matter, fails to cure the deficiency in Smith.

For at least the above combination of reasons, the Applicant submits that amended claims 1, 10, and 16 are allowable. As claims 1, 10, and 16 are allowable, as amended, the Applicant submits that claims 2-9, 11-15, 17, and 20, which depend from

allowable claims 1, 10, and 16, are likewise allowable for at least the reasons set forth above with respect to claim 1 and for the additional subject matter recited therein.

Conclusion

For all of the above reasons, it is respectfully submitted that claims 1-17 and 2-24 are in condition for allowance and a Notice of Allowability is earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is invited to contact the undersigned representative at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicant hereby petitions for an appropriate extension of time. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300 referencing client matter number 029950-00022.

Respectfully submitted,

Arent Fox LLP

/Sheree T. Rowe/
Sheree T. Rowe
Registration No. 59,068

Customer No. 004372
1717 K Street, N.W.
Washington, D.C. 20036-5342
Telephone No. (202) 857-6000
Facsimile No. (202) 857-6395
Email: DCIPDocket@arentfox.com

Electronic Patent Application Fee Transmittal

Application Number:	13692402			
Filing Date:	03-Dec-2012			
Title of Invention:	Lighting Fixture			
First Named Inventor/Applicant Name:	James J. Wassel			
Filer:	Sheree T. Rowe/Jennifer Hardin-Cole			
Attorney Docket Number:	029950.00022			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Claims in Excess of 20	1202	2	80	160
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				160

Electronic Acknowledgement Receipt

EFS ID:	25886458
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	4372
Filer:	Sheree T. Rowe/Jennifer Hardin-Cole
Filer Authorized By:	Sheree T. Rowe
Attorney Docket Number:	029950.00022
Receipt Date:	25-MAY-2016
Filing Date:	03-DEC-2012
Time Stamp:	16:48:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 160
RAM confirmation Number	3534
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment Copy Claims/Response to Suggested Claims	029950_00022_ResponseFiled_May25_2016.pdf	384380 c3156b26c4b2281341a6b4b225eb23326a142e23	no	12
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30080 ff788e6a7cda5b821833dd98825e881c892076ed	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			414460		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/692,402	Filing Date 12/03/2012	☐ To be Mailed

 ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	05/25/2016	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 24	Minus	** 22	= 2	X \$40 =	80
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE							80

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/DEBRA SAVOY/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	029950.00022	2398

4372 7590 09/09/2016
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT	PAPER NUMBER

2875

NOTIFICATION DATE	DELIVERY MODE

09/09/2016

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@arentfox.com

Office Action Summary	Application No. 13/692,402	Applicant(s) WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2875	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2016.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-17 and 20-26 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☒ Claim(s) 16, 17, 20 and 25 is/are allowed.
- 7) ☒ Claim(s) 1-15, 21-24 and 26 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. ____.
2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date ____.	4) ☐ Other: ____.

Art Unit: 2875

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Applicant's amendment filed on 25 May 2016 has been entered. Claims 1, 3-7, 9, 10, 16, and 21-24 have been amended. Claims 25 and 26 have been added. Claims 1-17 and 20-26 are still pending in this application, with only claims 1, 10, and 16 being independent.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 21, 22, 24, and 26 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Han et al. (US 2007/0002565; hereinafter 'Han').

Regarding claim 1, Han discloses a light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a lighting strip (117, figs. 2-5) comprising a plurality of light emitting diodes (LEDs) (117) arranged along a substantially planar surface of the lighting strip (as seen in at least figs. 2-5);

a sheet-like reflector (114, figs. 2-5) comprising:

first multi-faceted side wall (not independently labelled left wall of reflector 114, figs. 2-5) extending along the lighting arrangement along an entire length of the lighting strip (117) with a first edge adjacent a first side of the lighting strip and extending at an angle along an entire length of the lighting strip (as seen in at least figs. 3-5); and

a second multi-faceted side wall (not independently labelled right wall of reflector 114, figs. 2-5) extending along the lighting arrangement along an entire length of the lighting strip (117), the second side wall (right 114) having a first edge adjacent a second, opposite side of the lighting strip at an angle that extends along an entire length of the lighting strip (as seen in at least figs. 3-5),

wherein the first and second multi-faceted side walls (114) cause light produced by the plurality of light emitting diodes (LEDs) (117) to be amplified and formed into a uniform beam (as disclosed in at least column 5, lines 42-55).

4

Regarding claim 2, Han discloses the light emitting diodes (LEDs) (117) are arranged in a linear row along the length of the lighting strip (figs. 2-5 teach linear rows in at least one direction).

Regarding claim 3, Han discloses the first and second multi-faceted side walls (114) extend away from a base member (horizontal portion of 114 defining a plurality of openings receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs), respectively (as disclosed in at least column 4, lines 37-39).

Regarding claim 4, Han discloses the first and second multi-faceted side walls (114) are formed integral with the base member (as seen in at least figs. 2-5).

Regarding claim 5, Han discloses the first and second multi-faceted side walls (114) comprise multi-angle side walls (figs. 3-5 show θ_1 and θ_2 for both multi-faceted side walls).

Regarding claim 6, Han discloses the first and second multi-faceted side walls (114) extend away from a base member (horizontal portions of 114) and are symmetrical about an axis of symmetry that runs through a center of the base member (as seen in figs. 2-5).

Regarding claim 7, Han discloses the first and second multi-faceted side walls (114) each comprise a first portion defining a first angle (θ_1) with the base member and a second portion defining a second angle (θ_2) with the first portion (as seen in at least figs. 3-5).

Regarding claim 8, Han discloses the first angle and second angle are different angles (figs. 3-5 clearly show θ_1 and θ_2 as different angles; in the text, see at least columns 5-13-16).

Regarding claim 9, Han discloses the first and second multi-faceted side walls (114) comprise multi-angle side walls (as seen in at least figs. 3-5).

Art Unit: 2875

Regarding claim 21, Han discloses:

wherein the first multi-faceted side wall (114) adjacent the lighting strip (117) extends along the entire length of the lighting strip from a position level with a bottom portion of a light emitting portion of each of the LEDs (as clearly shown in at least figs. 3-5), and

wherein the second multi-faceted side wall (114) adjacent the lighting strip (117) extends along the entire length of the lighting strip on a side opposite the first multi-faceted side wall from a position level with a bottom portion of a light emitting portion of each of the LEDs (as clearly shown in at least figs. 3-5).

Regarding claim 22, Han discloses the first multi-faceted side wall (left 114) and the second multi-faceted side wall (right 114) are separately coupled to the lighting arrangement (as they are each coupled closer to the left and right lighting strips, respectively).

Regarding claim 24, Han discloses the first side wall (left 114) and second side wall (right 114) each are formed by a reflector sheet (114).

Regarding claim 26, Han discloses the first and second multi-faceted side walls (114) begin at a level of the lighting strip (117) and extend away from the lighting strip (as seen in at least figs. 3-5).

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-15 and 23 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Han.

Regarding claim 10, Han discloses a light emitting diode (LED) lighting fixture, comprising:

a base plate (113, figs. 3-5) having a front side (the inside surface) and a rear side (the outside surface); a plurality of lighting strips (two rows of LEDs 117, figs. 3-5) mounted on the front side of the base plate (113), each of the lighting strips (117) comprising a plurality of light emitting diodes (LEDs) (117) arranged along a length of the lighting strip; and

driver circuitry and control circuitry (not shown, as disclosed in at least column 4, lines 42-44) electrically coupled to the plurality of light emitting diodes (LEDs) (117) for providing power to the light emitting diodes (LEDs) (as disclosed in at least column 4, lines 42-44),

wherein each of the lighting strips (117) includes a sheet-like reflector (114) comprising:

a first multi-faceted side wall (the outer portions, labelled I and II, of 114 adjacent the left lighting strip) extending at an angle (thetas 1 and 2) from a first side of the lighting strip (117) along an entire length of the lighting strip, a second multi-faceted side wall (the outer portions of the reflector 114 adjacent the right lighting strip 117, as seen

Art Unit: 2875

in at least figs. 3-5) extending along the lighting arrangement adjacent a second, opposite side of the lighting strip (117) along an entire length of the lighting strip (as seen in figs. 3-5), and

wherein the first and second multi-faceted side walls (114) cause light produced by the plurality of light emitting diodes (LEDs) (117) to be amplified and formed into a uniform beam (as disclosed in at least column 5, lines 42-55).

Han does not expressly disclose the first side wall (114) comprising a sheet bent to form the angle.

However, it would have been obvious to one having ordinary skill in the art would have use a sheet bent to form an angle.

One would have been motivated to do so not only because Han suggests using aluminum, which is old and well-known as being easily formed into malleable sheets, but also because of the disclosed shape of Han's reflector lends itself to being made from a sheet metal and then bent to the desired angles.

Regarding claim 11, Han discloses the claimed invention as indicated above. Han further discloses, in at least column 4, lines 42-44, the presence of a drive circuit as well as the indication the LEDs (117) react to a(n electrical) current received from the drive circuit, which is typically received from a power source.

Han does not specifically disclose the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate.

Art Unit: 2875

However, it would have been obvious to one having ordinary skill to try Han's driver circuitry and control circuitry (both not shown) are mounted on the front side (inside surface of 113) of Han's base plate, and a power supply mounted on the rear side (outside surface of 113) of Han's base plate.

One having motivated to do so because one having ordinary skill in the art at the time the invention was made would have recognized the benefit to arranging the driver circuitry and control circuitry within Han's base plate (113) to keep these components safe. Furthermore, one having ordinary skill in the art would have been motivated to provide a power supply, such as a power cord, on the rear side to provide a direct power supply to the internal components.

Regarding claim 12, Han, as modified above, discloses the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips (as suggested by column 4, lines 42-44).

Regarding claim 13, Han discloses the claimed invention as indicated above.

Han does not expressly disclose how the LEDs are electrically connected wherein each light emitting diode (LED) of each lighting strip is electrically connected in series, and each lighting strip is electrically connected to the driver circuitry in parallel.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to electrically wire Han's two lighting strips (117, figs. 3-5) such that

Art Unit: 2875

each LED of each lighting strip (117) is electrically connected in series, and each lighting strip (117) is electrically connected to the driver circuitry in parallel.

One would have been motivated to do so because it is well-known that producing Han's individual series-connected arrays are easier to mass produce. Furthermore, connecting several of these arrays in parallel, rather than in series, will yield a more efficient light emitter.

Regarding claim 14, Han discloses the claimed invention as indicated above.

Han does not specifically disclose each plurality of lighting strips is individually removably mounted to the base plate, so as to permit individual replacement of each lighting strip irrespective of the other lighting strips.

However, it would have been obvious to one having ordinary skill in the art to have each of Han's plurality of lighting strips able to be individually removably mounted to the base plate, so as to permit individual replacement of each lighting strip irrespective of the other lighting strips.

One would have been motivated to do so to allow a user to easily and quickly replace one or all LEDs of an individual lighting strip.

Regarding claim 15, Han discloses the light emitting diodes (LEDs) (117) in each of the lighting strips are arranged in a linear row along the length of the lighting strip (figs. 3-5 show at least two rows).

Art Unit: 2875

Regarding claim 23, Han discloses the claimed invention as indicated above. Han further discloses a single reflector (114).

Han does not specifically disclose the first multi-faceted side wall (left 114) comprises a first sheet bent to form first facets, and wherein the second multi-faceted side wall comprises a second sheet bent to form second facets.

However, it would have been obvious to one having ordinary skill to try two sheets to form Han's first multi-faceted side wall (left 114) from a first sheet bent to form first facets and Han's second multi-faceted side wall from a second sheet bent to form second facets, since it has been held by the courts that the mere fact that a given structure is integral does not preclude its consisting of various elements, and that constructing a formerly integral structure in various portions involves only routine skill in the art.

One would have been motivated do to so to allow for easy arrangement of a reflector for each of Han's lighting strips during manufacturing.

Response to Arguments

Applicant's arguments with respect to at least claims 1 and 10 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Allowable Subject Matter

Claims 16, 17, 20, and 25 are indicated allowable.

The following is a statement of reasons for the indication of allowable subject matter:

Art Unit: 2875

Regarding claim 16, prior art, whether taken alone or in combination, fails to disclose, teach, or render obvious the specifically called for structural combination of a light emitting diode (LED) lighting fixture, comprising a reflector sheet mounted to each of the at least four lighting strips and comprising multifaceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, wherein the reflector comprises a first edge adjacent the lighting strip and a second edge opposite the first edge toward a light emission side of the lighting fixture, wherein the multi-faceted side walls of the reflector extend along an entire length of the lighting strip at an angle, wherein physical contact between the bottom surface of the lighting strips and a substantially planar and flat base plate, formed of anodized aluminum and comprising a non-uniform heat-transferring surface texture, provides heat transfer between the lighting strips and the base in combination with each and every remaining limitation of the claim.

Claims 17, 20, and 25 are indicated allowable only due to their dependency on claim 16 and not on their individual merits.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEAH S. MACCHIAROLO whose telephone number is (571)272-2719. The examiner can normally be reached on Monday and Tuesday 9 a.m. until 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

Art Unit: 2875

like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LEAH S MACCHIAROLO

Examiner, Art Unit 2875

/Jong-Suk (James) Lee/

Supervisory Patent Examiner, Art Unit 2875

Notice of References Cited	Application/Control No. 13/692,402		Applicant(s)/Patent Under Reexamination WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO		Art Unit 2875	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-8,011,804 B2	09-2011	Han; Sang Ho	G02F1/133603	362/217.05
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes 	Application/Control No. 13692402	Applicant(s)/Patent Under Reexamination WASSEL ET AL.
	Examiner LEAH S MACCHIAROLO	Art Unit 2885

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
362	247,249.02,346,347-349,297,296.05,296.02,217.05	10 FEB 2014	LSM

SEARCH NOTES		
Search Notes	Date	Examiner
See attached EAST search history printout.	28 MAY 2013	LSM
INVENTOR search. See attached EAST search history printout.	28 MAY 2013	LSM
CLASS/SUBCLASS searching. See attached EAST search history printout.	28 MAY 2013	LSM
TEXT searching. See attached EAST search history printout.	28 MAY 2013	LSM
FORWARD and BACKWARD citation searches on relevant art. See attached EAST search history printout.	28 MAY 2013	LSM
FOR COMPLETE SEARCH NOTES, see the search notes in the parent case(s).	28 MAY 2013	LSM
UPDATED previous searches. See attached EAST search history printout.	10 FEB 2014	LSM
UPDATED previous searches. See attached EAST search history printout.	13 JAN 2015	LSM
UPDATED previous searches. See attached EAST search history printout.	25 AUG 2015	LSM
UPDATED previous searches. See attached EAST search history printout.	23 FEB 2016	LSM
UPDATED previous searches. See attached EAST search history printout.	31 AUG 2016	LSM

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S130	788	("362"/\$.ccls. "313"/\$.ccls.) and series and parallel and LED.u/c. and (fluorescen\$3 florescen\$3 flourescen\$3) and ((double both opposite) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S131	4939	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S132	2076	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board)) and (uniform\$3 near2 (beam light emission))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S133	648	"362"/\$.ccls. and linear.ti.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S134	429	S133 and reflect\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S135	268	S134 and LED.u/c.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02

S136	13480	362/247,249.02,346,347-349,297,296.05,296.02,217.05.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S137	3508	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S138	438	(street\$1light street\$1lamp) and linear	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S139	2923	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S140	162	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4 and 362/294,373.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S141	2220	362/294,373.ccls. and (heat with aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S142	46	362/294,373.ccls. and (heat with aluminum) and (anodized adj aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/23 09:02
S143	795	(S130 S131 S132 S133 S134 S135 S136 S137 S138 S139 S140 S141	US-PGPUB;	OR	ON	2016/08/23 09:02

	S142) and @pd>"20160215"	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB		

EAST Search History (Interference)

< This search history is empty>

8/ 31/ 2016 3:29:04 PM
C:\ Users\ llovell\ Documents\ EAST\ Workspaces\ 13692402 continuation of
12341798 Lighting Fixture.wsp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Confirmation No.: 2398
James J. WASSEL	Art Unit: 2875
Application No.: 13/692,402	Examiner: Leah Simone MACCHIAROLO
Filed: December 3, 2012	
For: LIGHTING FIXTURE	

**AMENDMENT AFTER FINAL/CERTIFICATION AND REQUEST FOR
CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT (AFCP) 2.0**

Mail Stop AF

Date: December 7, 2016

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In response to the Final Office Action dated September 9, 2016, and in conjunction with the filing of a Certification and Request for Consideration under the After Final Consideration Pilot (AFCP) 2.0, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 10 of this paper.

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:

a base plate;

a lighting strip coupled to the base plate, the lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a substantially planar surface of the lighting strip;

~~a sheet-like~~ at least one reflector sheet comprising:

a first multi-faceted side wall of the at least one reflector sheet extending along the lighting arrangement along an entire length of the lighting strip with a first edge adjacent a first side of the lighting strip and extending at an angle along an entire length of the lighting strip; and

a second multi-faceted side wall of the at least one reflector sheet extending along the lighting arrangement along an entire length of the lighting strip, the second side wall having a first edge adjacent a second, opposite side of the lighting strip at an angle that extends along an entire length of the lighting strip,

wherein the first and second multi-faceted side walls extend away from the lighting strip at an angle and are configured to cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, and

wherein the coupling between the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of LEDs comprised in the lighting strip is conducted to the base plate for

transfer to the ambient environment.

2. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the light emitting diodes (LEDs) are arranged in a linear row along the length of the lighting strip.

3. (Previously Presented) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side walls extend away from a base member defining a plurality of openings receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs), respectively.

4. (Previously Presented) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side walls are formed integral with the base member.

5. (Previously Presented) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side walls comprise multi-angle side walls.

6. (Previously Presented) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side walls extend away from a base member and are symmetrical about an axis of symmetry that runs through a center of the base member.

7. (Previously Presented) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 6, wherein the first and second multi-faceted side walls each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion.

8. (Original) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 7, wherein the first angle and second angle are different angles.

9. (Previously Presented) The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side walls comprise multi-angle side walls.

10. (Currently Amended) A light emitting diode (LED) lighting fixture, comprising:

a base plate having a front side and a rear side;

a plurality of lighting strips mounted on the front side of the base plate, each of the lighting strips comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; and

driver circuitry and control circuitry electrically coupled to the plurality of light emitting diodes (LEDs) for providing power to the light emitting diodes (LEDs),

wherein each of the lighting strips includes ~~a sheet-like~~ at least one reflector sheet comprising:

a first multi-faceted side wall of the at least one reflector sheet extending at an angle from a first side of the lighting strip along an entire length of the lighting strip, the first side wall comprising a sheet bent to form the angle;

a second multi-faceted side wall of the at least one reflector sheet extending along the lighting arrangement adjacent a second, opposite side of the lighting strip along an entire length of the lighting strip, and

wherein the first and second multi-faceted side walls extend away from the lighting strip at an angle and are configured to cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, and

wherein contact between the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of LEDs comprised in the lighting strip is conducted to the base plate for transfer to the ambient environment.

11. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate.

12. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 11, wherein the power supply is electrically connected to the control circuitry, the control

circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

13. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein each light emitting diode (LED) of each lighting strip is electrically connected in series, and each lighting strip is electrically connected to the driver circuitry in parallel.

14. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein each plurality of lighting strips is individually removably mounted to the base plate, so as to permit individual replacement of each lighting strip irrespective of the other lighting strips.

15. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 10, wherein the light emitting diodes (LEDs) in each of the lighting strips are arranged in a linear row along the length of the lighting strip.

16. (Previously Presented) A light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate having a front side and a rear side;

at least four lighting strips comprising a substantially planar base member; and a plurality of light emitting diodes (LEDs) arranged along a length of the base member, the base member connected in direct physical contact to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate; and

a reflector sheet mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, wherein the reflector comprises a first edge adjacent the lighting strip and a second edge opposite the first edge toward a light emission side of the lighting fixture, wherein the multi-faceted side walls of the reflector extend along an entire length of the lighting strip at an angle,

wherein physical contact between the bottom surface of the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of light emitting diodes (LEDs) on the lighting strip to be conducted to the base plate for transfer to the ambient environment.

17. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 16, further comprising heat transfer fins on at least one side of the base plate to conduct heat to the ambient environment.

18-19. (Canceled)

20. (Original) The light emitting diode (LED) lighting fixture as claimed in claim 16, wherein inter-contacting surfaces between the lighting strips and base plate are separated by less than about one hundredth of an inch (0.01 inches).

21. (Previously Presented) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall adjacent the lighting strip extends along the entire length of the lighting strip from a position level with a bottom portion of a light emitting portion of each of the LEDs, and

wherein the second multi-faceted side wall adjacent the lighting strip extends along the entire length of the lighting strip on a side opposite the first multi-faceted side wall from a position level with a bottom portion of a light emitting portion of each of the LEDs.

22. (Previously Presented) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall and the second multi-faceted side wall are separately coupled to the lighting arrangement.

23. (Currently Amended) The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall comprises a first reflector sheet bent to form first facets, and wherein the second multi-faceted side wall comprises a second reflector sheet bent to form second facets.

24. (Currently Amended) The LED lighting arrangement of claim 1, wherein the first side wall and second side wall each are formed by a single reflector sheet.

25. (Previously Presented) The LED lighting fixture of claim 16, wherein the multi-faceted side walls are formed as bends in the sheet-like reflector.

26. (Previously Presented) The LED lighting arrangement of claim 1, wherein the first and second multi-faceted side walls begin at a level of the lighting strip and extend away from the lighting strip.

REMARKS

The Office Action dated September 9, 2016, has been received and carefully noted. The above amendments and the following remarks are being submitted as a full and complete response thereto. Reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

By the foregoing amendment, claims 1, 10, 23, and 24 have been amended. Support for this amendment may be found in the specification as originally filed. No new matter has been added.

Interview

The Applicant's representative is willing and available to participate in an Interview concerning this response and in connection with the AFCP 2.0 request.

Allowed Claims

The Applicants gratefully acknowledges the allowance of claims 16, 17, 20 and 25. Independent claims 1 and 10 have been amended to include the subject matter indicated as being allowable for claim 16. Therefore, the Applicant understands that claims 1 and 10 are likewise allowable.

Claim Rejections - 35 U.S.C. § 102(b), 35 U.S.C. § 103(a)

Claims 1-9, 21, 22, 24 and 26 were rejected under pre-AIA 35 U.S.C. § 102(b) as allegedly being anticipated by Han et al. (U.S. Publication No. 2007/0002565, hereinafter, "Han"). Claims 10-15 and 23 were rejected under pre-AIA 35 U.S.C. § 103(a) as allegedly being unpatentable over Han.

It is noted that claims 1 and 10 have been amended to include the subject matter indicated as being allowable in claim 16. Therefore, the Applicant submits that claims 1 and 10 are allowable at least for the reasons indicated by the Examiner for claim 16..

As claims 1 and 10 are allowable, the Applicant submits that the claims which depend from allowable claims 1 and 10 are likewise allowable for at least the reasons set forth above with respect to claims 1 and 10 and for the additional subject matter recited therein.

CONCLUSION

If for any reason the Examiner feels the application is not now in condition for allowance it is respectfully requested that he contact, by telephone, the undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this case.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account Number 01-2300, under number 029950.00022 from which the undersigned is authorized to draw.

Customer No.: 04372
Arent Fox LLP
1717 K Street, NW
Washington, DC 20006
Telephone: (202) 857-6000
Facsimile: (202) 857-6395
DCIPDocket@arentfox.com

Respectfully submitted,

By /Sheree Rowe/
Sheree Rowe
Registration No.: 59,068

CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0		
Practitioner Docket No.: 029950.00022	Application No.: 13692402	Filing Date: 2012-12-03
First Named Inventor: James J. WASSEL	Title: LIGHTING FIXTURE	
APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116. 1. The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (<i>e.g.</i>, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c). 2. The above-identified application contains an outstanding final rejection. 3. Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect. 4. This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection. 5. Applicant is willing and available to participate in any interview requested by the examiner concerning the present response. 6. This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web). 7. Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.] 8. By filing this certification and request, applicant acknowledges the following: • Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0. • The examiner will verify that the AFCP 2.0 submission is compliant, <i>i.e.</i>, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions: ○ The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, by mailing an advisory action. ○ If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview. ▪ The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate. ▪ If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116.		
Signature /Sheree Rowe/	Date 2016-12-07	
Name (Print/Typed) Sheree Rowe	Practitioner Registration No. 59068	
Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.		
☐ * Total of _____ forms are submitted.		

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	27726659
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	4372
Filer:	Sheree T. Rowe/Jennifer Hardin-Cole
Filer Authorized By:	Sheree T. Rowe
Attorney Docket Number:	029950.00022
Receipt Date:	07-DEC-2016
Filing Date:	03-DEC-2012
Time Stamp:	17:11:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response After Final Action	022950_00022_ResponseFiled_ Dec7_2016.pdf	137086 dc5e1cf27290a267ad40ef380067288f62c9 7576	no	11

Warnings:

Information:					
2	After Final Consideration Program Request	029950_00022_AFCP_Dec7_2016.pdf	207888	no	2
			2553a7c2c56c2edd309f2e57a1ecdc89957719ce		
Warnings:					
Information:					
Total Files Size (in bytes):			344974		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/692,402		Filing Date 12/03/2012		☐ To be Mailed	
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)	
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL			
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	12/07/2016		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))		* 24	Minus	** 24	= 0	X \$40 =		0
	Independent (37 CFR 1.16(h))		* 3	Minus	***3	= 0	X \$210 =		0
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		0	
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))		*	Minus	**	=	X \$ =		
	Independent (37 CFR 1.16(h))		*	Minus	***	=	X \$ =		
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.									

LIE
/JERMAINE MINOR/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

4372 7590 02/10/2017
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 02/10/2017

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.

13/692,402

12/03/2012

James J. Wassel

029950.00022

2398

TITLE OF INVENTION: Lighting Fixture

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	05/10/2017

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

4372 7590 02/10/2017
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	029950.00022	2398

TITLE OF INVENTION: Lighting Fixture

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	05/10/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
MACCHIAROLO, LEAH SIMONE	2875	362-247000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	029950.00022	2398

4372 7590 02/10/2017
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT PAPER NUMBER

2875

DATE MAILED: 02/10/2017

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/692,402	Applicant(s) WASSEL, JAMES J.	
	Examiner LEAH S. MACCHIAROLO	Art Unit 2875	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the after final amendment filed 7 DEC 2016.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1-17 and 20-26. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☐ All b) ☐ Some *c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has **THREE MONTHS FROM THE "MAILING DATE"** of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material	7. ☒ Other <u>PTO-2323</u> .
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.	

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Applicant's after final amendment filed on 7 December 2016 has been entered. Claims 1 and 10 have been amended. Claims 1-17 and 20-26 are still pending in this application, with only claims 1, 10, and 16 being independent.

Allowable Subject Matter

Claims 1-17 and 20-26 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claims 1 and 10, the prior art fails to teach or suggest a light emitting diode (LED) lighting arrangement for a lighting fixture comprising at least one reflector sheet comprising a first multi-faceted side wall of the at least one reflector sheet and a second multi-faceted side wall of the at least one reflector sheet, wherein the first and second multi-faceted side walls extend away from the lighting strip at an angle, and wherein the coupling/contact between the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of LEDs comprised in the lighting strip is conducted to the base plate for transfer to the ambient environment in combination with the remaining limitations of the claims.

Regarding independent claim 16, the reasons for allowance have been clearly indicated in the previous office action (9 Sept 2016, page 11).

The remaining claims are allowable due to their dependency.

Any comments considered necessary by the Applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of reasons for Allowance.”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEAH S. MACCHIAROLO whose telephone number is (571)272-2719. The examiner can normally be reached on Monday and Tuesday 9 a.m. until 5:30 p.m.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2875

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Macchiarolo
Examiner, AU 2875

/LSM/

/ROBERT MAY/
Primary Examiner, Art Unit 2875

01/31/2017

Docket No.: 029950.00022
(Patent)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Confirmation No.: 2398
James J. WASSEL Art Unit: 2875
Application No.: 13/692,402 Examiner: Leah Simone MACCHIAROLO
Filed: December 3, 2012
For: LIGHTING FIXTURE

**AMENDMENT AFTER FINAL/CERTIFICATION AND REQUEST FOR
CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT (AFCP) 2.0**

Mail Stop AF

Date: December 7, 2016

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In response to the Final Office Action dated September 9, 2016, and in conjunction with the filing of a Certification and Request for Consideration under the After Final Consideration Pilot (AFCP) 2.0, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 10 of this paper.

AFCP 2.0 Decision

Application No.

13/692,402

Applicant(s)

WASSEL, JAMES J.

Examiner

LEAH S. MACCHIAROLO

Art Unit

2875

This is in response to the After Final Consideration Pilot request filed 7 DEC 2016.

1. **Improper Request** – The AFCP 2.0 request is improper for the following reason(s) and the after final amendment submitted with the request will be treated under pre-pilot procedure.

- ☐ An AFCP 2.0 request form PTO/SB/434 (or equivalent document) was not submitted.
- ☐ A non-broadening amendment to at least one independent claim was not submitted.
- ☐ A proper AFCP 2.0 request was submitted in response to the most recent final rejection.
- ☐ Other:

2. Proper Request

- A. After final amendment submitted with the request will not be treated under AFCP 2.0.

The after final amendment cannot be reviewed and a search conducted within the guidelines of the pilot program.

- ☐ The after final amendment will be treated under pre-pilot procedure.

- B. Updated search and/or completed additional consideration.

The examiner performed an updated search and/or completed additional consideration of the after final amendment within the time authorized for the pilot program. The result(s) of the updated search and/or completed additional consideration are:

- ☒ 1. All of the rejections in the most recent final Office action are overcome and a Notice of Allowance is issued herewith.
- ☐ 2. The after final amendment would not overcome all of the rejections in the most recent final Office action. See attached interview summary for further details.
- ☐ 3. The after final amendment was reviewed, and it raises a new issue(s). See attached interview summary for further details.
- ☐ 4. The after final amendment raises new issues, but would overcome all of the rejections in the most recent final Office action. A decision on determining allowability could not be made within the guidelines of the pilot. See attached interview summary for further details, including any newly discovered prior art.
- ☐ 5. Other:

Examiner Note: Please attach an interview summary when necessary as described above.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 2398

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
13/692,402	12/03/2012	362	2875	029950.00022		
RULE						
APPLICANTS APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA INVENTORS James J. Wassel, Fombell, PA; ** CONTINUING DATA ***** This application is a CON of 12/341,798 12/22/2008 PAT 8322881 * (*)Data provided by applicant is not consistent with PTO records. ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED *** SMALL ENTITY ** 12/31/2012						
Foreign Priority claimed	☐ Yes ☒ No	☐ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	☐ Yes ☐ No		PA	24	~~20~~ 24	3
Verified and	/LEAH SIMONE MACCHIAROLO/ Examiner's Signature	Initials				
Acknowledged						
ADDRESS						
ARENT FOX LLP 1717 K Street, NW WASHINGTON, DC 20006-5344 UNITED STATES						
TITLE						
Lighting Fixture						
FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		
838						

Issue Classification 	Application/Control No. 13692402	Applicant(s)/Patent Under Reexamination WASSEL, JAMES J.	
	Examiner LEAH S MACCHIAROLO	Art Unit 2875	

CPC						
Symbol					Type	Version
H05B		33	/	0854	F	2013-01-01
F21V		7	/	00	I	2013-01-01
F21V		7	/	005	I	2013-01-01
F21V		7	/	048	I	2013-01-01
F21V		17	/	164	I	2013-01-01
F21Y		2113	/	00	A	2013-01-01
F21Y		2101	/	00	A	2013-01-01
F21Y		2105	/	10	A	2016-08-01
F21Y		2103	/	10	A	2016-08-01
F21Y		2115	/	10	A	2016-08-01
F21V		29	/	74	I	2015-01-15
F21S		8	/	026	I	2013-01-01
F21S		8	/	086	I	2013-01-01
F21V		7	/	22	I	2013-01-01
F21V		23	/	04	I	2013-01-01
F21W		2131	/	103	A	2013-01-01
F21Y		2101	/	02	A	2013-01-01
F21Y		2103	/	003	A	2013-01-01
H05B		37	/	0218	I	2013-01-01
H05B		37	/	0272	I	2013-01-01
H05B		37	/	0281	I	2013-01-01

CPC Combination Sets						
Symbol			Type	Set	Ranking	Version

/LEAH S MACCHIAROLO/ Examiner.Art Unit 2875 (Assistant Examiner)	31 JAN '17 (Date)	Total Claims Allowed: 24	
/ROBERT MAY/ Primary Examiner.Art Unit 2875 (Primary Examiner)	02/01/2017 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 16

Issue Classification 	Application/Control No. 13692402	Applicant(s)/Patent Under Reexamination WASSEL, JAMES J.
	Examiner LEAH S MACCHIAROLO	Art Unit 2875

☐ Claims renumbered in the same order as presented by applicant															
☐ CPA															
☐ T.D.															
☐ R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	22	17												
2	2	-	18												
3	3	-	19												
4	4	23	20												
5	5	10	21												
6	6	11	22												
7	7	12	23												
8	8	13	24												
9	9	24	25												
15	10	14	26												
16	11														
17	12														
18	13														
19	14														
20	15														
21	16														

/LEAH S MACCHIAROLO/ Examiner.Art Unit 2875 (Assistant Examiner)	31 JAN '17 (Date)	Total Claims Allowed: 24	
/ROBERT MAY/ Primary Examiner.Art Unit 2875 (Primary Examiner)	02/01/2017 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 16

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S157	349	(S144 S145 S146 S147 S148 S149 S150 S151 S152 S153 S154 S155 S156) and @pd> "20160901"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S156	46	362/294,373.ccls. and (heat with aluminum) and (anodized adj aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S155	2226	362/294,373.ccls. and (heat with aluminum)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S154	162	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4 and 362/294,373.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S153	2929	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs)) and reflect\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S152	462	(street\$1light street\$1lamp) and linear	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19

S151	3516	"362"/\$.ccls. and (linear near4 (LED.U/C. light\$1emitting illuminat\$3 diode LEDs))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S150	13555	362/247,249.02,346,347-349,297,296.05,296.02,217.05.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S149	269	S148 and LED.u/c.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S148	432	S147 and reflect\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S147	658	"362"/\$.ccls. and linear.ti.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S146	2078	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board)) and (uniform\$3 near2 (beam light emission))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S145	4954	("362"/\$.ccls. "313"/\$.ccls.) and LED.u/c. and ((reflect\$4) near4 (substrate PCB PWB circuit\$1board))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:19
S144	790	("362"/\$.ccls. "313"/\$.ccls.) and series and parallel and LED.u/c. and	US-PGPUB;	OR	ON	2017/01/30 16:19

		(fluorescen\$3 florescen\$3 flourescen\$3) and ((double both opposite) near4 (substrate PCB PWB circuit\$1board))	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S159	4466	H05B33/0854.cpc.	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:50
S161	4867	F21s8/026.cpc.	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:52
S160	8213	F21V29/74.cpc.	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:52
S162	4183	F21s8/086.cpc.	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/30 16:53
S164	981	F21v7/048.cpc.	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/31 12:46
S166	1178	F21v7/05.cpc.	US- PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/01/31 12:47
S165	7381	F21v7/22.cpc.	US- PGPUB; USPAT; USOCR;	OR	ON	2017/01/31 12:47

			FPRS; EPO; JPO; DERWENT; IBM_TDB			

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S163	1	(strip with reflect\$3 with sheet with multi\$1facet\$3 with LED).clm.	US-PGPUB; USPAT	OR	ON	2017/01/30 16:33
S167	1578	H05B33/0854.cpc.	US-PGPUB; USPAT	OR	ON	2017/01/31 12:48
S169	236	F21v7/048.cpc.	US-PGPUB; USPAT	OR	ON	2017/01/31 12:58
S168	312	F21v7/05.cpc.	US-PGPUB; USPAT	OR	ON	2017/01/31 12:58

1 / 31 / 2017 2:09:26 PM
C:\Users\llovell\Documents\EAST\Workspaces\13692402 continuation of 12341798 Lighting Fixture.wsp

Search Notes 	Application/Control No. 13692402	Applicant(s)/Patent Under Reexamination WASSEL ET AL.
	Examiner LEAH S MACCHIAROLO	Art Unit 2885

CPC- SEARCHED		
Symbol	Date	Examiner
H05B 33/0854	31 JAN 2017	LSM
F21V 29/74,7/048,22,05	31 JAN 2017	LSM
F21S 8/026,086	31 JAN 2017	LSM

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
362	247,249.02,346,347-349,297,296.05,296.02,217.05	10 FEB 2014	LSM

SEARCH NOTES		
Search Notes	Date	Examiner
See attached EAST search history printout.	28 MAY 2013	LSM
INVENTOR search. See attached EAST search history printout.	28 MAY 2013	LSM
CLASS/SUBCLASS searching. See attached EAST search history printout.	28 MAY 2013	LSM
TEXT searching. See attached EAST search history printout.	28 MAY 2013	LSM
FORWARD and BACKWARD citation searches on relevant art. See attached EAST search history printout.	28 MAY 2013	LSM
FOR COMPLETE SEARCH NOTES, see the search notes in the parent case(s).	28 MAY 2013	LSM
UPDATED previous searches. See attached EAST search history printout.	10 FEB 2014	LSM
UPDATED previous searches. See attached EAST search history printout.	13 JAN 2015	LSM
UPDATED previous searches. See attached EAST search history printout.	25 AUG 2015	LSM
UPDATED previous searches. See attached EAST search history printout.	23 FEB 2016	LSM

SEARCH NOTES

Search Notes	Date	Examiner
UPDATED previous searches. See attached EAST search history printout.	31 AUG 2016	LSM
UPDATED previous searches. See attached EAST search history printout.	31 JAN 2017	LSM
CPC searching. See attached EAST search history printout	31 JAN 2017	LSM

INTERFERENCE SEARCH

US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	See attached EAST search history printout.	31 JAN 2017	LSM
H05B	33/0854	31 JAN 2017	LSM
F21V	7/05,048	31 JAN 2017	LSM

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	Attorney Docket No.: 029950.00022
James J. WASSEL	Confirmation No.: 2398
Application No.: 13/692,402	Art Unit: 2875
Filed: December 3, 2012	Examiner: Leah Simone MACCHIAROLO
For: LIGHTING FIXTURE	

PETITION TO ACCEPT UNINTENTIONAL DELAYED DOMESTIC CLAIM FOR PRIORITY

Office of Petitions

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: March 3, 2017

Sir:

Applicant hereby submits a Petition to Unintentionally Delayed Domestic Benefit Claims under 37 CFR 1.78. The Official Filing Receipt received by the Applicant, currently reads as follows:

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881 *

(*) Data provided by applicant is not consistent with PTO records.

The Applicant hereby petitions that the Domestic Benefit/National Stage Information, as is evidenced by the Corrected Application Data Sheet and marked-up Official Filing Receipt as submitted herewith, be updated to list the Domestic Priority data as follows:

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881 *

~~(*) Data provided by applicant is not consistent with PTO records.~~

and claims benefit of 61/015,713 12/21/2007

and claims benefit of 61/094,558 09/05/2008

and claims benefit of 61/094,571 09/05/2008

The Applicant hereby states that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2)(ii) and the date the claim was filed was unintentional.

Concurrently with this petition, the applicant submits the \$850.00 petition fee for the delayed submission of a priority or benefit claim under 37 CFR 1.17(m). If additional fees are due, please charge our Deposit Account Number 01-2300, under number 029950.00022 from which the undersigned is authorized to draw.

Customer No.: 04372
Arent Fox LLP
1717 K Street, NW
Washington, DC 20006
Telephone: (202) 857-6000
Facsimile: (202) 857-6395
PatentDocket@arentfox.com

Respectfully submitted,

By 
Wilburn L. Chesser
Registration No.: 41,668

Electronic Patent Application Fee Transmittal

Application Number:	13692402			
Filing Date:	03-Dec-2012			
Title of Invention:	Lighting Fixture			
First Named Inventor/Applicant Name:	James J. Wassel			
Filer:	Wilburn Chesser/Eric Wolkwitz			
Attorney Docket Number:	029950.00022			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
PET. DELAY SUB OR RESTORE PRIORITY-CLAIM	2454	1	850	850
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				850

Electronic Acknowledgement Receipt

EFS ID:	28530919
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	4372
Filer:	Wilburn Chesser/Eric Wolkwitz
Filer Authorized By:	Wilburn Chesser
Attorney Docket Number:	029950.00022
Receipt Date:	03-MAR-2017
Filing Date:	03-DEC-2012
Time Stamp:	16:42:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$850
RAM confirmation Number	030617INTEFSW16442100
Deposit Account	012300
Authorized User	Eric Wolkwitz

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
37 CFR 1.20 (Post Issuance fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	029950-00022_c-ADS-as-filed_03-03-2017.PDF	563164	no	8
			613d1c218640e16fbd256996449e7aa251243a32		
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
2		029950-00022_Petition-as-filed_03-03-2017.PDF	273242	yes	5
			e2ce8918a8a5835832042b72b784a11a61b6ab8		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Request for Corrected Filing Receipt		3	5	
	Petition for review by the Office of Petitions		1	2	
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30835	no	2
			874b9c37132bcb38e93d08e93bd2ed5cb8cbcd43		
Warnings:					
Information:					
Total Files Size (in bytes):			867241		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123374~~ 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	James	J.	Wassel			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Fombell	State/Province	PA	Country of Residence	US	
Mailing Address of Inventor:						
Address 1		1595 N. Tower Road				
Address 2						
City	Fombell	State/Province	PA			
Postal Code	16123	Country	US			
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.						

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence information of this application.			
Customer Number	~~028289~~ 04372		
Email Address	~~dcipdocket@arentfox.com~~ patentdocket@arentfox.com		Add Email Remove Email

Application Information:

Title of the Invention	Lighting Fixture		
Attorney Docket Number	~~5641-123374~~ 029950.00022	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	24	Suggested Figure for Publication (if any)	10B

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5644-123374 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	28289- 04372		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	~~Pending~~ Patented	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	12341798	2008-12-22

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	6641-123371 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Prior Application Status	<u>Expired</u>		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
12/341798	<u>Claims benefit of provisional</u>	61/015713	2007-12-21
Prior Application Status	<u>Expired</u>		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
12/341798	<u>Claims benefit of provisional</u>	61/094558	2008-09-05
Prior Application Status	<u>Expired</u>		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
12/341798	<u>Claims benefit of provisional</u>	61/094571	2008-09-05
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ, the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Remove Access Code ⁱ if applicable
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123374~~ 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5644-123377~~ 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

☒ Assignee

☐ Legal Representative under 35 U.S.C. 117

☐ Joint Inventor

☐ Person to whom the inventor is obligated to assign.

☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here.



Organization Name

Appalachian Lighting Systems, Inc.

Mailing Address Information For Applicant:

Address 1

101 Randolph Street

Address 2

City

Ellwood City

State/Province

PA

Country

US

Postal Code

16117

Phone Number

Fax Number

Email Address

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5641-123374- 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
If the Assignee or Non-Applicant Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country i		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the **INITIAL** filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature			Date (YYYY-MM-DD)	2017-03-03
First Name	Wilburn	Last Name	Chesser	Registration Number
41,668				
Additional Signature may be generated within this form by selecting the Add button.				

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123374~~ <u>029950.00022</u>
		Application Number	<u>13/692,402</u>
Title of Invention	Lighting Fixture		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/692,402	12/03/2012	2875	598	029950.00022	20	3

CONFIRMATION NO. 2398

CORRECTED FILING RECEIPT



OC000000072715440

4372
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

Date Mailed: 01/09/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

James J. Wassel, Fombell, PA;

Applicant(s)

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Assignment For Published Patent Application

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Power of Attorney: The patent practitioners associated with Customer Number 04372

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881

~~(*) Data provided by applicant is not consistent with PTO records.~~

and claims benefit of 61/015,713 12/21/2007
and claims benefit of 61/094,558 09/05/2008
and claims benefit of 61/094,571 09/05/2008

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 12/31/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/692,402**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Lighting Fixture

Preliminary Class

362

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

4372 7590 02/10/2017
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	029950.00022	2398

TITLE OF INVENTION: Lighting Fixture

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	05/10/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
MACCHIAROLO, LEAH SIMONE	2875	362-247000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Arent Fox LLP

2

3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

APPALACHIAN LIGHTING SYSTEMS, INC.

Ellwood City, PA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☒ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☒ Payment by credit card.
☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 01-2300 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
☐ Applicant asserting small entity status. See 37 CFR 1.27
☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date May 4, 2017

Typed or printed name Wilburn L. Chesser

Registration No. 41,668

Electronic Patent Application Fee Transmittal				
Application Number:		13692402		
Filing Date:		03-Dec-2012		
Title of Invention:		Lighting Fixture		
First Named Inventor/Applicant Name:		James J. Wassel		
Filer:		Wilburn Chesser/Eric Wolkwitz		
Attorney Docket Number:		029950.00022		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				480

Electronic Acknowledgement Receipt

EFS ID:	29119352
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	4372
Filer:	Wilburn Chesser/Eric Wolkwitz
Filer Authorized By:	Wilburn Chesser
Attorney Docket Number:	029950.00022
Receipt Date:	04-MAY-2017
Filing Date:	03-DEC-2012
Time Stamp:	16:34:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 480
RAM confirmation Number	050517INTEFSW16350600
Deposit Account	012300
Authorized User	Eric Wolkwitz

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	029950-00022_Fee-Trans-as-filed_05-04-2017.PDF	102802	no	1
			3f7bb902c9bbe3ac0b230e36f79dcb4e1cf13019		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30485	no	2
			7cc2991c785d1b0333f6027c5c191b1ac4b03f60		

Warnings:

Information:

Total Files Size (in bytes):			133287

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/692,402	12/03/2012	2875	838	029950.00022	20	3

CONFIRMATION NO. 2398

CORRECTED FILING RECEIPT

4372
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344



Date Mailed: 05/23/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

James J. Wassel, Fombell, PA;

Applicant(s)

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Assignment For Published Patent Application

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Power of Attorney: The patent practitioners associated with Customer Number 04372

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881 *
which claims benefit of 61/094,571 09/05/2008
and claims benefit of 61/094,558 09/05/2008
and claims benefit of 61/015,713 12/21/2007

(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 12/31/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/692,402**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Lighting Fixture

Preliminary Class

362

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

page 2 of 4

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

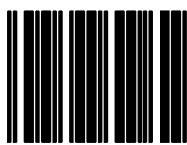
No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

Office of Petitions: Routing Sheet



4 7 0 0

Application No. 13/692,402

This application is being forwarded to your office for further processing. A decision has been rendered on a petition filed in this application, as indicated below. For details of this decision, please see the document PET.OP.DEC filed on the same date as this document.

☒ **GRANTED**

☐ **DISMISSED**

☐ **DENIED**

Office of Petitions: Decision Count Sheet

Mailing Month

5

Application No.

13692402



For US serial numbers: enter number only, no slashes or commas. Ex: 10123456

For PCT: enter "51+single digit of year of filing+last 5 numbers", Ex. for PCT/US05/12345, enter 51512345

Deciding Official:

Thornton-McLaughlin, Kenya

Count (1) - Palm Credit

13/692,402

Decision:

GRANT

FINANCE WORK NEEDED

☐ Select Check Box for YES

Decision Type:

535



Notes:

Count (2)

Decision:

n/a

FINANCE WORK NEEDED

☐ Select Check Box for YES

Decision Type:

NONE

Notes:

Count (3)

Decision:

n/a

FINANCE WORK NEEDED

☐ Select Check Box for YES

Decision Type:

NONE

Notes:

Initials of Approving Official (if required)

If more than 3 decisions, attach
2nd count sheet & mark this box

Printed on: 5/22/2017

Office of Petitions Internal Document - Ver. 5.0



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY DOCKET NO	TOT CLAIMS	IND CLAIMS
13/692,402	12/03/2012	2875	838	029950.00022	20	3

4372
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

CONFIRMATION NO. 2398
CORRECTED FILING RECEIPT



Date Mailed: 05/23/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

James J. Wassel, Fombell, PA;

Applicant(s)

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Assignment For Published Patent Application

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Power of Attorney: The patent practitioners associated with Customer Number 04372

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881 *
which claims benefit of 61/094,571 09/05/2008
and claims benefit of 61/094,558 09/05/2008
and claims benefit of 61/015,713 12/21/2007

(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 12/31/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/692,402**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Lighting Fixture

Preliminary Class

362

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

page 2 of 4

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	12/03/2012	James J. Wassel	029950.00022	2398

4372 7590 05/25/2017
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

EXAMINER

MACCHIAROLO, LEAH SIMONE

ART UNIT	PAPER NUMBER

2875

NOTIFICATION DATE	DELIVERY MODE

05/25/2017

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@arentfox.com



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

In re Application of :
Wassel :
Application No. 13/692,402 : DECISION ON PETITION
Filed: December 3, 2012 : UNDER 37 CFR 1.78
Attorney Docket No. 029950.00022 :

This is a decision on the petition under 37 CFR 1.78(c) filed on March 3, 2017, to accept an unintentionally delayed claim for the benefit of priority of the prior-filed provisional application set forth in the corrected Application Data Sheet filed on March 3, 2017.

The petition under 37 CFR 1.78(c) is **GRANTED**.

A petition for acceptance of a claim for late priority under 37 CFR 1.78(c) is only applicable to those applications filed on, or after, November 29, 2000. Further, the petition is appropriate only after the expiration of the period specified in 37 CFR 1.78(a)(4). In addition, the petition under 37 CFR 1.78(c) must be accompanied by:

1. the reference required by 35 USC 119(e) and paragraph (a)(3) of this section to the prior-filed provisional application, unless previously submitted.
2. the surcharge set forth in 1.17(m), and
3. a statement that the entire delay between the date the claim was due under paragraph (a)(4) of this section and the date the claim was filed was unintentional.

The instant non-provisional application was filed after November 29, 2000, and the claim herein for the benefit of priority to the prior-filed provisional application is submitted after the expiration of the period specified in 37 CFR 1.78(a). Accordingly, having found that the instant petition for acceptance of an unintentionally delayed claim for benefit of priority under 35 U.S.C. § 119 to the prior-filed provisional applications satisfies the conditions of 37 CFR 1.78(c) the petition is granted.

Petitioner is advised that this decision grants the petition to accept the unintentionally delayed domestic benefit claim to the prior filed application(s) because the petition requirements of 37 CFR 1.78(c) and the formal requirements for claiming domestic benefit (see MPEP 211.01 et. seq.) have been met. This acceptance should not be construed as meaning that this application is entitled to the benefit of the prior-filed application(s). Whether a claimed invention in a nonprovisional application is entitled to the benefit of the filing date of a prior-filed application on the basis of the disclosure thereof is determined during examination if it becomes necessary to do so (e.g., intervening reference and interference proceeding). See MPEP 211.05.

Art Unit: OPET

A corrected Filing Receipt, which includes the priority claim to the prior-filed provisional application is enclosed.

Any inquiries concerning this decision may be directed to Kenya A. McLaughlin, Attorney Advisor, at (571) 272-3222.

This matter is being referred to the Office of Data Management for further processing.

/Kenya A. McLaughlin/

Kenya A. McLaughlin
Attorney Advisor
Office of Petitions

Enclosure: Corrected Filing Receipt



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/692,402	12/03/2012	James J. Wassel	029950.00022

4372
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

CONFIRMATION NO. 2398
PUB REQUEST ACCEPTANCE
LETTER



OC000000091662644

Date Mailed: 05/26/2017

NOTICE OF ACCEPTANCE OF PUBLICATION REQUEST

The request for voluntary publication, amended publication, early publication, redacted publication, republication, corrected publication or revised publication has been received for this application. The request, including payment of any necessary fee(s), is in compliance with 37 CFR 1.215, 1.217, 1.219 or 1.221.

The projected publication date is 08/31/2017.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/npfarmer/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Confirmation No.: 2398
James J. WASSEL Art Unit: 2875
Application No.: 13/692,402 Examiner: Leah Simone
Filed: December 03, 2012 MACCHIAROLO
For: LIGHTING FIXTURE

REQUEST FOR CORRECTED FILING RECEIPT

Office of Petitions Date: May 31, 2017
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Applicant hereby requests that a corrected Filing Receipt be issued in the above-identified patent application. The Official Filing Receipt received by Applicant, a copy of which is attached hereto, correctly lists the Domestic Priority data as claimed by the applicant; however, as identified on the Official Filing Receipt, the previously provided information by the Applicant did not match PTO records. A corrected Application Data Sheet is being submitted herewith. As evidenced by the corrected Application Data Sheet submitted hereto, the Domestic Priority data is consistent with PTO records and correctly reads as follows:

DOMESTIC PRIORITY DATA:

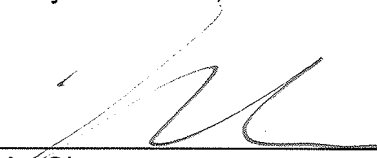
This application is a CON of 12/341,798 12/22/2008 PAT 8322881*
and claims benefit of 61/094,571 09/05/2008
and claims benefit of 61/094,558 09/05/2008
and claims benefit of 61/015,713 12/21/2007
(*Data provided by applicant is not consistent with PTO records.

Applicant additionally requests that all pertinent U.S. Patent and Trademark Office records relating to the subject application be changed to reflect this correction.

Applicant believes no fee is due with this request. However, if a fee is due, please charge our Deposit Account Number 01-2300, under number 029950.00022 from which the undersigned is authorized to draw.

Customer No.: 04372
Arent Fox LLP
1717 K Street, NW
Washington, DC 20006
Telephone: (202) 857-6000
Facsimile: (202) 857-6395
patentdocket@arentfox.com

Respectfully submitted,

By 

Wilburn L. Chesser
Registration No.: 41,668



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/692,402	12/03/2012	2875	838	029950.00022	20	3

CONFIRMATION NO. 2398
CORRECTED FILING RECEIPT

4372
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344



0000000091541889

Date Mailed: 05/23/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

James J. Wassel, Fombell, PA;

Applicant(s)

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Assignment For Published Patent Application

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Power of Attorney: The patent practitioners associated with Customer Number 04372

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881 —
which claims benefit of 61/094,571 09/05/2008
and claims benefit of 61/094,558 09/05/2008
and claims benefit of 61/015,713 12/21/2007

~~(*)Data provided by applicant is not consistent with PTO records.~~

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 12/31/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/692,402**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Lighting Fixture

Preliminary Class

362

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

page 2 of 4

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123371~~ 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	James	J.	Wassel			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Fombell	State/Province	PA	Country of Residence	US	
Mailing Address of Inventor:						
Address 1		1595 N. Tower Road				
Address 2						
City	Fombell	State/Province	PA			
Postal Code	16123	Country	US			
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.						
Add						

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	~~020209~~ 04372		
Email Address	~~dcipdocket@arentfox.com~~ patentdocket@arentfox.com		Add Email
			Remove Email

Application Information:

Title of the Invention	Lighting Fixture		
Attorney Docket Number	~~5641-123371~~ 029950.00022	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	24	Suggested Figure for Publication (if any)	10B

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5641-123374 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

Request Not to Publish. I hereby request that the attached application not be published under

☐ 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	028289-04372		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		<u>Patented</u>		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
<u>13/692402</u>	<u>Continuation of</u>	<u>12/341798</u>	<u>2008-12-22</u>	<u>8322881</u>	<u>2012-12-04</u>

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5641-123374 029950.00022	
		Application Number	13/692,402	
Title of Invention	Lighting Fixture			

Prior Application Status	<u>Expired</u>	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
<u>12/341798</u>	<u>Claims benefit of provisional</u>	<u>61/094571</u>	<u>2008-09-05</u>
Prior Application Status	<u>Expired</u>	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
<u>12/341798</u>	<u>Claims benefit of provisional</u>	<u>61/094558</u>	<u>2008-09-05</u>
Prior Application Status	Expired	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
<u>12/341798</u>	<u>Claims benefit of provisional</u>	<u>61/015713</u>	<u>2007-12-21</u>

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ^j (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

☐ NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123374~~ 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123371~~ 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

☒ Assignee
 ☐ Legal Representative under 35 U.S.C. 117
 ☐ Joint Inventor

☐ Person to whom the inventor is obligated to assign.
 ☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name

Mailing Address Information For Applicant:

Address 1		101 Randolph Street	
Address 2			
City	Ellwood City	State/Province	PA
Country	US	Postal Code	16117
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5641-123374 029950.00022
		Application Number	13/692,402
Title of Invention	Lighting Fixture		

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		State/Province	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

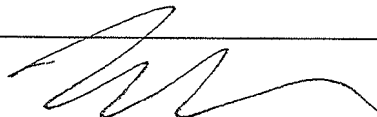
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, all joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of all joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature			Date (YYYY-MM-DD)	2017-05-31	
First Name	Wilburn	Last Name	Chesser	Registration Number	41,668
Additional Signature may be generated within this form by selecting the Add button.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	~~5641-123371~~ <u>029950.00022</u>
		Application Number	<u>13/692,402</u>
Title of Invention	Lighting Fixture		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

- 1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
- 3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	29355832
Application Number:	13692402
International Application Number:	
Confirmation Number:	2398
Title of Invention:	Lighting Fixture
First Named Inventor/Applicant Name:	James J. Wassel
Customer Number:	4372
Filer:	Juliana Haydoutova/Jennie Burger
Filer Authorized By:	Juliana Haydoutova
Attorney Docket Number:	029950.00022
Receipt Date:	31-MAY-2017
Filing Date:	03-DEC-2012
Time Stamp:	17:18:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Corrected Filing Receipt	029950_00022_RequestforCorrectedOFR.PDF	271686 0af5ecbfcff67acc13aa735c69a54dc6187961a7	no	6

Warnings:

Information:					
2	Application Data Sheet	029950_00022_CorrectedADS. PDF	558804 e0d8d029494dfc4b5dc950a25c1fc40febe3 0c9f	no	8
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
Total Files Size (in bytes):			830490		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/692,402	12/03/2012	2875	838	029950.00022	20	3

CONFIRMATION NO. 2398
CORRECTED FILING RECEIPT

4372
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344



Date Mailed: 06/05/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

James J. Wassel, Fombell, PA;

Applicant(s)

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Assignment For Published Patent Application

APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

Power of Attorney: The patent practitioners associated with Customer Number 04372

Domestic Priority data as claimed by applicant

This application is a CON of 12/341,798 12/22/2008 PAT 8322881
which claims benefit of 61/094,571 09/05/2008
and claims benefit of 61/094,558 09/05/2008
and claims benefit of 61/015,713 12/21/2007

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 12/31/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/692,402**

Projected Publication Date: 09/14/2017

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Lighting Fixture

Preliminary Class

362

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/692,402	07/04/2017	9699854	029950.00022	2398

4372 7590 06/14/2017
ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

James J. Wassel, Fombell, PA;
APPALACHIAN LIGHTING SYSTEMS, INC., Ellwood City, PA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

UNITED STATES PATENT AND TRADEMARK OFFICE
COMMISSIONER FOR PATENTS
P.O.BOX 1450
ALEXANDRIA VA 22313-1451

PRESORTED
FIRST-CLASS MAIL
U.S. POSTAGE PAID
POSTEDIGITAL
NNNNN

ARENT FOX LLP
1717 K Street, NW
WASHINGTON, DC 20006-5344



**Courtesy Reminder for
Application Serial No: 13/692,402**

Attorney Docket No: 029950.00022

Customer Number: 4372

Date of Electronic Notification: 06/24/2013

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:
patents@webblaw.com

To view your correspondence online or update your email addresses, please visit us anytime at <https://portal.uspto.gov/secure/myportal/privatepair>. If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov or call 1-866-217-9197.

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
 filed in the U.S. District Court _____ for the Western District of Texas _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 6:21-cv-01187	DATE FILED 11/17/2021	U.S. DISTRICT COURT for the Western District of Texas
PLAINTIFF ALSI Holdings, LLC		DEFENDANT Current Lighting Solutions, LLC, d/b/a GE Current, A Daintree Company
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 9,049,753	6/2/2015	ALSI Holdings, LLC
2 9,699,854	7/4/2017	ALSI Holdings, LLC
3 8,322,881	12/4/2012	ALSI Holdings, LLC
4 8,186,855	5/29/2012	ALSI Holdings, LLC
5 8,721,114	5/13/2014	ALSI Holdings, LLC

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY	
	☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

ADDITIONAL PATENTS

6.	D612,088	03/16/2010	ALSI HOLDINGS, LLC
7.	D650,508	12/13/2011	ALSI HOLDINGS, LLC



US00969854B2

(12) **United States Patent**
Wassel

(10) **Patent No.:** **US 9,699,854 B2**
(45) **Date of Patent:** ***Jul. 4, 2017**

(54) **LIGHTING FIXTURE**

(71) Applicant: **Appalachian Lighting Systems, Inc.**,
Ellwood City, PA (US)

(72) Inventor: **James J. Wassel**, Fombell, PA (US)

(73) Assignee: **APPALACHIAN LIGHTING**
SYSTEMS, INC., Ellwood City, PA
(US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

This patent is subject to a terminal dis-
claimer.

(21) Appl. No.: **13/692,402**

(22) Filed: **Dec. 3, 2012**

(65) **Prior Publication Data**
US 2013/0155675 A1 Jun. 20, 2013

Related U.S. Application Data

(63) Continuation of application No. 12/341,798, filed on
Dec. 22, 2008, now Pat. No. 8,322,881.
(Continued)

(51) **Int. Cl.**
F21V 7/04 (2006.01)
H05B 33/08 (2006.01)
(Continued)

(52) **U.S. Cl.**
CPC **H05B 33/0854** (2013.01); **F21S 8/026**
(2013.01); **F21S 8/086** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC H05B 33/0854; F21V 29/74; F21V 7/048;
F21V 7/22; F21V 7/05; F21S 8/026;
F21S 8/086
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,580,156 A 12/1996 Suzuki et al.
5,723,868 A 3/1998 Hammond, Jr. et al.
(Continued)

FOREIGN PATENT DOCUMENTS

CN 101101096 A 1/2008
CN 101191591 A 6/2008
(Continued)

OTHER PUBLICATIONS

"Power light source: LUXEON® Rebel", Technical Datasheet
DS56, Philips, 2007.

(Continued)

Primary Examiner — Robert May

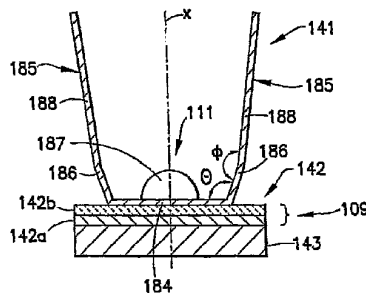
Assistant Examiner — Leah S Macchiarolo

(74) *Attorney, Agent, or Firm* — Arent Fox LLP

(57) **ABSTRACT**

A light emitting diode (LED) lighting arrangement for a lighting fixture includes: a lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; a first multi-faceted side wall reflector extending from a first side of the lighting strip at an angle such that the first multi-faceted side wall reflector extends along an entire length of the lighting strip and away from a bottom portion of a light emitting portion of each of the light emitting diodes (LEDs); and a second multi-faceted side wall reflector extending from a second, opposite side of the lighting strip at an angle such that the second multi-faceted side wall reflector extends along an entire length of the lighting strip away from the bottom portion of the light emitting portion of each of the light emitting diodes (LEDs). The first and second multi-faceted side wall reflectors cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

24 Claims, 24 Drawing Sheets



Related U.S. Application Data

- (60) Provisional application No. 61/094,571, filed on Sep. 5, 2008, provisional application No. 61/094,558, filed on Sep. 5, 2008, provisional application No. 61/015,713, filed on Dec. 21, 2007.

(51) **Int. Cl.**

F21V 7/00 (2006.01)
F21V 17/16 (2006.01)
F21V 29/74 (2015.01)
F21S 8/02 (2006.01)
F21S 8/08 (2006.01)
F21V 7/22 (2006.01)
F21V 23/04 (2006.01)
H05B 37/02 (2006.01)
F21Y 113/00 (2016.01)
F21Y 101/00 (2016.01)
F21Y 105/10 (2016.01)
F21Y 103/10 (2016.01)
F21Y 115/10 (2016.01)
F21W 131/103 (2006.01)
F21Y 101/02 (2006.01)
F21Y 103/00 (2016.01)

(52) **U.S. Cl.**

CPC *F21V 7/00* (2013.01); *F21V 7/005* (2013.01); *F21V 7/048* (2013.01); *F21V 7/22* (2013.01); *F21V 17/164* (2013.01); *F21V 23/04* (2013.01); *F21V 29/74* (2015.01); *H05B 37/0218* (2013.01); *H05B 37/0272* (2013.01); *H05B 37/0281* (2013.01); *F21W 2131/103* (2013.01); *F21Y 2101/00* (2013.01); *F21Y 2101/02* (2013.01); *F21Y 2103/003* (2013.01); *F21Y 2103/10* (2016.08); *F21Y 2105/10* (2016.08); *F21Y 2113/00* (2013.01); *F21Y 2115/10* (2016.08)

(58) **Field of Classification Search**

USPC 362/247, 249.02, 346, 347–349, 297, 362/296.05, 296.02, 217.05
 See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,547,416 B2 4/2003 Pashley et al.
 6,577,512 B2 6/2003 Tripathi et al.
 6,586,890 B2 7/2003 Min et al.
 6,644,841 B2 11/2003 Martineau
 6,648,490 B2 11/2003 Klose
 6,784,357 B1 8/2004 Wang
 6,942,361 B1 9/2005 Kishimura et al.
 6,971,781 B2 12/2005 Guy
 7,067,992 B2 6/2006 Leong et al.
 7,090,370 B2 8/2006 Clark et al.
 7,114,832 B2 10/2006 Holder et al.
 7,119,498 B2 10/2006 Baldwin et al.
 7,172,319 B2 2/2007 Holder et al.
 7,202,608 B2 4/2007 Robinson et al.
 7,217,009 B2 5/2007 Klose
 7,233,115 B2 6/2007 Lys
 7,275,841 B2 10/2007 Kelly

7,278,761 B2 10/2007 Kuan
 7,347,706 B1 3/2008 Wu et al.
 D574,548 S 8/2008 Wilcox et al.
 D574,549 S 8/2008 Kinnune et al.
 7,407,307 B2 8/2008 Hiratsuka
 D576,330 S 9/2008 Ruud et al.
 D576,331 S 9/2008 Ruud et al.
 D576,332 S 9/2008 Ruud et al.
 D577,847 S 9/2008 Ruud et al.
 7,420,811 B2 9/2008 Chan
 D578,695 S 10/2008 Zheng et al.
 D578,696 S 10/2008 Wang et al.
 D578,697 S 10/2008 Zheng et al.
 D578,698 S 10/2008 Zheng
 7,438,447 B2 10/2008 Holder et al.
 7,802,902 B2 9/2010 Moss et al.
 7,963,664 B2 6/2011 Bertram et al.
 8,011,804 B2 * 9/2011 Han G02F 1/133603 362/217.05
 8,322,881 B1 * 12/2012 Wassel 362/247
 2005/0111220 A1 5/2005 Smith
 2006/0056169 A1 3/2006 Lodhie et al.
 2006/0237738 A1 10/2006 Salam
 2007/0076427 A1 * 4/2007 Reo et al. 362/555
 2007/0081339 A1 4/2007 Chung et al.
 2007/0153526 A1 7/2007 Lim
 2007/0195527 A1 8/2007 Russell
 2007/0201225 A1 8/2007 Holder et al.
 2007/0211463 A1 9/2007 Chevalier et al.
 2007/0230171 A1 10/2007 Hiratsuka
 2007/0247856 A1 10/2007 Wang et al.
 2007/0263388 A1 11/2007 Lai et al.
 2007/0285927 A1 12/2007 Chen
 2008/0002399 A1 1/2008 Villard et al.
 2008/0055908 A1 3/2008 Wu et al.
 2008/0062689 A1 3/2008 Villard
 2008/0062691 A1 3/2008 Villard et al.
 2008/0078524 A1 4/2008 Wilcox et al.
 2008/0080162 A1 4/2008 Wilcox et al.
 2008/0080196 A1 4/2008 Ruud et al.
 2008/0089069 A1 4/2008 Medendorp
 2008/0089070 A1 4/2008 Wang
 2008/0123340 A1 5/2008 McClellan
 2008/0136661 A1 6/2008 Pederson et al.
 2008/0192476 A1 8/2008 Hiratsuka
 2008/0198572 A1 8/2008 Medendorp
 2008/0212329 A1 9/2008 Duguay et al.
 2008/0219001 A1 9/2008 Russell
 2008/0231201 A1 9/2008 Higley et al.
 2008/0239722 A1 10/2008 Wilcox
 2008/0239750 A1 10/2008 Chang
 2008/0239751 A1 10/2008 Chang
 2008/0247170 A1 10/2008 Peck
 2008/0253122 A1 10/2008 Hancock et al.
 2008/0253125 A1 10/2008 Kang et al.
 2009/0168395 A1 7/2009 Mrakovich et al.

FOREIGN PATENT DOCUMENTS

JP 2004200102 A 7/2004
 WO 2007088665 A1 8/2007

OTHER PUBLICATIONS

“Cree® XLamp® XR-E LED Data Sheet”, Cree LED Light, 2006–2007.
 Bibee, Greg, “‘Lighting Class’ LED Design Basics”, 2008.

* cited by examiner

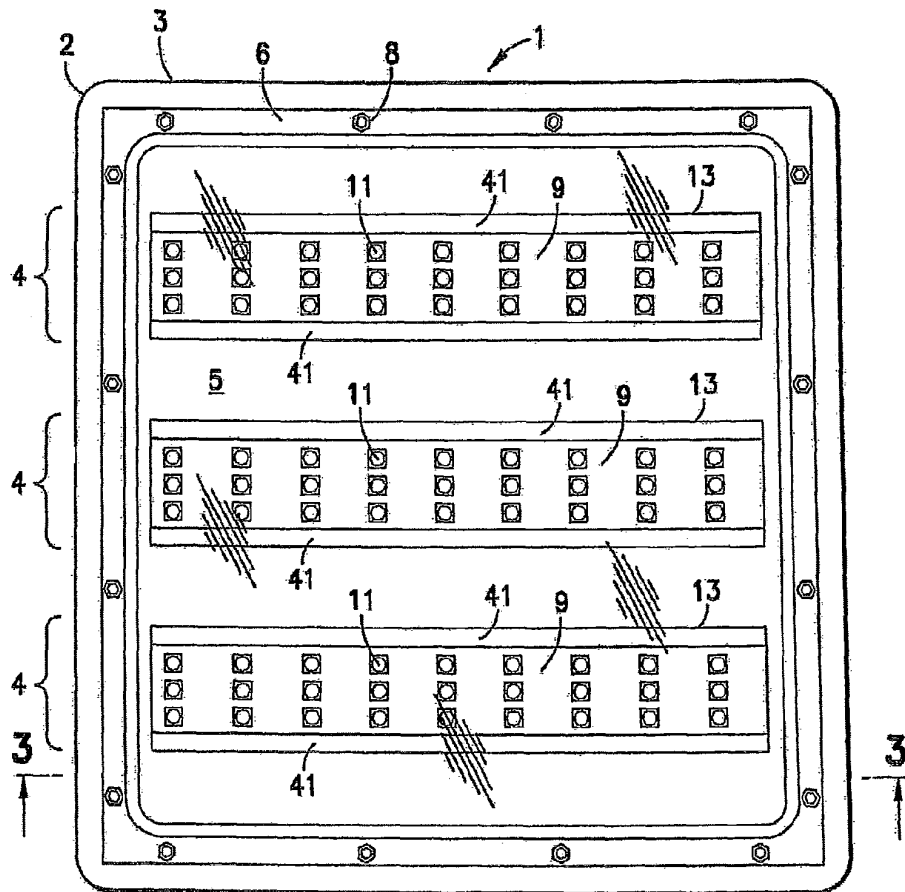


FIG. 1

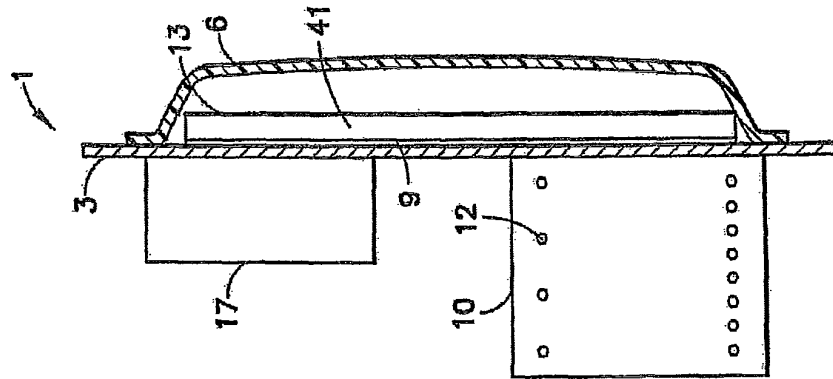


FIG. 3

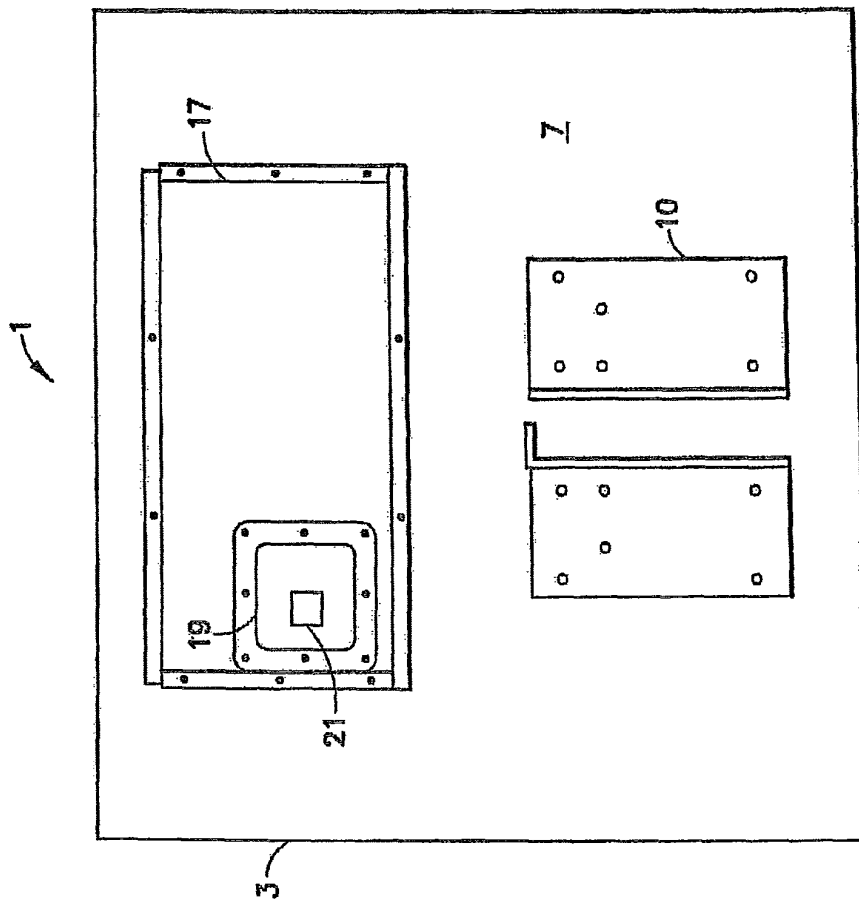


FIG. 2

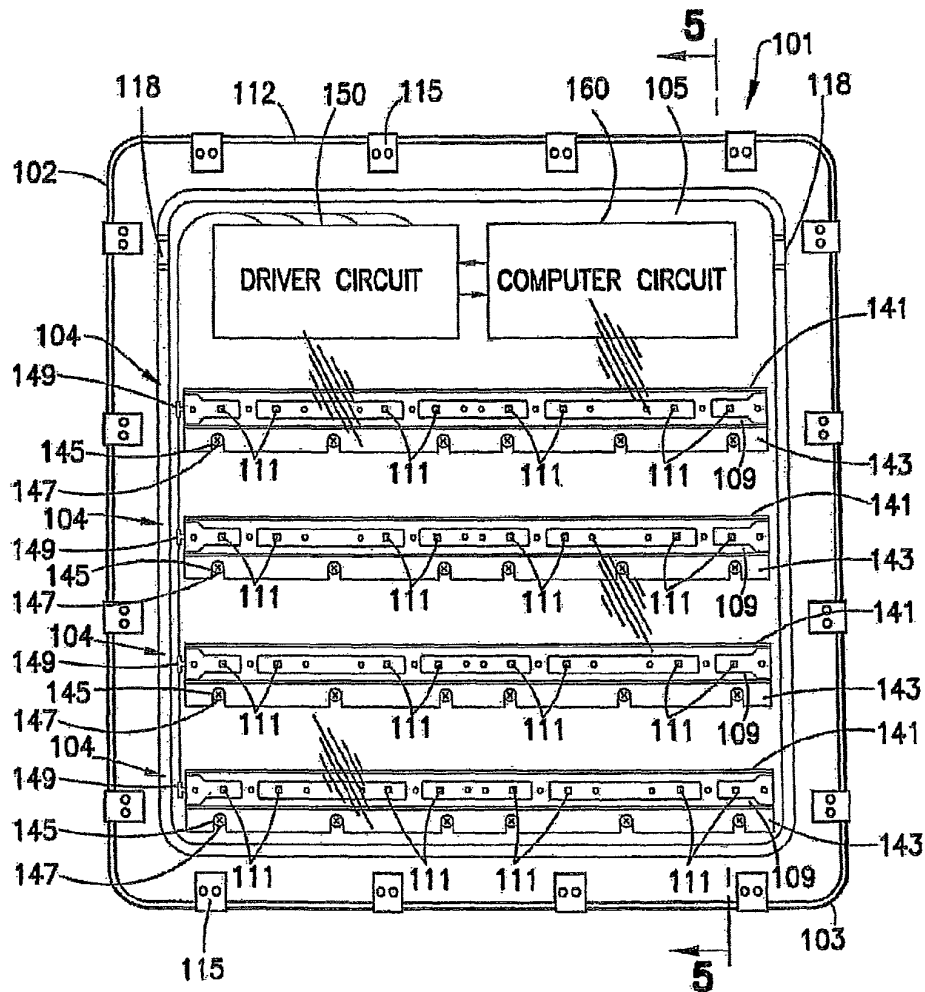
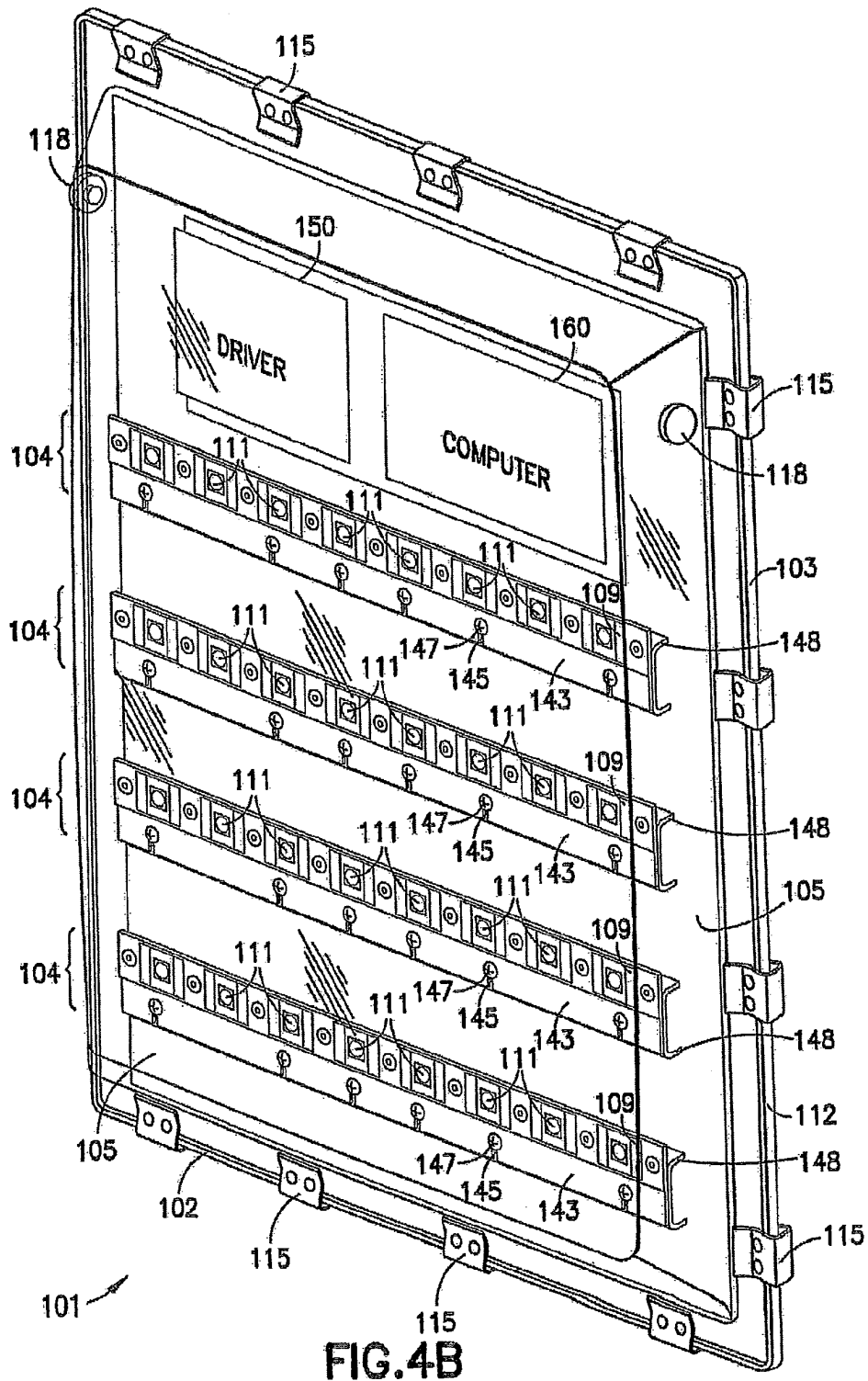


FIG. 4A



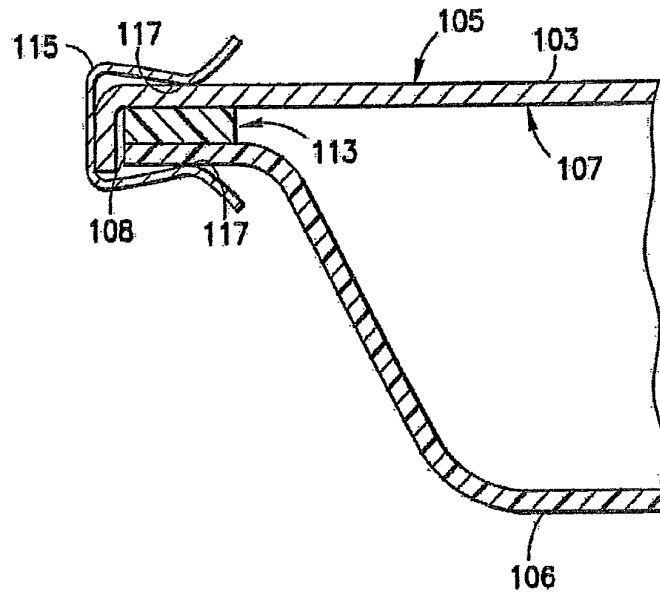


FIG. 6A

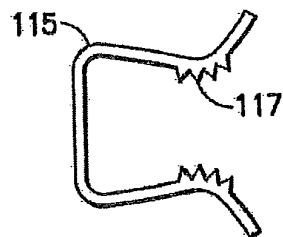


FIG. 6B

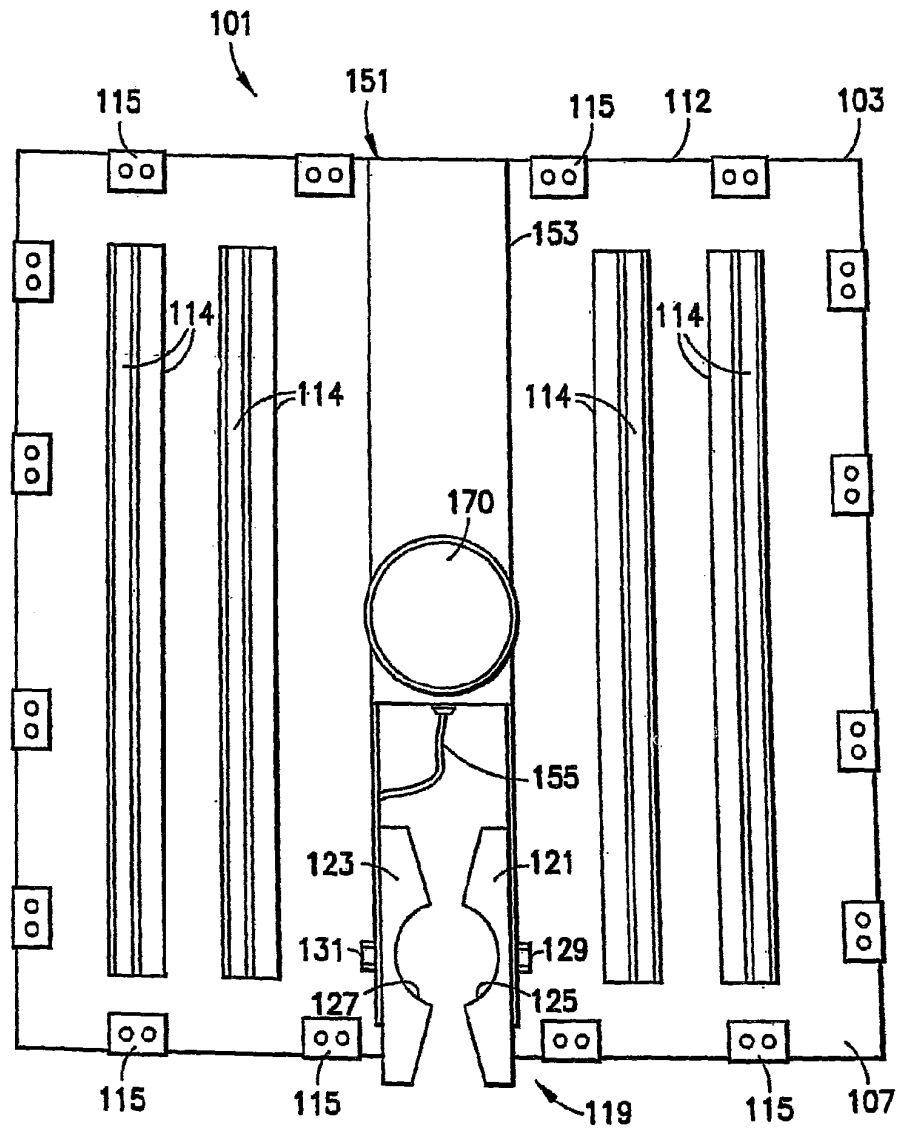


FIG. 7A

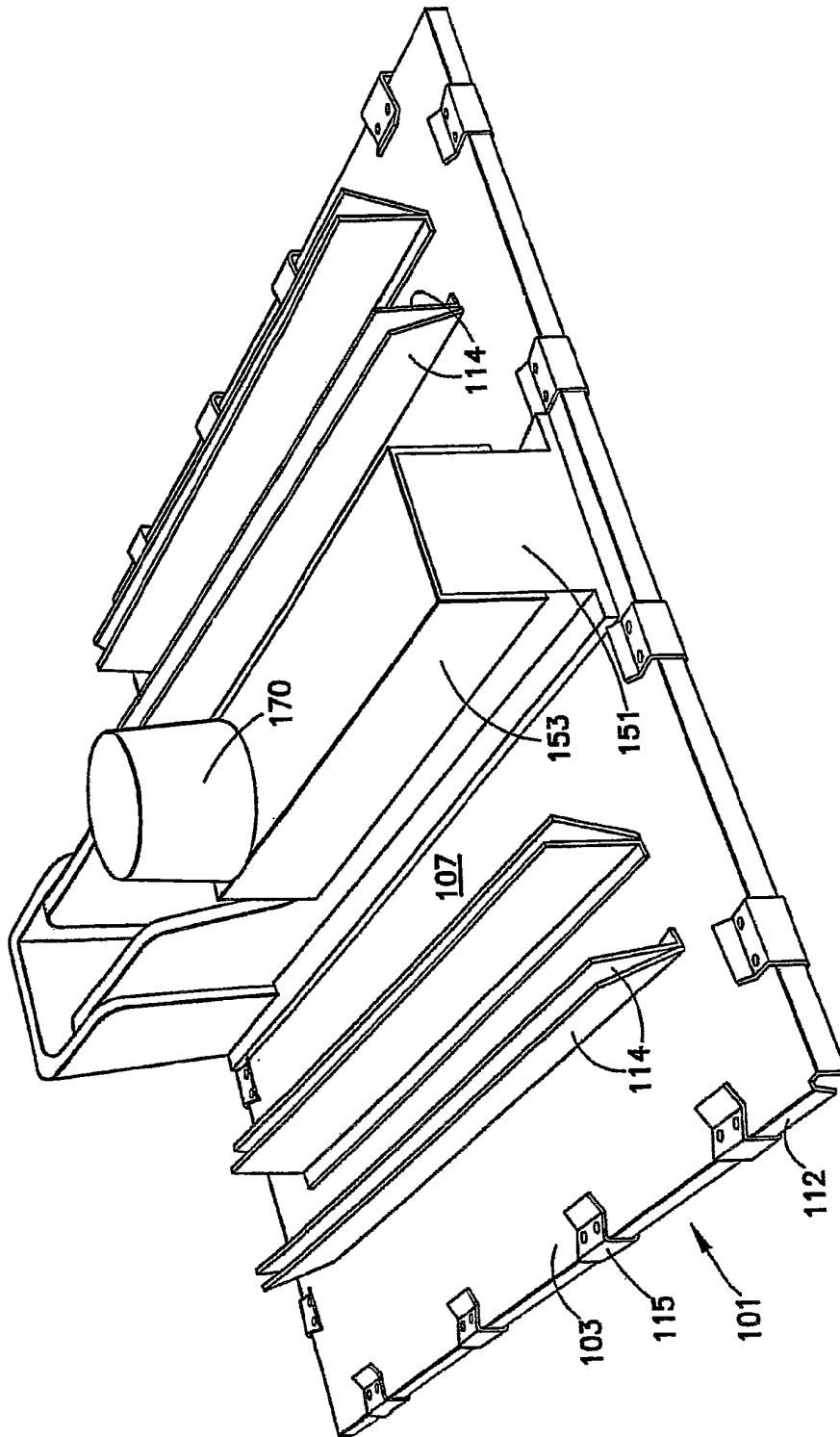


FIG. 7B

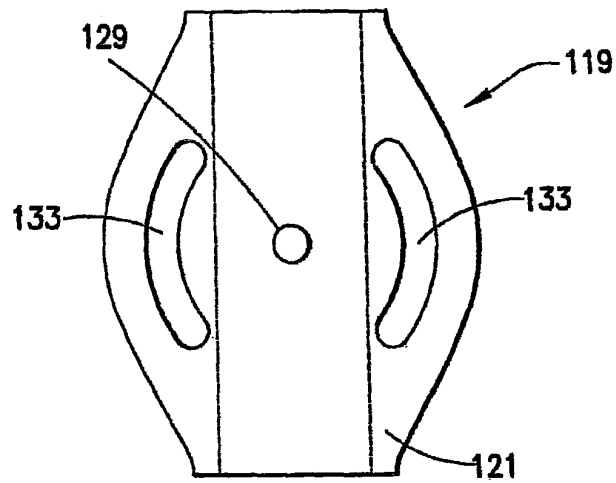


FIG. 8

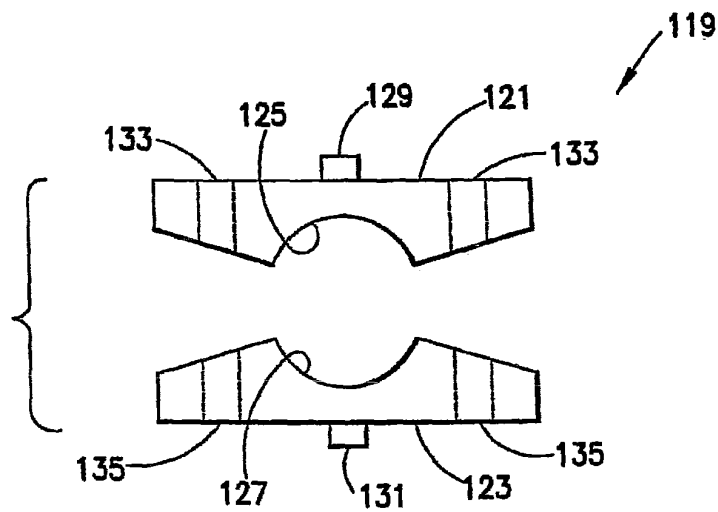


FIG. 9

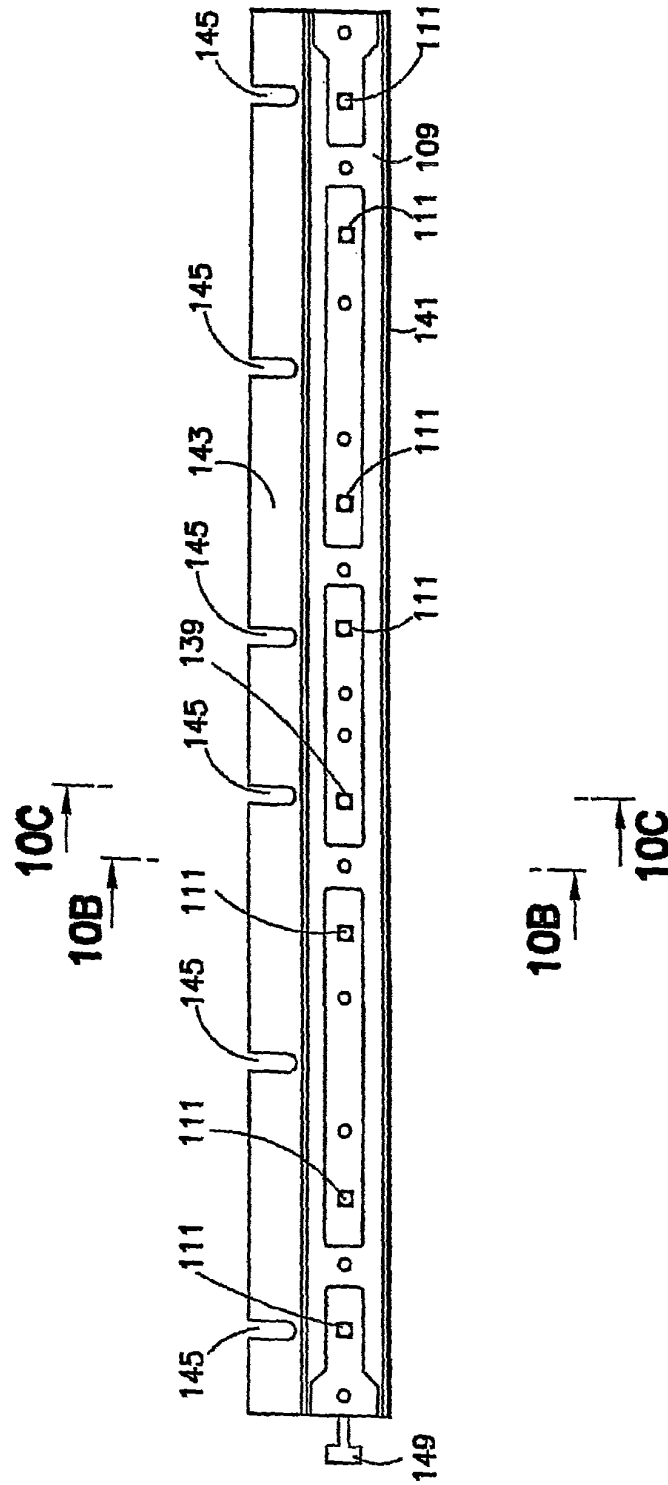


FIG. 10A

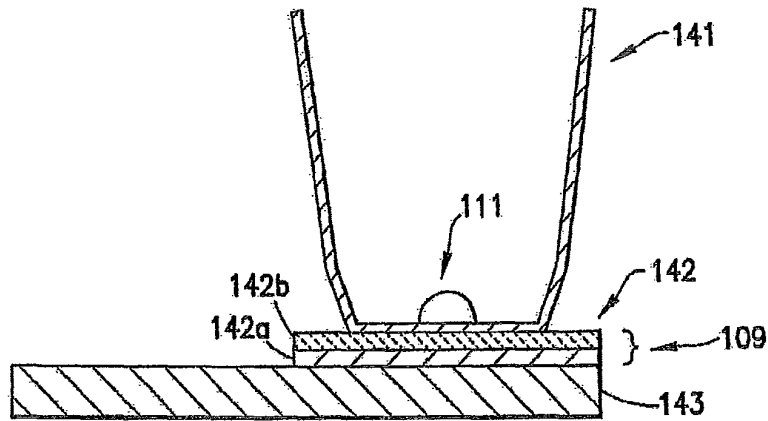


FIG. 10B

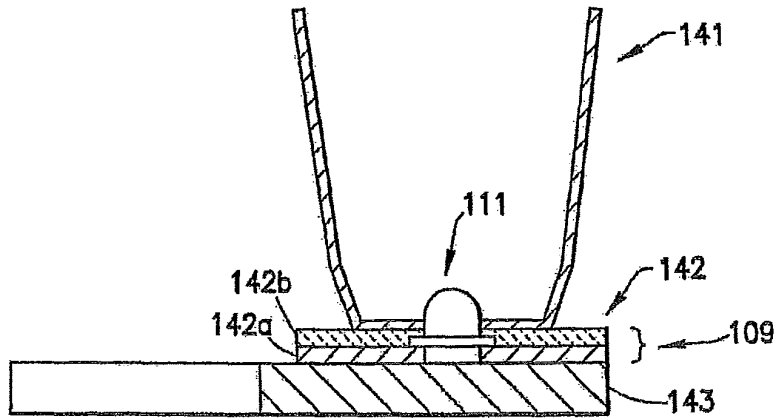
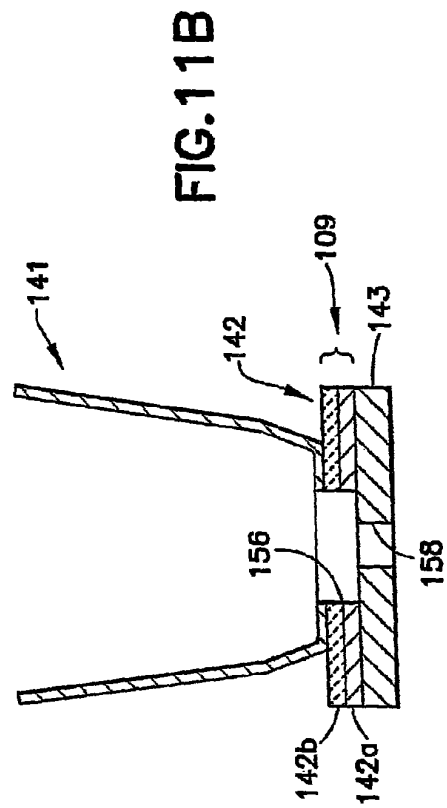
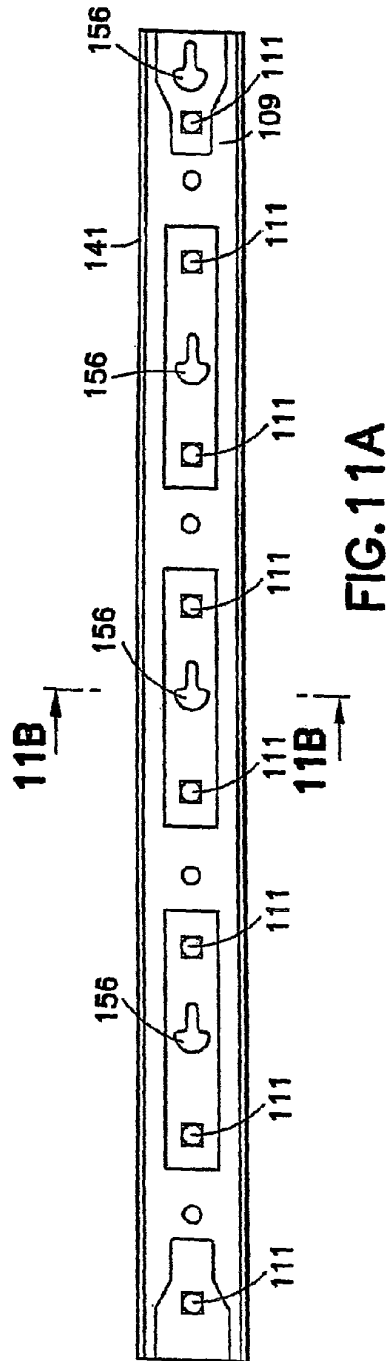
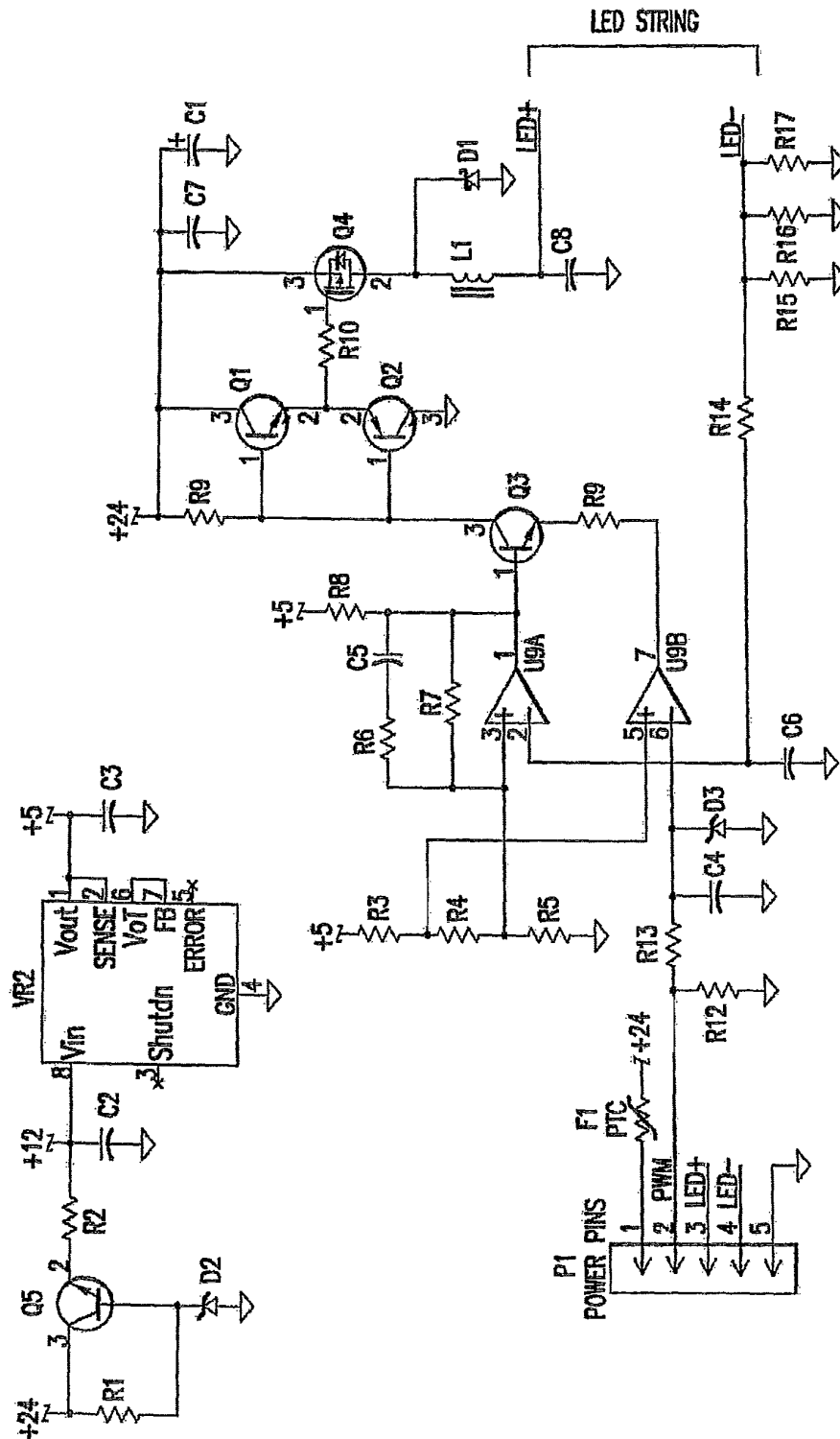
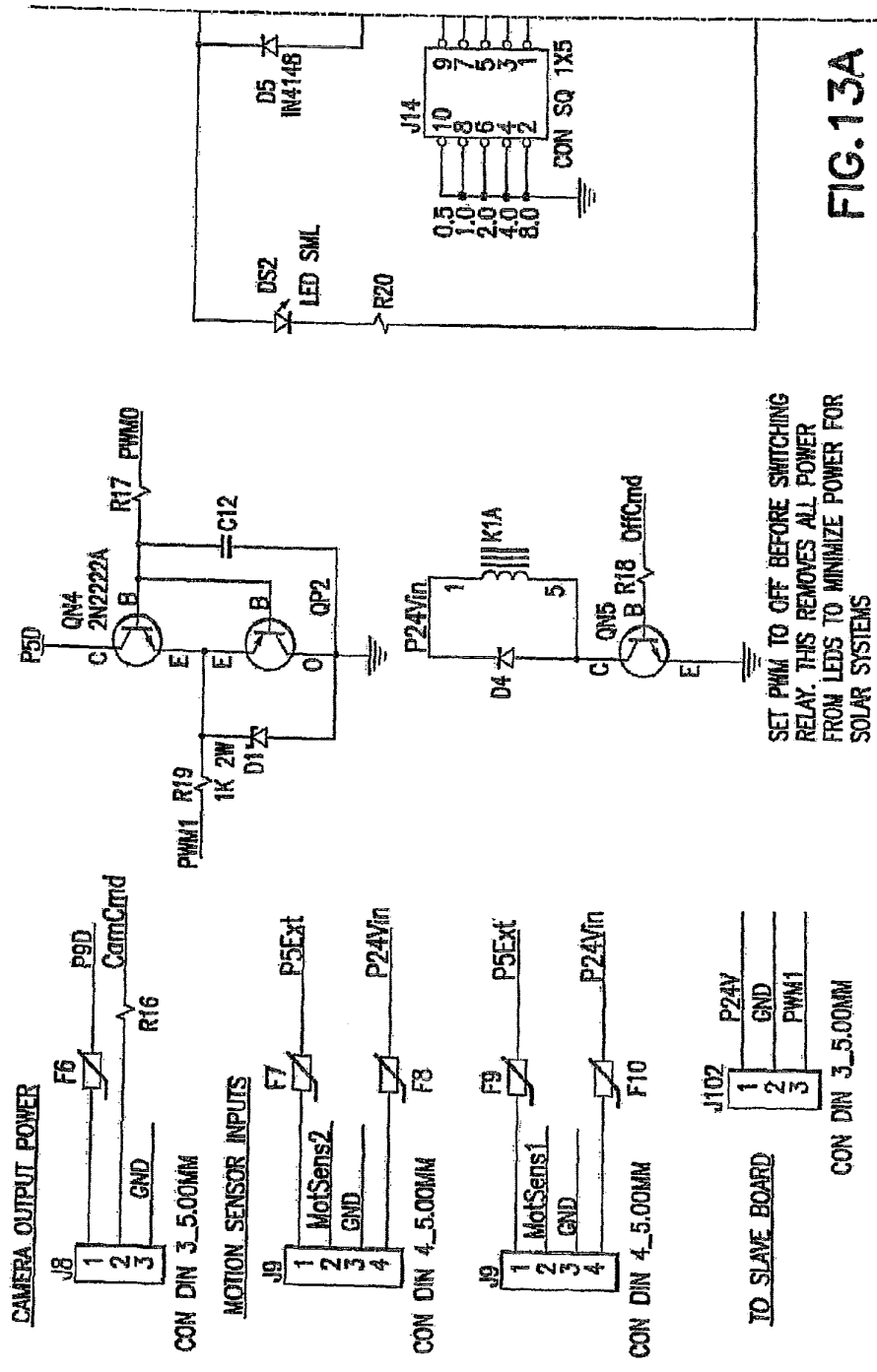


FIG. 10C

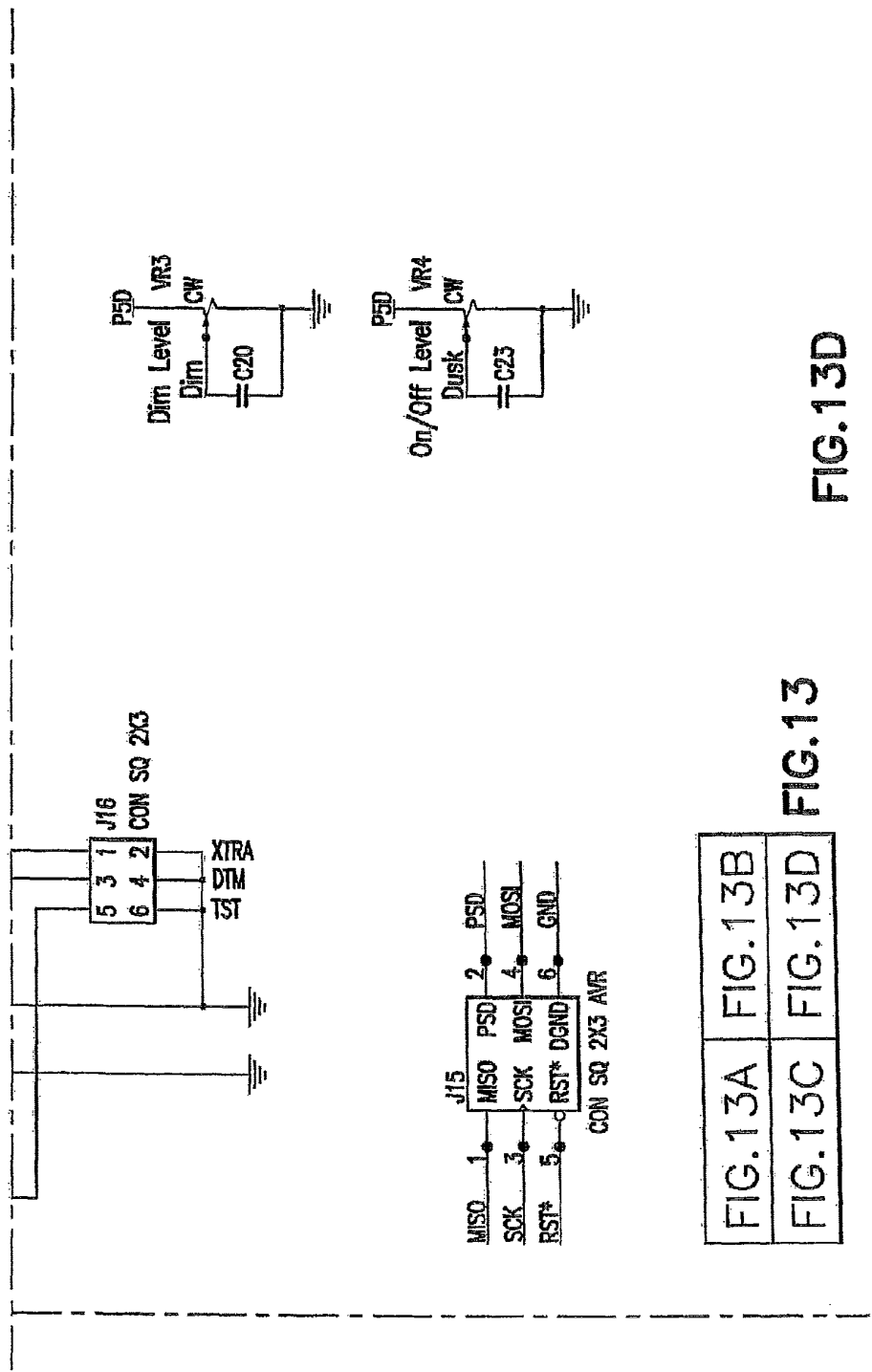




216E



AMERICAN



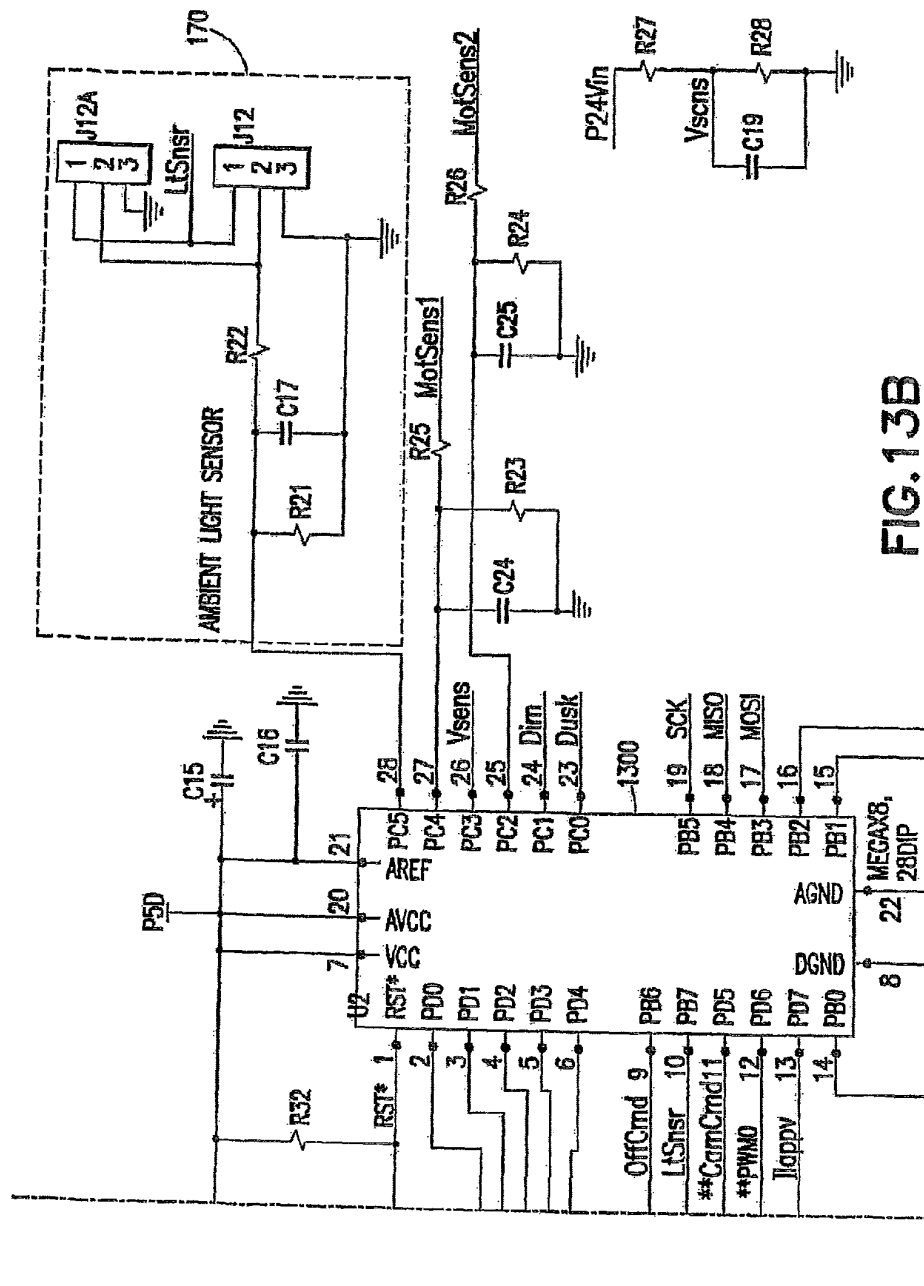
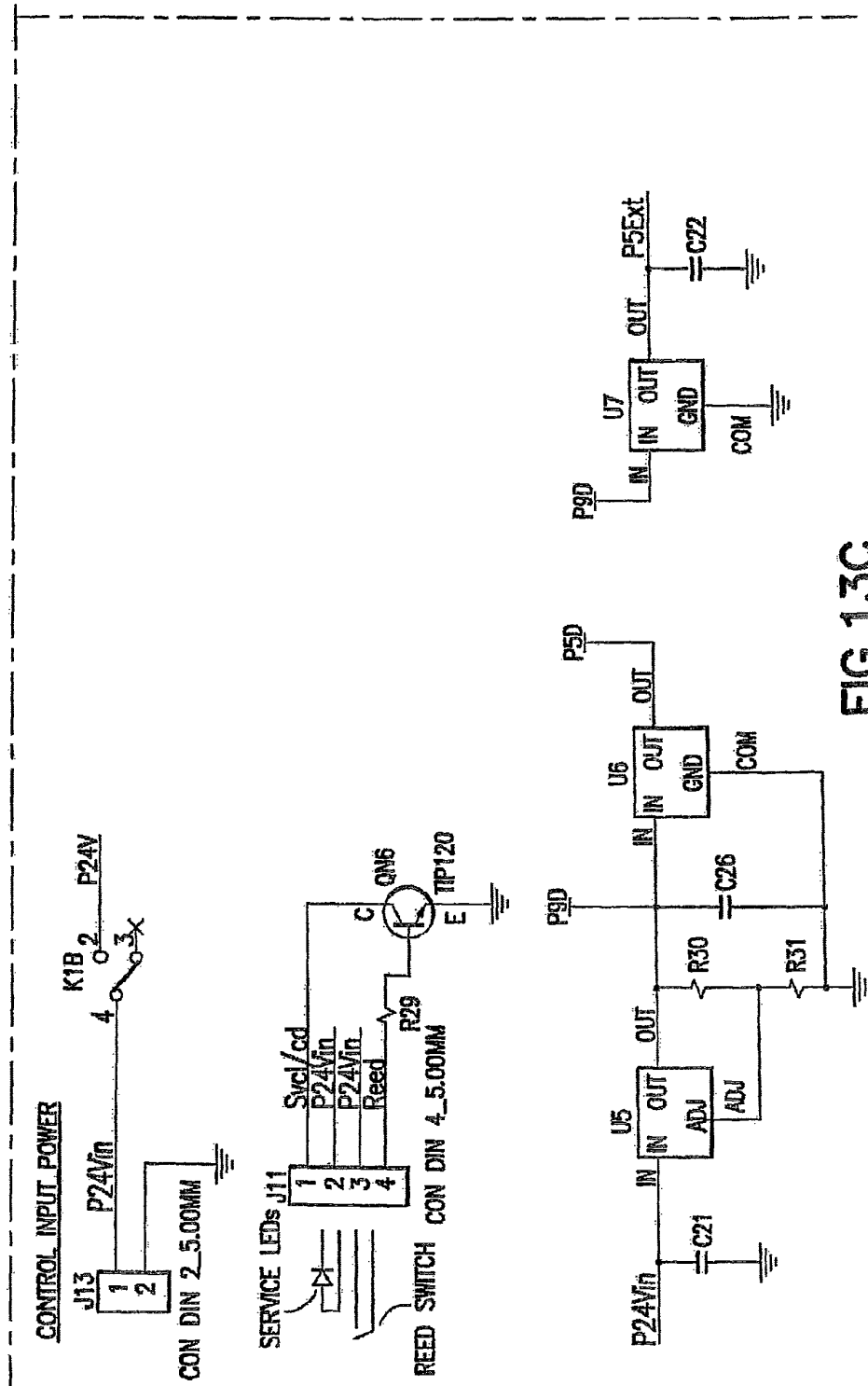


FIG.13B



CO
M
T
G
L

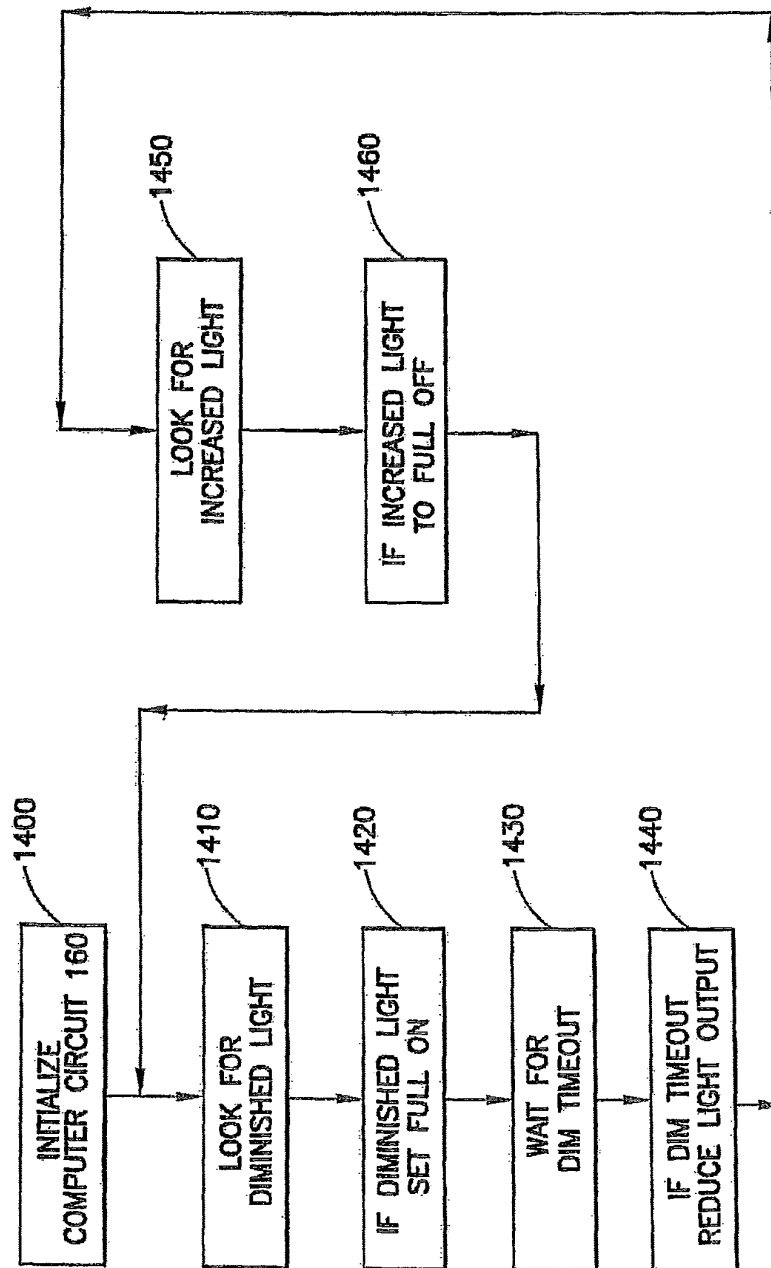


FIG. 14

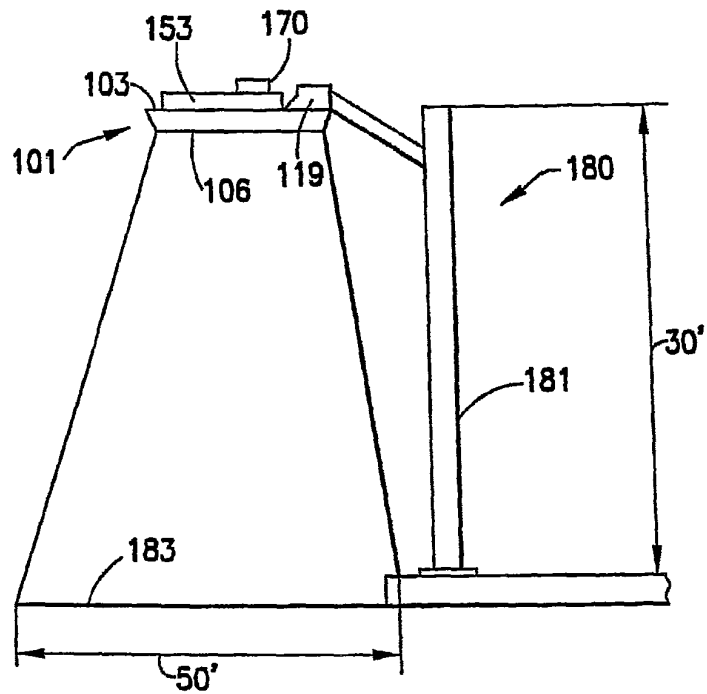


FIG. 15

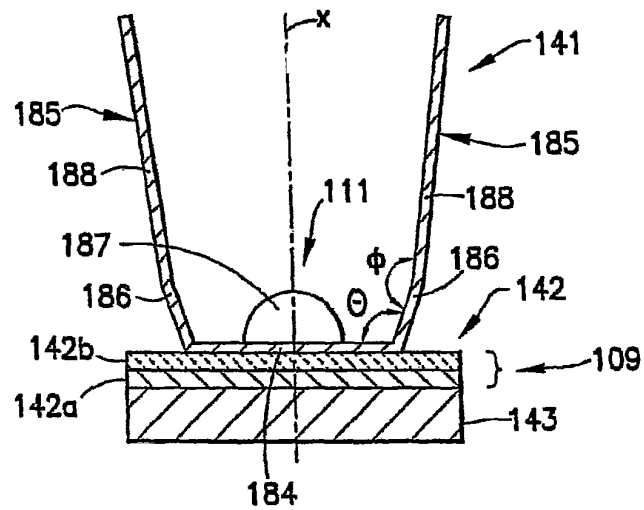


FIG. 16

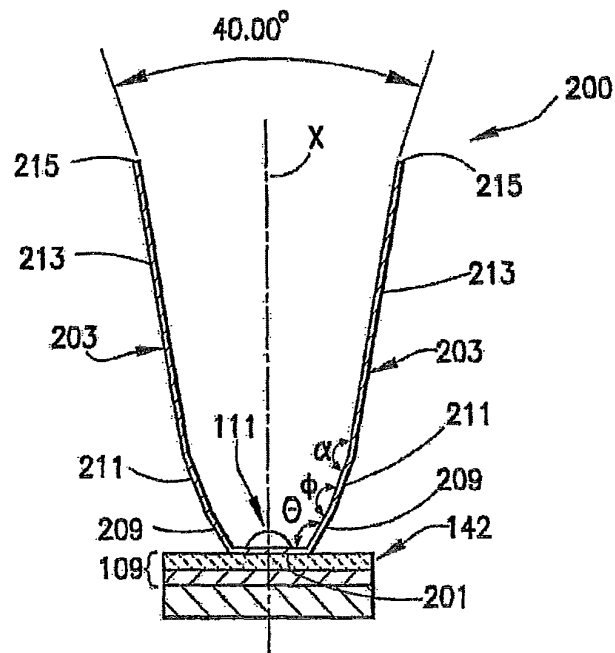


FIG. 17

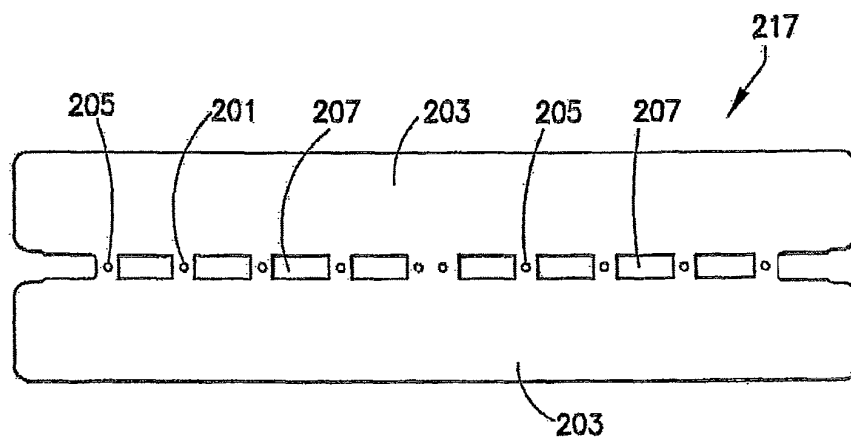


FIG. 18

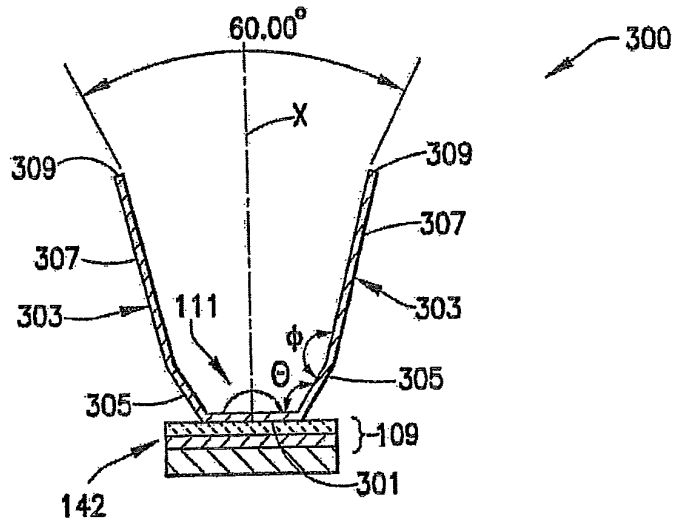


FIG. 19

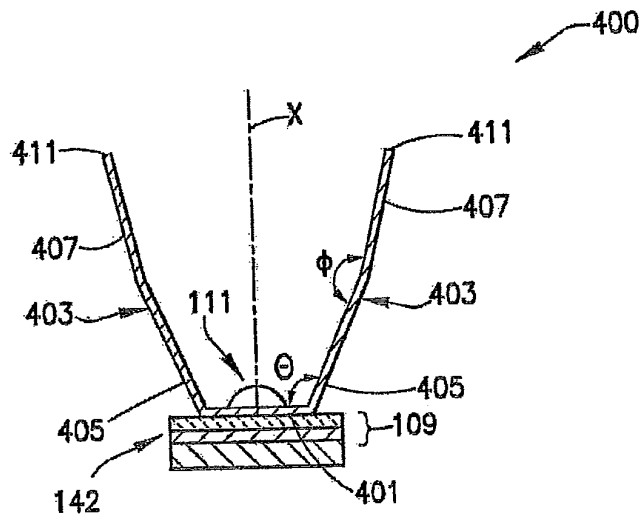


FIG. 20

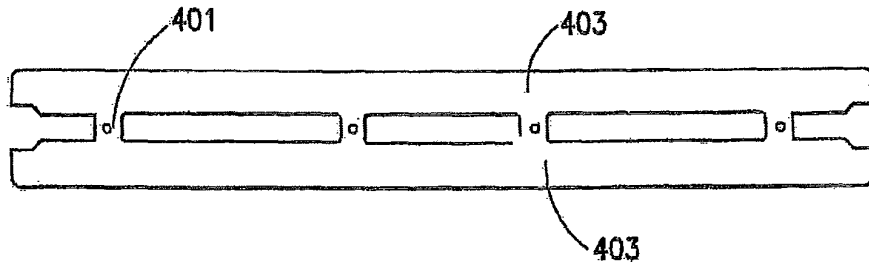


FIG. 21

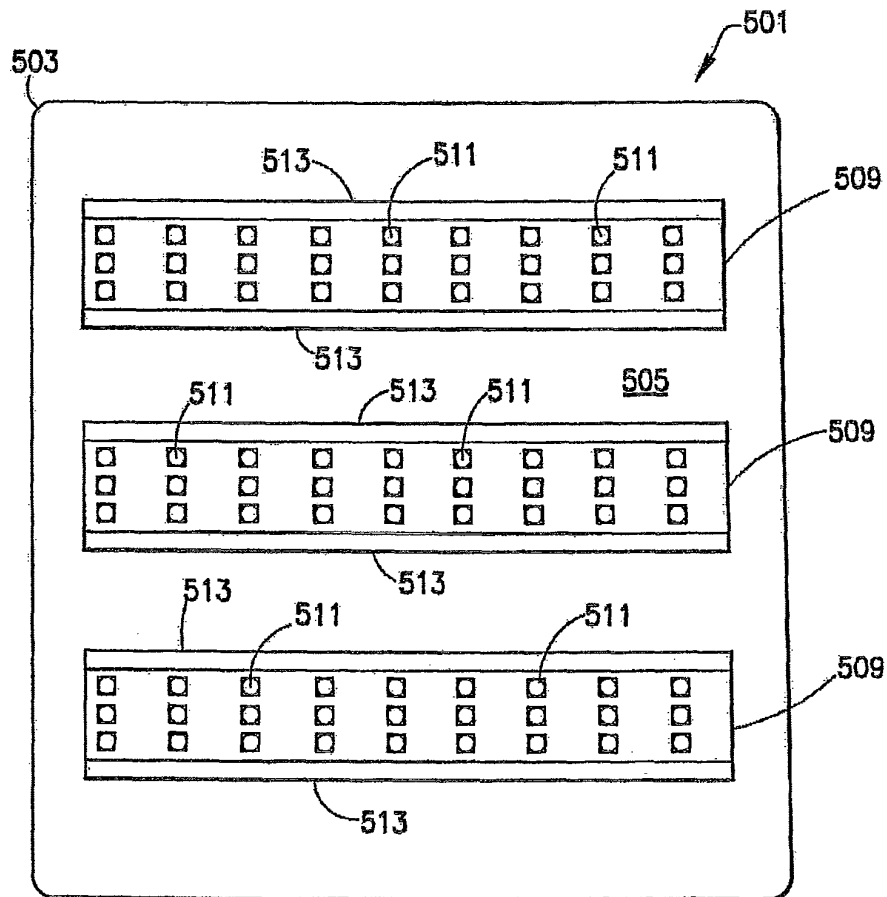


FIG. 22

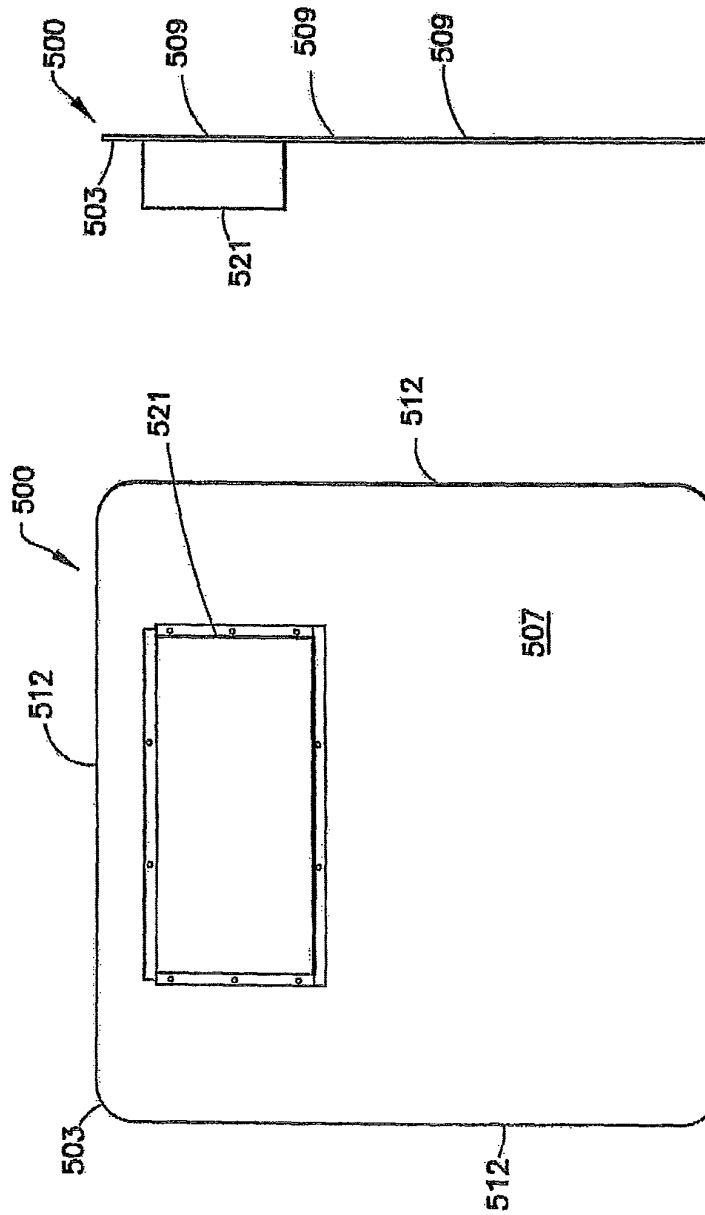


FIG.24

FIG.23

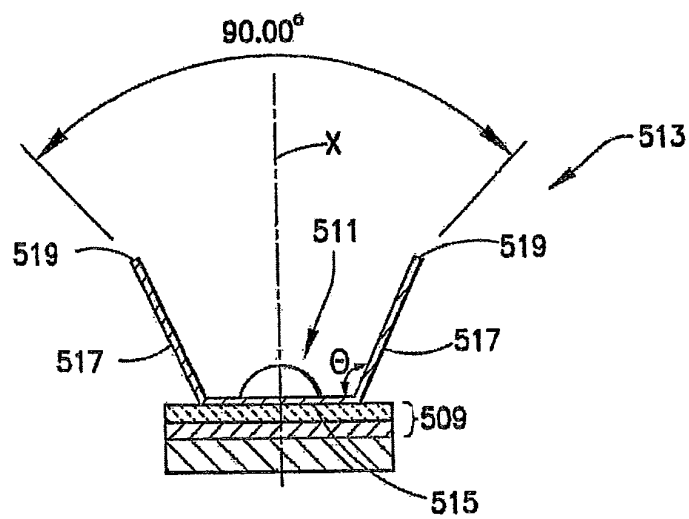


FIG.25

1

LIGHTING FIXTURE**CROSS REFERENCE TO RELATED APPLICATIONS**

This application is a continuation of U.S. patent application Ser. No. 12/341,798, filed Dec. 22, 2008, which claims the benefit of U.S. Provisional Patent Application No. 61/015,713 entitled "Lighting Fixture" filed Dec. 21, 2007, U.S. Provisional Patent Application No. 61/094,558 entitled "Lighting Fixture with Improved Cover and Mounting Assembly" filed Sep. 5, 2008 and U.S. Provisional Patent Application No. 61/094,571 entitled "Reflectors for Use with a Lighting Fixture" filed Sep. 5, 2008, which are all hereby incorporated by reference in their entirety.

BACKGROUND OF THE INVENTION**Field of the Invention**

The present invention relates, in general, to lighting fixtures (luminaires) that utilize light emitting diodes (LEDs) as a light source and, more particularly, to lighting fixtures incorporating LEDs configured in a manner to amplify and direct light produced by such lighting fixtures.

Description of Related Art

Conventional lighting fixtures such as streetlights and office lights have typically utilized incandescent, halogen, or fluorescent bulbs to provide light. The use of incandescent and halogen bulbs has been problematic in a number of ways. First, incandescent light bulbs are very energy inefficient. A large percentage of the energy incandescent light bulbs consume is released as heat, rather than light. Although fluorescent bulbs are more efficient than incandescent light bulbs, fluorescent bulbs raise environmental concerns, and are still very inefficient when compared to LEDs or other similar solid state light emitters.

Additionally, incandescent and fluorescent light bulbs have short life spans when compared to solid state emitters. This requires lighting devices to be replaced more frequently. Such short life spans are particularly more problematic when used in overhead lighting in office buildings or in streetlights, where access may be difficult. Replacement is not only time consuming, but can be dangerous.

Furthermore, the unwanted heat produced in these lighting systems adds not only to additional energy costs but may also requires additional air conditioning to lower the temperature of the area lit by the system. For example, in large buildings, overhead lighting is typically provided by lights placed near the ceiling and directed downward. These buildings often require additional air conditioning to compensate for this energy produced as heat.

Although solid state emitters, such as LEDs, are known to be more energy efficient, LEDs have not been considered in the past as an option for providing quality light in many applications, such as streetlights and office lighting systems, because LEDs do not provide enough useful light at a distance. Moreover, LEDs are a new technology, and therefore are more expensive. Accordingly, extending the use of LEDs is a particularly desirable goal. More recently, high-powered LEDs have been developed, thereby providing useful light output for incorporating LEDs into lighting fixtures for use as streetlights and office lights. However, the use of LEDs in such lighting fixtures typically requires a large number of LEDs clustered closely together to provide useful light output. Accordingly, lighting fixtures incorporating LEDs in this manner generate a large amount of heat energy when the LEDs emit light. This heat energy has to be

2

dissipated. If this heat energy is not effectively removed, the high temperature caused by the heat energy will reduce the luminance and life span of the LEDs. Therefore, each of the foregoing-described lighting fixtures requires a complex heat dissipating mechanism to adequately remove the heat energy produced by the large number of LEDs.

In view of the foregoing, a need exists for a lighting fixture for use, for example, as a streetlight or an office light that utilizes a minimal number of LEDs to produce useful light at a distance without creating excessive heat within the lighting fixture. A further need exists for an LED lighting fixture having a relatively simple heat dissipating mechanism. A need also exists for an LED lighting fixture that accomplishes amplified lighting with the use of a minimal number of LEDs.

SUMMARY OF THE INVENTION

As described in detail herein, a lighting fixture for use, for example, as a streetlight or an office light is disclosed and which provides useful light at a distance using only a small number of LEDs. Such a light fixture incorporates a relatively simple heat dissipating mechanism in accordance with this disclosure. In one embodiment, a light emitting diode (LED) lighting arrangement for a lighting fixture is provided. The LED arrangement includes a lighting strip having a plurality of light emitting diodes (LEDs) and a reflector that can be mounted to the lighting strip comprising multi-faceted side walls extending away from the light strip. Each of the light emitting diodes desirably has a diode base and a light emitting portion. The multi-faceted side walls of the reflector cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam.

The lighting strip may also include an electrical connector that allows the lighting strip to be operatively connected to a power supply, such as through driver circuitry and control circuitry. The reflector may be constructed from silver-coated aluminum with a protective polymer coating. The plurality of light emitting diodes (LEDs) may be arranged in a linear row.

The side walls of the reflector may be configured to extend away from a base member that defines a plurality of openings receiving at least the light emitting portion of the plurality of light emitting diodes (LEDs), respectively. The side walls may be formed integral with the base member. The multi-faceted side walls may comprise multi-angle side walls. As an example, the side walls may include a first portion defining a first angle with the light emitting portion of the plurality of light emitting diodes (LEDs) and a second portion defining a second angle with the first portion. The first angle and second angle may be different angles.

Alternatively, the side walls of the reflector may extend away from a base member and may be symmetrical about an axis of symmetry that runs through a center of the base member. In addition, the side walls may extend away from a base member and each have a plurality of angles formed therein. The side walls may each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion. The first angle and second angle may be different angles. The multi-faceted side walls may include multi-angle side walls.

Another embodiment is directed to a light emitting diode (LED) lighting fixture. The lighting fixture includes a base plate having a front side and a rear side. A plurality of lighting strips is mounted on the front side of the base plate. A reflector is mounted to each of the lighting strips and

3

comprises multi-faceted side walls extending away from the light strip. The lighting strips are interconnected with a power supply through driver circuitry and control circuitry. For example, the power supply may be mounted to the rear side of the base plate within an enclosure, and may be connected to control circuitry, which is connected to driver circuitry, which is electrically coupled to the plurality of light emitting diodes (LEDs). Each of the lighting strips includes a plurality of light emitting diodes (LEDs), and each of the light emitting diodes desirably has a diode base and a light emitting portion. The multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam. The plurality of light emitting diodes (LEDs) in each of the lighting strips may be arranged in a linear row.

The reflector may be constructed from silver-coated aluminum with a protective polymer coating. The side walls may be configured to extend away from a base member defining a plurality of openings receiving at least the light emitting portion of the plurality of light emitting diodes (LEDs), respectively. The side walls may include a first portion defining a first angle with the light emitting portion of the plurality of LEDs and a second portion defining a second angle with the first portion. The first angle and second angle may be different angles.

Alternatively, the side walls may extend away from a base member and may be symmetrical about an axis of symmetry that runs through a center of the base member. The side walls may extend away from the base member and each have a plurality of angles formed therein. The side walls may each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion. The first angle and second angle may be different angles, and the multi-faceted side walls may be multi-angle side walls.

The lighting strips are connected to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate. Heat transfer fins may be provided on at least one side of the base plate to conduct heat to the ambient environment. The base plate may be formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture. The lighting strips may be connected to the base plate such that inter-contacting surfaces between the lighting strips and base plate are separated by less than ten hundredth of an inch (0.01 inches). Desirably, the inter-contacting surfaces between the lighting strips and base plate may be separated by less than about one thousandth of an inch (0.001 inches). The lighting strips may be mounted to mounting stages upstanding from the base plate.

In addition, a method of manufacturing a light emitting diode (LED) lighting arrangement for a lighting fixture is disclosed and detailed herein. The method generally includes the steps of providing a lighting strip having a plurality of light emitting diodes (LEDs), each desirably comprising a diode base and a light emitting portion; providing a reflector blank; forming a plurality of linearly arranged openings in the base member; bending the reflector blank to form a base member and multi-faceted side walls extending away from the base member to form a reflector; and associating the lighting strip with the reflector such that the plurality of openings respectively receive at least the light emitting portion of the plurality of light emitting diodes (LEDs).

4

The reflector blank may be manufactured from silver-coated aluminum with a protective polymer coating. The multi-faceted side walls may be formed as multi-angle side walls.

The side walls may be formed to have a first portion defining a first angle with the light emitting portion of the plurality of LEDs and a second portion defining a second angle with the first portion. The first angle and second angle may be different angles. Alternatively, the side walls may be formed to be symmetrical about an axis of symmetry that runs through a center of the base member.

The foregoing and other features and characteristics, as well as the methods of operation and functions of the related elements of structures and the combination of parts and economies of manufacture will become more apparent upon consideration of the following description with reference to the accompanying drawings, all of which form a part of this specification, wherein like reference numerals designate corresponding parts in the various figures.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front view of a first embodiment of a lighting fixture for exemplary use as a streetlight.

FIG. 2 is a rear view of the lighting fixture of FIG. 1.

FIG. 3 is a transverse cross-sectional view of the lighting fixture of FIG. 1.

FIG. 4A is a front view of a second embodiment of a lighting fixture for exemplary use as a streetlight.

FIG. 4B is a front perspective view of the second embodiment of a lighting fixture for exemplary use as a streetlight shown in FIG. 4A.

FIG. 5 is a cross-sectional view of the lighting fixture of FIGS. 4A-4B taken along line 5-5 in FIG. 4A.

FIG. 6A is a portion of the cross-sectional view of FIG. 5 enlarged for viewing.

FIG. 6B is an enlarged view of a mounting clip in one embodiment.

FIG. 7A is a rear view of the lighting fixture of FIGS. 4A-4B.

FIG. 7B is a rear perspective view of the lighting fixture of FIGS. 4A-4B.

FIG. 8 is a side view of a pole mounting assembly for use with the lighting fixture of FIGS. 4A-4B.

FIG. 9 is an exploded top view of the pole mounting assembly of FIG. 8.

FIG. 10A is a top view of a light emitting diode (LED) lighting strip for use in the lighting fixture of FIGS. 4A-4B.

FIG. 10B is a cross-sectional view of the light emitting diode (LED) lighting strip of FIG. 10A taken along line 10B-10B in FIG. 10A.

FIG. 10C is a cross-sectional view of the light emitting diode (LED) lighting strip of FIG. 10A taken along line 10C-10C in FIG. 10A.

FIG. 11A is a top view of another embodiment of a light emitting diode (LED) lighting strip for use in the lighting fixture of FIGS. 4A-4B.

FIG. 11B is a cross-sectional view of the light emitting diode (LED) lighting strip of FIG. 11A taken along line 11B-11B in FIG. 11A.

FIG. 12 is a schematic diagram of an exemplary embodiment of a driver circuit for use with the lighting fixture of FIGS. 4A-4B.

FIGS. 13A-13D are schematic diagrams of an exemplary computer circuit for use with the lighting fixture of FIGS. 4A-4B.

5

FIG. 14 is an exemplary flow diagram illustrating a possible control sequence for controlling operation of the lighting fixture of FIGS. 4A-4B.

FIG. 15 is a side perspective view of the lighting fixture FIGS. 4A-4B used as a streetlight.

FIG. 16 is cross-sectional view of the lighting emitting diode (LED) lighting strip adapted for use with the lighting fixture of FIGS. 4A-4B illustrating details of a reflector associated with the lighting strip.

FIG. 17 is a cross-sectional view of another embodiment of the lighting emitting diode (LED) lighting strip adapted for use with the lighting fixture of FIGS. 4A-4B and comprising an alternative reflector.

FIG. 18 is a top view of a blank used to manufacture the reflector of FIG. 17.

FIG. 19 is a cross-sectional view of additional embodiment of the lighting emitting diode (LED) lighting strip adapted for use with the lighting fixture of FIGS. 4A-4B and comprising an additional embodiment of the reflector.

FIG. 20 is a cross-sectional view of a further embodiment of the lighting emitting diode (LED) lighting strip adapted for use with the lighting fixture of FIGS. 4A-4B and comprising a further embodiment of the reflector.

FIG. 21 is a top view of a blank used to manufacture the reflector of FIG. 20.

FIG. 22 is a front view of a lighting fixture in accordance with an embodiment adapted for use as an office lighting fixture.

FIG. 23 is a rear view of the office lighting fixture of FIG. 22.

FIG. 24 is a side view of the office lighting fixture of FIG. 22.

FIG. 25 is a cross-sectional view of a reflector adapted for used with a light emitting diode (LED) lighting strip used in lighting fixture of FIG. 22.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

For purposes of the description hereinafter, spatial orientation terms, as used, shall relate to the referenced embodiment as it is oriented in the accompanying drawing figures or otherwise described in the following detailed description. However, it is to be understood that the embodiments described hereinafter may assume many alternative variations and configurations. It is also to be understood that the specific devices, features, and components illustrated in the accompanying drawing figures and described herein are simply exemplary and should not be considered as limiting.

Generally speaking, an embodiment of the present invention involves a lighting arrangement incorporating one or more lighting strips comprising a plurality of light emitting diodes LEDs to provide a light emitting sub-assembly or device. A lighting fixture may be provided that incorporates the LED lighting strips and desirably utilizes a shell or housing assembly of the lighting fixture as an integrated heat transfer device, often described herein as a thermal radiator, thereby effectively dissipating any heat created by the LEDs so as to prevent heat buildup within the lighting fixture and, thereby, permitting the LEDs to operate more efficiently for a longer life span. Additional embodiments are directed to amplifying reflectors that may be associated with the lighting strips so that light produced by the plurality of light emitting diodes (LEDs) may be amplified and formed into a uniform beam which may be a focused beam useful, for example, as a spotlight, or a diffused beam useful, for example, as an overhead streetlight or possibly as an over-

6

head office light. The combination of reflectors for amplifying or intensifying the light and the heat dissipation provided through the thermal radiation properties of the housing provides for a lighting fixture adapted to provide effective light output for use as a street light, while not overheating and reducing the life span or safety of the street light.

With reference generally to FIGS. 1-3, features of the invention are described herein with reference to a lighting fixture 1 in accordance with one embodiment of the invention. In the following example, lighting fixture 1 is described in the context of an overhead streetlight for exemplary purposes. Lighting fixture 1 generally includes a housing 2 comprising a base plate 3 having a front side 5 and a rear side 7. Base plate 3 includes at least one and, preferably, a plurality of light emitting sub-assemblies 4, also referred to herein as a lighting arrangement, particularly an LED lighting arrangement. Each light emitting sub-assembly 4 is comprised of a lighting strip 9, each including one or more surface-mounted LEDs 11 mounted thereto, and each light emitting sub-assembly may further include a reflector 13 mounted in a manner extending away from the lighting strip 9, as will be described in more detail herein.

In the embodiment depicted in FIGS. 1-3, three lighting strips 9 are mounted to front side 5 of base plate 3. Lighting strips 9 may be mounted directly on front side 5 of base plate 3, or may be mounted to a separate u-shaped channel or mounting stage that is directly mounted to base plate 3, as described in more detail in connection with the embodiment of FIGS. 4-7. Each lighting strip 9 includes a plurality of surface-mount LEDs 11 mounted thereto, and may be constructed from any suitable material for mounting LEDs and associated circuitry, and is desirably constructed from aluminum. Base plate 3 and the base of lighting strip 9 may be constructed from any suitable material adapted for radiating and transferring thermal energy. Desirably, base plate 3 and lighting strip 9 are constructed of aluminum or an aluminum alloy, such as aluminum alloy 1100 or aluminum alloy 3003 and, in particular, aluminum alloys subjected to an anodizing treatment. Lighting strip 9 may have an exemplary overall thickness of about 1/8 inch thick, and base plate 3 may have an exemplary thickness about 1/8 to 1/4 inch thick. Base plate 3 may also be formed in a representative iconic shape, such as a football, baseball glove, hockey stick, and the like to provide a decorative beam of light.

LEDs 11 are desirably high-power LEDs such as the LUXEON® REBEL manufactured by Phillips Lumileds Lighting Company or the CREE® XLAMP® XR-E LED manufactured by Cree, Inc. Alternatively, plasma emitter bulbs may be used instead of LEDs 11. Plasma emitter bulbs are typically the size of a dime. Each bulb is filled with a gas and metal halide materials. In operation, an electric field is applied to the bulb, which ionizes the gas molecules to create a gas plasma. The metal halides then completely join the gas plasma which emits a powerful white light. Such plasma emitter bulbs are currently manufactured by Luxim® Corporation.

Desirably, lighting fixture 1 also includes a transparent cover 6 coupled to front side 5 of base plate 3. Cover 6 may be constructed of any suitable transparent material for passing light emitted by LEDs 11 therethrough, and is desirably selected from a polymeric material such as acrylic, ballistic acrylic, thermoplastic, polycarbonate, and the like. One particularly suitable material is LEXAN. The material forming cover 6 is desirably shatterproof and otherwise weatherproof so as to prevent damage when exposed to the exterior environment.

7

Transparent cover 6 may be coupled to base plate 3 using any suitable fastening mechanism, such as using bolts 8, so long as a generally airtight seal is maintained about the perimeter of housing 2, thereby maintaining the interior portion of lighting fixture 1 as a sealed internal environment. In the illustrated exemplary embodiment of FIGS. 1-3, a mounting bracket in the form of mounting member 10 is coupled to rear side 7 of base plate 3 for mounting of lighting fixture 1 to an appropriate surface. Mounting member 10 may comprise any general form for mounting to a particular surface, such as a plurality of mounting holes 12 for receiving a fastening member (not shown) which allows the lighting fixture 1 to be adjustably mounted to a pole. In the illustrated exemplary embodiment, lighting fixture 1 is configured to be mounted at a height sufficient to provide adequate lighting to a street or surface below. For instance, if lighting fixture 1 is mounted on a pole at a height of 30 feet above a street, lighting fixture 1 provides a lighting pattern that extends about 50 feet from the base of the pole and about 65 feet on either side of the pole.

Each sub-assembly 4 further includes a reflector 13 mounted so as to extend from the front side 5 of base plate 3 such that side walls 41 of reflector 13 extend at an angle from each of lighting strips 9. Each reflector 13 desirably includes a base portion (discussed in more detail herein) with a pair of side walls 41 extending from opposite sides thereof at an angle. Desirably, side walls 41 are integral with the base portion of reflector 13. Reflector 13 may be constructed of any reflective material, and may include a protective polymer coating thereon. Desirably, the material forming each reflector 13 has a reflectivity that is on the order of 95% to 98% reflective. Additionally, the polymer coating prevents corrosion on reflector 13. An exemplary reflective material is silver-coated aluminum, which is not to be construed as limiting, and any highly-reflective material may be used to construct the reflector assemblies.

With specific reference to FIGS. 2 and 3, lighting fixture 1 further includes a power supply and control circuitry (not shown) positioned within a rear housing 17 mounted on rear side 7 of base plate 3. The power supply and control circuitry are electrically coupled to the plurality of LEDs 11 to provide effective lighting control, as described in more detail with respect to the embodiment of FIGS. 4-7. Housing 17 may also include a window 19 with a light detector in the form of a photoelectric eye 21 positioned thereunder. In order to efficiently transfer light from window 19 to photoelectric eye 21, an acrylic rod or fiber optic array (not shown) may be positioned between window 19 and photoelectric eye 21. In the present non-limiting embodiment, photoelectric eye 21 provides electronic signal(s) to the control circuitry which causes LEDs 11 to turn on when surrounding ambient light has dropped below a predetermined level as will be described hereinafter.

An LED light (not shown) may also be mounted on rear side 7 of base plate 3 and be coupled to the power supply and control circuitry for when, for example, utility workers are working on the pole where light fixture 1 is mounted. Such a separate, rear-mounted LED provides utility workers with appropriate lighting above lighting fixture 1. This additional LED light may be turned on manually through the use of a magnetic switch, by an infrared sensor or by an ultrasonic sensor, as examples.

With reference to FIGS. 4-7, an alternative embodiment of a lighting fixture 101 is illustrated. Lighting fixture 101 generally includes a housing 102 defined by a base plate 103 having a front side 105 forming a generally interior housing surface and a rear side 107 forming a generally outer

8

housing surface for the lighting fixture. Lighting fixture 101 includes at least one and, preferably, a plurality of light emitting sub-assemblies 104, again also referred to herein as a lighting arrangement, particularly an LED lighting arrangement. Each light emitting sub-assembly 104 includes a lighting strip 109 comprised of one or more surface-mounted LEDs 111 mounted to a circuit board substrate or base member 142 and each light emitting sub-assembly 104 may further include a reflector 141 mounted in a manner extending away from the lighting strip 109, as will be described in more detail herein. Each lighting strip 109 is mounted either directly or indirectly to base plate 103 in a manner permitting effective and efficient heat transfer between the LEDs 111 mounted to base member 142 and base plate 103, as will be described in further detail herein. It is desirable for the LEDs 111 to be mounted in a linear row or arrangement so that reflector 141 may effectively reflect light emitted by the LEDs 111, amplify this light and direct the light in a manner effective for the intended purpose of the lighting fixture 101, for example, as use as streetlight in the instant example or for other applications such as a spotlight, office overhead light, and other applications. The reflector 141 may be configured to reflect and amplify the light from the LEDs 111 to achieve the light characteristics that are desired for the lighting fixture 101.

While it is noted that the number of lighting strips 109 may be dependent upon the intended use of the lighting fixture, the embodiment of FIGS. 4-7 includes four lighting strips 109, shown to be effective in the intended use of the present lighting fixture as a streetlight. Moreover, each lighting strip 109 includes a plurality of linearly-arranged, surface-mount LEDs 111 mounted to base member 142. Base member 142 is desirably constructed, at least in part, of a similar material as base plate 103, such as aluminum or aluminum alloy, preferably an anodized aluminum alloy. In the illustrated embodiment, each lighting strip 109 includes eight linearly-arranged LEDs 111 mounted to base member 142. However, this is not to be construed as limiting, as any suitable number of LEDs 111 may be mounted to each lighting strip 109. As with the previous embodiment, LEDs 111 are desirably high-power LEDs such as the LUXEON® REBEL manufactured by Phillips Lumileds Lighting Company or the CREE® XLAMP® XR-E LED manufactured by Cree, Inc. Alternatively, plasma emitter bulbs may be used instead of LEDs 111. Such plasma emitter bulbs are currently manufactured by Luxim® Corporation, as noted previously.

Base plate 103 along with transparent cover 106 essentially forms the complete housing 102 of lighting fixture 101. Base plate 103 is typically constructed of a suitable material to structurally support lighting fixture 101 and to provide effective protection for the components and circuitry within lighting fixture 101. Moreover, base plate 103 serves at least another purpose in that it also acts as a material for effectively and efficiently transferring thermal energy from LEDs 111 to dissipate heat therefrom, as will be further detailed herein. Briefly, it is envisioned that the interaction of base plate 103 and base member 142 effectively and efficiently conducts heat away from LEDs 111 and base plate 103 is desirably adapted to transfer the heat energy to the ambient environment using any one or more of conductive, convective, and radiation heat transfer modes to the ambient environment. To achieve effective and efficient heat transfer, base plate 103 may be constructed from any structurally supportive material that is adapted for transferring thermal energy. Base plate 103 is desirably constructed of aluminum or an aluminum alloy, such as aluminum alloy 1100 or

9

aluminum alloy 3003 and, in particular, aluminum alloys subjected to an anodizing treatment. Base plate 103 may have an exemplary thickness about 1/8 to 1/4 inch thick. By anodizing the aluminum used to construct base plate 103, the base plate 103 is provided with a heat-transferring surface texture, typically a non-uniform or non-smooth, somewhat roughened surface texture that increases the ability of the base plate 103 to transfer heat energy to the ambient environment and, accordingly, the anodizing process enhances the heat dissipating properties of base plate 103, thereby allowing it to function as a particularly effective and efficient heat transfer device or mechanism, also termed herein as a "thermal radiator". Moreover, base plate 103 may further include a plurality of thermal radiating fins 114 on rear side 107 to provide additional surface area for convective heat transfer and dissipation to the ambient environment, such that the LEDs 111 stay cool regardless of the outdoor temperature. Additionally, base plate 103 has an outer peripheral edge 112 that is curved away from a body of the base plate 103 at an angle of approximately 90°.

Desirably, lighting fixture 101 includes a transparent cover 106. Transparent cover 106 may be manufactured from any suitable material such as, but not limited to, a polymeric material, such as acrylic, ballistic acrylic, thermoplastic, polycarbonate, and the like. Cover 106 is coupled with base plate 103 using any suitable mechanical fastening arrangement, so long as a generally airtight seal is maintained about the perimeter of housing 102, thereby maintaining the interior portion of lighting fixture 101 as a sealed interior environment.

With specific reference to FIGS. 6A-6B, and with continuing reference to FIGS. 4A-4B, 5 and 7A-7B, transparent cover 106 may be fitted such that an outer edge 108 is positioned adjacent to outer peripheral edge 112 of base plate 103. Desirably, a gasket 113 is positioned between outer edge 108 of transparent cover 106 and outer peripheral edge 112 of base plate 103 to provide a generally fluid-tight seal therebetween. Transparent cover 106 may also include at least one protective vent 118. Protective vent 118 provides an effective barrier against harsh weather conditions (e.g., rain, snow, high winds), while allowing water vapor to exit effectively from within transparent cover 106, thereby reducing the likelihood of condensation accumulating beneath transparent cover 106. Protective vent 118 equalizes pressure between the transparent cover and the ambient environment and is desirably able to vent moisture that becomes trapped within the interior enclosure of housing 102 generally defined by transparent cover 106 and base plate 103, while allowing only dry air to enter into the enclosure created by transparent cover 106. An example of such a protective vent 118 is the GORE™ Protective Vent manufactured by W.L. Gore & Associates, Inc.

Once transparent cover 106 is fitted to base plate 103, a suitable clamp arrangement, such as a plurality of spring clips 115, is positioned over outer edge 108 of transparent cover 106 and outer peripheral edge 111 of base plate 103 to fixedly hold transparent cover 106 to base plate 103. Spring clips 115 are desirably formed with securing structure 117, such as teeth, positioned on an inner surface thereof. Spring clips 115 are desirably adapted to allow for transparent cover 106 to be quickly and easily removed. For example, a special tool may be provided for use with spring clips 115 to open and remove spring clips 115 from association with transparent cover 106 and base plate 103. It is desirable that, if this specialized tool is not used, securing structure 117 on spring clips 115 will scratch and otherwise damage transparent cover 106 when removal of spring clip 115 is

10

attempted. This visible damage to transparent cover 106 can provide clear evidence to an authorized repair technician that someone has tampered with lighting fixture 101.

With reference to FIGS. 8 and 9 and with continuing reference to FIGS. 4-7, a further embodiment of a mounting bracket in the form of pole mounting member 119 is coupled to rear side 107 of base plate 103. Pole mounting member 119 includes a first clamp member 121 and a second clamp member 123. First clamp member defines a first arcuate surface 125 and second clamp member defines a second, opposing arcuate surface 127. First arcuate surface 125 and second arcuate surface 127 are configured to face one another and capture a pole (not shown) therebetween. Once the pole is captured between first clamp member 121 and second clamp member 123, a first bolt 129 and a second bolt 131 may be inserted and tightened thereby securing the pole between first clamp member 121 and second clamp member 123. First clamp member 121 and second clamp member 123 desirably each have an inside surface having a waffle pattern thereon. This waffle-pattern grips the pole when it is positioned between first clamp member 121 and second clamp member 123 thereby preventing rotation of the lighting fixture 101 relative to the pole. First clamp member 121 and second clamp member 123 each also define a pair of arcuate slots 133, 135. Arcuate slots 133, 135 are configured to receive respective bars 137. Mounting bars 137 are designed to move within arcuate slots 133, 135 to allow lighting fixture 101 to be angularly adjusted for use in directing light output from lighting fixture 101. In a typical mounting scenario, lighting fixture 101 is mounted to an extension pole extending from an upstanding pole (such as a telephone-style pole) and it is desired that lighting fixture 101 be positioned with the transparent cover 106 thereof facing downward and generally parallel to the ground surface, thereby directing light output directly downwardly. The arrangement of mounting bars 137 and arcuate slots 133, 135 provide lighting fixture to be mounted in such a manner regardless of the angle that the extension pole extends from the upstanding pole, as will be appreciated by those skilled in the art. It is also contemplated that alternative mounting clamps may be utilized with the present lighting fixture, depending upon the particular installation application.

With reference to FIGS. 10 and 11, and with continuing reference to FIGS. 4-7, lighting fixture 101 includes a plurality of light emitting sub-assemblies 104 including LED lighting strips 109 on front side 105 of base plate 103. Each lighting strip 109 includes a plurality of surface-mount LEDs 111 mounted onto circuit board or base member 142 in electrical contact/connection therewith and a reflector 141 mounted thereto. In the present embodiment, reflector 141 defines multiple facets formed therein that amplify the light provided by LEDs 111 as will be discussed in greater detail hereinafter. Such facts may be angled formations in the body of the reflector 141 but reflector 141 is not intended to be limited to such facets. Facets should be read broadly in connection with this disclosure as a formation(s) in the body of reflector 141 that amplify the light output of the LEDs 111 and direct the amplified and desirably uniform light outward from the light fixture 101 for any desirable application. This sets forth certain exemplary and non-limiting applications for light fixture 101 such as street-lighting or office overhead lighting, as mentioned previously. It is noted that in FIG. 4B, reflectors 141 are omitted for clarity purposes.

The incorporation of LEDs into conventional lighting fixtures can be problematic due to excessive heat build-up within the lighting fixture, which can deleteriously affect

11

performance and lifespan of the LEDs. Lighting fixtures **1**, **101** in accordance with this disclosure exhibit effective and efficient dissipation of the heat generated by LEDs **11**, **111**. In particular, this heat dissipation is accomplished utilizing the entire housing of the lighting fixture **1**, **101** as a heat transfer device which effectively transfers heat energy generated LEDs **1**, **111** to the external environment. In the foregoing, it was noted that base plate **103** may be formed of specific materials having suitable heat transfer characteristics and this material may be anodized and coated to provide a surface texture on the base plate **103** having enhanced heat transferring properties. Heat-transfer fins **114** are also provided on base plate **103** for improving heat transferring attributes of base plate **103**. A further aspect of the heat transferring ability of light fixture **101** in particular is the arrangement of LEDs **111** with circuit board base member **142** and the mounting of the base member **142** to the base plate **103**. As described next herein, this arrangement enhances the heat transfer from LEDs **111** to base plate **103**.

More particularly, as noted previously, each lighting strip **109** includes a singular line of LEDs **111** mounted onto base member **142**. Base member **142** is desirably constructed of the same material as base plate **103**. As shown in FIGS. **10A-10C**, base member **142** represents a circuit substrate for LEDs **111**, including a metallic base supporting substrate layer **142a**, such as anodized aluminum oxide, with a non-conductive layer **142b** on a surface thereof, such as a ceramic layer or enamel layer. Electronic circuitry is then printed onto the non-conductive layer **142b**, with a second non-conductive layer positioned over the circuitry. Such a configuration is generally known in the semi-conductor art and the illustration of metallic base supporting substrate layer **142a** and non-conductive layer **142b** is for explanatory purposes only. If desired, a fiberglass layer may also be provided between the circuitry and the second non-conductive layer. The LEDs **111** are mounted to the surface of base member **142** in electrical contact with the circuitry therein, thereby forming each lighting strip **109**.

Reflector **141** is further mounted on the surface of base member **142**, with LEDs **111** extending through openings **144** through the base portion of reflector **141**. In particular, each reflector **141** comprises opposed side walls defining facets, as mentioned previously; various embodiments of reflector **141** are described herein but each such embodiment is generally in the form of an elongated channel structure having a base portion or member and side walls defining said facets. The base portion or member is desirably positioned flush with the top surface of base member **142** of lighting strip **109** and is mounted thereon using suitable fastening means, such as an adhesive, bolts, rivets, and the like. As noted, reflector **141** defines openings **144** through the base portion such that when reflector **141** is mounted to base member **142**, light from LEDs **111** can reflect off the interior surfaces of the side walls of the reflector **141**, as will be described in greater detail with reference to the reflector embodiments depicted in FIGS. **16-21**. Each lighting strip **109** with reflector **141** mounted thereto thereby forms each light emitting sub-assembly **104**. Each lighting strip **109** also includes an electrical connector **149** that allows the lighting strip **109** of the light emitting sub-assembly **104** to be operatively connected to a driver circuit **150**. As will be discussed in greater detail hereinafter, driver circuit **150** divides the power output from a power supply **151** equally among the plurality of lighting strips **109**, such as four lighting strips **109** in the instant embodiment, with little to

12

no variation in amperage between the respective lighting strips **109**. This division is effective in extending the lifespan of LEDs **111**.

Returning to the heat transfer attributes of lighting fixture **101**, base plate **103** of entire housing **102** forms a mechanism for dissipating thermal energy to the ambient environment, essentially creating a heat transfer mechanism for dissipating heat generated by the LEDs **111** in each lighting strip **109**. An aspect of the mounting of LEDs **111** on lighting strip **109** is that there is significant physical contact between the bottom surface of lighting strip **109** and base plate **103** which provides robust heat transfer between the lighting strip **109** and base plate **103** and heat produced the LEDs **111** on the lighting strip **109** is effectively conducted to base plate **103** for transfer to the ambient environment. Accordingly, in summary, the housing **102** of lighting fixture **101** acts as a thermal radiating mechanism or device in accordance with this disclosure. To further explain the foregoing, direct physical contact between the portion of lighting strip **109** and base plate **103** generally comprises base member **142** being in significant surface area contact with base plate **103** such that any gap between the inter-contacting surfaces is less than one hundredth of an inch (0.01 inches), and preferably less than about one thousandth of an inch (0.001 inches). This inter-contacting surface engagement is effective in achieving the desired heat transfer from the respective lighting strips **109** to base plate **103**. Accordingly, this disclosure contemplates the foregoing-described engagement of each lighting strip **109** with base plate **103** to achieve the desired cooling of LEDs **111**. As noted, base member **142** for each lighting strip **109** may be mounted directly to base plate **103** or indirectly to base plate **103** by some intervening structure. Any such intervening structure is desirably connected to base plate **103** so as not to inhibit substantially the heat transfer between base member **142** and base plate **103** of housing **102**.

In order to secure and maintain the substantial surface area contact between each lighting strip **109** and base plate **103** for each of the light emitting sub-assemblies **104**, conventional fastening methods may be used to mount the respective lighting strips **109** to the front side **105** of base plate **103**. Such conventional fastening methods include, for example, using mechanical fasteners such as screws, bolts or rivets, conductive adhesives, welding, or other known attachment means. In certain embodiments, portions of light emitting sub-assembly **104** may be interconnected using mechanical fasteners that extend below the bottom surface of the sub-assembly **104**, such that the bottom surface of the thus-prepared light emitting sub-assembly **104** includes a discontinuous surface. For example, reflector **141** may be attached to lighting strip **109** through a rivet, which extends through respective holes in base member **142** of lighting strip **109** below the bottom thereof creating a protrusion, thereby preventing the bottom surface of lighting strip **109** from providing a smooth surface for direct contact with a separate surface, such as base plate **103**. In such embodiments, it is contemplated that a separate mounting bracket may be used to support the lighting strips **109** on base plate **103** so as to maintain effective contact for heat transfer, and such intervening structure should not inhibit heat transfer from the lighting strips **109** to the base plate **103** in accordance with this disclosure. For example, as depicted in FIGS. **4-5**, lighting strips **109** may be mounted to a separate mounting stage **148**, such as in the form of a u-shaped channel, which is directly mounted to base plate **103**. In particular, base plate **103** may include a series of mounting stages **148** as a u-shaped channel that is unitarily formed

13

with base plate 103 or otherwise connected thereto, such as through welding, for providing effective heat transfer therebetween. Mounting stages 148 desirably conduct heat energy effectively and efficiently from lighting strips 109 to the main body of base plate 103.

Moreover, each lighting strip 109 may further be mounted onto a separate mounting member 143. In particular, each light emitting sub-assembly 104 may further include a mounting member 143 acting as a support plate for mounting base member 142 of lighting strip 109 (including electrically connected LEDs 111) thereto. Mounting member 143 may be formed of any suitable material adapted for providing structural support to lighting strip 109, and is desirably formed of the same material as base member 142 of lighting strip 109, such as an anodized aluminum alloy, having the desirable heat transfer characteristics described previously. Mounting member 143 generally has the same thickness as base member 142, and is desirably of the same general length as base member 142 and desirably has a width greater than 1.5 times that of base member 142 and, more desirably, a width equal to or greater than two times that of base member 142. In this manner, any protrusion formed from a fastening member extending through base member 142 will be offset from the attachment between mounting member 143 and stage 148. Thus, light emitting sub-assembly 104 may be effectively attached to base plate 103 via stage 148 with substantially the entire bottom surface of lighting strip 109 contacting mounting member 143, and with mounting member 143 effectively contacting the entire upper surface of stage 148. Accordingly, stage 148 provides a mechanism for offset attachment of light emitting sub-assembly 104 so as to provide for sufficient contact between mounting member 143 and the upper surface of stage 148 for effect thermal transfer.

In addition, the general shape of stage 148 (shown as a general u-shape) can further provide a mechanism for additional surface area for heat transfer so as to further dissipate heat generated by LEDs 111 through mounting member 143. In such embodiments, mounting member 143 (including lighting strip 109 attached thereto) may be connected to stage 148 in any known manner. In one particular embodiment as shown in FIGS. 4 and 10A, mounting member 143 defines a plurality of spaced grooves 145 formed along one longitudinal end thereof. Each of the grooves 145 is configured to receive a fastening member 147 to mount lighting strip 109 to stage 148 and, thereby, to the front side 105 of base plate 103. By providing a plurality of grooves in a spaced manner, a plurality of fastening members can be used to mount lighting strip 109, thereby ensuring proper contact between the bottom surface area of mounting member 143 and stage 148 to provide effective heat transfer therebetween, which is effectively accomplished by limiting the gap between the bottom surface of mounting member 143 and the top surface of stage 148 to less than about 0.01 inches.

It will be appreciated from, for example, FIG. 5 that each of the lighting strips 109 is mounted to an individual stages 148 provided on the front side 105 of base plate 103. By mounting lighting strips 109 to such individual stages 148, the individual lighting strips 109 can easily be mounted or removed from base plate 103 expediting replacement of a defective and/or damaged lighting strip 109. Accordingly, in addition to providing effective heat transfer between LED lighting strips 109 to base plate 103, the foregoing mounting configuration allows for a quick and easy change of LED lighting strips 109, for example, if one of LED lighting strips 109 is damaged or defective. It is known that in conventional incandescent lighting fixtures, replacement of a worn out or

14

defective lamp involves mere replacement of the bulb unit. LED lights, however, represent circuit chips that are electrically mounted onto a circuit board. Accordingly, replacement of a worn or defective LED chip involves replacement of the entire LED board. The attachment and mounting configuration contemplated through the various embodiments in this disclosure provides a mechanism for quick and easy replacement of one or more LED lighting strips 109, without requiring significant modification or rebuilding of the lighting fixture. Moreover, by providing multiple strips of LEDs in a single fixture, if one LED light or strip fails, the fixture will still be able to provide light output through the remaining functional lighting strips, albeit at a reduced level, until such time that the malfunctioning lighting strip or individual lighting assembly can be replaced.

In particular, in order to gain access to the interior of the lighting fixture, 101, transparent cover 106 is removed by removal of clamps 115. Fastening members 147 positioned in grooves 145 can then be loosened and removed using an appropriate tool. Next, the defective or damaged LED lighting strip 109 is removed from front side 105 of base plate 103. Then, electrical connector 149 is disconnected from driver circuit 150. Finally, a new LED lighting strip 109 is supplanted for the defective or damaged LED lighting strip 109. Transparent cover 106 is then reassembled to base plate 103.

In a variation shown in FIGS. 11A and 11B, lighting strips 109 may be configured to be mounted to stages 148 in a slightly different manner. Lighting strip 109 of FIGS. 11A-11B is identical to that disclosed in previous embodiments, with the exception that "keyhole" shaped openings 156 extend through the surface of lighting strip 109. Such keyhole openings 156 provide a mechanism for attachment of lighting strip 109 to base plate 103 of housing 102. In particular, in such an embodiment, mechanical fasteners, such as screws, may be inserted into keyhole openings 156 and extend through corresponding openings 158 in underlying mounting member 143 to engage a stage 148 on base plate 103. The mechanical engagement is desirably sufficient to enable effective and efficient heat transfer between the lighting strip 109 and base plate 103. The keyhole openings 156 allow lateral adjustment of lighting strip 109 relative to mounting member 143 to allow for proper attachment of a reflector 141 to the lighting strip 109. Moreover, a plurality of spaced fasteners are desirably used so as to provide for effective surface contacting engagement between the bottom surface of lighting strip 109 and the top surface of stage 148 on base plate 103 for effective heat transfer therebetween, as discussed previously. It will be clear that the use of individual stages 148 for mounting the respective lighting strips 109 to base plate 103 may be eliminated such that the lighting strips 109 are mounted directly to base plate 103.

With reference to FIGS. 12 and 13, and with continuing reference to FIGS. 4-7, lighting fixture 101 includes a power supply 151, driver circuit 150 and computer circuit 160. Power supply 151 is desirably positioned within a housing 153 mounted on rear side 107 of base plate 103. Driver circuit 150 and computer circuit 160 are desirably mounted on front side 105 of base plate 103 beneath transparent cover 106, thereby providing effective protection from the environment. Power supply 151 is electrically coupled to a control board in the form of computer circuit 160 via a wire 155 extending through base plate 103. Computer circuit 160 is, in turn, coupled to a driver circuit board 150. Driver circuit 150 is electrically coupled to each lighting strip 109 via individual electrical connectors 149. Driver circuit 150 divides the power output from a power supply 151 equally

15

among the four lighting strips **109** in the present embodiment. Driver circuit **150** is electrically coupled to and controlled by computer circuit **160** to control operation of the individual lighting strips **109**.

Each individual LED **111** is electrically connected in series on each respective lighting strip **109**. Moreover, each respective lighting strip is connected in parallel to driver circuit **150**. Such an arrangement provides the driver circuit **150** with the ability to maintain the amperage constant even in the event that one or more LEDs **111** in any of the respective lighting strips **109** should fail. Such an arrangement also prevents an overload of power to any of the lighting strips **109** or other LEDs **111** thereon in the event of such a failure of one or more LEDs, thereby preventing premature burn out and failure of the remaining working LEDs, such as to prior to replacement of and individual lighting strip **109**.

When lighting fixture **101** is used as a street lighting fixture, as an example, a light detector is desirably provided in association with the light fixture **101**. In one exemplary form, the light detector comprises a photoelectric eye **170** that is mounted on housing **153** of power supply **151** and is electrically coupled to computer circuit **160**. Photoelectric eye **170** is provided to turn on the LEDs **111** when surrounding ambient light has dropped below a predetermined level as will be described hereinafter. An exemplary embodiment of computer circuit **160** is illustrated in FIG. 13. Computer circuit **160** utilizes a microcontroller chip **1300** as the primary means for controlling the light output by lighting fixture **101**. However, this is not to be construed as limiting as the use of other circuitry configurations, microprocessors, and microcontrollers may be substituted. Likewise an exemplary embodiment of driver circuit **150** is illustrated in FIG. 12.

As may be inferred from the foregoing, computer circuit **160** is provided for automated control of various functions of lighting fixture **101**. For example, computer circuit **160** may include circuitry for controlling a remote camera (not shown) that may be provided with lighting fixture **101**. Additionally, computer circuit **160** may include circuitry for interaction with a separate wireless device that is adapted for programming the control board for operation of the lighting fixture. For example, computer circuit **160** may include circuitry to communicate with a separate remote control device via two-way radio-frequency (RF) so as to program the lighting fixture **101**. Other communication vehicles for communication with computer circuit **160**, such as via infrared (IR) light, are intended to be encompassed by this disclosure. Moreover, lighting fixture **101** may include a solar-power capability for powering computer circuit **160** and lighting strips **109**.

Desirably, computer circuit **160** works in conjunction with photoelectric eye **170** to automatically turn exemplary street lighting fixture **101** on and off based on ambient light conditions, and to adjust the lighting at predetermined time periods. With reference to FIG. 14, the on-off and power adjustment features of lighting fixture **101** are schematically illustrated. First, power is supplied to computer circuit **160** thereby initializing the computer circuit **160** at block **1400**. Next, at block **1410**, photoelectric eye **170** looks for diminished ambient light, signaling, for example, the arrival of dusk, if the lighting fixture **101** is intended for use as a street lamp, and this information is provided as an input to computer circuit **160**. Once sufficiently diminished light (such as at dusk), as detected by photoelectric eye **170**, is determined by computer circuit **160**, the computer circuit **160** turns lighting fixture **101** on at full power at block **1420**.

16

As an option, at blocks **1430** and **1440**, after a predetermined period of time, the power of the light output may be reduced by a predetermined amount for further energy conservation, for example, in the middle of the night when fewer people are likely to be in the vicinity of street lighting fixture **101**. For example, if computer circuit **160** turns on the lighting fixture **101** at, for example, dusk, a counter in the computer circuit **160** may begin counting. After a preprogrammed period of time has elapsed, such as six hours, the computer circuit **160** may reduce power to the LEDs **111** to save power. As another alternative, computer circuit **160** may be programmed to turn on the lighting fixture **109** at a scheduled time, such as at 6:00 PM. Then, after a preprogrammed period of time has elapsed, power to the LEDs is reduced by a certain amount, thereby providing for reduced light output and reducing power consumption. The amount of power reduction may be programmed in advance, for example, by reducing power consumption to about 25% to 75% of the full power output at selected point in time after the counting has begun. With the present lighting fixture **101**, it has been discovered that the power reduction to light output ratio is not a 1:1 ratio, such that, for example, a 50% reduction in power output continues to provide for an overall light output of the lighting fixture of about 75% of the normal light output, thereby resulting in only about a 25% reduction in light output with a 50% reduction in power.

Thereafter, at block **1450**, photoelectric eye **170** looks for increased ambient light signaling, for example, the arrival of dawn. Once sufficient ambient light (such as at dawn) is detected by photoelectric eye **170** at block **1460**, LEDs **111** of lighting fixture **101** are turned off by the computer circuit **160** and the process returns to block **1410**. In accordance with the foregoing, by reducing power by 25% to 75% after lighting fixture **101** has been on for a predetermined period of time, a savings of up to 90% of power over a current mercury vapor streetlight or high pressure sodium streetlight can be achieved. Additionally, this process extends the life of LEDs **111**.

In addition, the controller of computer circuit **160** also provides a safety start feature. The safety start feature allows the LEDs **111** to turn on slowly over a predetermined time interval. The LEDs **111** start at an off position. Once the computer circuit **160** sends a signal to turn on the LEDs **111**, the LEDs are turned on at a low power and the power is gradually increased over a predetermined period, such as a 2 to 3 second interval, until full power is reached. The purpose of this safety start feature is to protect the human eye from sudden brightness created when the LEDs **111** are turned on at full power. This feature also prevents "welder's flash" when the LEDs **111** are turned on.

With reference to FIG. 15, and continuing reference to FIGS. 4-7, an exemplary use of lighting fixture **101** is as a streetlight **180**. Lighting fixture **101** is configured to be mounted by pole mounting member **119** to a pole **181** at a height sufficient to provide adequate lighting to a street **183** or surface below. For instance, if lighting fixture **101** is mounted on a pole at a height of about 30 feet above a street, lighting fixture **101** provides a lighting pattern that extends about 50 feet from the base of the pole and about 65 feet on either side of the pole. It is further contemplated that lighting fixture **101** can be adapted for other attachment mechanisms, such as a rectangular pole, a surface mount, etc.

In the foregoing use of lighting fixture **101** as a streetlight, the inventors have determined that for providing effective light output at a conventional distance for a streetlight (such as about 25-40 feet from the ground surface), four lighting strips **109** including 8 separate LED chips mounted thereon

17

is particularly useful, with each LED chip rated at 80-120 lumens. For example, the light output with such an arrangement having individual LED chips rated at 107 lumens each represents about 2.5 foot-candles at a distance of 32 feet without any reflectors attached to the lighting strips. When the reflectors are attached to the lighting strips, a similar arrangement with individual LED chips rated at 107 lumens each represents about 6.7 foot-candles at a distance of 32 feet. Accordingly, the reflector arrangement significantly amplifies and intensifies the light output for the lighting fixture 101.

Lighting fixture 101 may be assembled by the following general and non-limiting procedure. First, driver circuit 150 and control circuit 160 are mounted to base plate 103 and electrically interconnected. Then, lighting strips 109 are mounted to base plate 103 via the individual mounting members 143 and/or stages 148 and using suitable fastening means such as mechanical fasteners and the like. Next, each lighting strip 109 is electrically coupled to driver circuit 150 by individual electrical connectors 149. Next, individual reflectors 141 are mounted onto lighting strips 109 as discussed hereinafter with reference to FIG. 16. Transparent cover 106 may then be positioned over base plate 103 and secured thereto with spring clips 115. Pole mounting member 119 is mounted to rear side 107 of base plate 103, and is adapted to cooperate with pole 181 as shown in FIG. 15. Power supply 151 is installed within housing 153 and is electrically connected to control circuit 160 through base plate 103, and light detector 170 is attached to housing 153 and electrically connected to control circuit 160.

With reference to FIG. 16, a cross-sectional view of an exemplary lighting strip 109 having LEDs 111 mounted thereon and a reflector assembly 141 extending therefrom is illustrated. In this exemplary embodiment, the reflector assembly includes a base member 184 and a pair of desirably integral side walls 185 extend from opposite sides of the base member 184 at an angle. Each LED 111 includes a light emitting portion 187. Reflector assembly 141 is mounted to lighting strip 109 such that a bottom edge of each side wall 185 extends from a bottom portion of light emitting portion 187 of LED 111. Each side wall 185 of reflector assembly 141 includes a first facet or first portion 186 defining a first angle θ with the base portion 184 of reflector 141 adjacent the bottom portion of light emitting portion 187 of LED 111, and a second facet or second portion 188 that defines a second angle Φ with first portion 186. The combination of these angles creates facets in side walls 185, thereby creating a multi-faceted side wall which amplifies the light provided by LEDs 111. It is contemplated that the multiple facets reflect the light that is output from the LEDs back toward other facets of the walls of reflector 141, thereby amplifying the light. However, this is not to be construed as limiting as this definition of a multi-faceted reflector may also include reflectors having a parabolic shape. In addition, the arrangement of reflector 141 extending from base member 184 allows all of the light produced by LEDs 111 to be reflected and amplified by reflector 141. The angles in side walls 185 of reflector 141 along with the arrangement of reflector 141 such that it extends from the bottom portion of light emitting portion 187 of LED 111 allows lighting fixture 101 to produce useable light while using a small number of LEDs 111 (e.g., the exemplary embodiment illustrated in FIG. 4 has eight LEDs 111 per lighting strip 109 and four lighting strips 109 for a total of thirty-two LEDs 111).

With reference to FIGS. 17 through 21, exemplary alternative reflectors for use with lighting fixture 1 and lighting fixture 101 are illustrated. FIG. 17 provides a cross-sectional

18

view of a first reflector, generally denoted as reference numeral 200 that is also desirably used when lighting fixture 1 or lighting fixture 101 is used as a streetlight but provides a different effect from the previously discussed embodiment. Reflector 200 includes a base portion or member 201 with a pair of integral side walls 203 extending from opposite sides thereof at an angle. Base member 201 includes a plurality of holes 205 used to fasten reflector 200 to lighting strip 9 or lighting strip 109 using any suitable fastening means. Base member 201 also defines a plurality of gaps or openings 207 formed therein. Base member 201 of reflector 200 is mounted over one of the lighting strips 9 or lighting strips 109 such that surface-mount LEDs 11 or LEDs 111 positioned on lighting strips 9 or strips 109 extend through gaps 207 and side walls 203 of reflector 200 extend at an angle from lighting strip 9 or strip 109.

Each of side walls 203 of reflector 200 has several angles therein as shown in FIG. 17. Each side wall 203 of reflector 200 includes a first portion 209 that extends from base member 201 at a first angle θ of, for example, about 115° to about 130°, such as about 123°. Side walls 203 further include a second portion 211 that defines a second angle Φ with the first portion 209; this angle is approximately between 160° to about 180°, such as about 170°. Finally, side walls 203, in the present configuration, include a third portion 213 that defines a third angle α with the second portion 211; this angle is again about 160° to about 180°, such as about 170°. This configuration creates an overall angle of about 40° between ends 215 of each of side walls 203 of reflector 200. The combination of these angles creates facets in the reflector which amplify the light provided by LEDs 11 or LEDs 111. In addition, side walls 203 of reflector assemblies 200 amplifies the light from each of the plurality of strips 9 or strips 109 of LEDs 11 or LEDs 111 and spreads the light into what appears to be a wash or bath of light.

Reflector 200 is desirably constructed from a sheet of silver-coated aluminum with a protective polymer coating. Such a material has a reflectivity that is from about 95% to 98% reflective. Additionally, the polymer coating prevents corrosion on reflector 200. However, the use of silver-coated aluminum reflectors is not to be construed as limiting as any highly-reflective material may be used to construct the reflector assemblies. Once the sheet of silver-coated aluminum is obtained, each reflector 200 is cut from the sheet desirably using a laser thereby forming a reflector blank, denoted generally as reference numeral 217. Reflector blank 217 is a flat sheet that that shaped to form side walls 203 extending from base member 201, and a plurality of holes 205 and a plurality of gaps 207 are cut in the reflector blank 217 using, for example, a laser. Reflector blank 217 is then bent into the shape discussed hereinabove using a brake press.

With reference to FIG. 19, another possible configuration for a reflector is shown. This reflector 300 includes a base portion or member 301 with a pair of integral side walls 303 extending from opposite sides thereof at an angle. Each of side walls 303 of reflector 300 has several angles therein as shown in FIG. 19. Each side wall 303 of reflector 300 includes a first portion 305 that extends from lighting strip 9 or strip 109 at an initial or first angle θ of, for example, about 115° to about 130°, such as about 121°. Side walls 305 of reflector 300 further include a second portion 307 that defines a second angle Φ with the first portion 305; this angle is approximately between 160° to about 180°, such as

19

about 170°. This configuration creates an overall angle of about 60° between ends 309 of each side wall 303 of reflector 300.

The combination of these angles creates facets in side walls 303 of reflector 300 which amplify the light provided by LEDs 11 or LEDs 111. In addition, side walls 303 of reflector 300 direct the light from each of the plurality of lighting strips 9 of LEDs 11 or strips 109 of LEDs 111 and focus the light into what outwardly appears to be a uniform beam of light. Reflector assemblies 300 are constructed from silver-coated aluminum with a protective polymer coating as described previously.

With reference to FIGS. 20 and 21, yet another possible configuration for a reflector is shown and is denoted generally as reference numeral 400. This reflector 400 includes a base portion or member 401 with a pair of integral side walls 403 extending from opposite sides thereof at an angle. Each side wall 403 of reflector 400 has several angles therein as shown in FIG. 20. Each side wall 403 of reflector 400 includes a first portion 405 that extends from base member 401 at a first angle θ of, for example, about 110° to about 120°, such as about 115°. Side walls 403 further include a second portion 407 that defines a second angle Φ with the first portion 405; this angle is, for example, about 170° to about 180°, such as about 177°. The combination of the foregoing angles creates facets in the reflector 400 that amplify the light provided by LEDs 11 or LEDs 111. In addition, side walls 403 of reflector assemblies 400 direct the light from each of the plurality of lighting strips 9 of LEDs 11 or strips 109 of LEDs 111 and focus the light into what outwardly appears to be a uniform beam of light. Reflector assemblies 400 are also constructed from silver-coated aluminum with a protective polymer coating in like manner to previous embodiments.

While FIGS. 17-21 illustrate possible configurations of the reflector assemblies, this is not to be construed as limiting the present invention as other suitable configurations may be constructed. Various other types of reflectors for use in LED lighting fixtures have been envisioned. For instance, the reflectors may be of a rounded-type with multiple facet angles.

With reference to FIGS. 22-24, a lighting fixture 501, for use as office lighting, includes a base plate 503 having a front side 505 and a rear side 507 defined by a periphery 512. Three strips 509 are mounted on front side 505 of base plate 503. Each strip 509 includes a plurality of surface-mount LEDs 511 mounted thereto. Base plate 503 functions as a heat sink for LEDs 511 and is oversized compared to lighting strips 509 to ensure that LEDs 511 stay cool; base plate 503 has the same heat cooling attributes of base plate 103 discussed previously and the previous discussion of base plate 103 is equally applicable to base plate 503. Base plate 503 provides surface area for cooling LEDs 511 which extends LED life. Lighting fixture 500 is typically intended for indoor use. Accordingly, a sealed cover is not required. A housing 521 is mounted to front side 501 of base plate 503, which also houses a power supply and driver circuitry and a lens cover (not shown). The housing itself is used for installing the fixture in office ceilings and the like.

With reference to FIG. 25, and with continuing reference to FIGS. 22-24, reflectors 513 is mounted to front side 505 of base plate 503 such that side walls 517 extend from each of the lighting strips 509. Each reflector 513 includes a base portion or member 515 with a pair of integral side walls 517 extending from opposite sides thereof at an angle. Base member 515 of reflector 513 is mounted on front side 505 of base plate 503 over one of the strips 509 such that surface-

20

mount LEDs 511 positioned on strips 509 extend through gaps or openings formed in base 515, and side walls 517 of reflector 513 extend at an angle from each of the lighting strips 519. Each side wall 517 of reflector 513 extends from base member 515 at an angle θ of, for example, about 115°. This configuration creates an overall angle of about, for example, 90° between ends 519 of each side wall 517 of reflector 513. Side walls 517 of reflector 513 amplify the light provided by LEDs 511. In addition, side walls 517 of reflector 513 direct the light from each of the three strips 509 of LEDs 511 and focus the light into what appears to be a uniform beam of light. Reflectors 513 are desirably constructed from silver-coated aluminum with a protective polymer coating in like manner to previous embodiments.

Although the invention has been described in detail for the purpose of illustration based on what is currently considered to be the most practical and preferred embodiments, it is to be understood that such detail is solely for that purpose and that the invention is not limited to the disclosed embodiments, but, on the contrary, is intended to cover modifications and equivalent arrangements. Furthermore, it is to be understood that this disclosure contemplates that, to the extent possible, one or more features of any embodiment can be combined with one or more features of any other embodiment.

The invention claimed is:

1. A light emitting diode (LED) lighting arrangement for a lighting fixture, comprising:
 - a base plate;
 - a lighting strip coupled to the base plate, the lighting strip comprising a plurality of light emitting diodes (LEDs) arranged along a substantially planar surface of the lighting strip;
 - at least one reflector sheet comprising:
 - a first multi-faceted side wall of the at least one reflector sheet extending along the lighting arrangement along an entire length of the lighting strip with a first edge adjacent a first side of the lighting strip and extending at an angle along an entire length of the lighting strip; and
 - a second multi-faceted side wall of the at least one reflector sheet extending along the lighting arrangement along an entire length of the lighting strip, the second side wall having a first edge adjacent a second, opposite side of the lighting strip at an angle that extends along an entire length of the lighting strip,
 - wherein the first and second multi-faceted side walls extend away from the lighting strip at an angle and are configured to cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, and
 - wherein the coupling between the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of LEDs comprised in the lighting strip is conducted to the base plate for transfer to the ambient environment.
2. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the light emitting diodes (LEDs) are arranged in a linear row along the length of the lighting strip.
3. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side walls extend away from a

21

base member defining a plurality of openings receiving at least a light emitting portion of the plurality of light emitting diodes (LEDs), respectively.

4. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side walls are formed integral with the base member.

5. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 3, wherein the first and second multi-faceted side walls comprise multi-angle side walls.

6. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side walls extend away from a base member and are symmetrical about an axis of symmetry that runs through a center of the base member.

7. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 6, wherein the first and second multi-faceted side walls each comprise a first portion defining a first angle with the base member and a second portion defining a second angle with the first portion.

8. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 7, wherein the first angle and second angle are different angles.

9. The light emitting diode (LED) lighting arrangement for a lighting fixture as claimed in claim 1, wherein the first and second multi-faceted side walls comprise multi-angle side walls.

10. The LED lighting arrangement of claim 1,

wherein the first multi-faceted side wall adjacent the lighting strip extends along the entire length of the lighting strip from a position level with a bottom portion of a light emitting portion of each of the LEDs, and

wherein the second multi-faceted side wall adjacent the lighting strip extends along the entire length of the lighting strip on a side opposite the first multi-faceted side wall from a position level with a bottom portion of a light emitting portion of each of the LEDs.

11. The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall and the second multi-faceted side wall are separately coupled to the lighting arrangement.

12. The LED lighting arrangement of claim 1, wherein the first multi-faceted side wall comprises a first reflector sheet bent to form first facets, and wherein the second multi-faceted side wall comprises a second reflector sheet bent to form second facets.

13. The LED lighting arrangement of claim 1, wherein the first side wall and second side wall each are formed by a single reflector sheet.

14. The LED lighting arrangement of claim 1,

wherein the first and second multi-faceted side walls begin at a level of the lighting strip and extend away from the lighting strip.

15. A light emitting diode (LED) lighting fixture, comprising:

a base plate having a front side and a rear side;

a plurality of lighting strips mounted on the front side of the base plate, each of the lighting strips comprising a plurality of light emitting diodes (LEDs) arranged along a length of the lighting strip; and

driver circuitry and control circuitry electrically coupled to the plurality of light emitting diodes (LEDs) for providing power to the light emitting diodes (LEDs), wherein each of the lighting strips includes at least one reflector sheet comprising:

22

a first multi-faceted side wall of the at least one reflector sheet extending at an angle from a first side of the lighting strip along an entire length of the lighting strip, the first side wall comprising a sheet bent to form the angle;

a second multi-faceted side wall of the at least one reflector sheet extending along the lighting arrangement adjacent a second, opposite side of the lighting strip along an entire length of the lighting strip, and wherein the first and second multi-faceted side walls extend away from the lighting strip at an angle and are configured to cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, and

wherein contact between the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of LEDs comprised in the lighting strip is conducted to the base plate for transfer to the ambient environment.

16. The light emitting diode (LED) lighting fixture as claimed in claim 15, wherein the driver circuitry and control circuitry are mounted on the front side of the base plate, and further comprising a power supply mounted on the rear side of the base plate.

17. The light emitting diode (LED) lighting fixture as claimed in claim 16, wherein the power supply is electrically connected to the control circuitry, the control circuitry is electrically connected to the driver circuitry, and the driver circuitry is electrically connected to each of the plurality of lighting strips.

18. The light emitting diode (LED) lighting fixture as claimed in claim 15, wherein each light emitting diode (LED) of each lighting strip is electrically connected in series, and each lighting strip is electrically connected to the driver circuitry in parallel.

19. The light emitting diode (LED) lighting fixture as claimed in claim 15, wherein each plurality of lighting strips is individually removably mounted to the base plate, so as to permit individual replacement of each lighting strip irrespective of the other lighting strips.

20. The light emitting diode (LED) lighting fixture as claimed in claim 15, wherein the light emitting diodes (LEDs) in each of the lighting strips are arranged in a linear row along the length of the lighting strip.

21. A light emitting diode (LED) lighting fixture, comprising:

a substantially planar and flat base plate formed of anodized aluminum comprising an enhanced conductive non-uniform heat-transferring surface texture, the base plate having a front side and a rear side;

at least four lighting strips comprising a substantially planar base member; and a plurality of light emitting diodes (LEDs) arranged along a length of the base member, the base member connected in direct physical contact to the base plate so as to permit at least conductive heat transfer from the lighting strips to the base plate; and

a reflector sheet mounted to each of the lighting strips and comprising multi-faceted side walls extending away from the lighting strip such that the multi-faceted side walls cause light produced by the plurality of light emitting diodes (LEDs) to be amplified and formed into a uniform beam, wherein the reflector comprises a first edge adjacent the lighting strip and a second edge opposite the first edge toward a light emission side of the lighting fixture, wherein the multi-faceted side

23

walls of the reflector extend along an entire length of the lighting strip at an angle,
wherein physical contact between the bottom surface of the lighting strips and the base plate provides heat transfer between the lighting strips and the base plate such that heat produced by the plurality of light emitting diodes (LEDs) on the lighting strip to be conducted to the base plate for transfer to the ambient environment.

22. The light emitting diode (LED) lighting fixture as claimed in claim 21, further comprising heat transfer fins on at least one side of the base plate to conduct heat to the ambient environment.

23. The light emitting diode (LED) lighting fixture as claimed in claim 21, wherein inter-contacting surfaces between the lighting strips and base plate are separated by less than about one hundredth of an inch (0.01 inches).

24. The LED lighting fixture of claim 21, wherein the multi-faceted side walls are formed as bends in the sheet-like reflector.

20

* * * * *

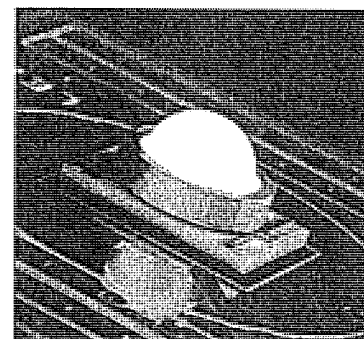
24

Cree® XLamp® XR-E LED

Data Sheet

Cree XLamp LEDs combine the brightness of power LED chips with a rugged package capable of operating up to four watts. Cree XLamp LEDs lead the solid-state lighting industry in brightness while providing a reflow-solderable design that is optimized for ease of use and thermal management. Lighting applications featuring XLamp LEDs maximize light output and increase design flexibility, while minimizing environmental impact.

Cree XLamp LEDs bring industry-leading brightness to a wide range of lighting and backlighting applications, including portable lighting and flashlights, outdoor and industrial, signaling, architectural, landscaping and entertainment/advertising installations.



FEATURES

- Full range of white: 2600-K to 10,000-K CCT
- Drive currents: 350 to 1000 mA
- Industry's lowest thermal resistance: 8°C/W
- Max junction temperature: 145°C
- Industry-leading JEDEC standard pre-qualification testing
- Reflow solderable – JEDEC J-STD-020C compatible
- Electrically neutral thermal path
- RoHS-compliant
- Lumen maintenance of greater than 70% after 50,000 hours

Table of Contents

Flux Characteristics ($T_j = 25^\circ\text{C}$).....	2
Characteristics	2
Relative Spectral Power	3
Photometric Output vs. Junction Temperature ($I_F = 350\text{ mA}$)	3
Electrical Characteristics ($T_j = 25^\circ\text{C}$).....	4
Thermal Design	4
Relative Intensity vs. Current ($T_j = 25^\circ\text{C}$).....	5
Typical Spatial Radiation Pattern	5
Reflow Soldering Characteristics	6
Notes.....	7
Mechanical Dimensions ($T_A = 25^\circ\text{C}$)	8
Tape and Reel	9
Dry Packaging and Packaging	10

Flux Characteristics ($T_j = 25^\circ\text{C}$)

Color	Correlated Color Temperature (CCT)		Typical Luminous Flux		
	Min.	Max.	@ 350 mA	@ 700 mA	@ 1000 mA
White	5000 K	10000 K	80 lm	136 lm	176 lm
	3700 K	5000 K	70 lm	120 lm	
	2600 K	3700 K	65 lm	110 lm	

Notes:

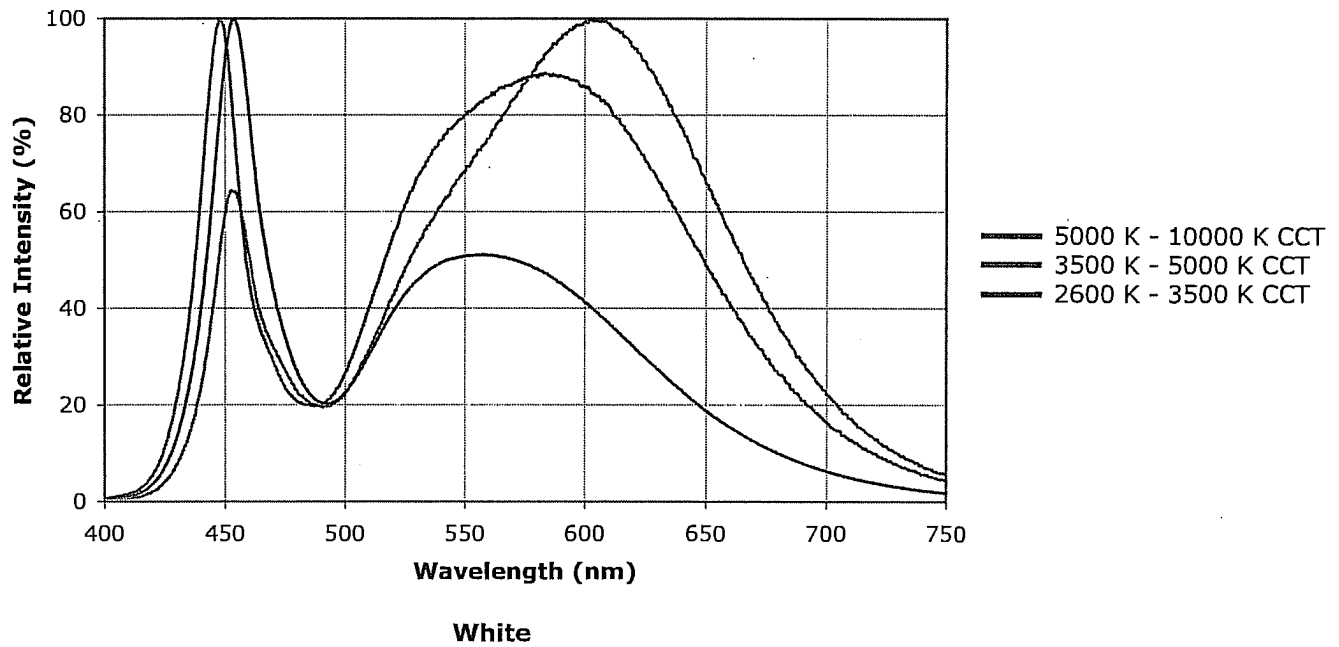
- Cree maintains a tolerance of +/- 7% on flux and power measurements.
- Typical CRI for white 3700 K – 10,000 K CCT is 75.
- Typical CRI for white 2600 K – 3700 K CCT is 80.

Characteristics

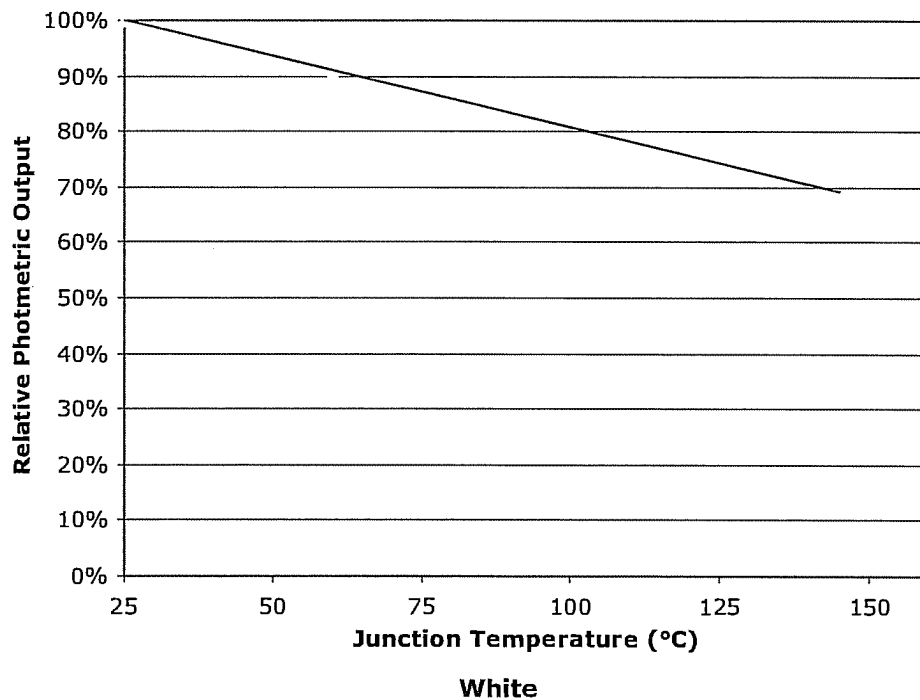
Characteristics	Unit	Minimum	Typical	Maximum
Thermal Resistance, junction-to-solder point	$^\circ\text{C}/\text{W}$		8	
Viewing Angle (FWHM)	degrees		90	
Temperature coefficient of voltage	$\text{mV}/^\circ\text{C}$		-4.0	
ESD Classification (HBM per Mil-Std-883D)			Class 2	
DC Forward Current (white ≥ 5000 K)	mA			1000
DC Forward Current (white < 5000 K)	mA			700
DC Pulse Current (@ 1 kHz; 10% duty cycle)	A			1.8
Reverse Voltage	V			5
Forward Voltage (@ 350 mA)	V		3.3	3.9
Forward Voltage (@ 700 mA)	V		3.5	
Forward Voltage (@ 1000 mA)	V		3.7	
LED Junction Temperature	$^\circ\text{C}$			145
Operating Temperature	$^\circ\text{C}$	-40		85

* These updates to the XLamp XR-E LED Characteristics are retroactive and apply to all XLamp XR-E LEDs produced by Cree. The updates are a result of more extensive qualification testing and a larger production data set for determining typical values.

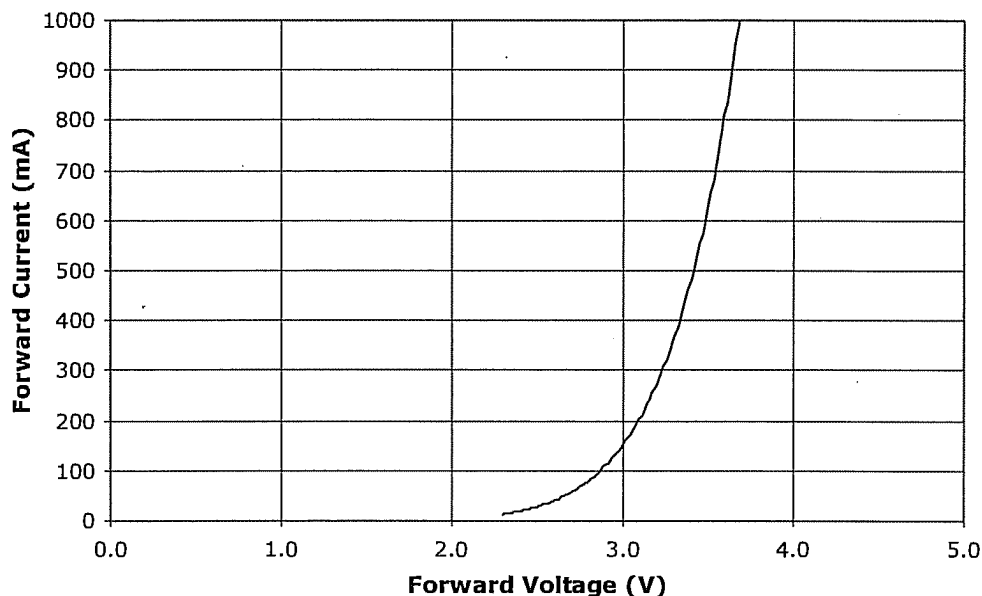
Relative Spectral Power



Photometric Output vs. Junction Temperature ($I_F = 350$ mA)



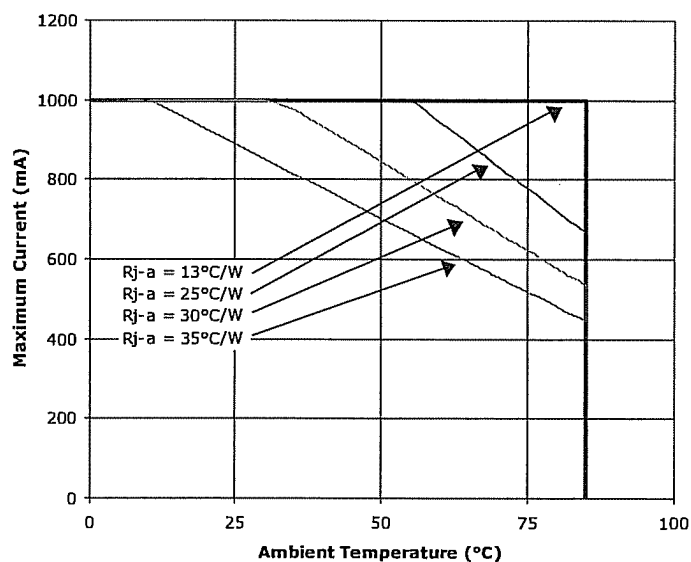
Electrical Characteristics ($T_j = 25^\circ\text{C}$)



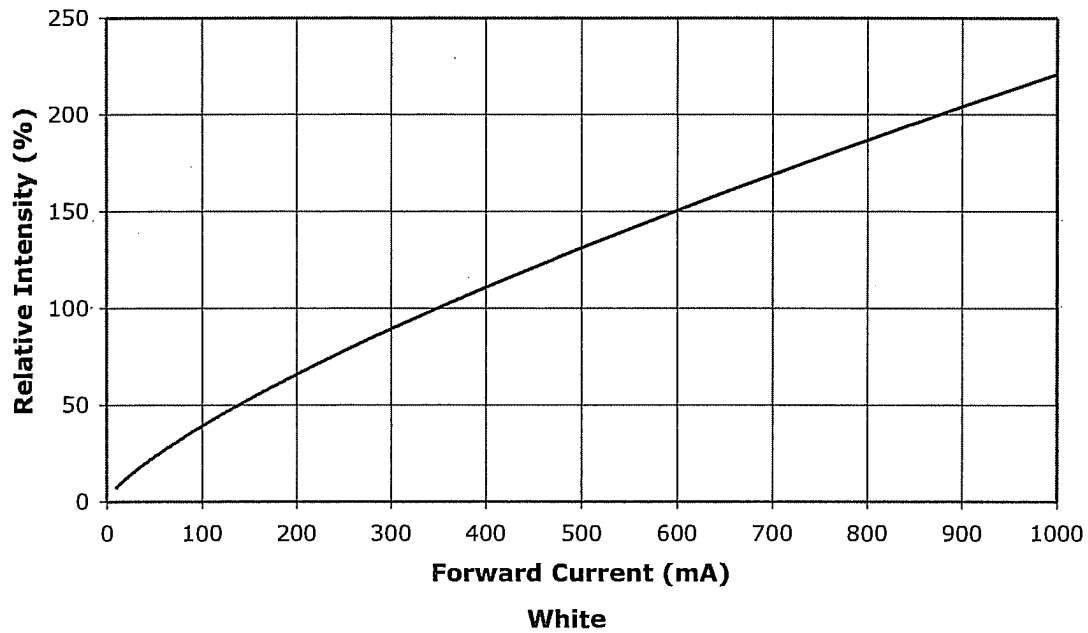
White

Thermal Design

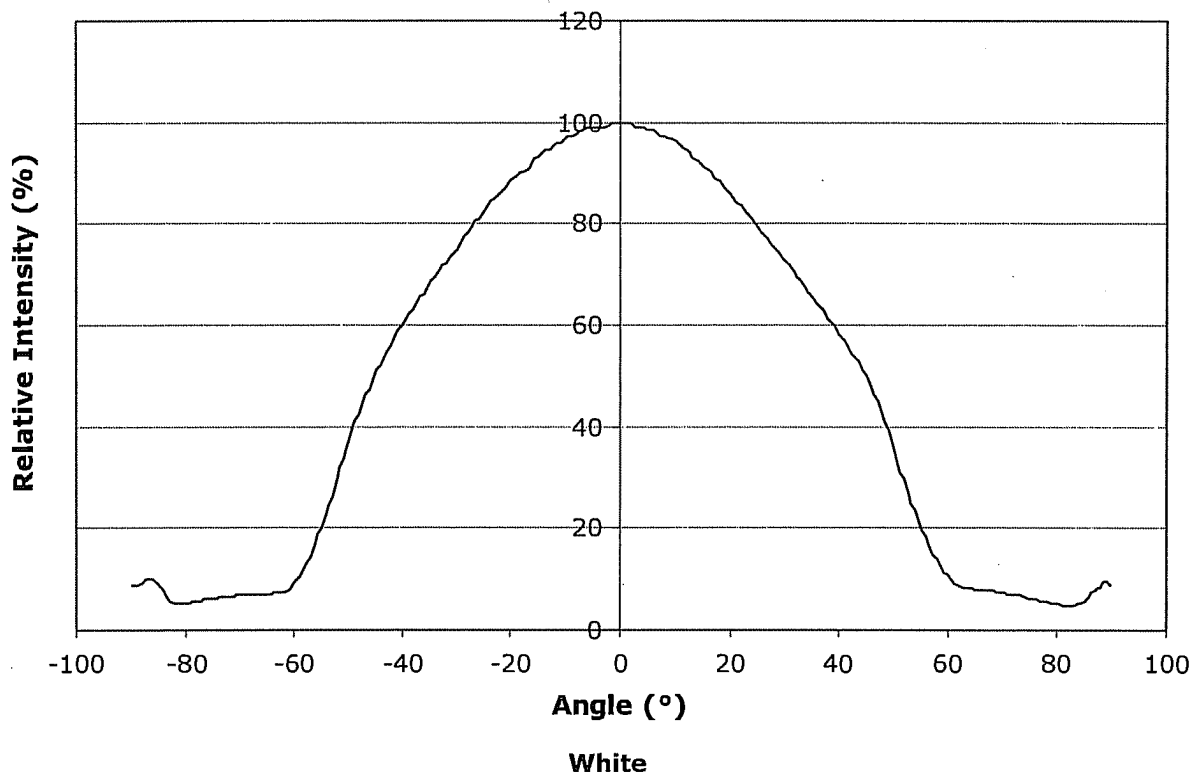
The maximum forward current is determined by the thermal resistance between the LED junction and ambient. Given an existing thermal resistance of 8°C/W between the junction and the solder point, it is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



Relative Intensity vs. Current ($T_j = 25^\circ\text{C}$)

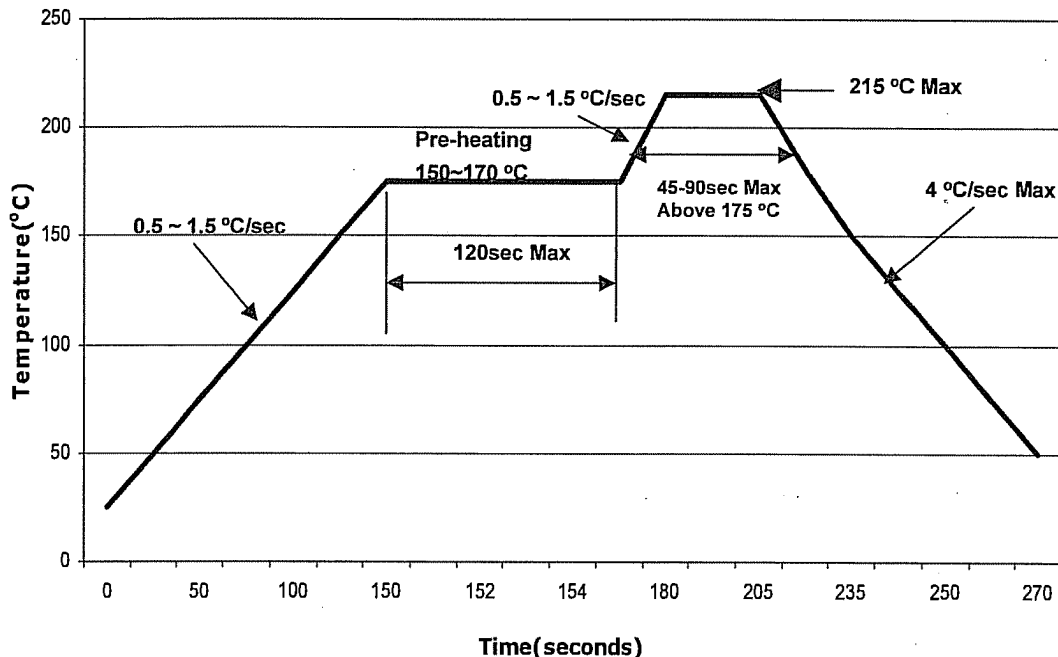


Typical Spatial Radiation Pattern

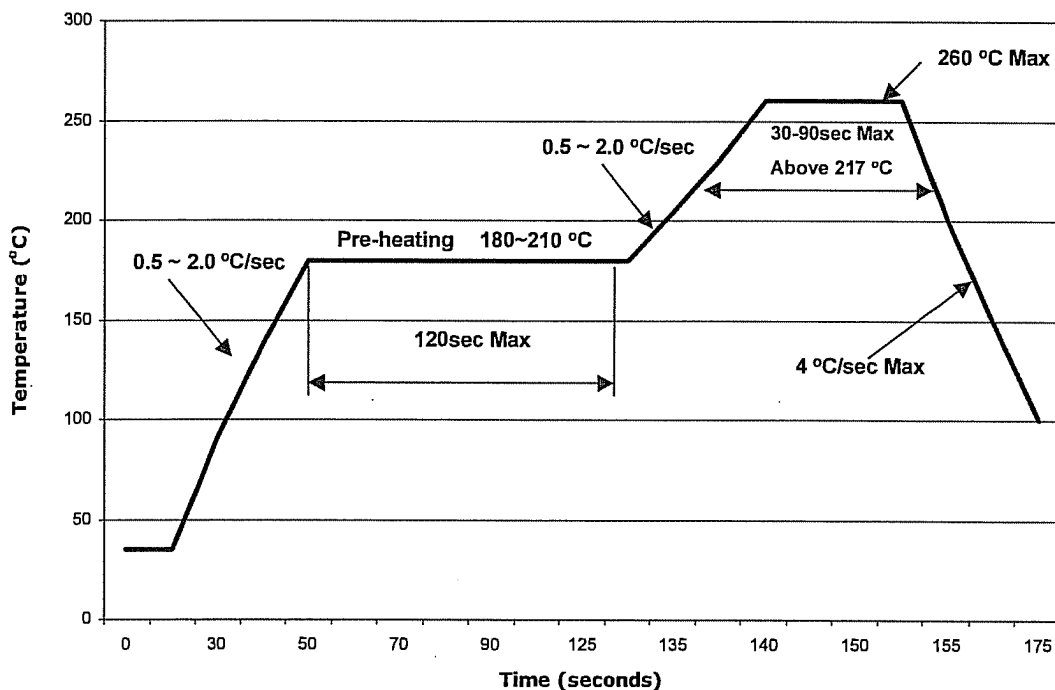


Reflow Soldering Characteristics

The following reflow soldering profiles are provided for reference. Cree recommends that users follow the recommended solder paste profile provided by the manufacturer of the solder paste used. Cree XLamp LEDs are compatible with JEDEC J-STD-020C.



Lead-Based Solder Profile



Lead-Free Solder Profile

Notes

Lumen Maintenance Projections

Based on internal long-term reliability testing and standardized forecasting methods, Cree projects XLamp LEDs to maintain an average of 70% lumen maintenance after 50,000 hours, provided the LED junction temperature is maintained at or below 80°C.

Please read the XLamp Reliability application note for more details on Cree's lumen maintenance testing and forecasting. Please read the XLamp Thermal Management application note for details on how thermal design, ambient temperature, and drive current affect the LED junction temperature.

Moisture Sensitivity

If XLamp LEDs are exposed to excessively moist environments before soldering, damage to the LED may occur during the soldering operation. To avoid this damage, exposed lamps must be baked at 80°C for 24 hours. The following derating table (excerpted from JEDEC J-STD-033 Table 7-1 - Recommended Equivalent Total Floor Life) defines the maximum time (in days) under various humidity and temperature conditions that a lamp may be exposed before requiring baking.

Temperature	Maximum Percent Relative Humidity					
	30%	40%	50%	60%	70%	80%
30°C	4	5	4	3	1	1
25°C	12	9	5	4	2	1
20°C	17	9	7	6	2	1

Within one hour of baking or one hour of opening the original packaging, XLamp LEDs must be stored according to Section 5.3 (Safe Storage) of JEDEC J-STD-033. Otherwise, these parts must be baked again at 80°C for 24 hours and resealed properly within one hour of baking. Do not bake parts at temperatures higher than 80°C, as damage to the reel will occur.

RoHS Compliance

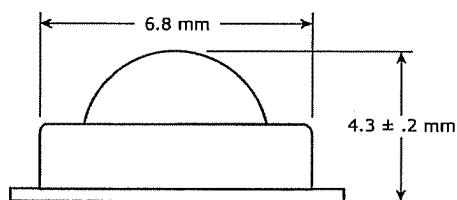
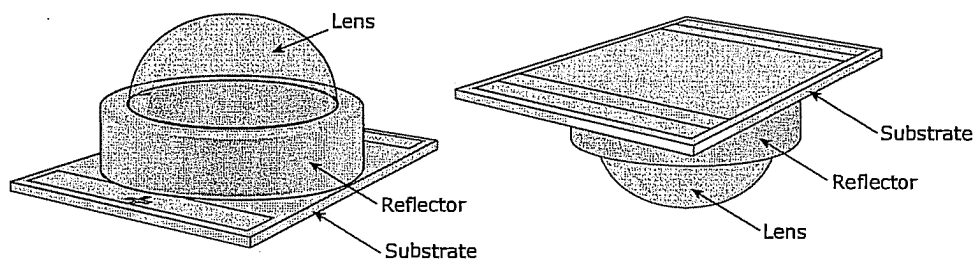
The levels of environmentally sensitive, persistent biologically toxic (PBT), persistent organic pollutants (POP), or otherwise restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended through April 21, 2006.

Vision Advisory Claim

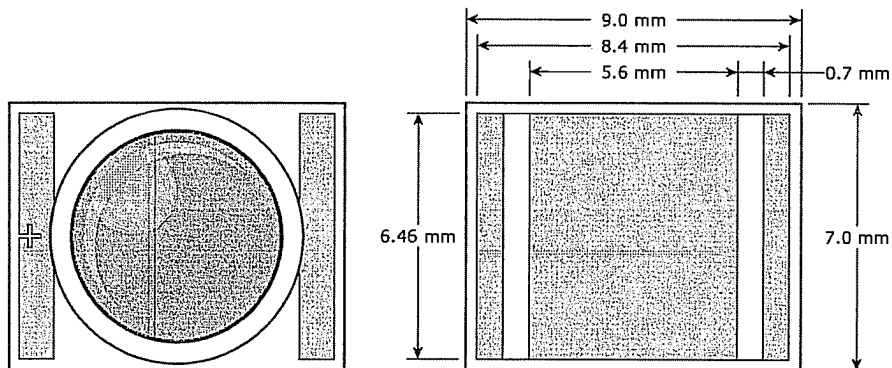
Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.

Mechanical Dimensions (T_A = 25°C)

All measurements are ±.1mm unless otherwise indicated.

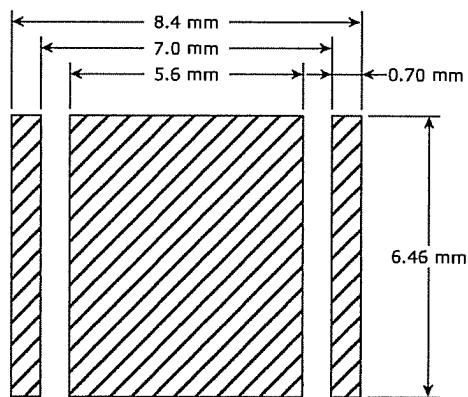


Side View



Top View

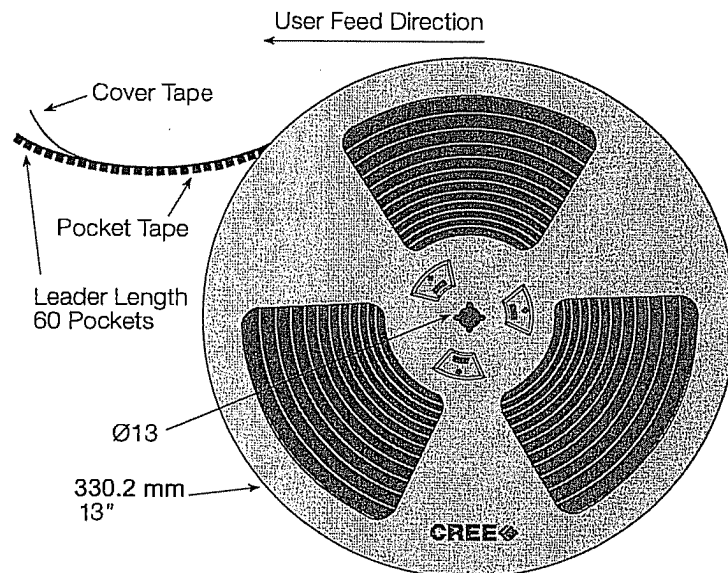
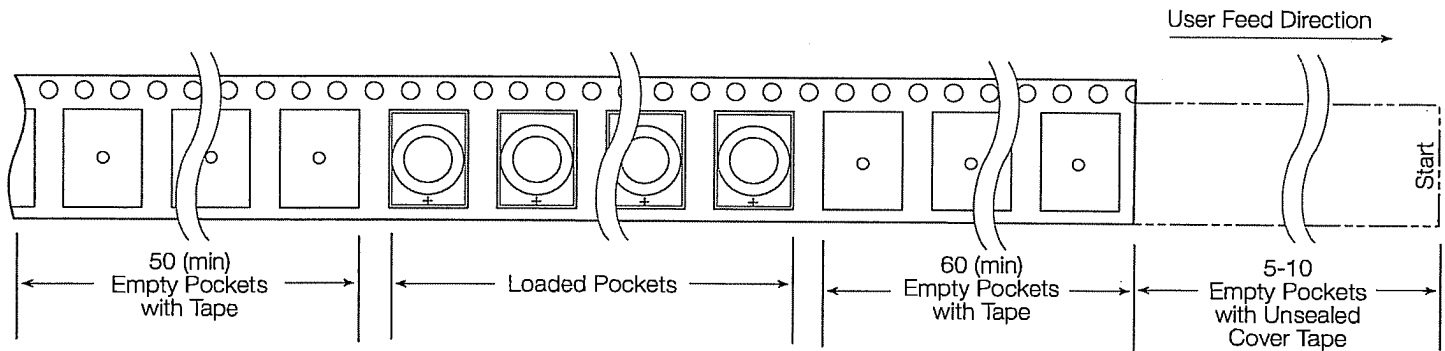
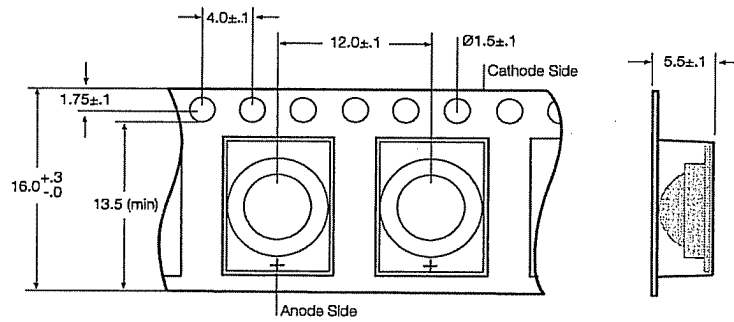
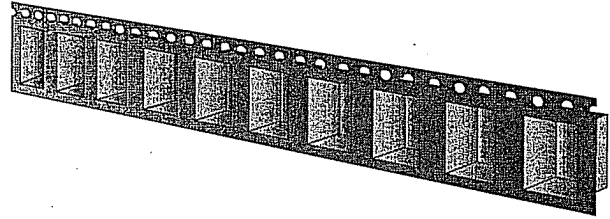
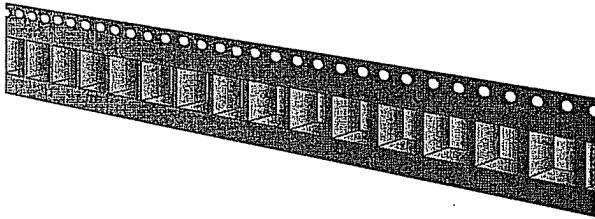
Bottom View



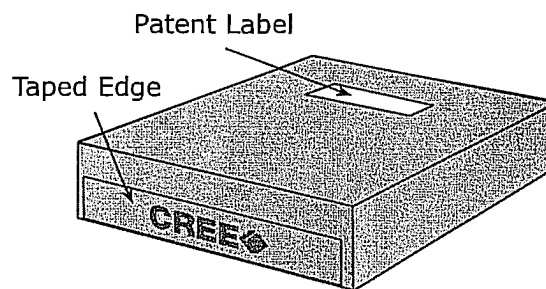
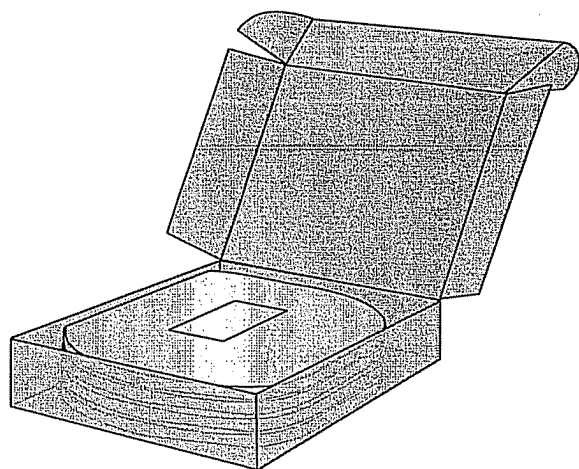
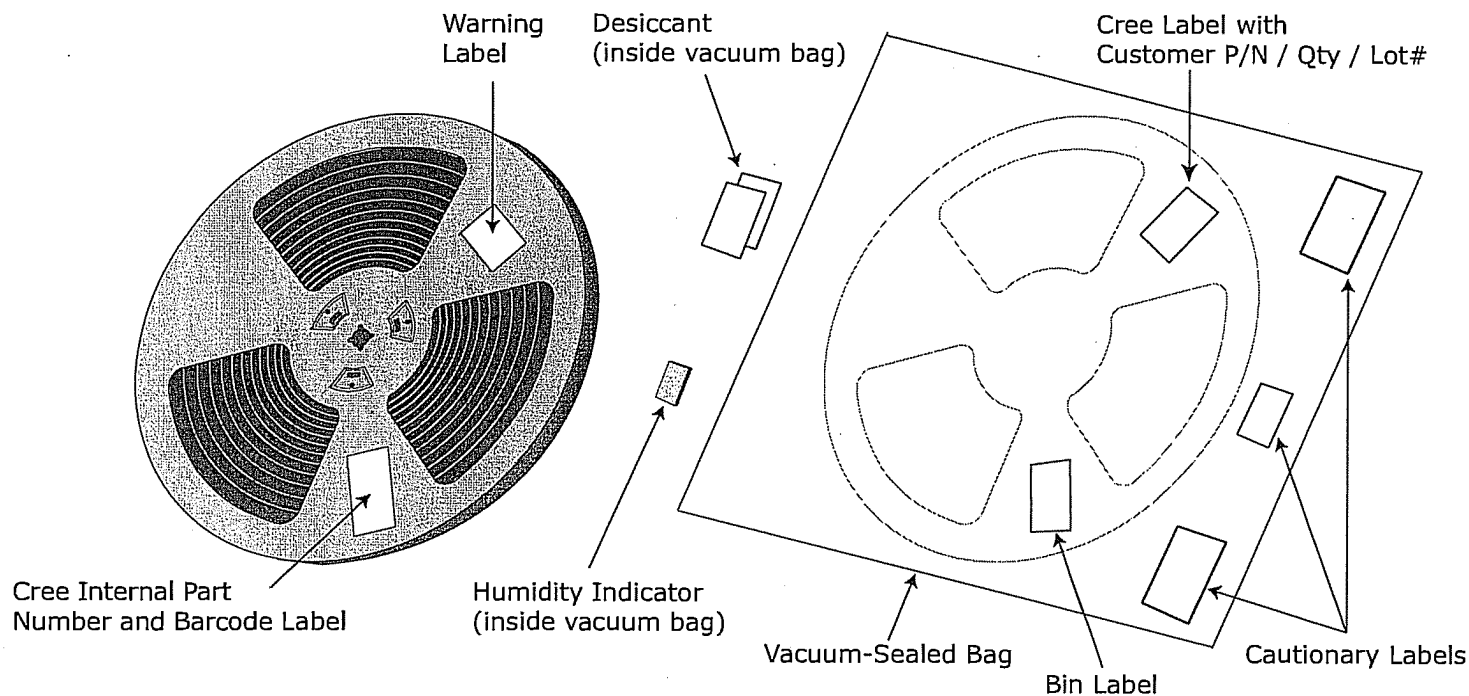
Recommended PC Board Solder Pad

Tape and Reel

All dimensions in mm.



Dry Packaging and Packaging



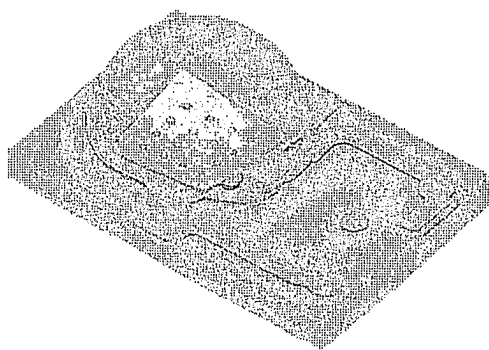
power light source

LUXEON® Rebel

Introduction

LUXEON® Rebel is an ultra-compact, surface-mount, high-power LED that delivers elevated standards for light output, flux density and manufacturability. Offering industry-leading flux density, lumens per package and power handling capabilities, LUXEON Rebel enables you to create never before possible lighting applications and:

- deliver more useable light and higher flux density
- optimize applications to reduce size and cost
- tightly pack the LEDs for color mixing applications
- engineer more robust applications
- utilize standard FR4 PCB technology
- simplify manufacturing through the use of surface mount technology.



LUXEON Rebel Technology Leadership

- ♦ 150°C Junction Temperature
- ♦ Industry leading lumen performance, > 100 lumens in cool white at 350mA
- ♦ 350mA — 1000mA drive current
- ♦ High efficacy, flux density and lumens per package
- ♦ Industry best moisture sensitivity level—JEDEC Level 1
unlimited floor life - no need for reconditioning
- ♦ Lead-free reflow solder
JEDEC 020c compatible
- ♦ RoHS Compliant
- ♦ Autoclave compliant—
JESD22 A-102
- ♦ Industry best lumen maintenance—50,000 hours life at 700 mA with 70% lumen maintenance
- ♦ Electrically isolated thermal pad
- ♦ Available in all colors.

PHILIPS

LUMILEDS
LIGHT FROM SILICON VALLEY

Table of Contents

Product Nomenclature	3
Average Lumen Maintenance Characteristics	3
Environmental Compliance	3
Visual Appearance of LUXEON Rebel	3
Flux Characteristics for LUXEON Rebel	4
Optical Characteristics	6
Electrical Characteristics	7
Absolute Maximum Ratings	8
JEDEC Moisture Sensitivity	8
Reflow Soldering Characteristics	9
Mechanical Dimensions	10
Pad Configuration	11
Solder Pad Design	11
Wavelength Characteristics	12
Typical Light Output Characteristics over Temperature	14
Typical Forward Current Characteristics	15
Typical Relative Luminous Flux	16
Current Derating Curves	17
Typical Radiation Patterns	20
Emitter Pocket Tape Packaging	23
Emitter Reel Packaging	24
Product Binning and Labeling	25
Luminous Flux Bins	26
Cool-White Bin Structure	27
Neutral-White Bin Structure	29
Warm-White Bin Structure	30
Color Bins	31
Forward Voltage Bins	32

Product Nomenclature

LUXEON Rebel is tested and binned at 350mA.

The part number designation is explained as follows:

L X M L - A B C D - E F G H

Where:

- A — designates radiation pattern (value P for Lambertian)
- B — designates color (see LUXEON Rebel Binning and Labelling section)
- C — designates color variant (0 for direct colored variants, C for Cool-White, N for Neutral-White and W for Warm-White)
- D — designates test current (value 1 for 350 mA)
- E — reserved for future product offerings
- FGH — minimum luminous flux (lm) or radiometric power (mW) performance

Therefore products tested and binned at 350 mA follow the part numbering scheme:

L X M L - P x x 1 - x x x x

Average Lumen Maintenance Characteristics

Lifetime for solid-state lighting devices (LEDs) is typically defined in terms of lumen maintenance—the percentage of initial light output remaining after a specified period of time.

Philips Lumileds projects that cool-white, neutral-white, warm-white, green, cyan, blue and royal-blue LUXEON Rebel products will deliver, on average, 70% lumen maintenance (B50, L70) at 50,000 hours of operation at a forward current of 700 mA. This projection is based on constant current operation with junction temperature maintained at or below 135°C.

Philips Lumileds projects that red, red-orange and amber LUXEON Rebel products will deliver, on average, 70% lumen maintenance (B50, L70) at 50,000 hours of operation at a forward current of 350 mA. This projection is based on constant current operation with junction temperature maintained at or below 110°C.

This performance is based on independent test data, Philips Lumileds historical data from tests run on similar material systems, and internal LUXEON reliability testing. Observation of design limits included in this data sheet is required in order to achieve this projected lumen maintenance.

Environmental Compliance

Philips Lumileds is committed to providing environmentally friendly products to the solid-state lighting market. LUXEON Rebel is compliant to the European Union directives on the restriction of hazardous substances in electronic equipment, namely the RoHS directive. Philips Lumileds will not intentionally add the following restricted materials to the LUXEON Rebel: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).

Visual Appearance of LUXEON Rebel

All lighted LUXEON Rebel product will provide comparable Lambertian beam performance, suitable for use with commercially available optical systems. Without power, LED die within different reels may appear visually different. Please contact your Philips Lumileds or Future Electronics representative for further information.

Flux Characteristics for LUXEON Rebel—Thermal Pad Temperature = 25°C

Table 1.

Performance at Test Current				Typical Performance at Indicated Current	
Color	Part Number	Minimum Luminous Flux (lm) or Radiometric Power (mW) $\Phi_V^{[1] [3]}$	Test Current (mA)	Typical Luminous Flux (lm) or Radiometric Power (mW) $\Phi_V^{[2] [3]}$	Drive Current (mA)
Cool-White	LXML-PWC1-0040	40	350	80	700
	LXML-PWC1-0050	50	350	95	700
	LXML-PWC1-0070	70	350	130	700
	LXML-PWC1-0080	80	350	145	700
	LXML-PWC1-0090	90	350	160	700
	LXML-PWC1-0100	100	350	180	700
Neutral-White	LXML-PWN1-0040	40	350	80	700
	LXML-PWN1-0050	50	350	95	700
	LXML-PWN1-0070	70	350	130	700
	LXML-PWN1-0080	80	350	145	700
Warm-White	LXML-PWW1-0040	40	350	80	700
	LXML-PWW1-0050	50	350	95	700
	LXML-PWW1-0060	60	350	110	700
Green	LXML-PM01-0040	40	350	80	700
	LXML-PM01-0050	50	350	95	700
	LXML-PM01-0070	70	350	130	700
	LXML-PM01-0080	80	350	145	700
Cyan	LXML-PE01-0030	30	350	65	700
	LXML-PE01-0040	40	350	80	700
	LXML-PE01-0060	60	350	110	700
	LXML-PE01-0070	70	350	130	700
Blue	LXML-PB01-0008	8.2	350	19	700
	LXML-PB01-0010	10.7	350	22	700
	LXML-PB01-0013	13.9	350	27	700
	LXML-PB01-0018	18.1	350	38	700
	LXML-PB01-0023	23.5	350	48	700
Royal-Blue	LXML-PR01-0175	175 mW	350	325 mW	700
	LXML-PR01-0225	225 mW	350	400 mW	700
	LXML-PR01-0275	275 mW	350	525 mW	700

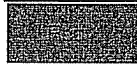
Notes for Table 1:

1. Minimum luminous flux or radiometric power performance guaranteed within published operating conditions. Philips Lumileds maintains a tolerance of $\pm 6.5\%$ on flux and power measurements.
2. Typical luminous flux or radiometric power performance when device is operated within published operating conditions.
3. LUXEON Rebel products with even higher luminous flux and radiometric power levels will become available in the future. Please consult Philips Lumileds or Future Electronics for more information.

Flux Characteristics for LUXEON Rebel Continued

Thermal Pad Temperature = 25°C

Table 1. Continued

Performance at Test Current				Typical Performance at Indicated Current	
Color	Part Number	Minimum Luminous Flux (lm) Φ_V ^{[1] [3]}	Test Current (mA)	Typical Luminous Flux (lm) Φ_V ^{[2] [3]}	Drive Current (mA)
	LXML-PD01-0030	30	350	65	700
	LXML-PD01-0040	40	350	85	700
	LXML-PH01-0040	40	350	85	700
	LXML-PH01-0050	50	350	100	700
	LXML-PL01-0023	23.5	350	50	700
	LXML-PL01-0030	30.0	350	65	700

Notes for Table 1:

1. Minimum luminous flux or radiometric power performance guaranteed within published operating conditions. Philips Lumileds maintains a tolerance of $\pm 6.5\%$ on flux and power measurements.
2. Typical luminous flux performance is when device is operated within published operating conditions.
3. LUXEON Rebel products with even higher luminous flux and levels will become available in the future. Please consult Philips Lumileds or Future Electronics for more information.

Optical Characteristics

Lambertian LUXEON Rebel at Test Current^[1] Thermal Pad Temperature = 25°C

Table 2.

Color	Dominant Wavelength ^[2] λ_D , Peak Wavelength ^[3] λ_P , or Color Temperature ^[4] CCT			Typical Spectral Half-width ^[6] (nm) $\Delta\lambda_{1/2}$	Typical Temperature Coefficient of Dominant Wavelength (nm/°C) $\Delta\lambda_D / \Delta T_J$	Typical Total Included Angle ^[7] (degrees) $\theta_{0.90V}$	Typical Viewing Angle ^[8] (degrees) $2\theta_{1/2}$
	Min.	Typ.	Max.				
Cool-White	4500 K	6500 K	10,000 K	N/A	N/A	160	140
Neutral-White	3500 K	4100 K	4500 K	N/A	N/A	160	140
Warm-White	2670 K	3100 K	3500 K	N/A	N/A	160	140
Green	520 nm	530 nm	550 nm	30	0.05	160	140
Cyan	490 nm	505 nm	520 nm	30	0.04	160	140
Blue	460 nm	470 nm	490 nm	33	0.05	160	140
Royal-Blue ^[9]	440 nm	455 nm	460 nm	24	0.04	160	140
Red	620.5 nm	627 nm	645 nm	29	0.05	160	140
Red-Orange	613.5 nm	617 nm	620.5 nm	28	0.08	160	140
Amber	584.5 nm	590 nm	597 nm	28	0.10	160	140

Notes for Table 2:

1. Test current is 350 mA for all LXML-Pxx1-0xxx products.
2. Dominant wavelength is derived from the CIE 1931 Chromaticity diagram and represents the perceived color. Philips Lumileds maintains a tolerance of ± 0.5 nm for dominant wavelength measurements.
3. Royal-Blue product is binned by radiometric power and peak wavelength rather than photometric lumens. Philips Lumileds maintains a tolerance of ± 2 nm for peak wavelength measurements.
4. CCT $\pm 5\%$ tester tolerance.
5. Typical CRI (Color Rendering Index) for Cool-White is 70, Neutral-White is 75 and Warm-White is 80.
6. Spectral width at $\frac{1}{2}$ of the peak intensity.
7. Total angle at which 90% of total luminous flux is captured.
8. Viewing angle is the off axis angle from lamp centerline where the luminous intensity is $\frac{1}{2}$ of the peak value.
9. All white, green, cyan, blue and royal-blue products are built with Indium Gallium Nitride (InGaN).
10. All red, red-orange, and amber are built with Aluminum Indium Gallium Phosphide (AlInGaP).
11. Cool-White, Neutral-White, Warm-White, Blue and Royal-Blue power light sources represented here are IEC825 class 2 for eye safety.

Electrical Characteristics

Electrical Characteristics at 350mA for LUXEON Rebel, Part Numbers LXML-Pxx1-0xxx, Thermal Pad Temperature = 25°C

Table 3.

Color	Forward Voltage V_f ^[1]			Typical Dynamic Resistance ^[2] (Ω) R_D	Typical Temperature Coefficient of Forward Voltage ^[3] (mV/°C) $\Delta V_f / \Delta T_J$	Typical Thermal Resistance Junction to Thermal Pad (°C/W) $R\theta_{JC}$
	Min.	(V) Typ.	Max.			
Cool-White	2.55	3.15	3.99	0.3	-3.0	10
Neutral-White	2.55	3.15	3.99	0.3	-3.0	10
Warm-White	2.55	3.15	3.99	0.3	-3.0	10
Green	2.55	3.15	3.99	0.3	-6.0	10
Cyan	2.55	3.15	3.99	0.3	-3.0	10
Blue	2.55	3.15	3.99	0.2	-3.0	10
Royal-Blue	2.55	3.15	3.99	0.2	-5.0	10
Red	2.31	2.9	3.51	1.65	-3.5	12
Red-Orange	2.31	2.9	3.51	1.5	-3.0	12
Amber	2.31	2.9	3.51	1.3	-2.5	12

Notes for Table 3:

1. Philips Lumileds maintains a tolerance of $\pm 0.06V$ on forward voltage measurements.
2. Dynamic resistance is the inverse of the slope in linear forward voltage model for LEDs. See figures 8 and 9.
3. Measured between 25°C = T_J = 110°C at I_f = 350 mA.

Typical Electrical Characteristics at 700mA for LUXEON Rebel, Part Numbers LXML-Pxx1-0xxx, Thermal Pad Temperature = 25°C

Table 4.

Color	Typical Forward Voltage V_f (V)
Cool-White	3.40
Neutral-White	3.40
Warm-White	3.40
Green	3.40
Cyan	3.40
Blue	3.40
Royal-Blue	3.40
Red	3.60
Red-Orange	3.60
Amber	3.60

Notes for Table 4:

1. Philips Lumileds maintains a tolerance of $\pm 0.06V$ on forward voltage measurements.
2. Dynamic resistance is the inverse of the slope in linear forward voltage model for LEDs. See figures 8 and 9.
3. Measured between 25°C = T_J = 110°C at I_f = 700 mA.

Absolute Maximum Ratings

Table 5.

Parameter	Cool-White / Neutral-White / Warm-White / Green / Cyan / Blue / Royal-Blue	Red / Red-Orange / Amber
DC Forward Current (mA)	1000	700
Peak Pulsed Forward Current (mA)	1000	700
Average Forward Current (mA)	1000	700
ESD Sensitivity	< 8000V Human Body Model (HBM) Class 2 JESD22-A114-B < 400V Machine Model (MM) Class 2 JESD22-A115-B	< 8000V Human Body Model (HBM) Class 2 JESD22-A114-B < 400V Machine Model (MM) Class 2 JESD22-A115-B
LED Junction Temperature ⁽¹⁾	150°C	135°C
Operating Case Temperature at 350mA	-40°C - 135°C	-40°C - 120°C
Storage Temperature	-40°C - 135°C	-40°C - 135°C
Soldering Temperature	JEDEC 020c 260°C	JEDEC 020c 260°C
Allowable Reflow Cycles	3	3
Autoclave Conditions	121°C at 2 ATM 100% Relative Humidity for 96 Hours Maximum	
Reverse Voltage (Vr)	See Note 2	See Note 2

Notes for Table 5:

1. Proper current derating must be observed to maintain junction temperature below the maximum.
2. LUXEON Rebel LEDs are not designed to be driven in reverse bias.

JEDEC Moisture Sensitivity

Table 6.

Level	Floor Life		Soak Requirements	
			Standard	
	Time	Conditions	Time (hours)	Conditions
1	unlimited	≤ 30°C / 85% RH	168 + 5/-0	85°C / 85% RH

Reflow Soldering Characteristics

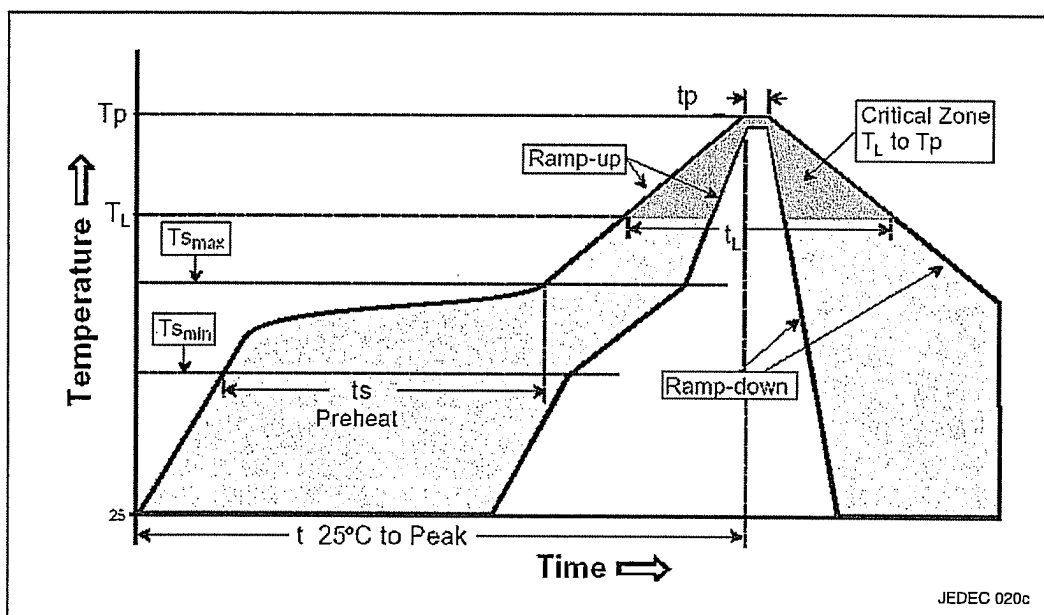


Table 7.

Profile Feature	Lead Free Assembly
Average Ramp-Up Rate ($T_{s_{max}}$ to T_p)	3°C / second max
Preheat Temperature Min ($T_{s_{min}}$)	150°C
Preheat Temperature Max ($T_{s_{max}}$)	200°C
Preheat Time ($t_{s_{min}}$ to $t_{s_{max}}$)	60 - 180 seconds
Time Maintained Above Temperature (T_L)	217°C
Time Maintained Above Time (t_L)	60 - 150 seconds
Peak / Classification Temperature (T_p)	260°C
Time Within 5°C of Actual Peak Temperature (t_p)	20 - 40 seconds
Ramp - Down Rate	6°C / second max
Time 25°C to Peak Temperature	8 minutes max

Notes for Table 7:

1. All temperatures refer to the application Printed Circuit Board (PCB), measured on the surface adjacent to the package body.

Mechanical Dimensions

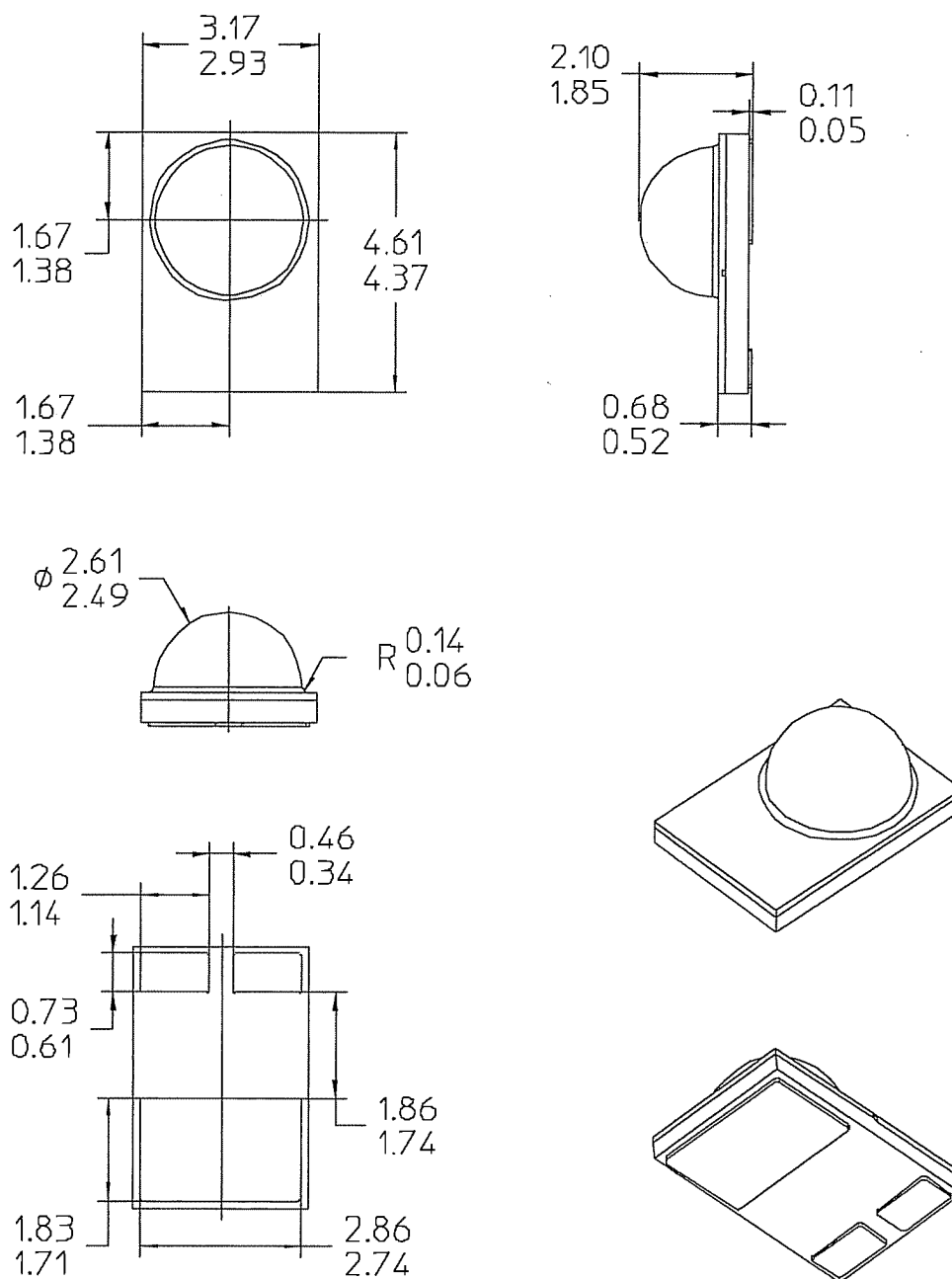


Figure 1. Package Outline Drawing.

Notes for Figure 1:

1. Do not handle the device by the lens—care must be taken to avoid damage to the lens or the interior of the device that can be damaged by excessive force to the lens.
2. Drawings not to scale.
3. All dimensions are in millimeters.
4. The Thermal Pad is electrically isolated from the Anode and Cathode contact pads.

Pad Configuration

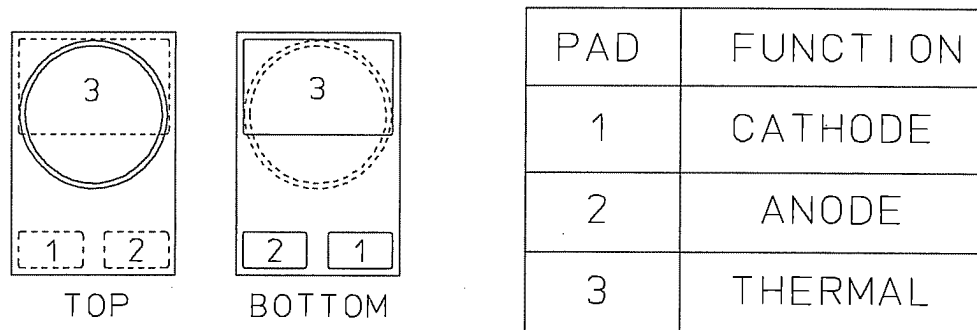


Figure 2. Pad Configuration.

Note for Figure 2:

1. The Thermal Pad is electrically isolated from the Anode and Cathode contact pads.

Solder Pad Design

Note for Figure 3:

The photograph below shows the recommended LUXEON Rebel layout on Printed Circuit Board (PCB). This design easily achieves a thermal resistance of 7K/W.

Application Brief AB32 provides extensive details for this layout. In addition, the .dwg files are available upon request.

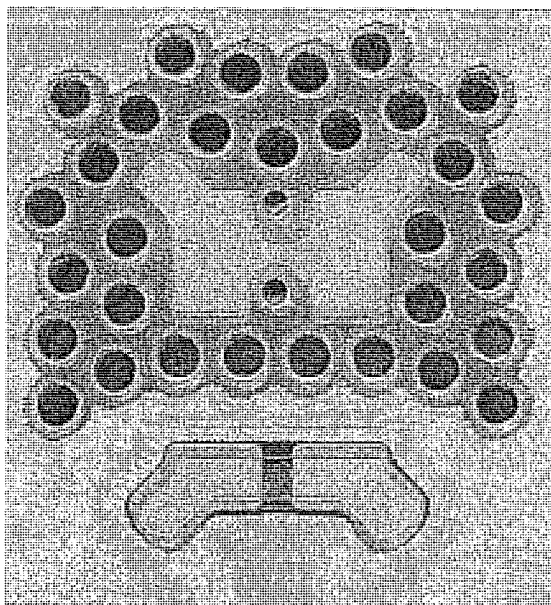


Figure 3. Solder Pad Layout.

Wavelength Characteristics

Green, Cyan, Blue, Royal-Blue, Red, Red-Orange and Amber
at Test Current Thermal Pad Temperature, $T_J = 25^\circ\text{C}$

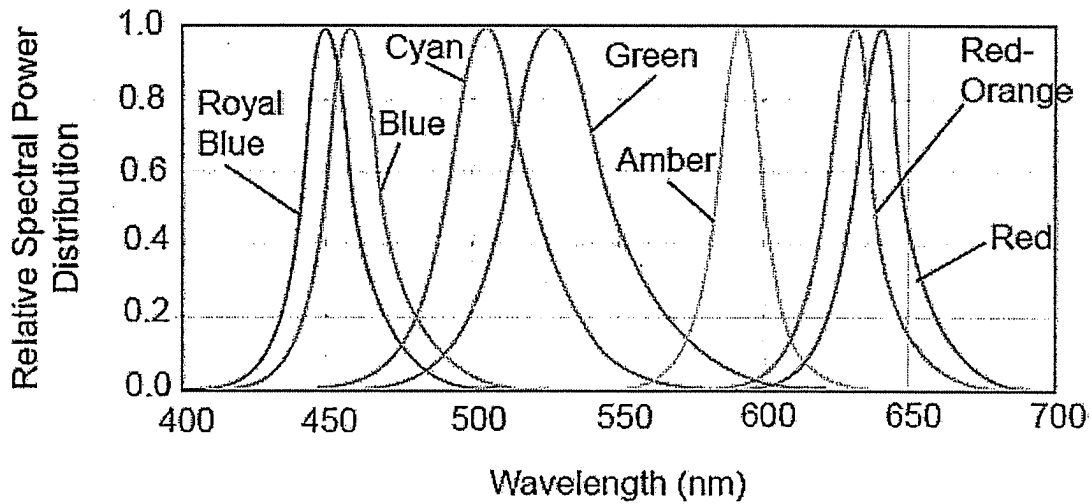


Figure 4. Relative intensity vs. wavelength.

Cool-White at Test Current
Thermal Pad Temperature = 25°C

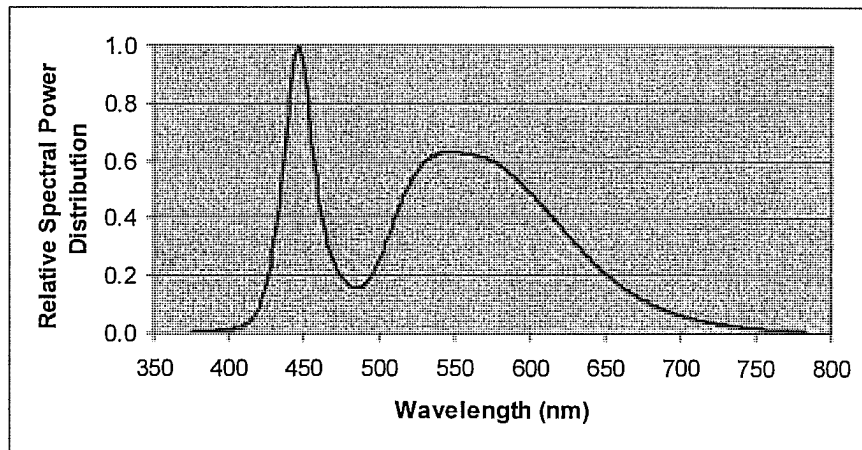


Figure 5a. Cool-White color spectrum of typical CCT part, integrated measurement.

Neutral-White at Test Current Thermal Pad Temperature = 25°C

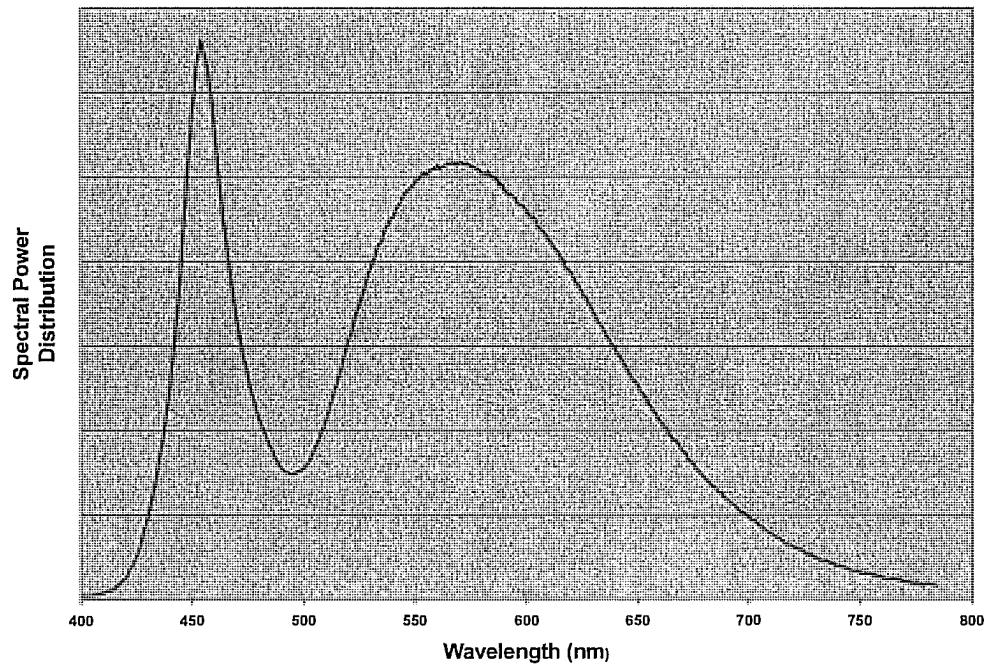


Figure 5b. Neutral-White color spectrum of typical CCT part, integrated measurement.

Warm-White at Test Current Thermal Pad Temperature = 25°C

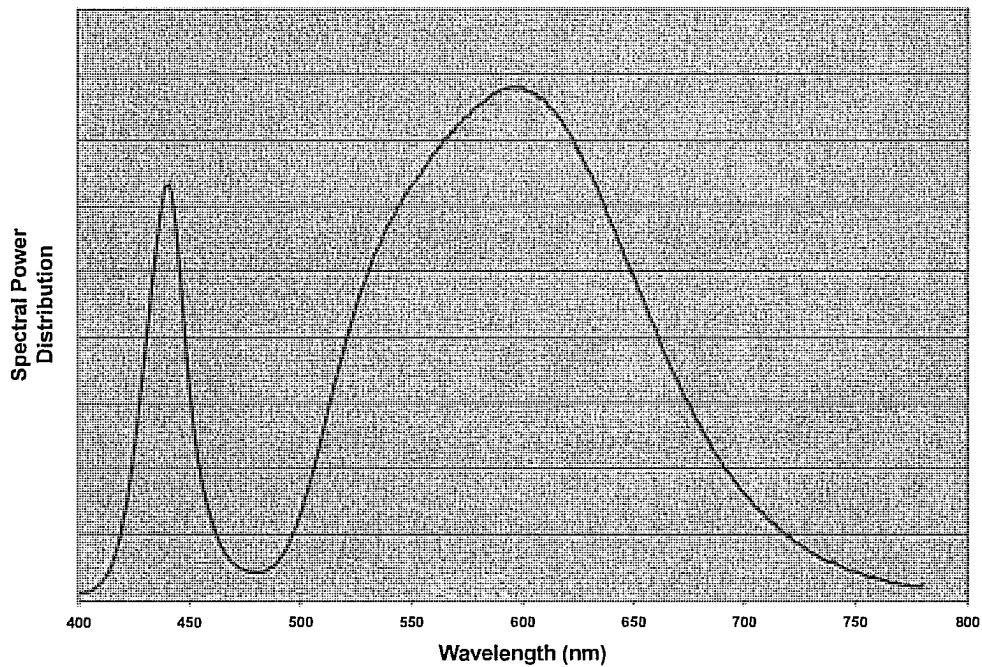


Figure 5c. Warm-White color spectrum of typical CCT part, integrated measurement.

Typical Light Output Characteristics over Temperature

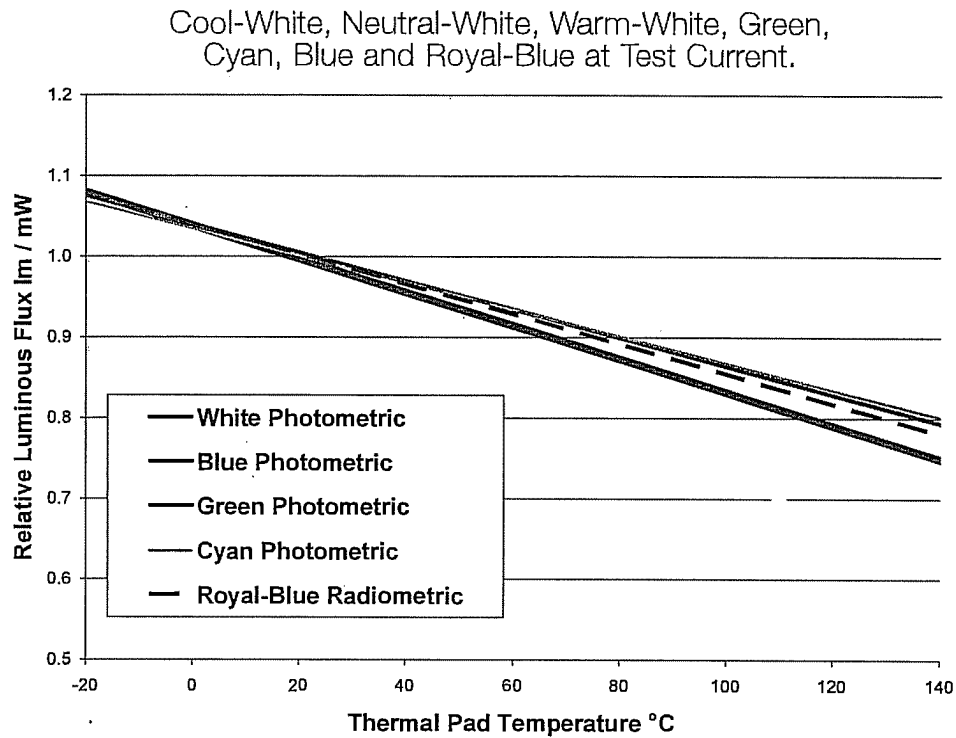


Figure 6. Relative light output vs. Thermal Pad temperature for White, Green, Cyan, Blue and Royal-Blue.

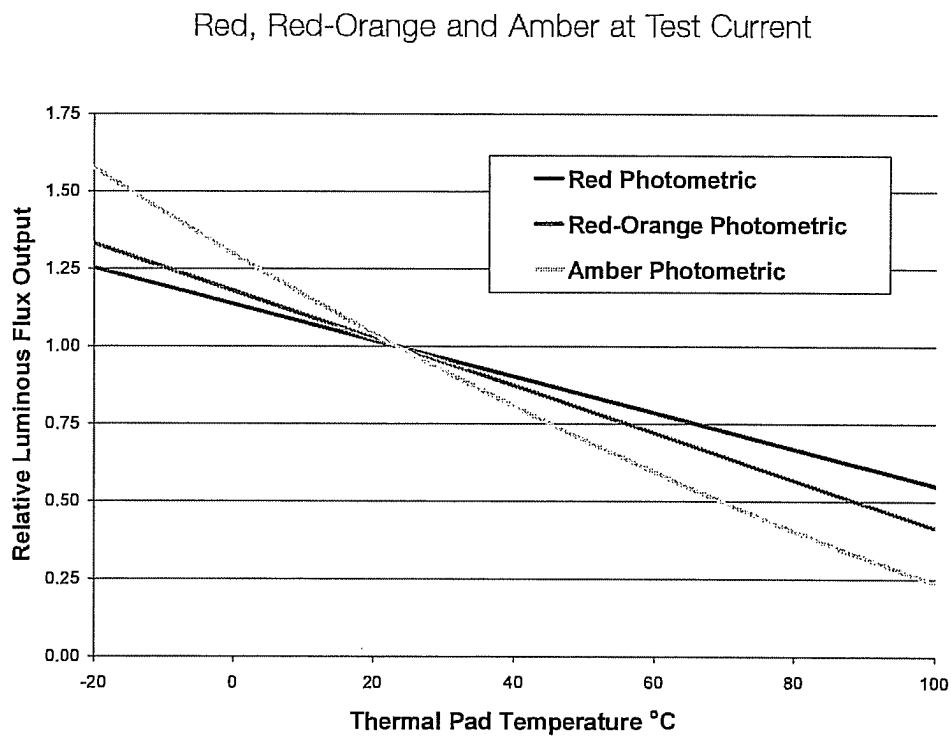


Figure 7. Relative light output vs. Thermal Pad temperature for Red, Red-Orange and Amber.

Typical Forward Current Characteristics

Cool-White, Neutral-White, Warm-White, Green, Cyan, Blue
and Royal-Blue, Thermal Pad Temperature = 25°C

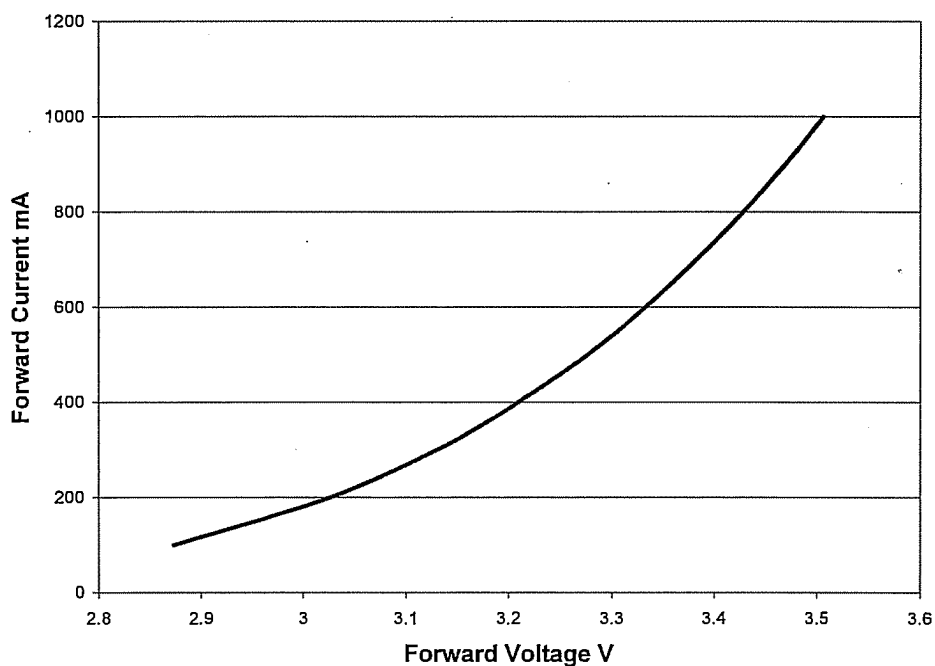


Figure 8. Forward current vs. forward voltage for White, Green, Cyan, Blue and Royal-Blue.

Red, Red-Orange and Amber, Thermal Pad Temperature = 25°C

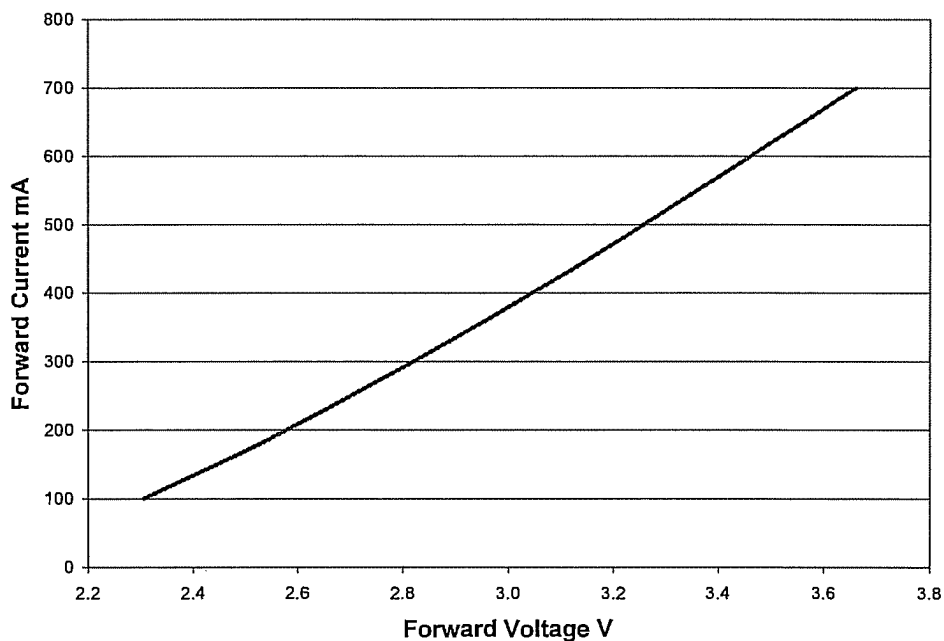


Figure 9. Forward current vs. forward voltage for red, red-orange and amber.

Typical Relative Luminous Flux

Typical Relative Luminous Flux vs. Forward Current for Cool-White, Neutral-White, Warm-White, Green, Cyan, Blue and Royal-Blue, Thermal Pad Temperature = 25°C

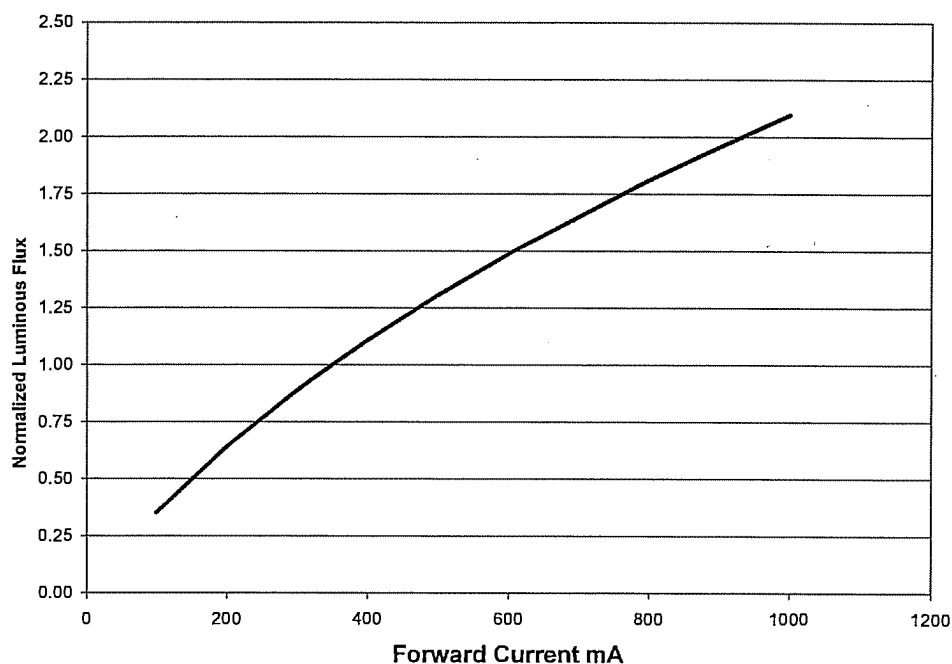


Figure 10. Relative luminous flux or radiometric power vs. forward current for white, green, cyan, blue and royal blue at Thermal Pad = 25°C maintained, test current 350 mA.

Typical Relative Luminous Flux vs. Forward Current for Red, Red-Orange, Amber, Thermal Pad Temperature = 25°C

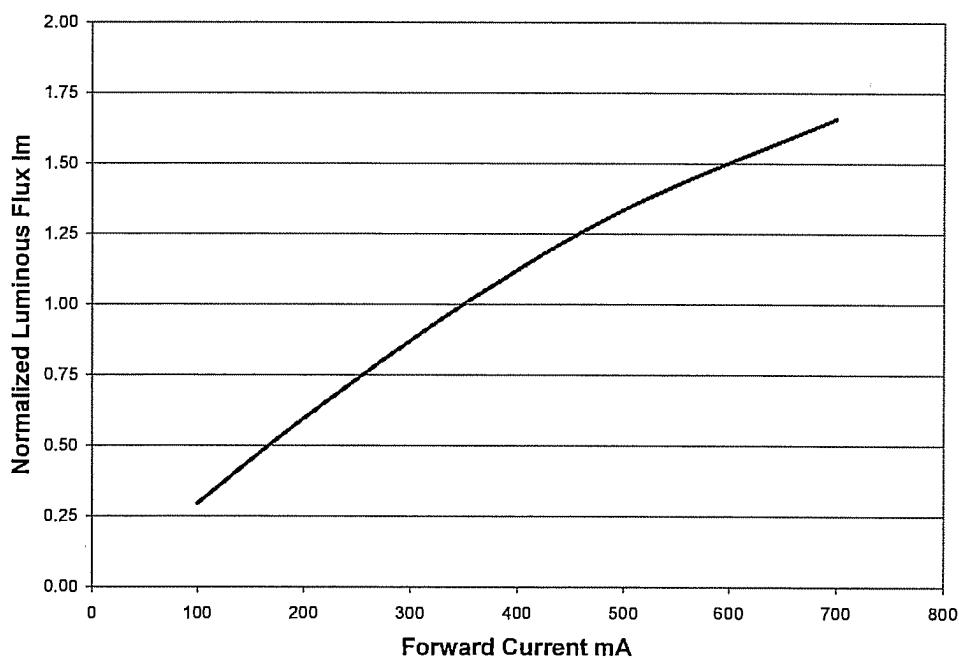


Figure 11. Relative luminous flux vs. forward current for red, red-orange and amber at Thermal Pad = 25°C maintained, test current 350 mA.

Current Derating Curves

Current Derating Curve for 350 mA drive current Cool-White, Neutral-White, Warm-White, Green, Cyan, Blue and Royal-Blue

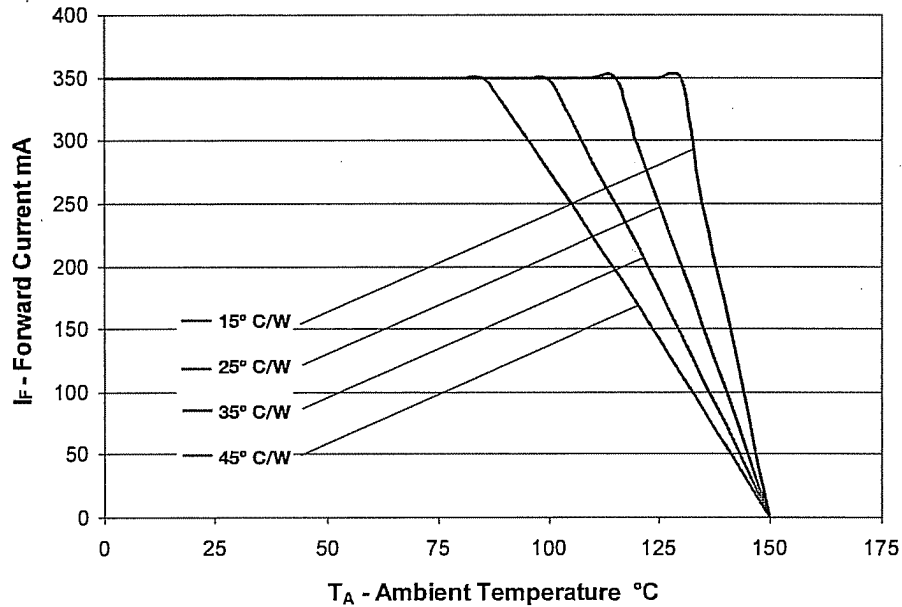


Figure 12: Maximum forward current vs. ambient temperature, based on $T_{JMAX} = 150^{\circ}\text{C}$.

Current Derating Curve for 350 mA drive current Red, Red-Orange, Amber

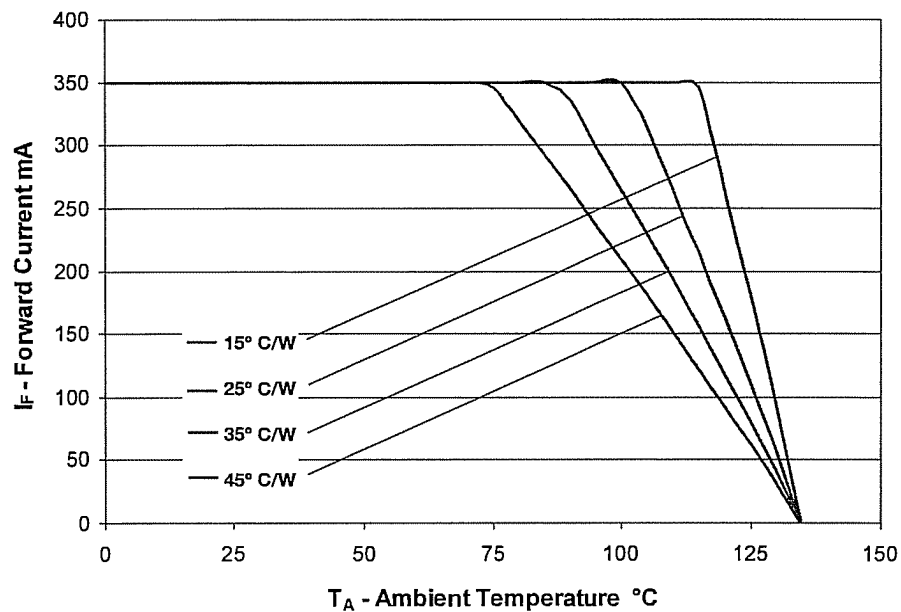


Figure 13: Maximum forward current vs. ambient temperature, based on $T_{JMAX} = 135^{\circ}\text{C}$.

Current Derating Curve for 700 mA drive current Cool-White, Neutral-White, Warm-White, Green, Cyan, Blue and Royal-Blue

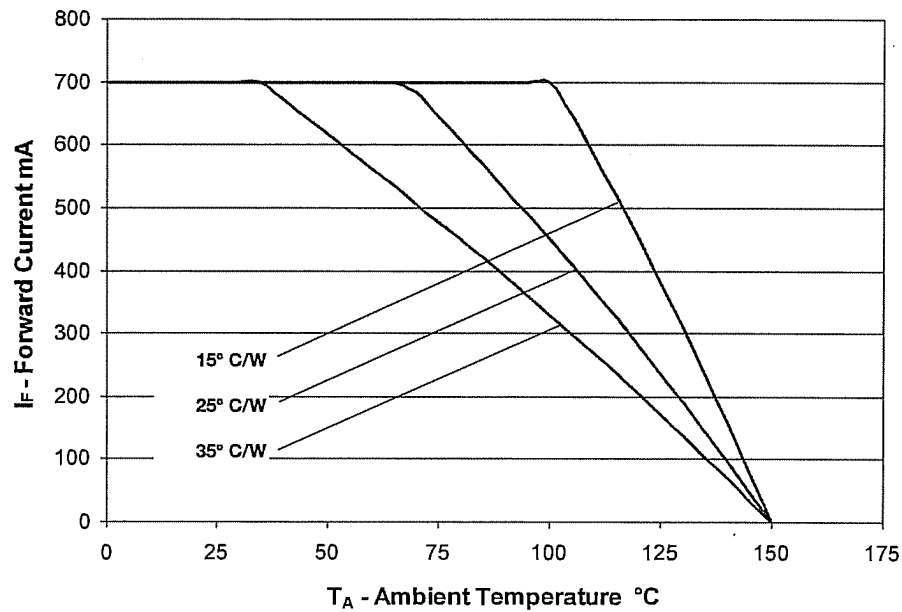


Figure 14: Maximum forward current vs. ambient temperature, based on $T_{JMAX} = 150^{\circ}\text{C}$.

Current Derating Curve for 700 mA drive current Red, Red-Orange, Amber

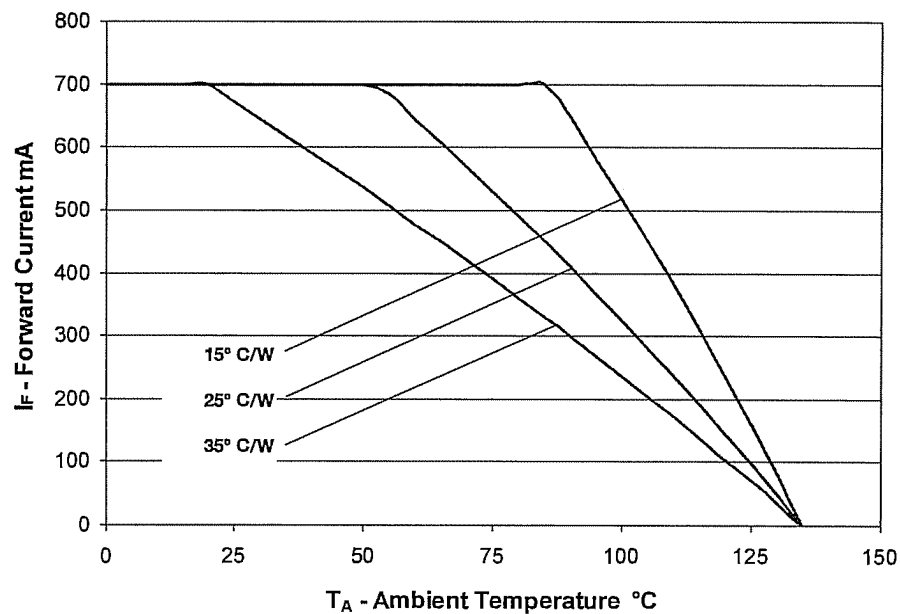


Figure 15: Maximum forward current vs. ambient temperature, based on $T_{JMAX} = 135^{\circ}\text{C}$.

Current Derating Curve for 1000mA drive current Cool-White, Neutral-White, Warm-White, Green, Cyan, Blue and Royal-Blue

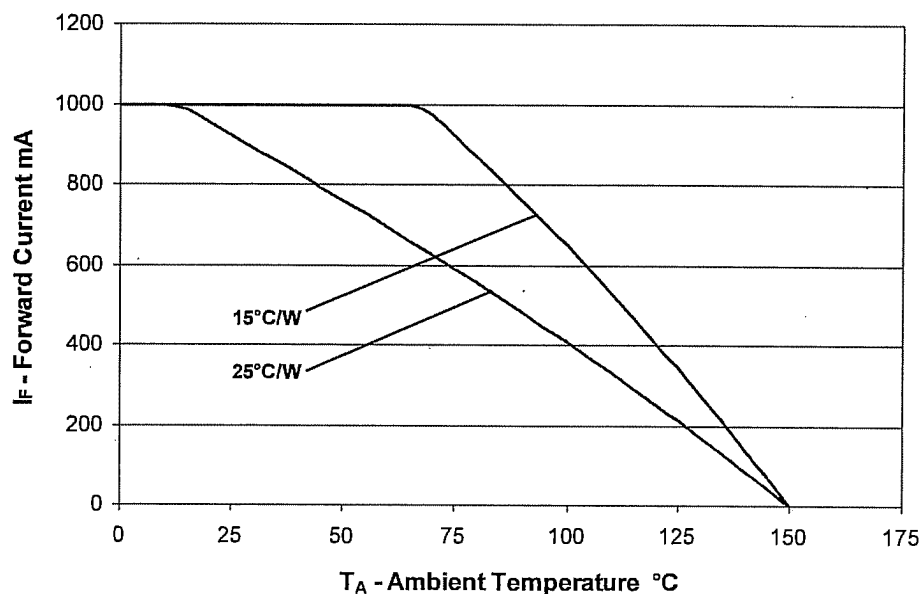


Figure 16: Maximum forward current vs. ambient temperature, based on $T_{JMAX} = 150^{\circ}\text{C}$.

Typical Radiation Patterns

Typical Representative Spatial Radiation Pattern for Cool-White, Neutral-White and Warm-White Lambertian

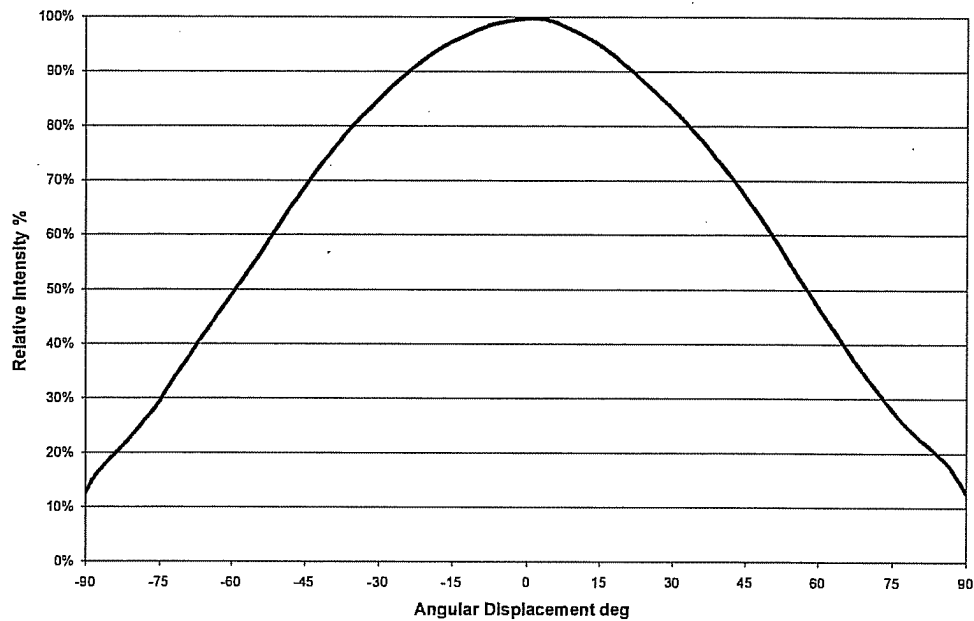


Figure 17: Typical Representative Spatial Radiation Pattern for Cool-White, Neutral-White and Warm-White Lambertian.

Typical Polar Radiation Pattern for White Lambertian

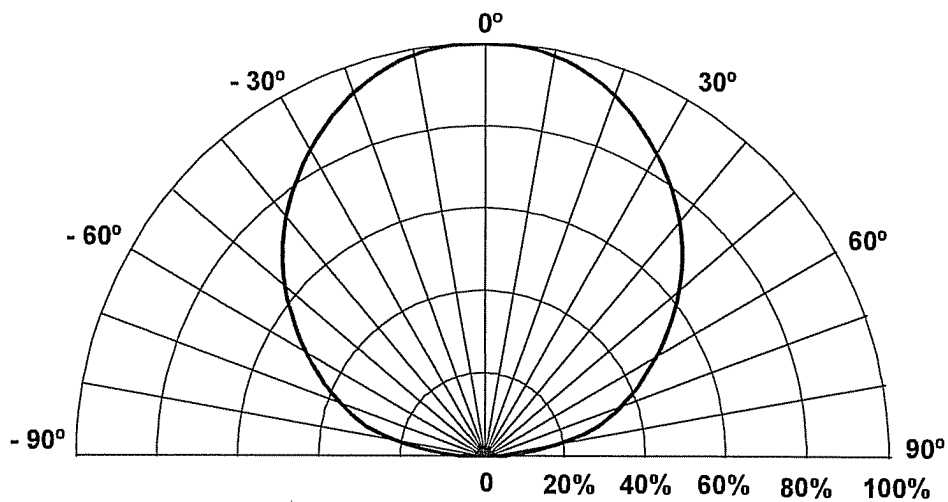


Figure 18: Typical Polar Radiation Pattern for Cool-White, Neutral-White and Warm-White Lambertian.

Typical Representative Spatial Radiation Pattern for Green, Cyan, Blue and Royal-Blue Lambertian

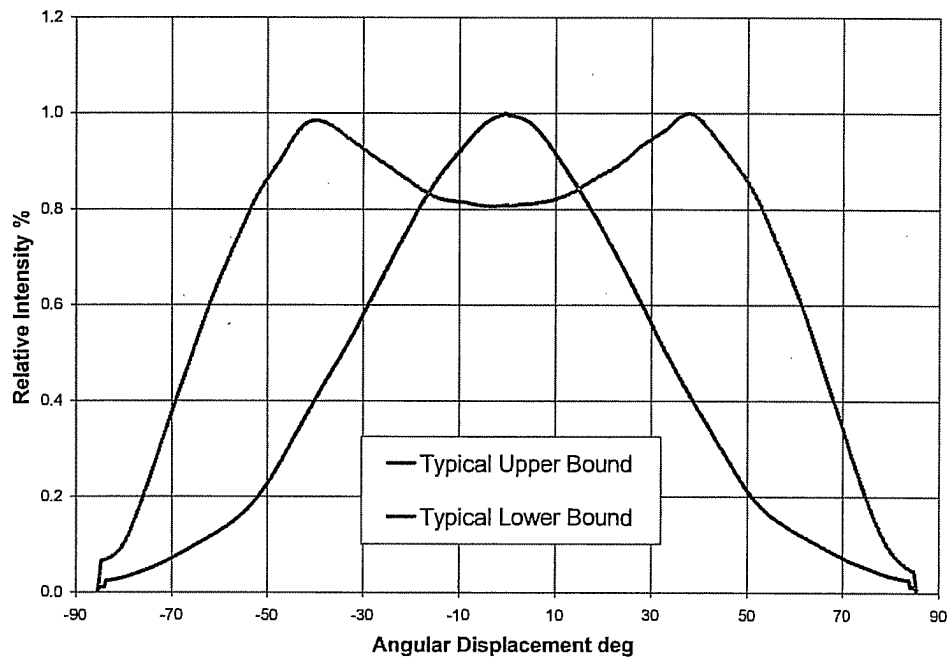


Figure 19: Typical Representative Spatial Radiation Pattern for Green and Royal Blue Lambertian.

Typical Polar Radiation Pattern for Green, Cyan, Blue and Royal-Blue Lambertian

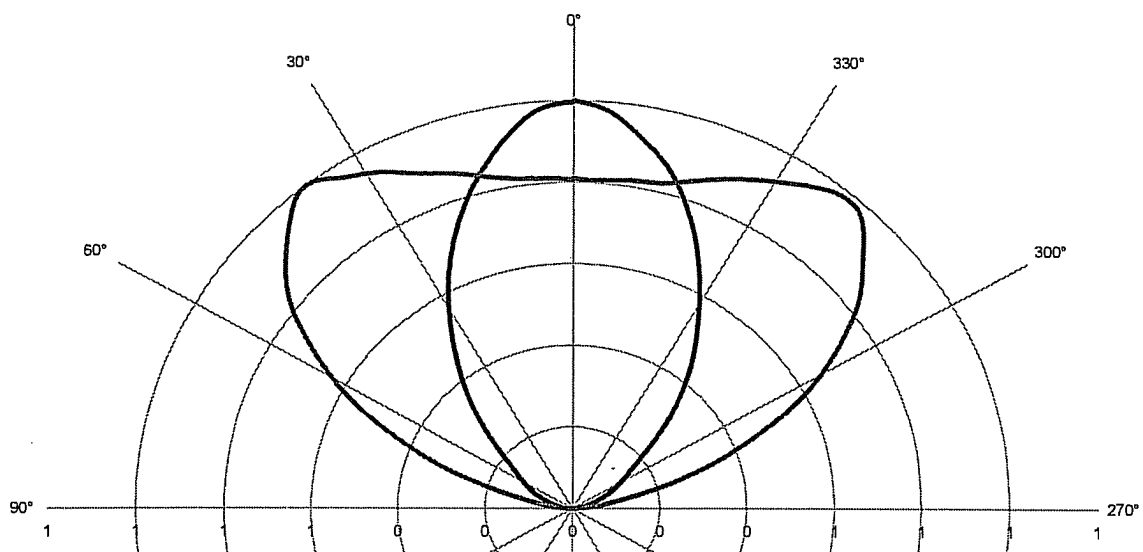


Figure 20: Typical Polar Radiation Pattern for Green and Royal Blue Lambertian.

Typical Representative Spatial Radiation Pattern for Red, Red-Orange and Amber Lambertian

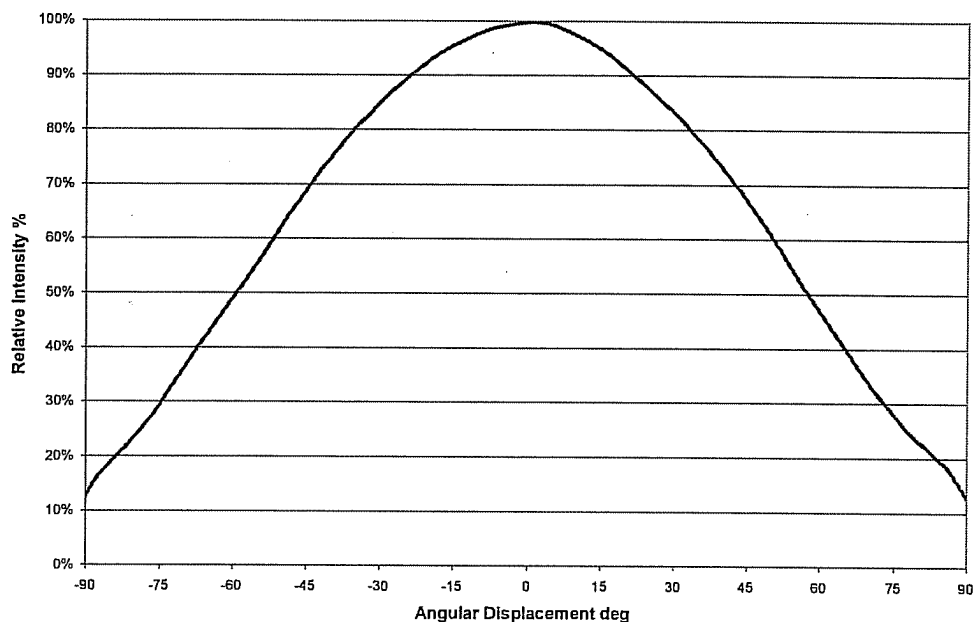


Figure 21: Typical Representative Spatial Radiation Pattern for Red, Red-Orange and Amber Lambertian.

Typical Polar Radiation Pattern for Red, Red-Orange and Amber Lambertian

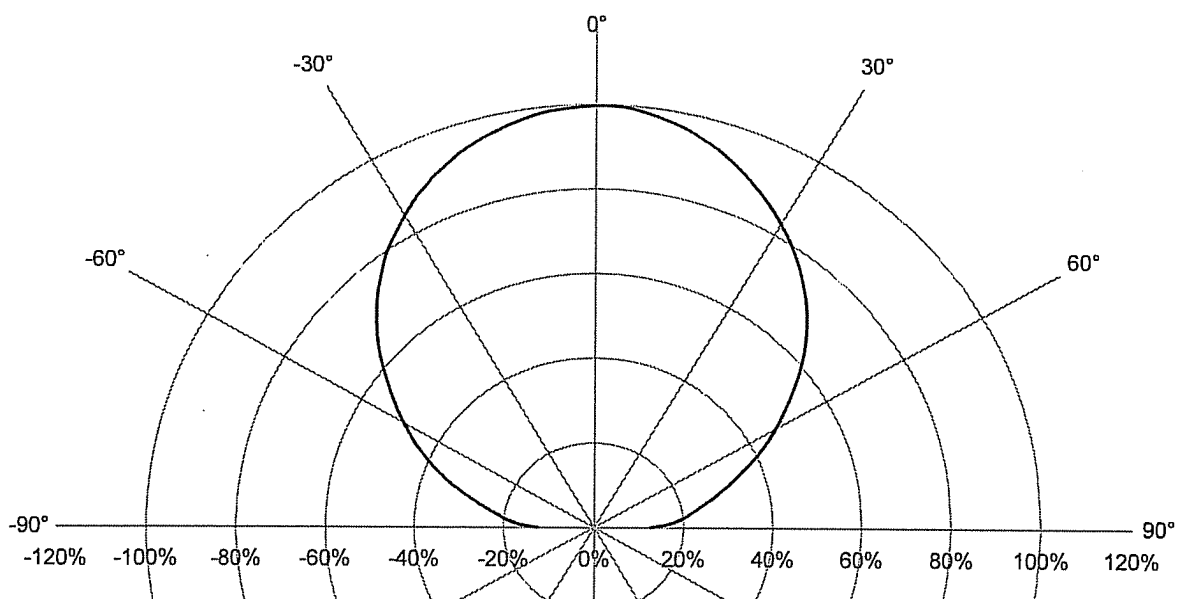
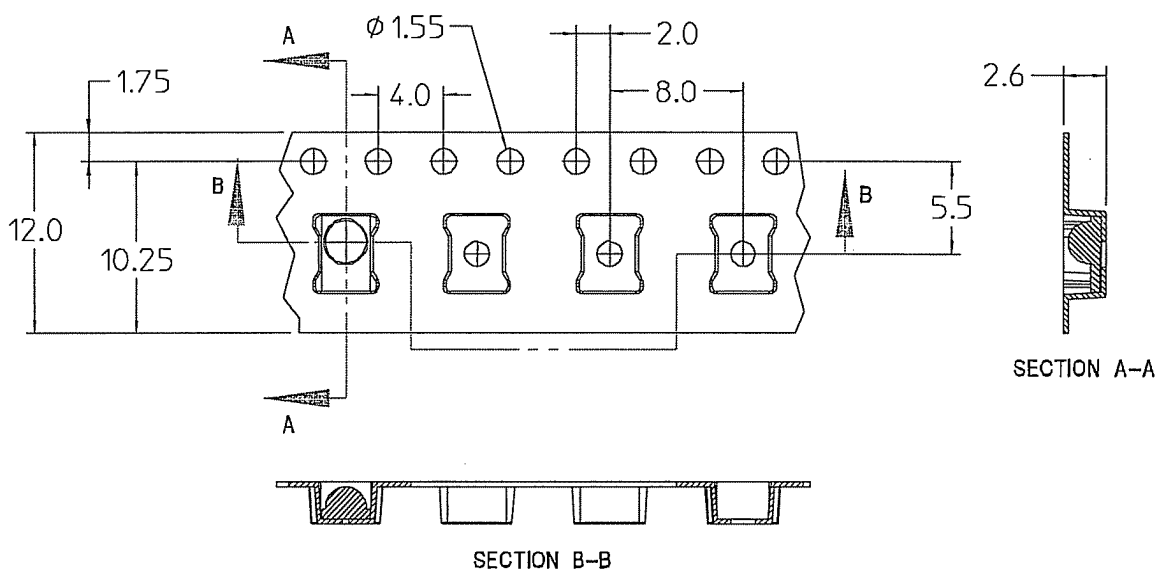
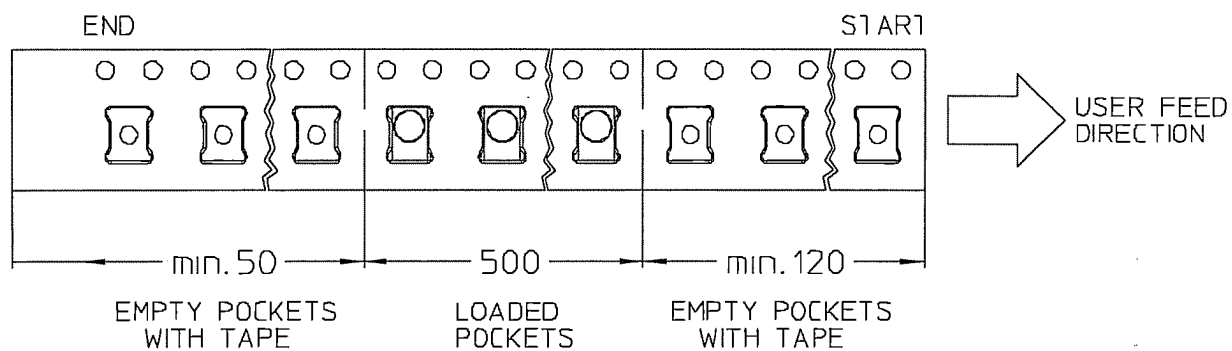
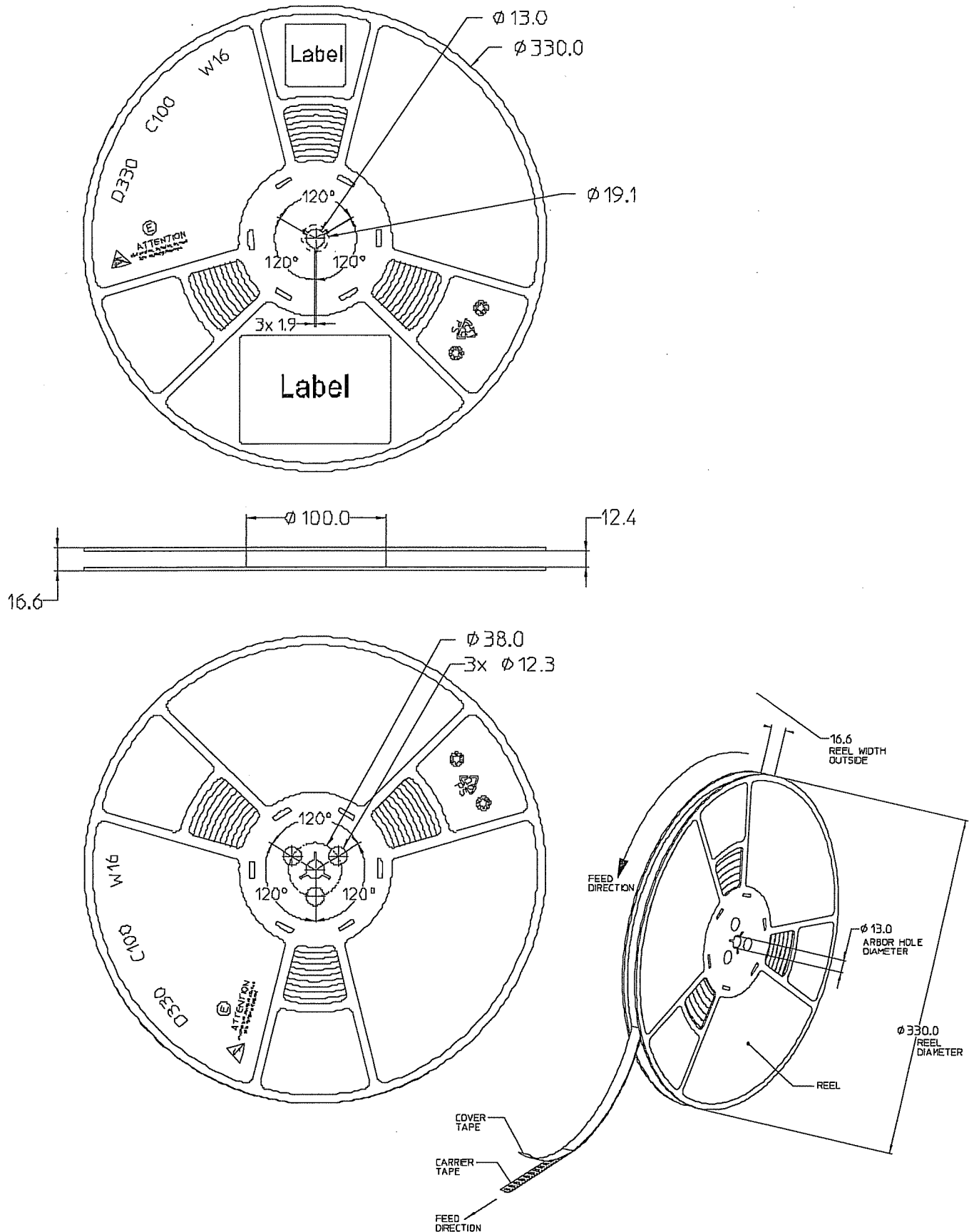


Figure 22: Typical Polar Radiation Pattern for Red, Red-Orange and Amber Lambertian.

Emitter Pocket Tape Packaging



Emitter Reel Packaging



Product Binning and Labeling

Purpose of Product Binning

In the manufacturing of semiconductor products, there is a variation of performance around the average values given in the technical data sheets. For this reason, Philips Lumileds bins the LED components for luminous flux, color and forward voltage (V_F).

Decoding Product Bin Labeling

LUXEON Rebel Emitters are labeled using a three or four digit alphanumeric code (CAT code) depicting the bin values for emitters packaged on a single reel. All emitters packaged within a reel are of the same 3-variable bin combination. Using these codes, it is possible to determine optimum mixing and matching of products for consistency in a given application.

Format of Labeling for Emitters

Reels of Green, Cyan, Blue, Royal-Blue, Red, Red-Orange and Amber Emitters are labeled with a three digit alphanumeric CAT code following the format below.

ABC

A = Flux bin (J, H, J, K etc.)

B = Color bin (2, 4, 6 etc.)

C = V_F bin (D, E, F, G etc.)

Reels of Cool-White, Neutral-White and Warm-White Emitters are labeled with a four digit alphanumeric CAT code following the format below.

ABCD

A = Flux bin (J, H, J, K etc.)

B and C = Color bin (W0, U0, V0 etc.)

C = V_F bin (D, E, F, G etc.)

Luminous Flux Bins

Table 8 lists the standard photometric luminous flux bins for LUXEON Rebel emitters (tested and binned at 350mA).

Although several bins are outlined, product availability in a particular bin varies by production run and by product performance. Not all bins are available in all colors.

Table 8.

Flux Bins - All Colors (except Royal-Blue)		
Bin Code	Minimum Photometric Flux (lm)	Maximum Photometric Flux (lm)
A	8.2	10.7
B	10.7	13.9
C	13.9	18.1
D	18.1	23.5
E	23.5	30
F	30	40
G	40	50
H	50	60
J	60	70
K	70	80
L	80	90
M	90	100
N	100	120
P	120	140
Q	140	160
R	160	180
S	180	200
T	200	220
U	220	240
V	240	260
W	260	280
X	280	300

Table 9.

Flux Bins - Royal-Blue Only (tested and binned at 350mA)

Bin Code	Minimum Radiometric Flux (mW)	Maximum Radiometric Flux (mW)
A	175	225
B	225	275
C	275	350
D	350	425
E	425	500
F	500	600
G	600	700
H	700	800
J	800	900
K	900	1000

Cool-White Bin Structure

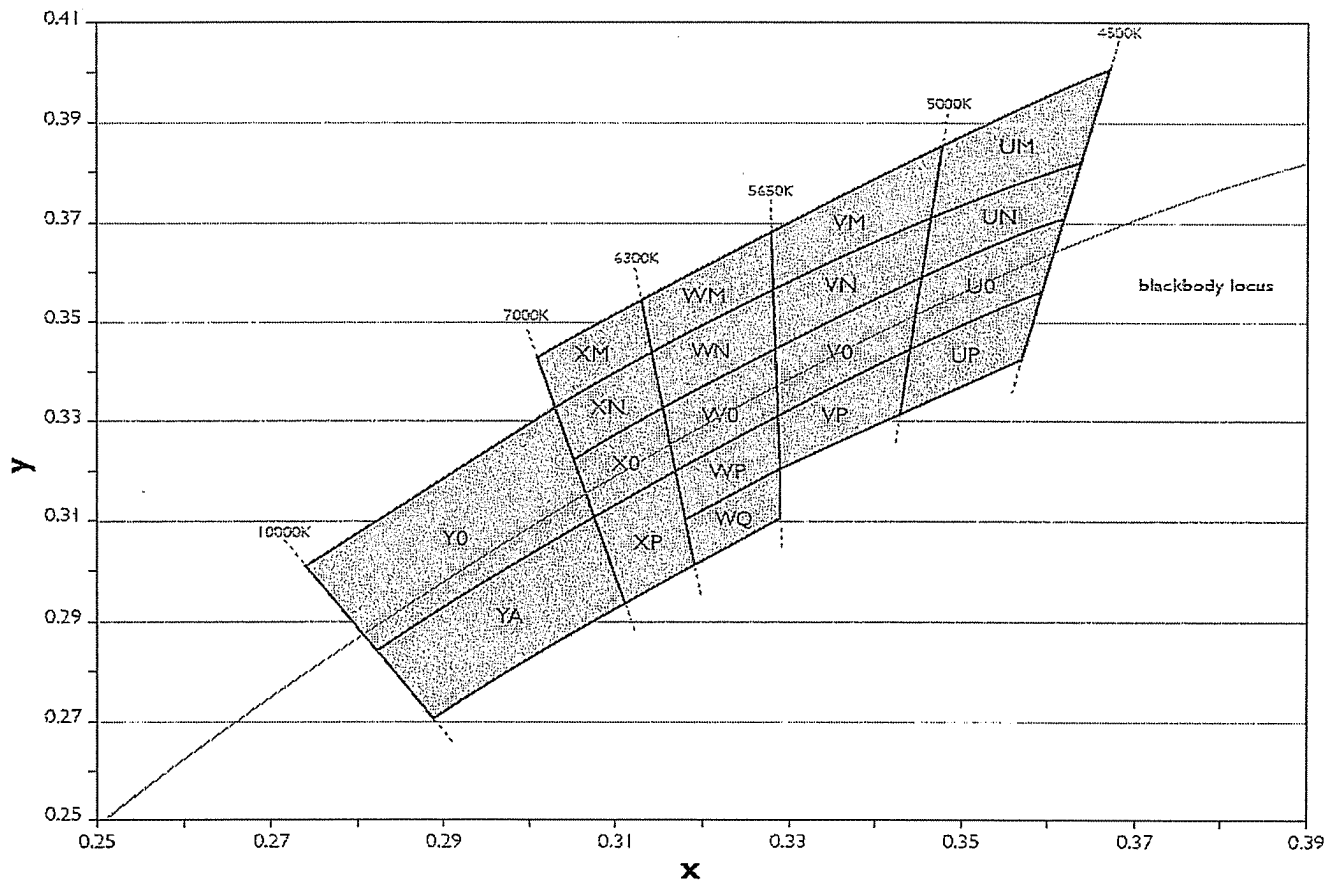


Figure 23: Cool-White Bin Structure.

Cool-White Bin Coordinates

Cool-White LUXEON Rebel Emitters are tested and binned by x,y coordinates.

19 Color Bins, CCT Range 10,000K to 4,500K

Table 10.

Cool-White Bin Coordinates							
Bin Code	X	Y	Typical CCT (K)	Bin Code	X	Y	Typical CCT (K)
Y0	0.274238	0.300667	8000	WQ	0.318606	0.310201	6000
	0.303051	0.332708			0.329393	0.320211	
	0.307553	0.310778			0.329544	0.310495	
	0.282968	0.283772			0.319597	0.301303	
YA	0.282968	0.283772	8000	VM	0.328636	0.368952	5300
	0.307553	0.310778			0.348147	0.385629	
	0.311163	0.293192			0.346904	0.371742	
	0.289922	0.270316			0.328823	0.356917	
XM	0.301093	0.342244	6700	VN	0.328823	0.356917	5300
	0.313617	0.354992			0.346904	0.371742	
	0.314792	0.344438			0.345781	0.359190	
	0.303051	0.332708			0.329006	0.345092	
XN	0.303051	0.332708	6700	VO	0.329006	0.345092	5300
	0.314792	0.344438			0.345781	0.359190	
	0.316042	0.333222			0.344443	0.344232	
	0.305170	0.322386			0.329220	0.331331	
X0	0.305170	0.322386	6700	VP	0.329220	0.331331	5300
	0.316042	0.333222			0.344443	0.344232	
	0.317466	0.320438			0.343352	0.332034	
	0.307553	0.310778			0.329393	0.320211	
XP	0.307553	0.310778	6700	UM	0.348147	0.385629	4750
	0.317466	0.320438			0.367294	0.400290	
	0.319597	0.301303			0.364212	0.382878	
	0.311163	0.293192			0.346904	0.371742	
WM	0.313617	0.354992	6000	UN	0.346904	0.371742	4750
	0.328636	0.368952			0.364212	0.382878	
	0.328823	0.356917			0.362219	0.371616	
	0.314792	0.344438			0.345781	0.359190	
WN	0.314792	0.344438	6000	U0	0.345781	0.359190	4750
	0.328823	0.356917			0.362219	0.371616	
	0.329006	0.345092			0.359401	0.355699	
	0.316042	0.333222			0.344443	0.344232	
W0	0.316042	0.333222	6000	UP	0.344443	0.344232	4750
	0.329006	0.345092			0.359401	0.355699	
	0.329220	0.331331			0.357079	0.342581	
	0.317466	0.320438			0.343352	0.332034	
WP	0.317466	0.320438	6000				
	0.329220	0.331331					
	0.329393	0.320211					
	0.318606	0.310201					

Note for Table 10:

1. Philips Lumileds maintains a tester tolerance of ± 0.005 on x, y color coordinates.

Neutral-White Bin Structure

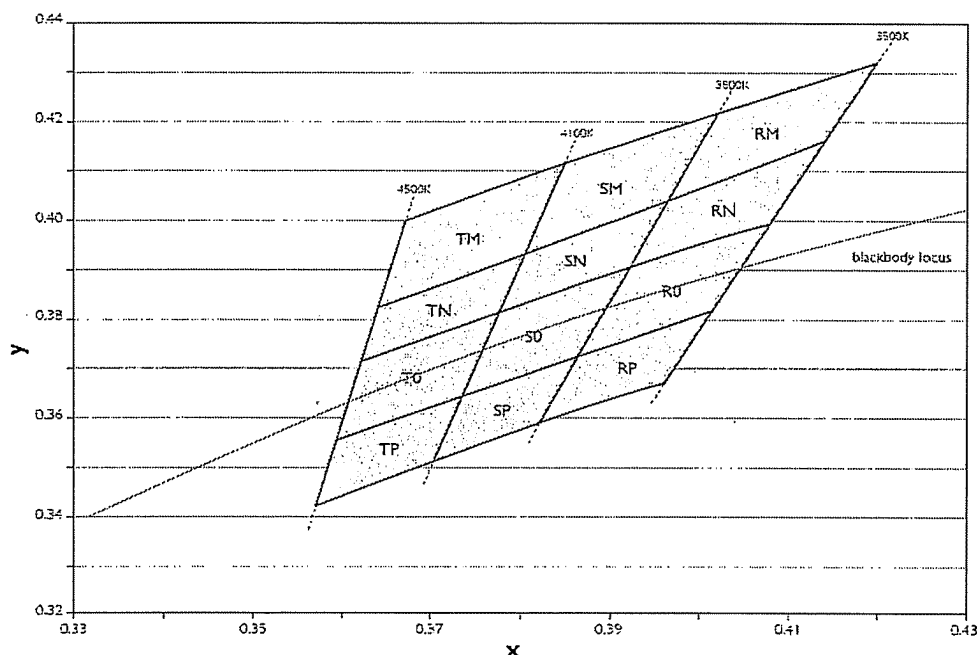


Figure 24: Neutral-White Bin Structure.

Neutral-White LUXEON Rebel Emitters are tested and binned by x,y coordinates. 12 Color Bins, CCT Range 4,500K to 3,500K

Table 11.

Neutral-White Bin Coordinates							
Bin Code	X	Y	Typical CCT (K)	Bin Code	X	Y	Typical CCT (K)
TM	0.367294	0.400290	4300	SO	0.378264	0.382458	3950
	0.385953	0.412995			0.392368	0.390932	
	0.381106	0.393747			0.387071	0.373899	
	0.364212	0.382878			0.374075	0.365822	
TN	0.364212	0.382878	4300	SP	0.374075	0.365822	3950
	0.381106	0.393747			0.387071	0.373899	
	0.378264	0.382458			0.382598	0.359515	
	0.362219	0.371616			0.370582	0.351953	
TO	0.362219	0.371616	4300	RM	0.402270	0.422776	3650
	0.378264	0.382458			0.420940	0.432618	
	0.374075	0.365822			0.414776	0.416097	
	0.359401	0.355699			0.396279	0.403508	
TP	0.359401	0.355699	4300	RN	0.396279	0.403508	3650
	0.374075	0.365822			0.414776	0.416097	
	0.370582	0.351953			0.408593	0.399525	
	0.357079	0.342581			0.392368	0.390932	
SM	0.385953	0.412995	3950	RO	0.392368	0.390932	3650
	0.402270	0.422776			0.408593	0.399525	
	0.396279	0.403508			0.402113	0.382156	
	0.381106	0.393747			0.387071	0.373899	
SN	0.381106	0.393747	3950	RP	0.387071	0.373899	3650
	0.396279	0.403508			0.402113	0.382156	
	0.392368	0.390932			0.396564	0.367284	
	0.378264	0.382458			0.382598	0.359515	

Note for Table 11:

1. Philips Lumileds maintains a tester tolerance of ± 0.005 on x, y color coordinates.

Warm-White Bin Structure

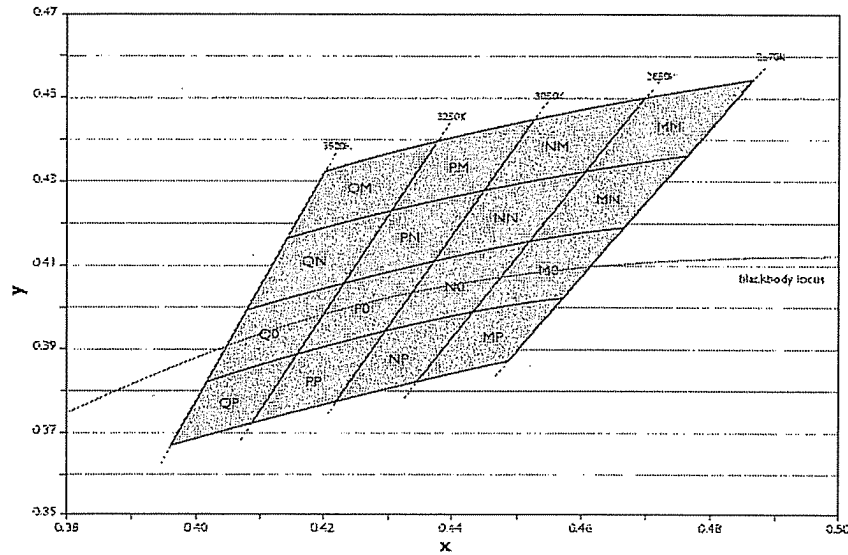


Figure 25: Warm-White Bin Structure.

Warm-White LUXEON Rebel Emitters are tested and binned by x,y coordinates. 16 Color Bins, CCT Range 3,500K to 2,670K

Table 12.

Warm-White Bin Coordinates							
Bin Code	X	Y	Typical CCT (K)	Bin Code	X	Y	Typical CCT (K)
QM	0.420940	0.432618	3375	NM	0.453820	0.445980	2950
	0.438458	0.440399			0.470507	0.450832	
	0.431186	0.423386			0.461404	0.433334	
	0.414776	0.416097			0.445639	0.428680	
QN	0.414776	0.416097	3375	NN	0.445639	0.428680	2950
	0.431186	0.423386			0.461404	0.433334	
	0.423956	0.406472			0.452512	0.416241	
	0.408593	0.399525			0.437578	0.411632	
QO	0.408593	0.399525	3375	NO	0.437578	0.411632	2950
	0.423956	0.406472			0.452512	0.416241	
	0.416487	0.389001			0.443600	0.399111	
	0.402113	0.382156			0.429373	0.394281	
QP	0.402113	0.382156	3375	NP	0.429373	0.394281	2950
	0.416487	0.389001			0.443600	0.399111	
	0.409996	0.373814			0.435591	0.383714	
	0.396564	0.367284			0.422124	0.378952	
PM	0.438458	0.440399	3150	MM	0.470507	0.450832	2760
	0.453820	0.445980			0.486648	0.454191	
	0.445639	0.428680			0.476733	0.436634	
	0.431186	0.423386			0.461404	0.433334	
PN	0.431186	0.423386	3150	MN	0.461404	0.433334	2760
	0.445639	0.428680			0.476733	0.436634	
	0.437578	0.411632			0.467132	0.419632	
	0.423956	0.406472			0.452512	0.416241	
PO	0.423956	0.406472	3150	MO	0.452512	0.416241	2760
	0.437578	0.411632			0.467132	0.419632	
	0.429373	0.394281			0.457663	0.402866	
	0.416487	0.389001			0.443600	0.399111	
PP	0.416487	0.389001	3150	MP	0.443600	0.399111	2760
	0.429373	0.394281			0.457663	0.402866	
	0.422124	0.378952			0.448994	0.387515	
	0.409996	0.373814			0.435591	0.383714	

Note for Table 12:

- Philips Lumileds maintains a tester tolerance of ± 0.005 on x, y color coordinates.

Color Bins

Green, Cyan and Blue LUXEON Rebel Emitters are tested and binned for dominant wavelength.

Dominant Wavelength Bin Structure for Green Emitters

Table 13.

Bin Code	Minimum Dominant Wavelength (nm)	Maximum Dominant Wavelength (nm)
1	520	525
2	525	530
3	530	535
4	535	540
5	540	545
6	545	550

Dominant Wavelength Bin Structure for Cyan Emitters

Table 14.

Bin Code	Minimum Dominant Wavelength (nm)	Maximum Dominant Wavelength (nm)
1	490	495
2	495	500
3	500	505
4	505	510
5	510	515
6	515	520

Dominant Wavelength Bin Structure for Blue Emitters

Table 15.

Bin Code	Minimum Dominant Wavelength (nm)	Maximum Dominant Wavelength (nm)
1	460	465
2	465	470
3	470	475
4	475	480
5	480	485
6	485	490

Royal-Blue Luxeon Rebel Emitters are tested and binned for peak wavelength.

Peak Wavelength Bin Structure for Royal-Blue Emitters

Table 16.

Bin Code	Minimum Peak Wavelength (nm)	Maximum Peak Wavelength (nm)
3	440	445
4	445	450
5	450	455
6	455	460
7	460	465
8	465	470

Red, Red-Orange and Amber LUXEON Rebel Emitters are tested and binned for dominant wavelength.

Dominant Wavelength Bin Structure for Red Emitters

Table 17.

Bin Code	Minimum Dominant Wavelength (nm)	Maximum Dominant Wavelength (nm)
4	620.5	631.0
5	631.0	645.0

Dominant Wavelength Bin Structure for Red-Orange Emitters

Table 18.

Bin Code	Minimum Dominant Wavelength (nm)	Maximum Dominant Wavelength (nm)
2	613.5	620.5

Dominant Wavelength Bin Structure for Amber Emitters

Table 19.

Amber Dominant Wavelength Bins		
Bin Code	Minimum Dominant Wavelength (nm)	Maximum Dominant Wavelength (nm)
1	584.5	587.0
2	587.0	589.5
4	589.5	592.0
6	592.0	594.5
7	594.5	597.0

Forward Voltage Bins

Table 20 lists minimum and maximum V_F bin values per emitter. Although several bins are outlined, product availability in a particular bin varies by production run and by product performance.

Table 20.

V_F Bins		
Bin Code	Minimum Forward Voltage (V)	Maximum Forward Voltage (V)
A	2.31	2.55
B	2.55	2.79
C	2.79	3.03
D	3.03	3.27
E	3.27	3.51
F	3.51	3.75
G	3.75	3.99

PHILIPS

LUMILEDS

LIGHT FROM SILICON VALLEY

Company Information

Philips Lumileds Lighting Company is a world class supplier of Light Emitting Diodes (LEDs) and produces billions of LEDs annually.

Philips Lumileds is a fully integrated supplier producing core LED material in all three base colors (red, green, blue) and white.

Philips Lumileds has R&D centers in San Jose, California and in The Netherlands as well as production capabilities in San Jose, Penang Malaysia and Singapore. Founded in 1999, Philips Lumileds is the high-flux LED technology leader and is dedicated to bridging the gap between solid-state LED technology and the lighting world. Philips Lumileds technologies, LEDs and systems are enabling new applications and markets in the lighting world.

Philips Lumileds may make process or materials changes affecting the performance or other characteristics of our products. These products supplied after such changes will continue to meet published specifications, but may not be identical to products supplied as samples or under prior orders.



WWW.LUXEON.COM
WWW.LUMILEDSFUTURE.COM

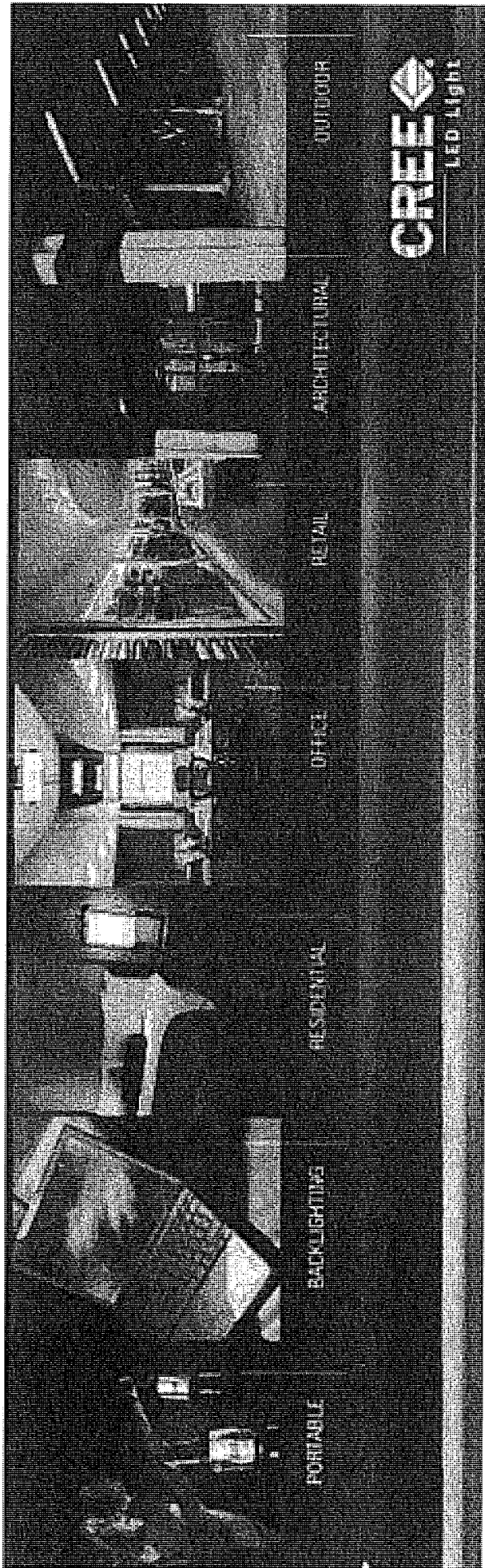
FOR TECHNICAL ASSISTANCE OR THE
LOCATION OF YOUR NEAREST SALES
OFFICE CONTACT ANY OF THE
FOLLOWING:

NORTH AMERICA:
+1 888 589 3662 OR
ASKLUXEON@FUTUREELECTRONICS.COM

EUROPE:
00 800 443 88 873 OR
LUXEON.EUROPE@FUTUREELECTRONICS.COM

ASIA:
800 5864 5337 OR
LUMILEDS.ASIA@FUTUREELECTRONICS.COM

©2007 Philips Lumileds Lighting Company. All rights reserved. Product specifications are subject to change without notice. Luxeon is a registered trademark of the Philips Lumileds Lighting Company in the United States and other countries.

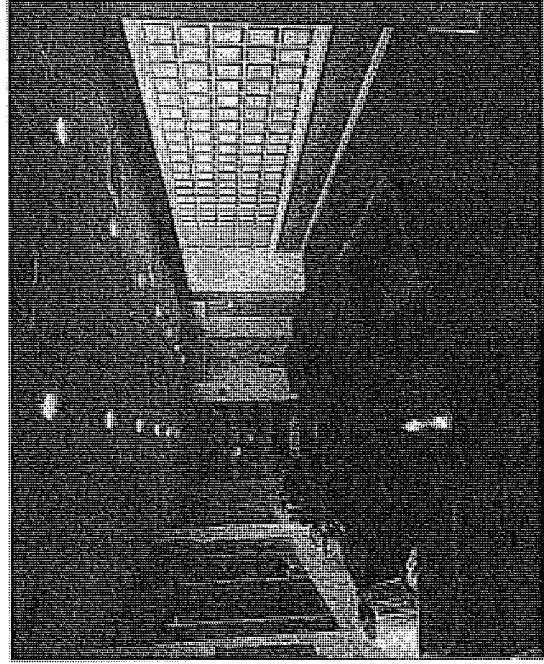
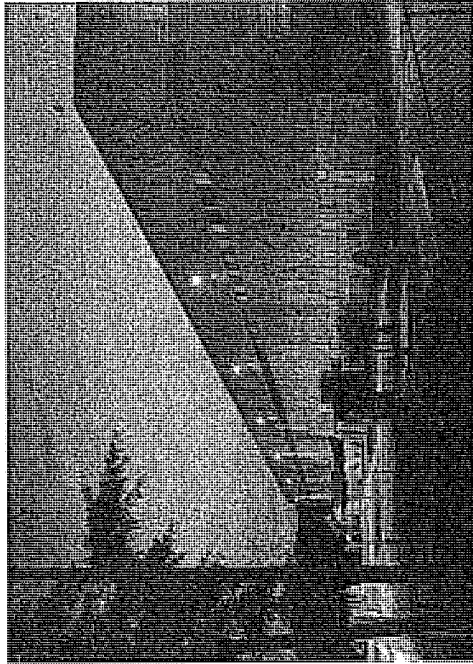


"Lighting Class" LED Design Basics

Greg Bibee
Product Marketing Manager



Cree, Inc. Snapshot



LED Technology Leader

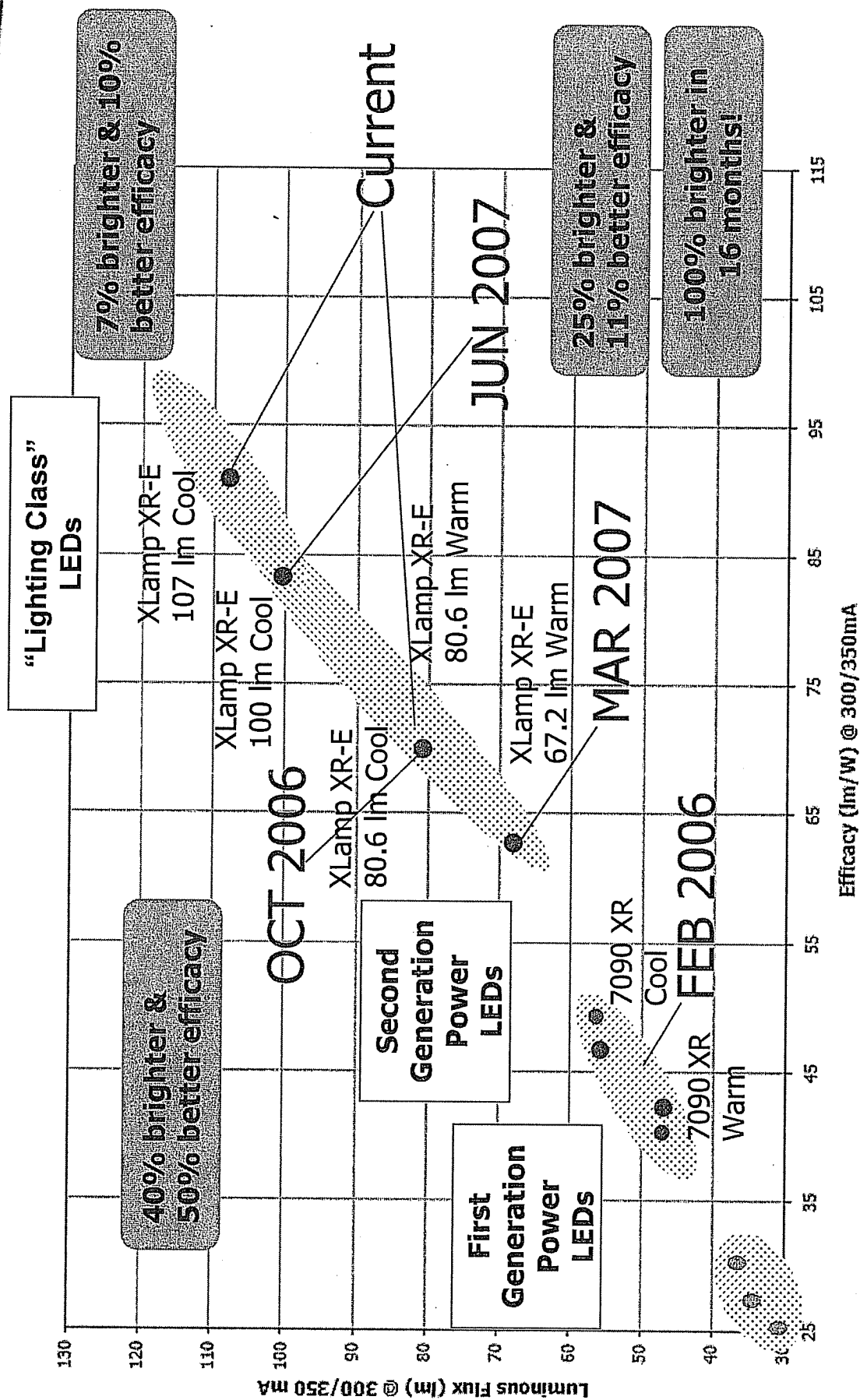
- Leading supplier of InGaN LED chips
- Created the first Lighting Class LEDs
- U.S. Patents: 827
- Foreign Patents: 1,800

Global Scale

- Locations: 12
- Employees: 3,200
- Headquarters: Durham NC, USA

Company Facts

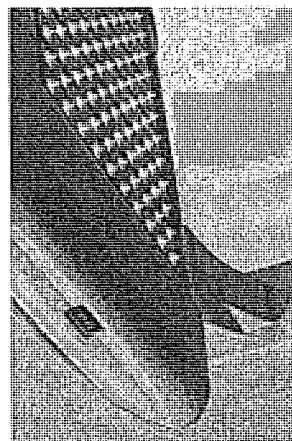
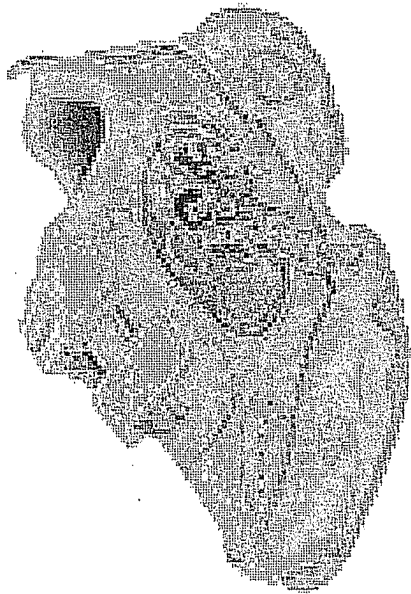
- Revenue: \$493 million (FY 2008)
- NASDAQ: CREE



LEDs Have Come A Long Way...The Future is Now

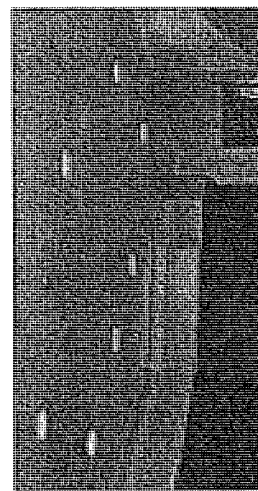
- Dramatic improvement over the last two decades in

- Brightness
- Energy efficiency
- Cost reduction
- Color point stability
- Lighting applications know-how



*Courtesy of
Beta
Lighting*

- Cree achieved major tipping point in 2006, enabling never-before-possible cool white outdoor lighting applications



*Courtesy
of LLF,
Inc.*

- Major warm white LED technical milestone reached March 2007 enabling the same in indoor solid state lighting

CREE  LED Light

Traditional Lighting Technologies

Incandescent



Pros: Very cheap, great color
Cons: Very short lifetime,
poor energy efficiency

Fluorescent



Pros: Cheap, energy efficient
Cons: Can not run in cold temp;
difficult/costly to dim,
control, Hg

Compact Fluorescent

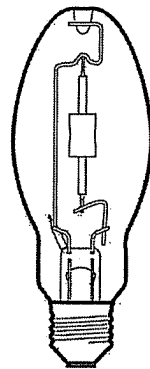


Pros: Energy efficient
Cons: Poor color quality,
Can not run in cold,
High cost vs. Incand, Hg

Halogen



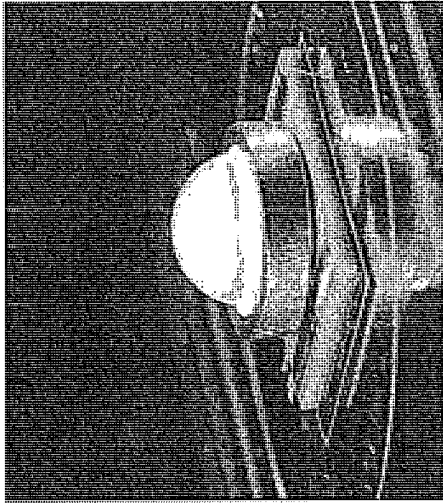
Pros: Great color, focused light
Cons: Very short lifetime,
poor energy efficiency



Pros: Cheap, efficient
Cons: Poor color,
long restart,
short lifetime

High Intensity Discharge

Advantages of LED Light



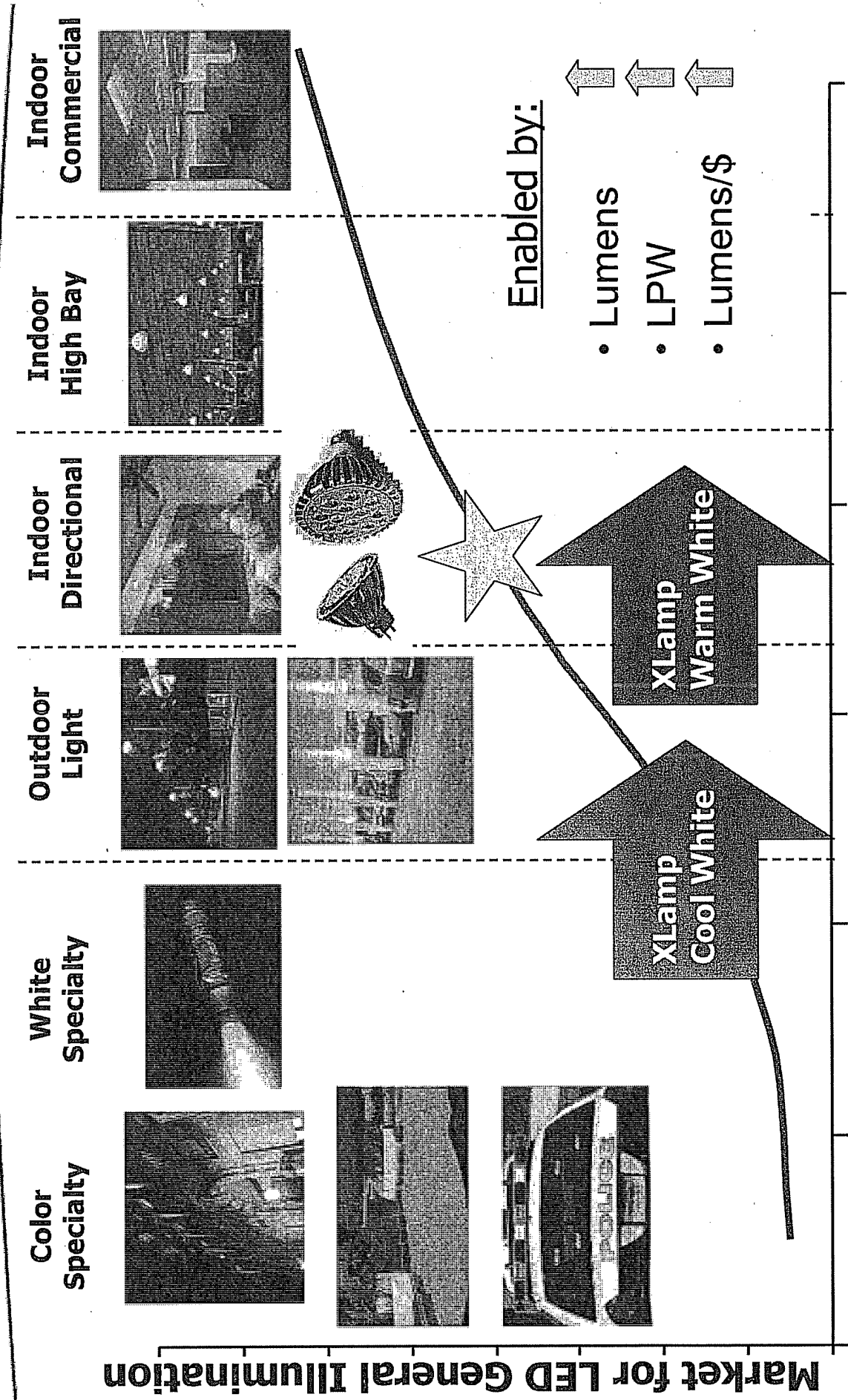
- Energy efficient → >90LPW (& increasing!)
- Available in full range of CCT @ high CRI → no compromise
- Directional → No wasted light
- Long lifetime → 50,000+ hours
- Rugged → No filament to break
- Start instantly → nanoseconds vs. minutes (HID)
- Environmentally sound → no Hg, Pb, heavy metals
- Infinitely dimmable, controllable → New lighting features, power savings
- Love cold temperatures → No cold starting issues

Light Source Comparison

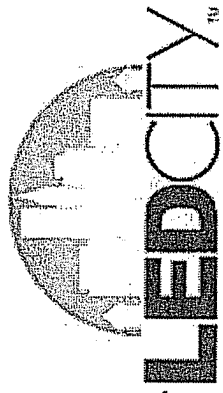
Light Type	Data Sheet lm/W	Usable* lm/W	Lifetime (hrs)	CRI
Incandescent	17	10-17	3k	100
Halogen	20	12-20	10k	100
T12 fluorescent	60	40-50	20k	62-85
Metal halide	65-70	35-40	10k-20k	60-90
"Best" Lighting-Class LED (Warm White)	76	50-57	50k+	80-85
T8 fluorescent	85-90	65-70	20-30k	78-85
T5 fluorescent	90	62	30k	85
High-pressure sodium	95-110	55-65	24k	22
"Best" Lighting-Class LED (Cool White)	99	65-75	50k+	75
Low-pressure sodium	120-140	65-75	16k	5

* Typical expected performance in real-life applications. Based on mean lumens, and including ballast/driver, thermal equilibrium, and typical fixture Coefficient of Utilization losses.

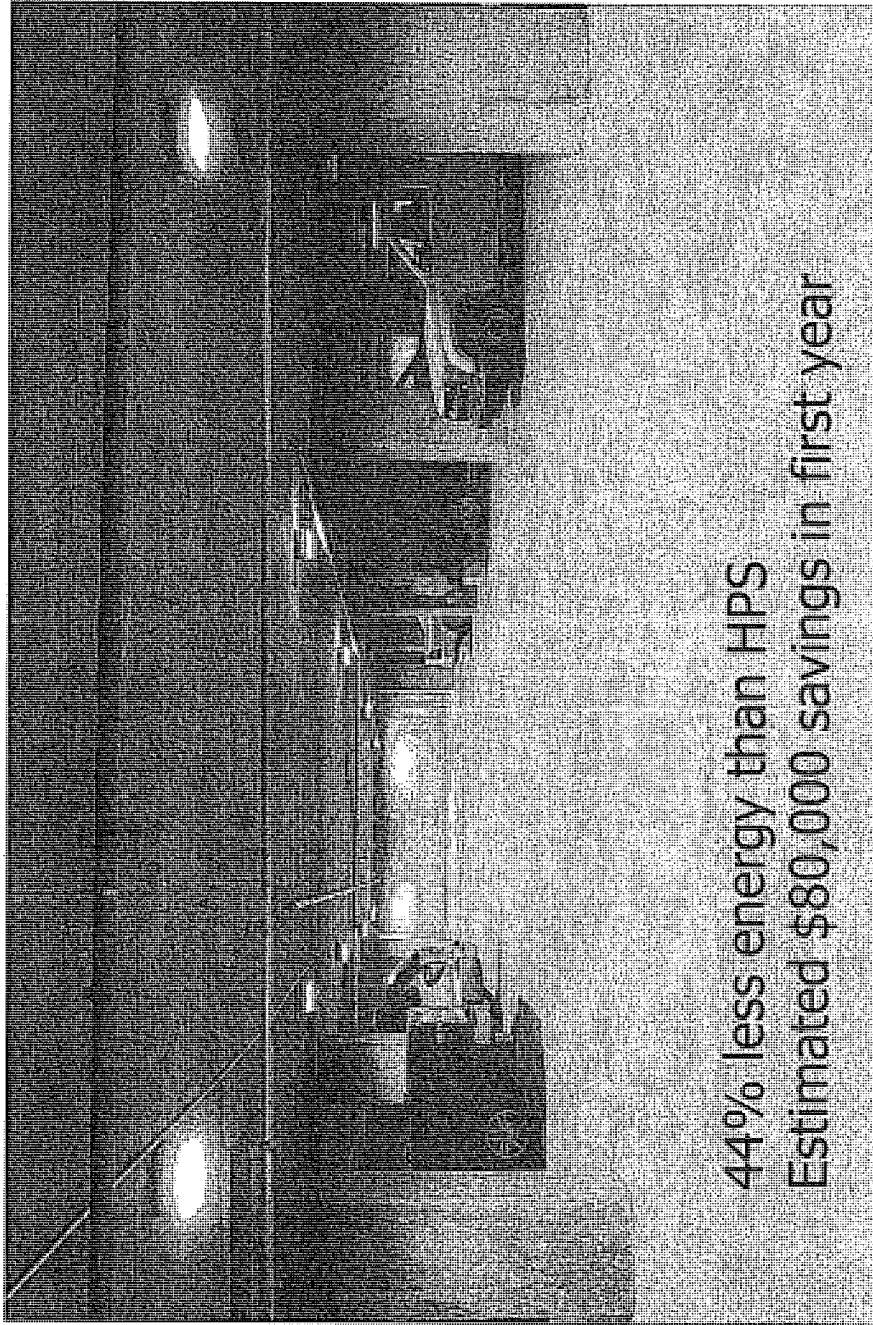
Cree Has Enabled LED Light in General Illumination



Raleigh, NC



Raleigh Convention Center Parking Deck



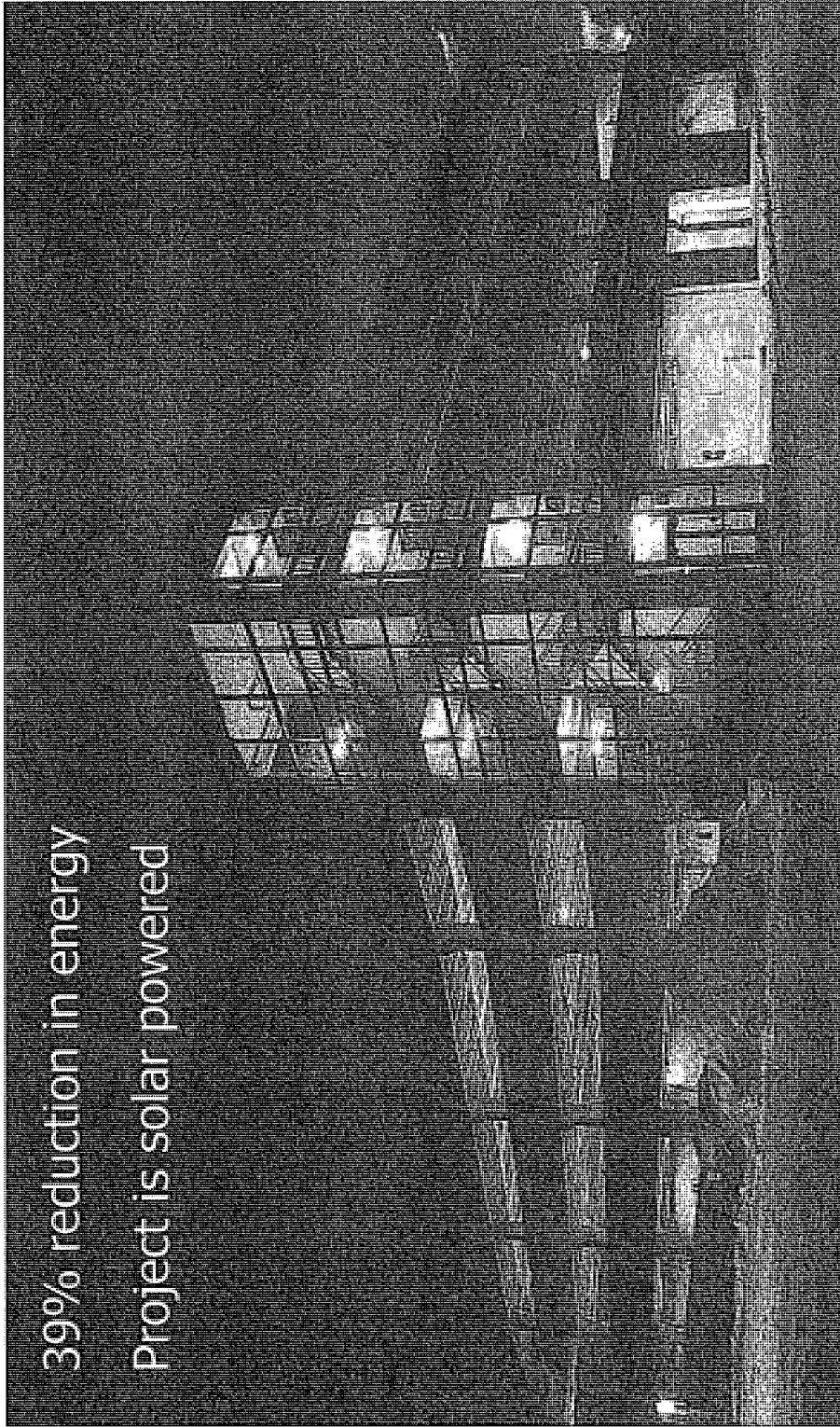
44% less energy than HPS
Estimated \$80,000 savings in first year

Courtesy of BetaLED

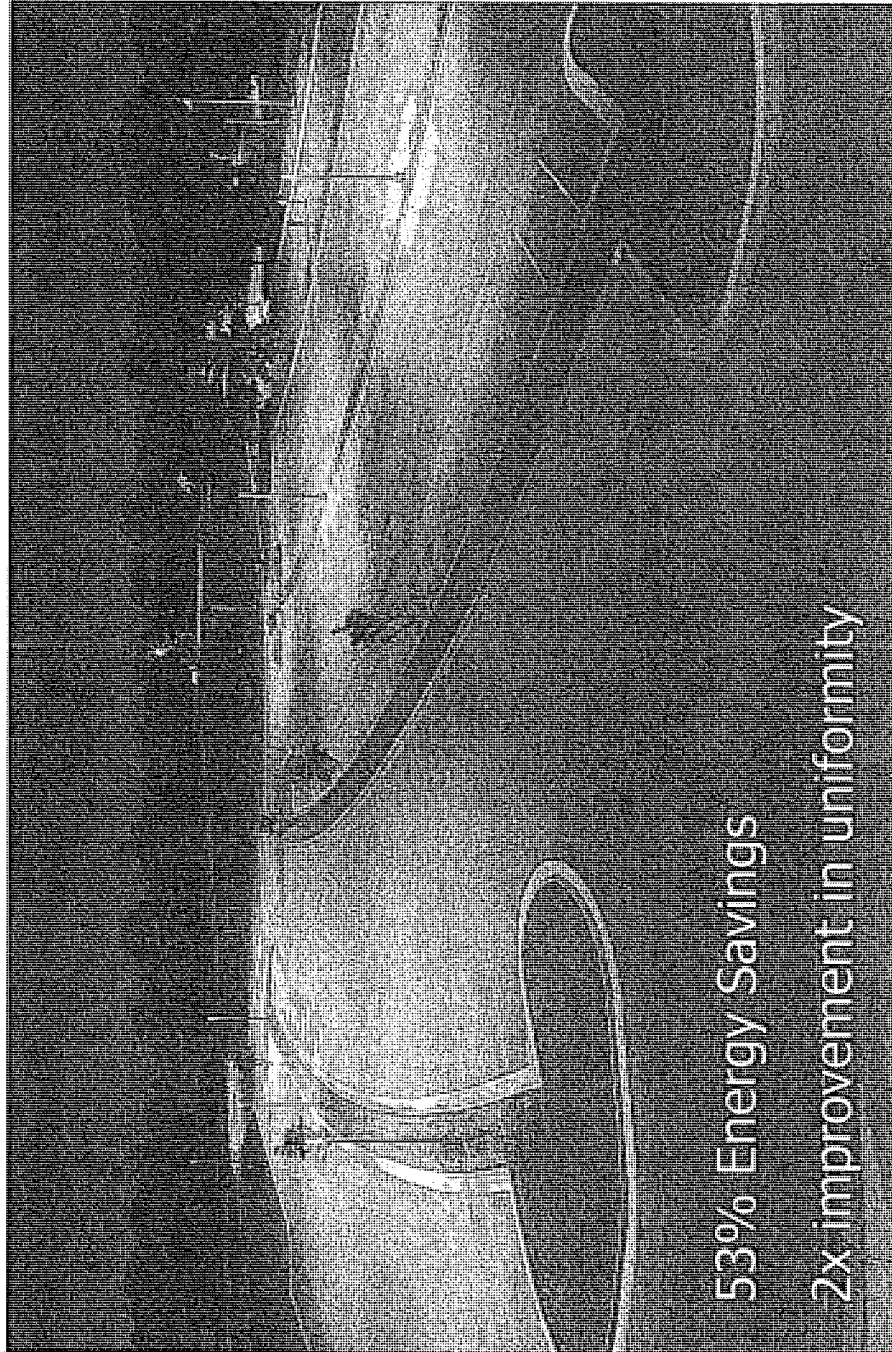


Jackson Hole, WY

39% reduction in energy
Project is solar powered



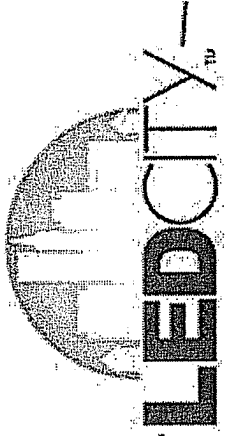
Courtesy of Relume



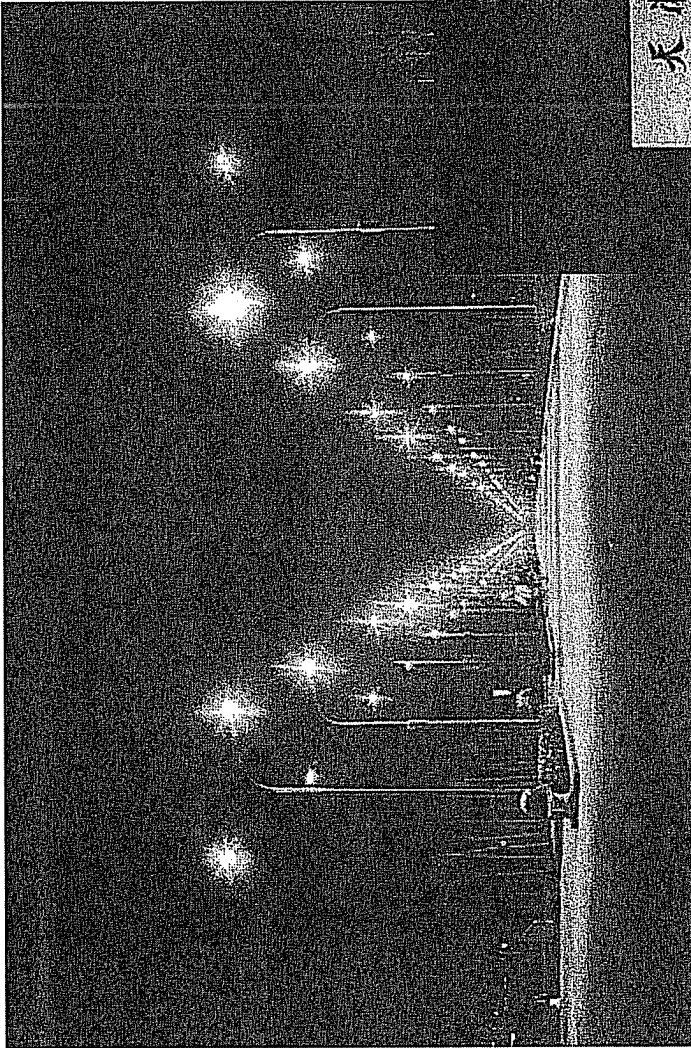
Courtesy of BetaLED

140W LED vs. 300W HPS Comparison

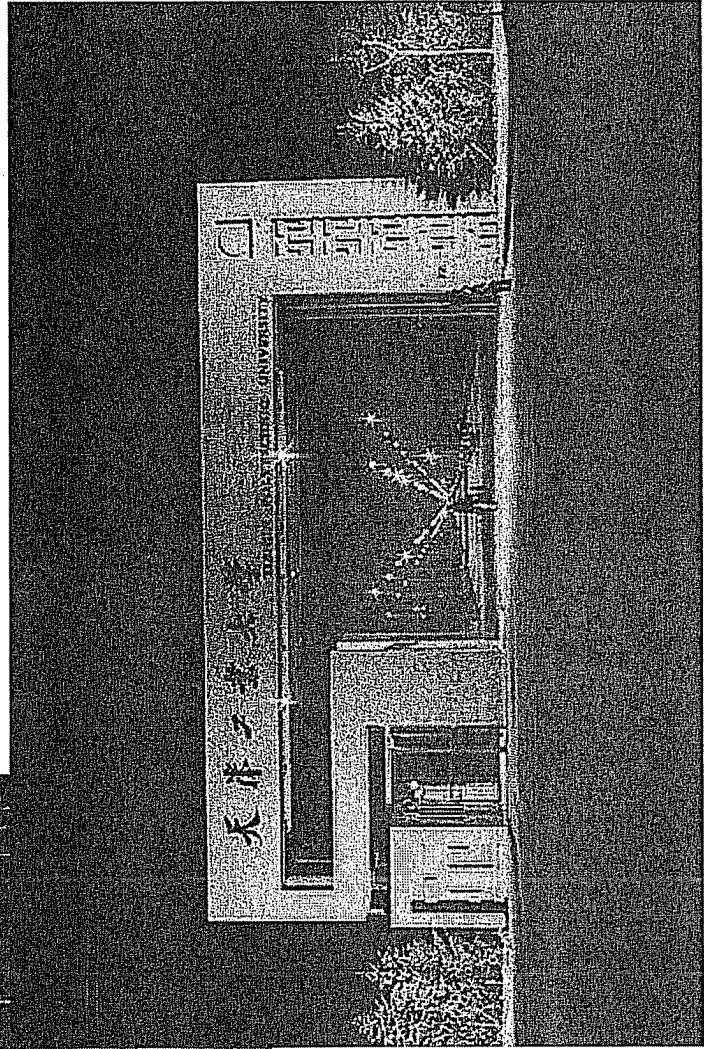
Tianjin Polytechnic University



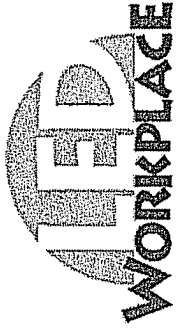
- 2,000 roadway luminaires installed



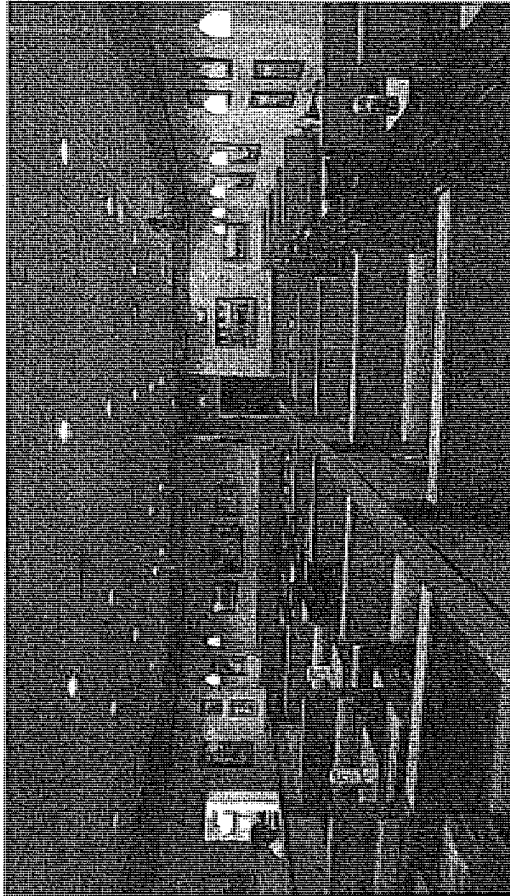
- Primary motivation:
Energy Savings



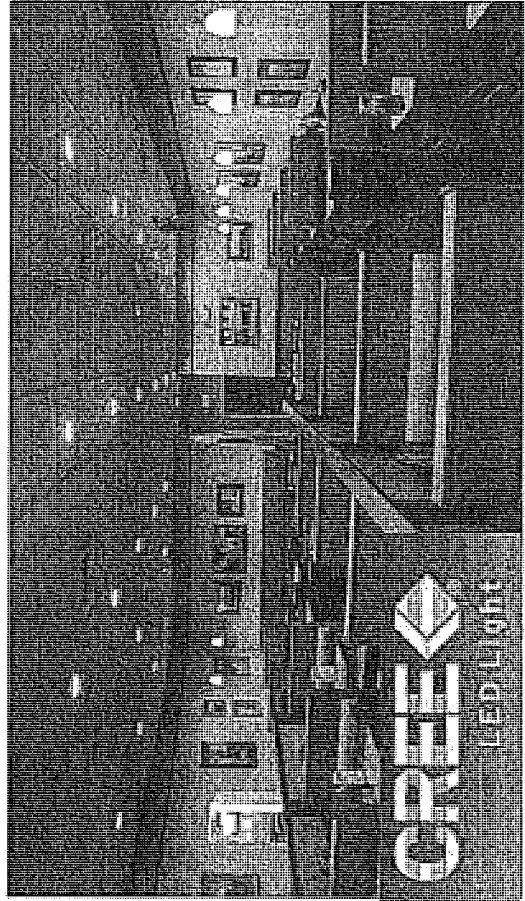
Commercial Indoor Lighting



Friendly's Restaurant – Westfield, Mass.



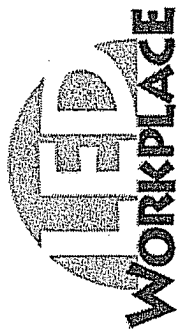
- 65W BR30 Incandescent
- 5,135 W



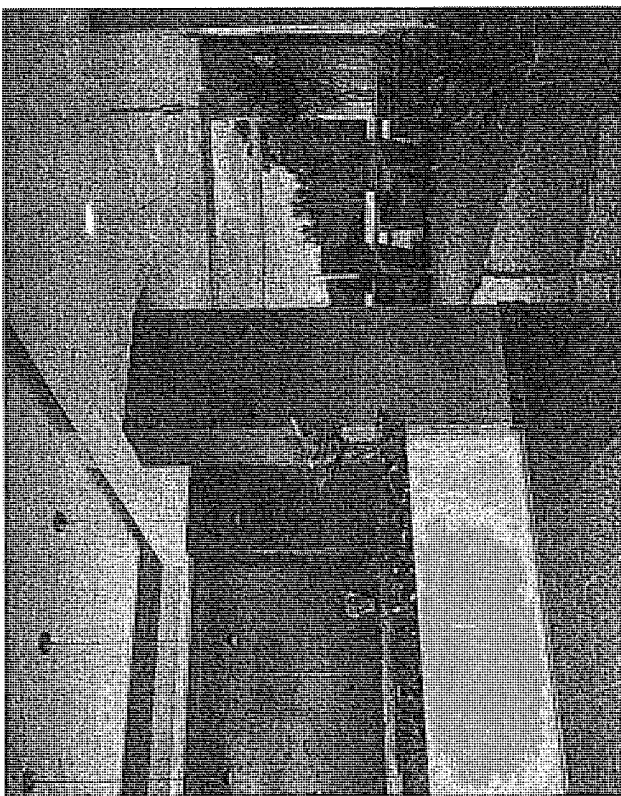
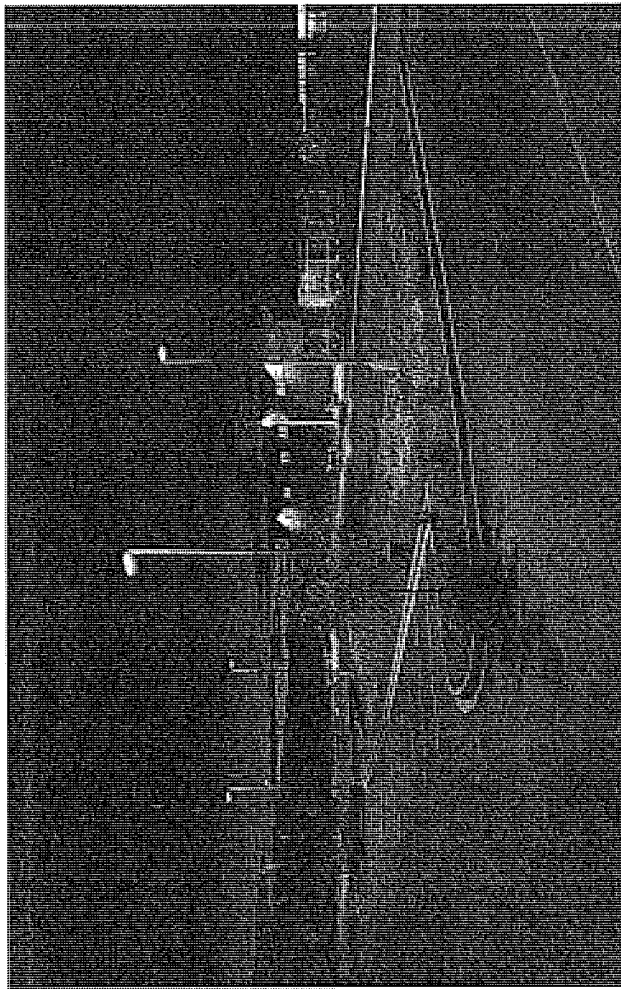
- 12W LR6 LED
- 948W – 80% Energy Savings



New Build Manufacturing Facility

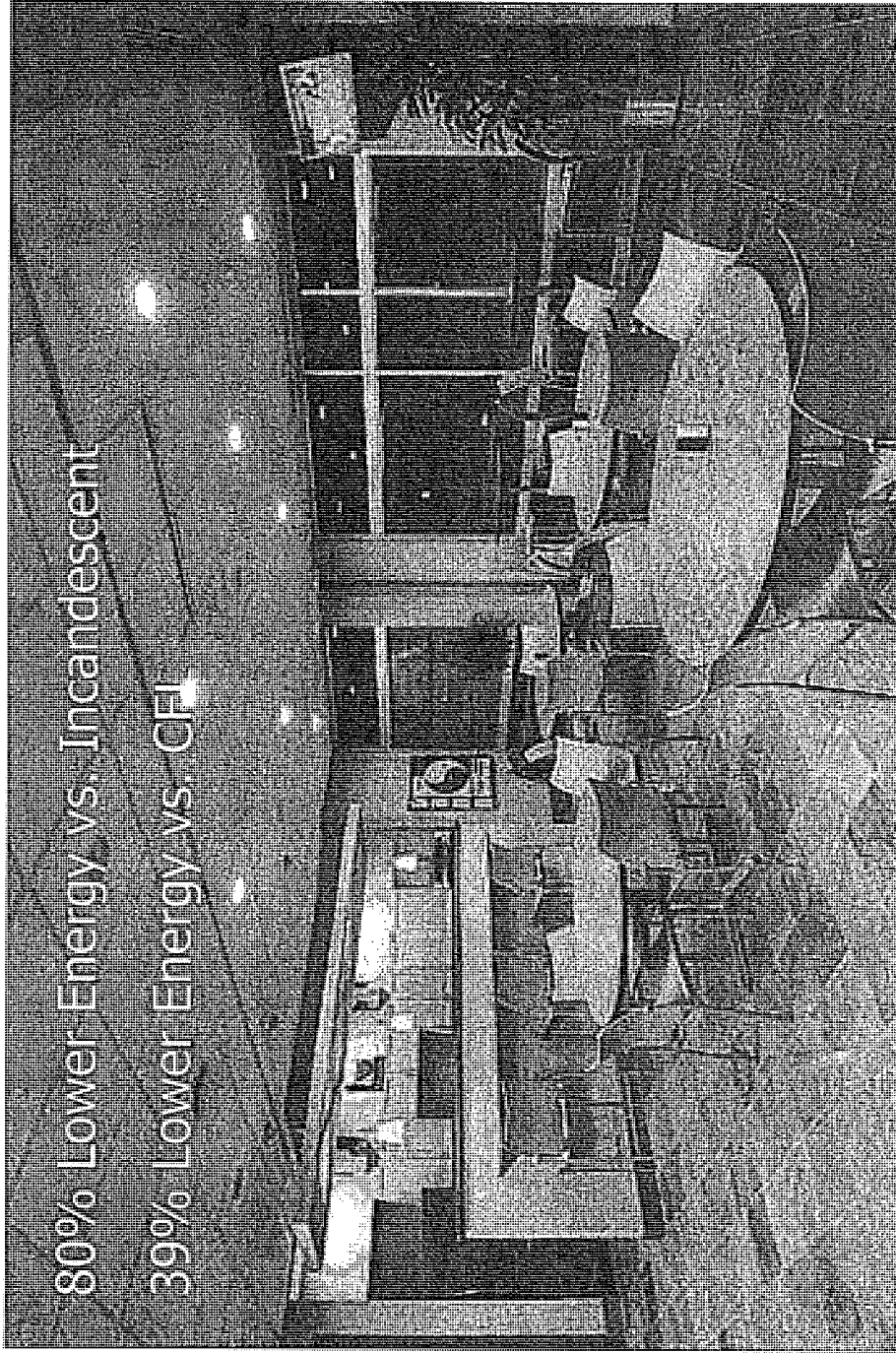


Sentry Equipment Corp. — Oconomowoc, WI



- LED lighting reduced energy from 14.6 kW to 3.6 kW
- 1.3 year payback for using efficient lighting, including LEDs

Oconomowoc, WI



80% Lower Energy vs. Incandescent

39% Lower Energy vs. CFL

Cree LR6



Chicago, IL

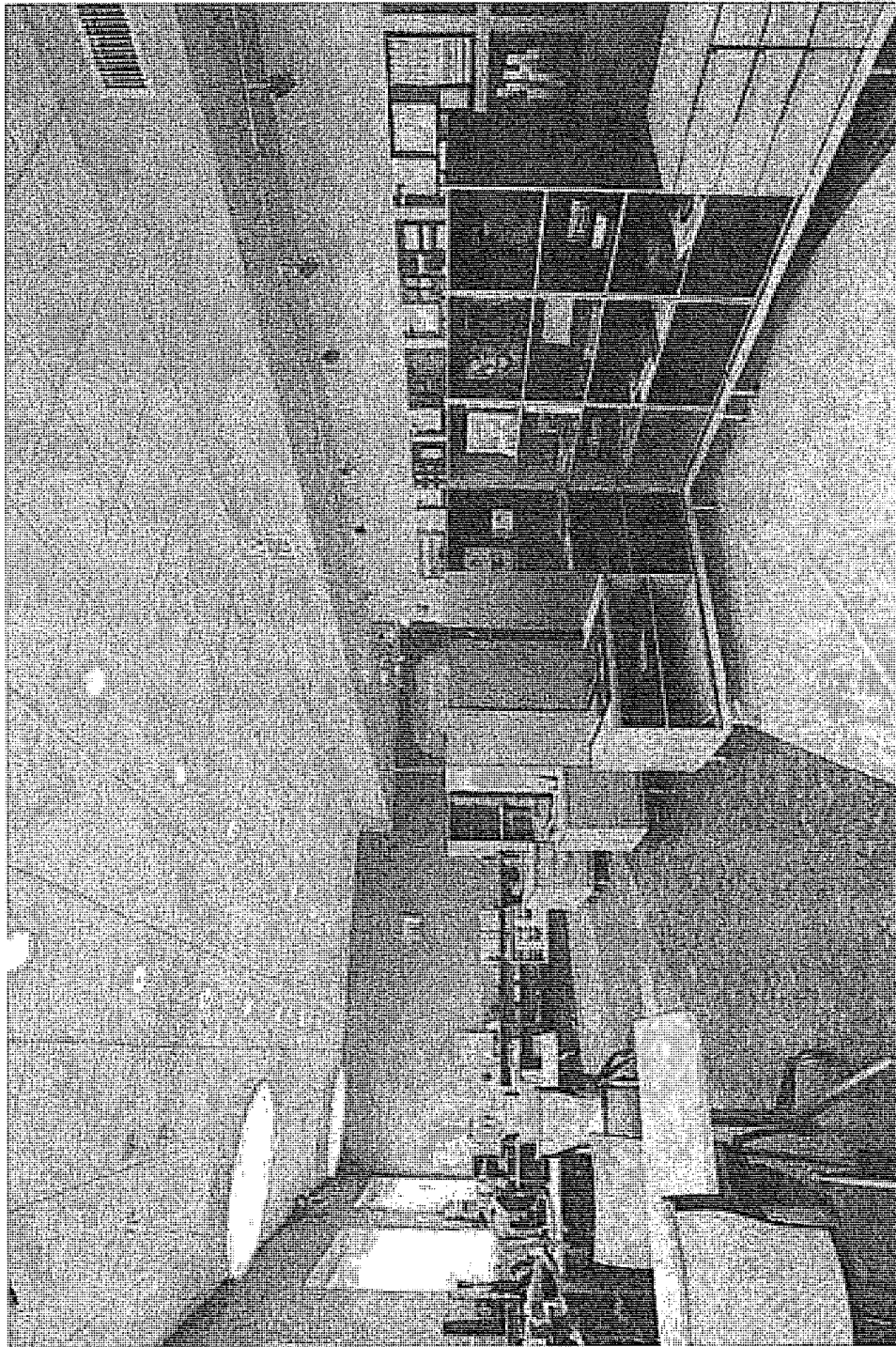


Photo Derry Berrigan, DBLD

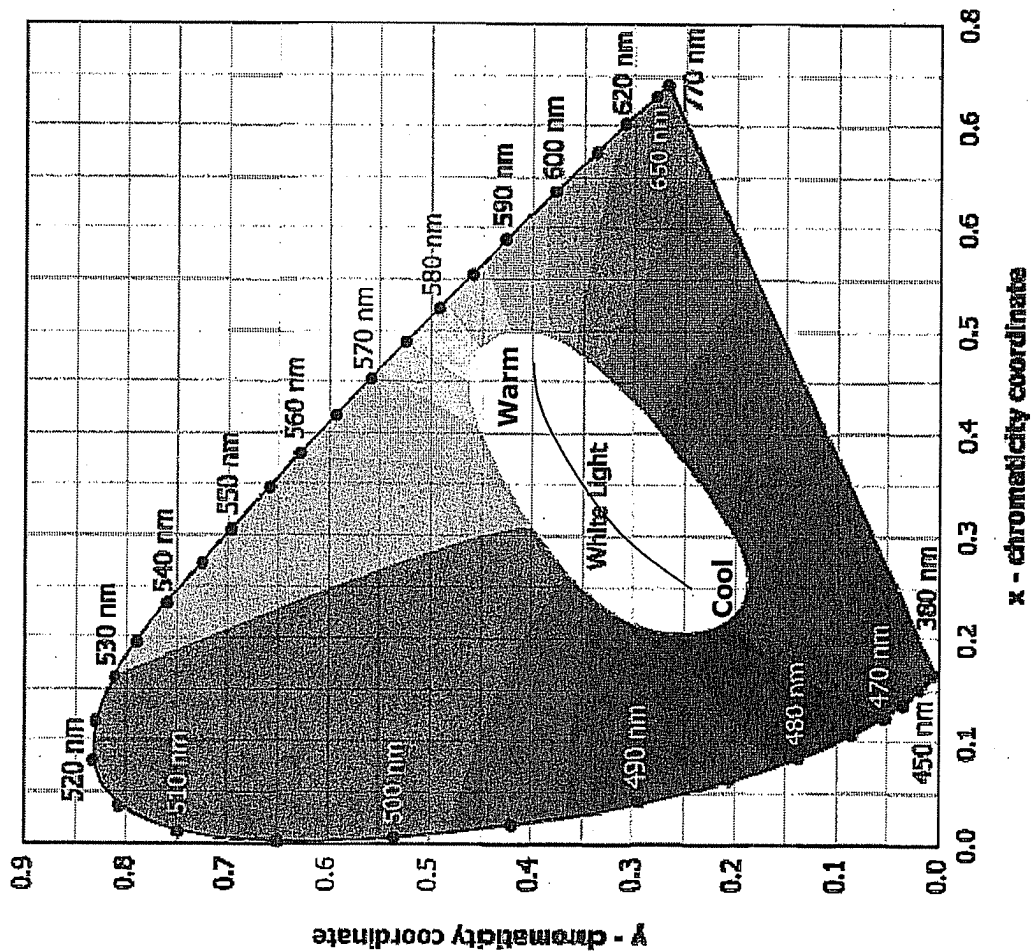
Agenda

- How are LEDs different from traditional light sources?
- What standards apply to LED luminaires?
How will customers judge LED lighting products?
- How do I make sense of all this and make a good product???
- Where is the LED lighting market going?

How are LEDs different from traditional light sources?

Introduction to Lighting Class LEDs

1931 CIE Chromaticity Diagram



The 1931 CIE chromaticity scale gives everyone a common framework to reference very specific shades of color

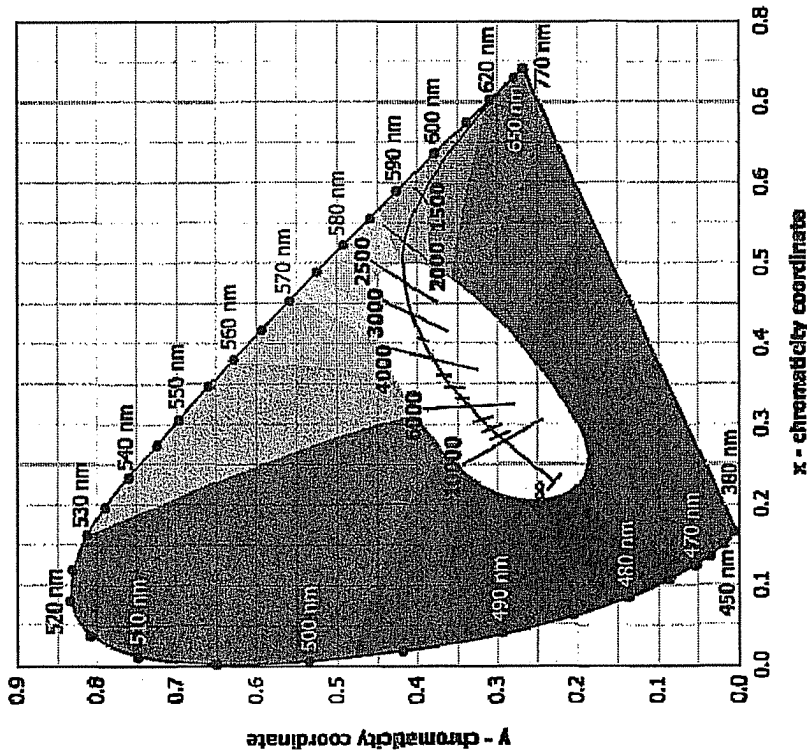
White LED lamps are binned and sold based on the shade of white color represented on a chromaticity scale

How It Works

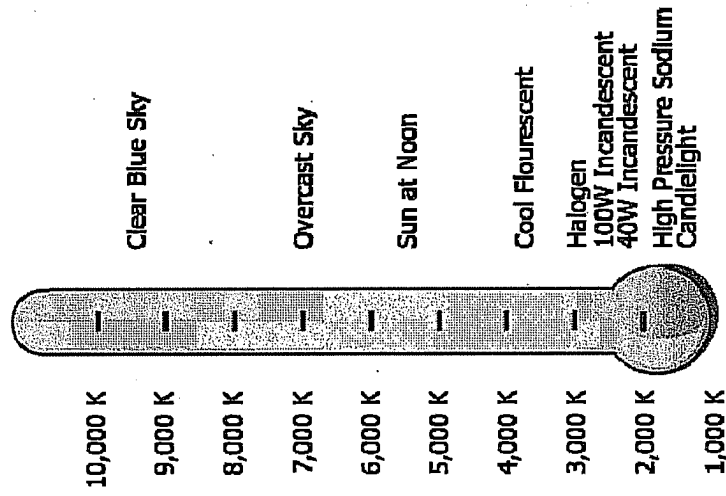
- Monochromatic colors are on the outside edge of the diagram
- All combinations of colors are on the inside, with white colors in the middle

Correlated Color Temperature (CCT)

- Not all "white" light lies directly on the BBL
- CCT refers to the Planckian black-body radiator color temperature (CT) that is closest to the color of the white light source



Relationship between CCT & CT

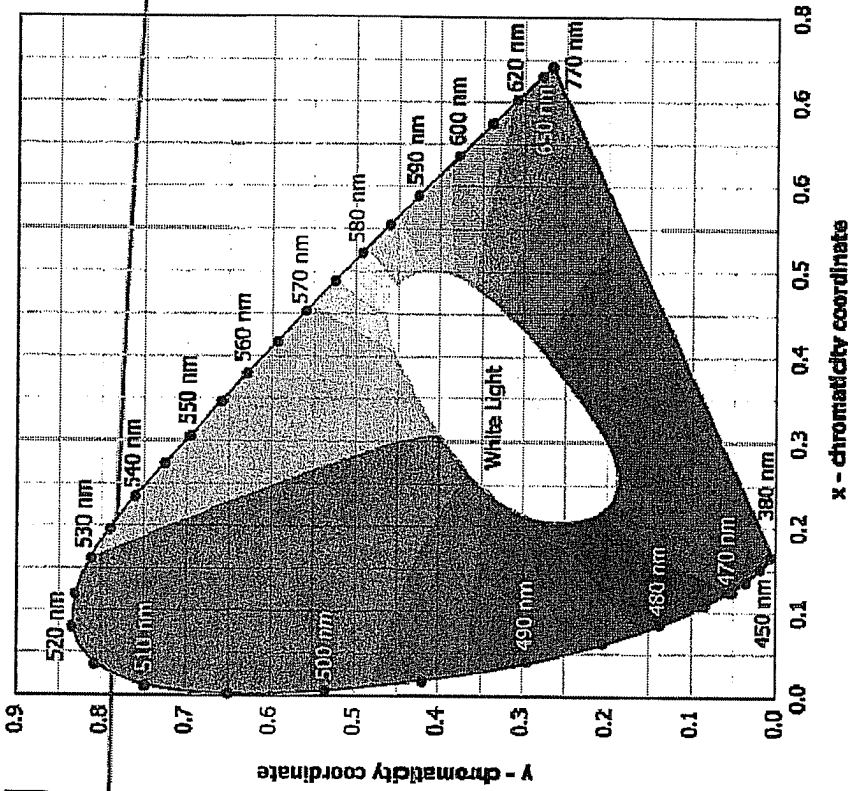


Examples of CCTs

Two Main Types of Binning

- Chromaticity or Color Binning
 - Some defined “Box” in the white area on or near the Black Body Locus (White LEDs)
 - Dominant Wavelength (Color LEDs)

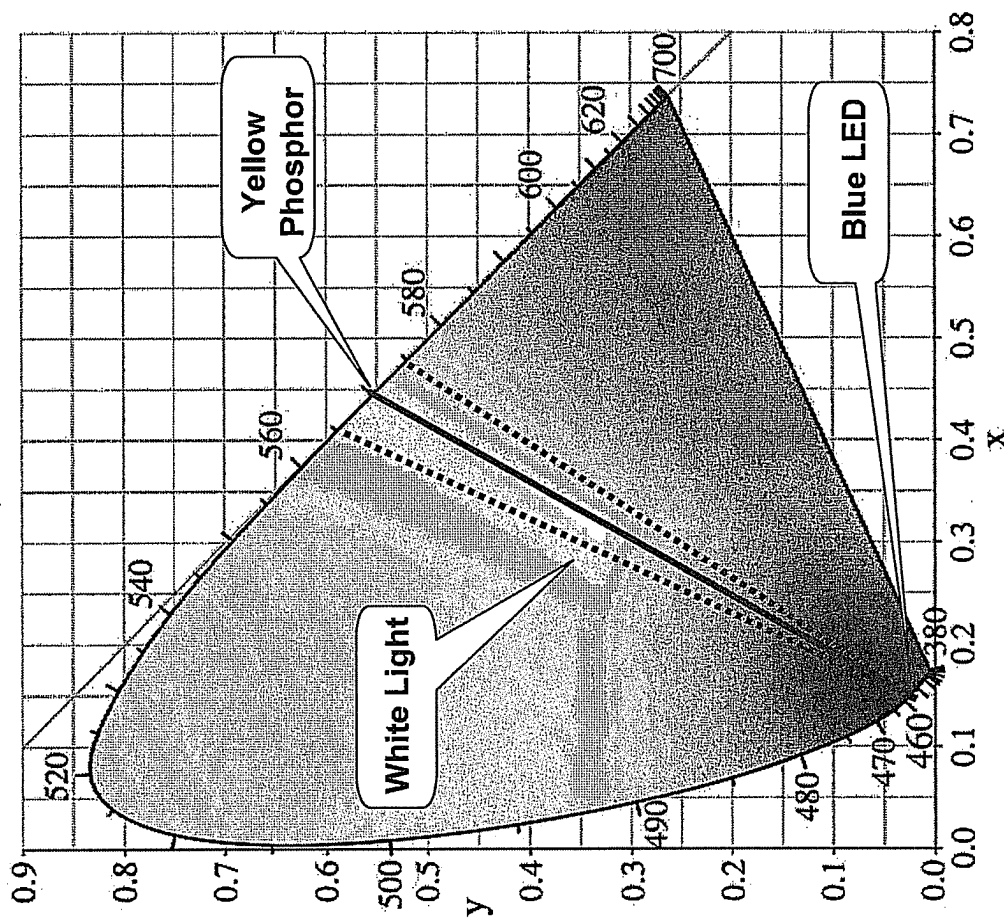
Group Code	Min. Luminous Flux @ 350 mA (lm)	Max. Luminous Flux @ 350 mA (lm)
M2	39.8	45.7
M3	45.7	51.7
N2	51.7	56.8
N3	56.8	62.0
N4	62.0	67.2
P2	67.2	73.9
P3	73.9	80.6
P4	80.6	87.4
Q2	87.4	93.9
Q3	93.9	100
Q4	100	107
Q5	107	114



- Brightness or Flux Binning
 - Minimum luminous flux or radiant Flux
 - Bin sizes (flux range) varies by supplier

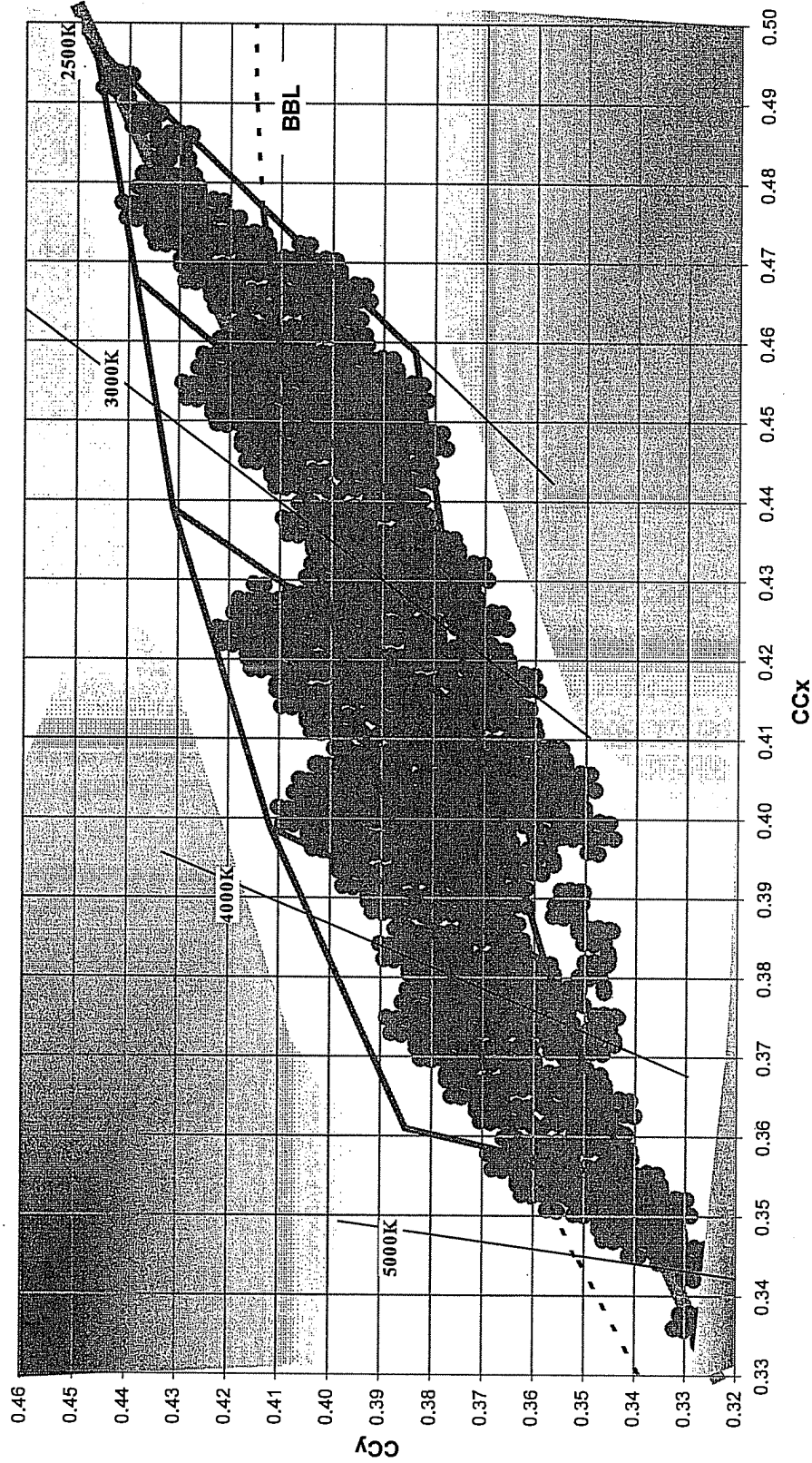
Blue (or UV) + Phosphor = White

- White LED light is generally made from a blue LED matched with a yellow phosphor
- Adding more red phosphor pushes the color temperature closer to the "warm" white CCT points....less, more to the blue ("cool" white)
- The human eye is extraordinarily sensitive, so small process variations in chip wavelength; phosphor thickness, concentration, composition; and/or deposition conditions make a big difference



Typical* LED Yield to Bin

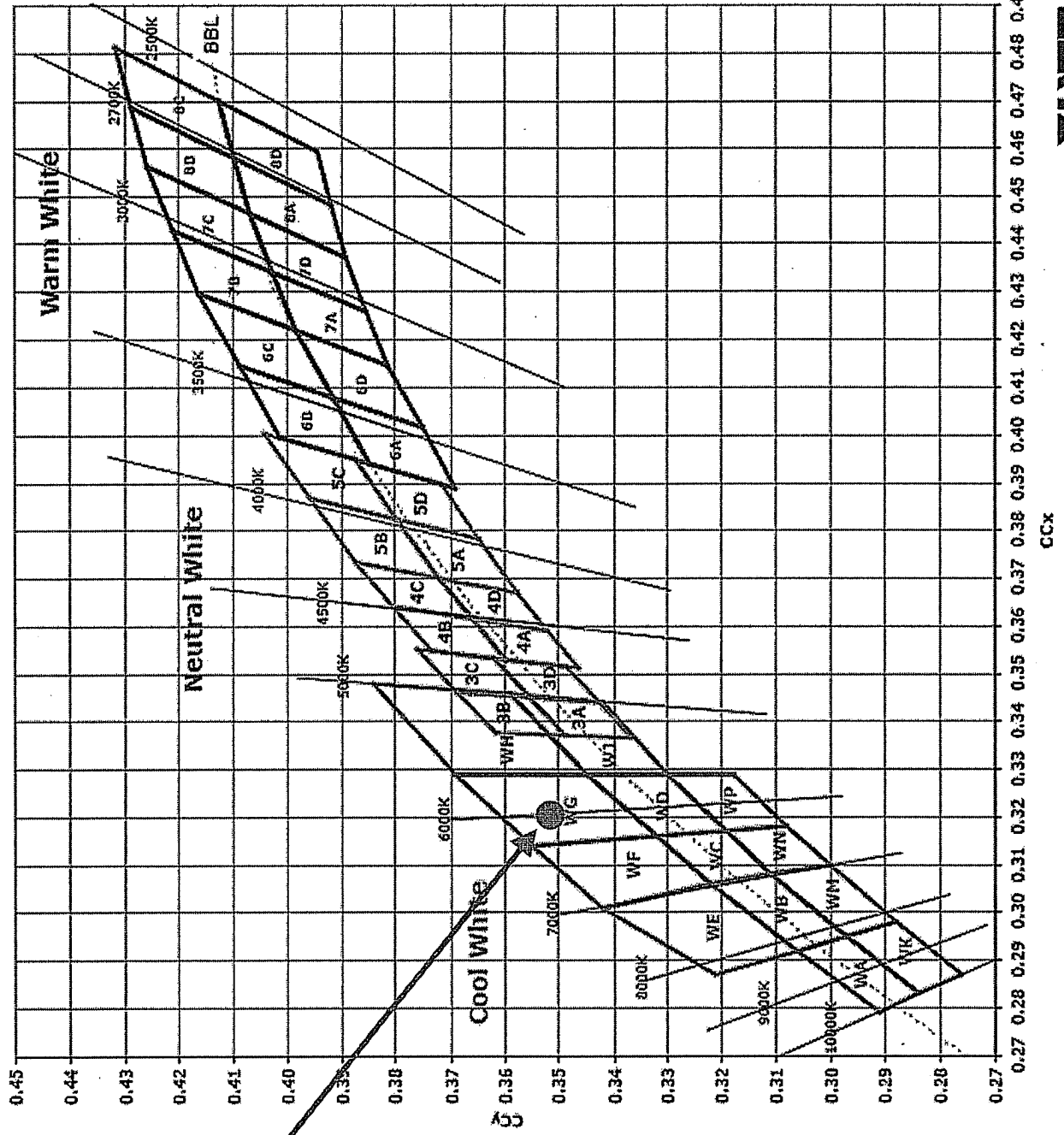
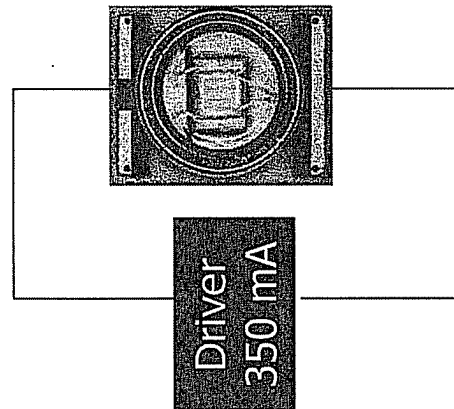
Random Warm White LED



* For illustrative purposes only, not actual data

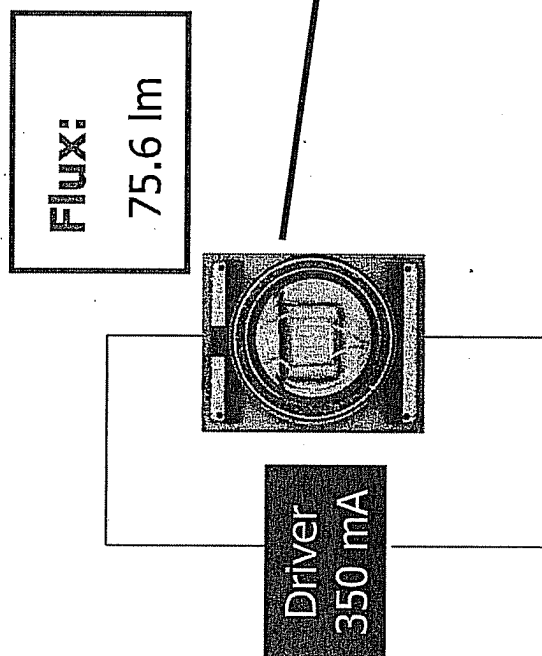
Chromaticity Binning

CCy: 0.35
CCx: 0.32



Luminous Flux Binning

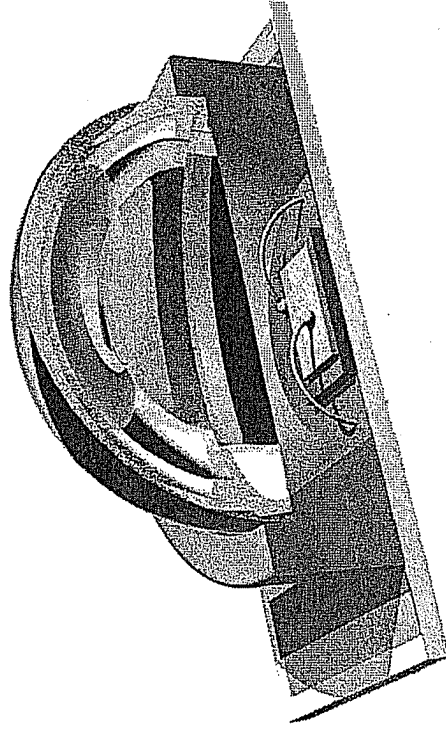
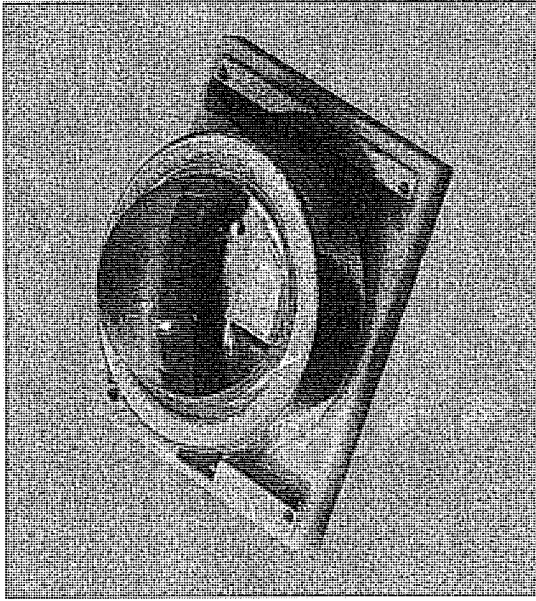
- LEDs are tested & sorted into luminous flux bins
- Performance binning is very standard in the semiconductor industry (e.g., CPUs), but confusing to the lighting industry where performance is very standardized



Group Code	Min. Luminous Flux @ 350 mA (lm)	Max. Luminous Flux @ 350 mA (lm)
M2	39.8	45.7
M3	45.7	51.7
N2	51.7	56.8
N3	56.8	62.0
N4	62.0	67.2
P2	67.2	73.9
P3	73.9	80.6
P4	80.6	87.4
Q2	87.4	93.9
Q3	93.9	100
Q4	100	107
Q5	107	114

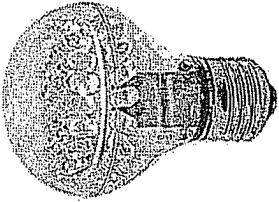
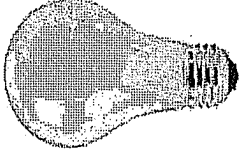
Major Systems of White LEDs

- **LED chip:**
 - Brightness
 - Efficacy
- **Phosphor system:**
 - Color point
 - Color point stability
 - CRI
- **Package:**
 - Chip and phosphor protection
 - Light and heat extraction
 - Lumen maintenance



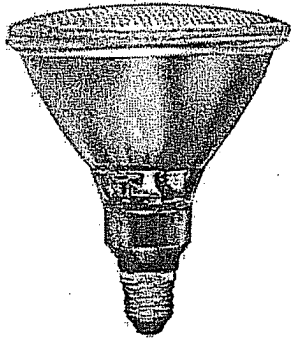
Quality Matters – LED Bulb #1

- Poor LEDs, no design
- 1/10th the required light output
- Bad Results

			
Type	"A19 Style"		25W A19
Time	I=0	I=5hrs	-
lumens	24	21	215
Lumens per Watt	30	27	9
CCT	3097		2700
CRI	72		100

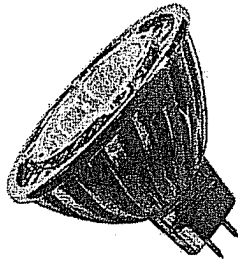
Quality Matters – LED Bulb #2

- <25% the output of the lowest wattage halogen
- Poor thermal design
- Poor CRI

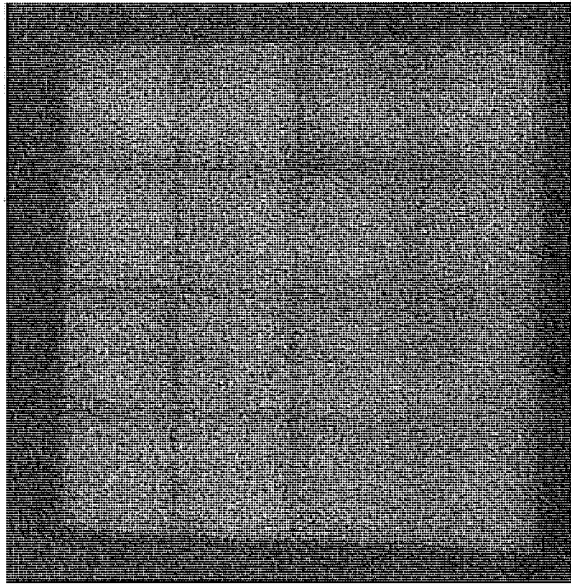
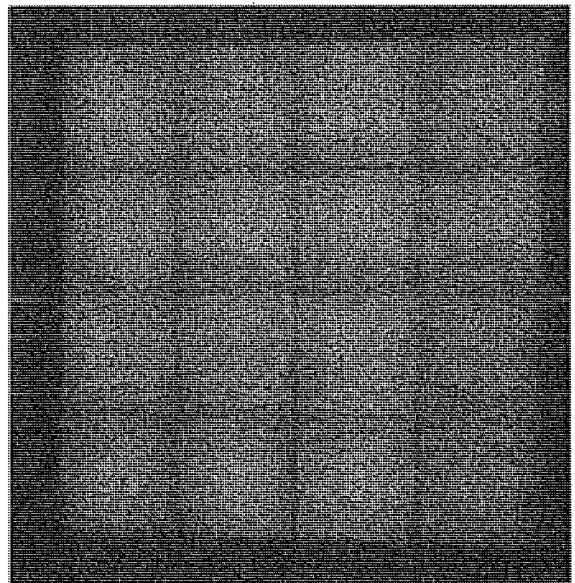
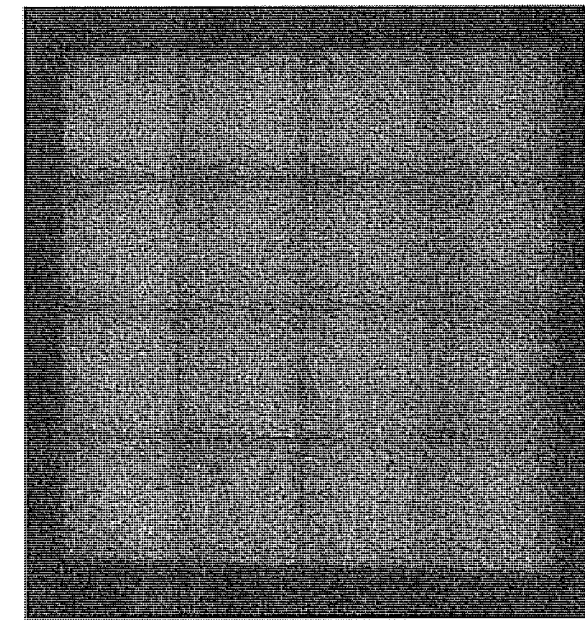
			
Type	5mm LED PAR 38		50W PAR 38
Time	t=0	t=5h/s	-
lumens	182	177	800
Lumens per Watt	40	38	16
CCT	2915		2850
CRI	67		100

Quality Matters – LED Bulb #3

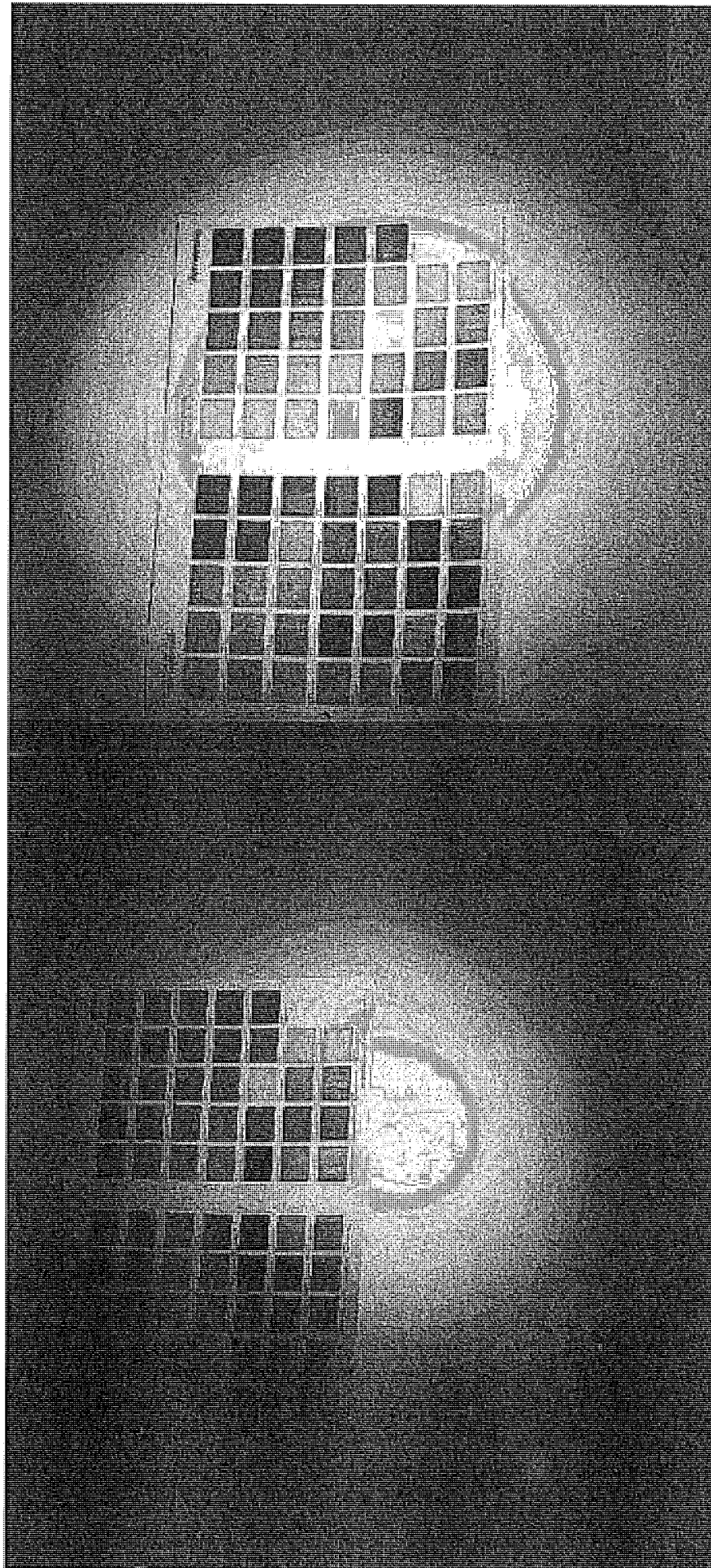
- Reasonable light quality
- <50% of the light output the product it claims to replace
- T_j over 110° C – no chance for advertised 50,000 hours lifetime

Type				
	"20W Replacement"		20W Halogen MIR16	
Time	t=0	t=5hrs		
lumens	138	123	320	
Lumens per Watt	41	38	20	
CCT	2954		3000	
CRI	83		100	

Phosphor: Color Point Any Good?



Phosphor: CRI Any Good?



13W HID MR-11

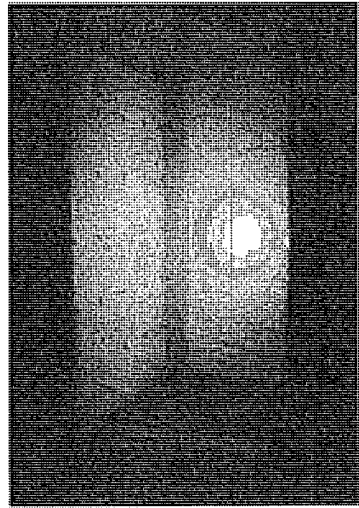
4.8W XLamp MC-E



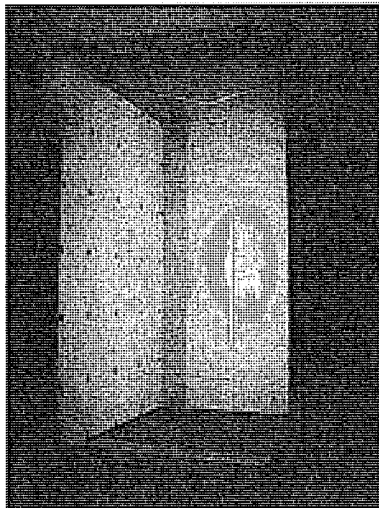
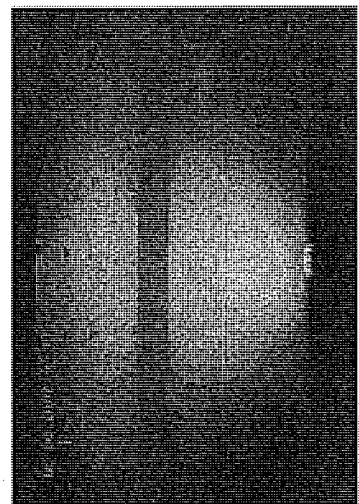
LED Package Any Good?

Time zero

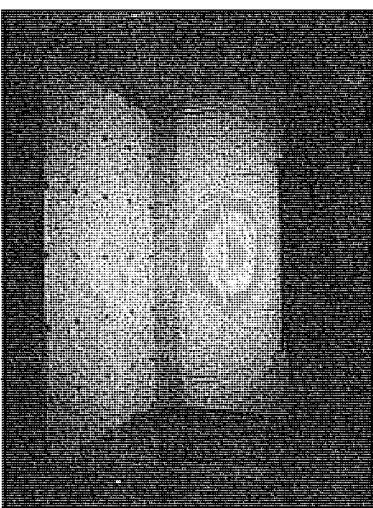
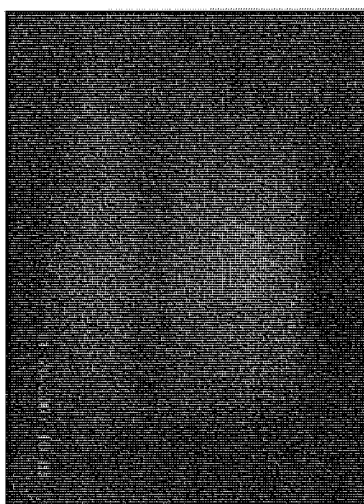
1000 hours



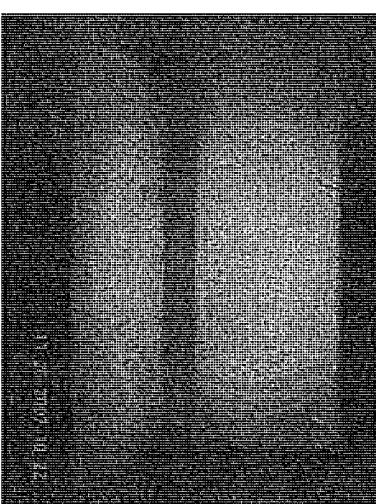
LED Puck
84.1% Drop



16.5" Linear
97.8% Drop



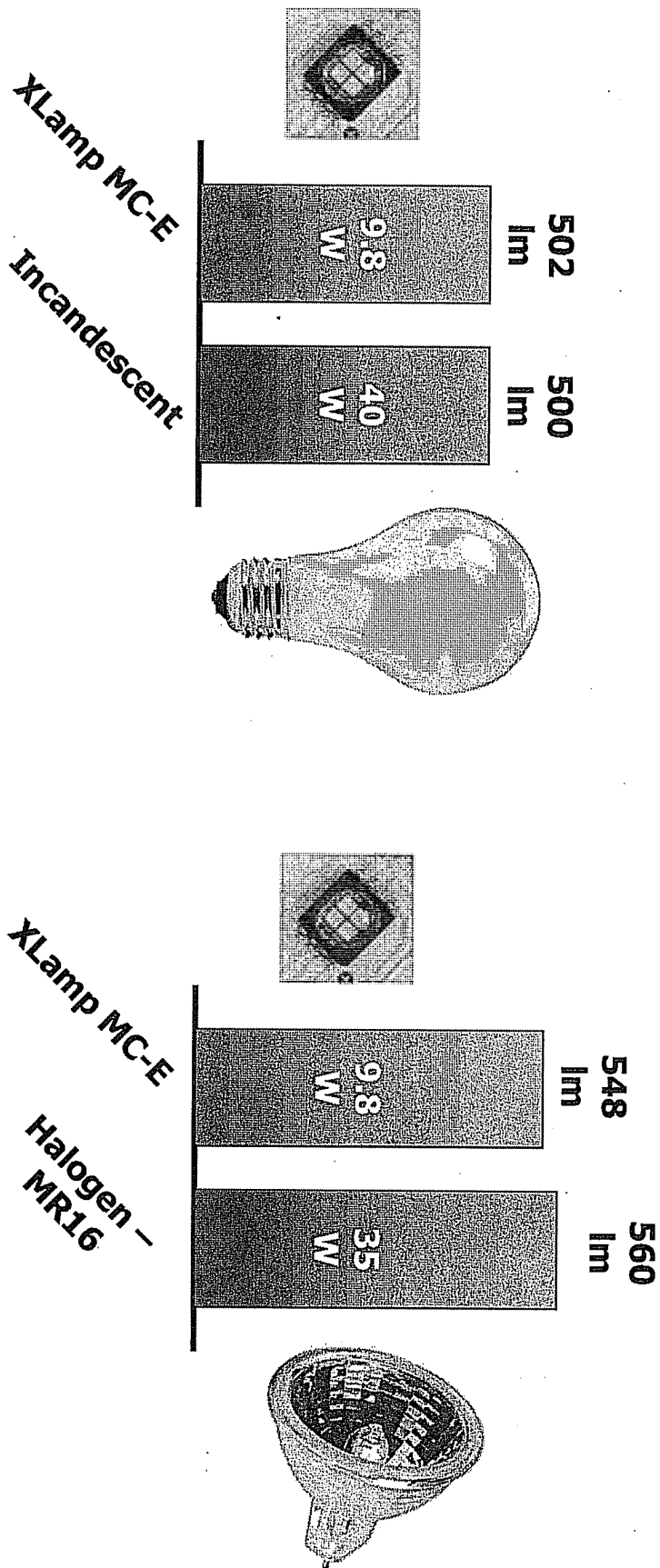
22" Linear
96.9% Drop



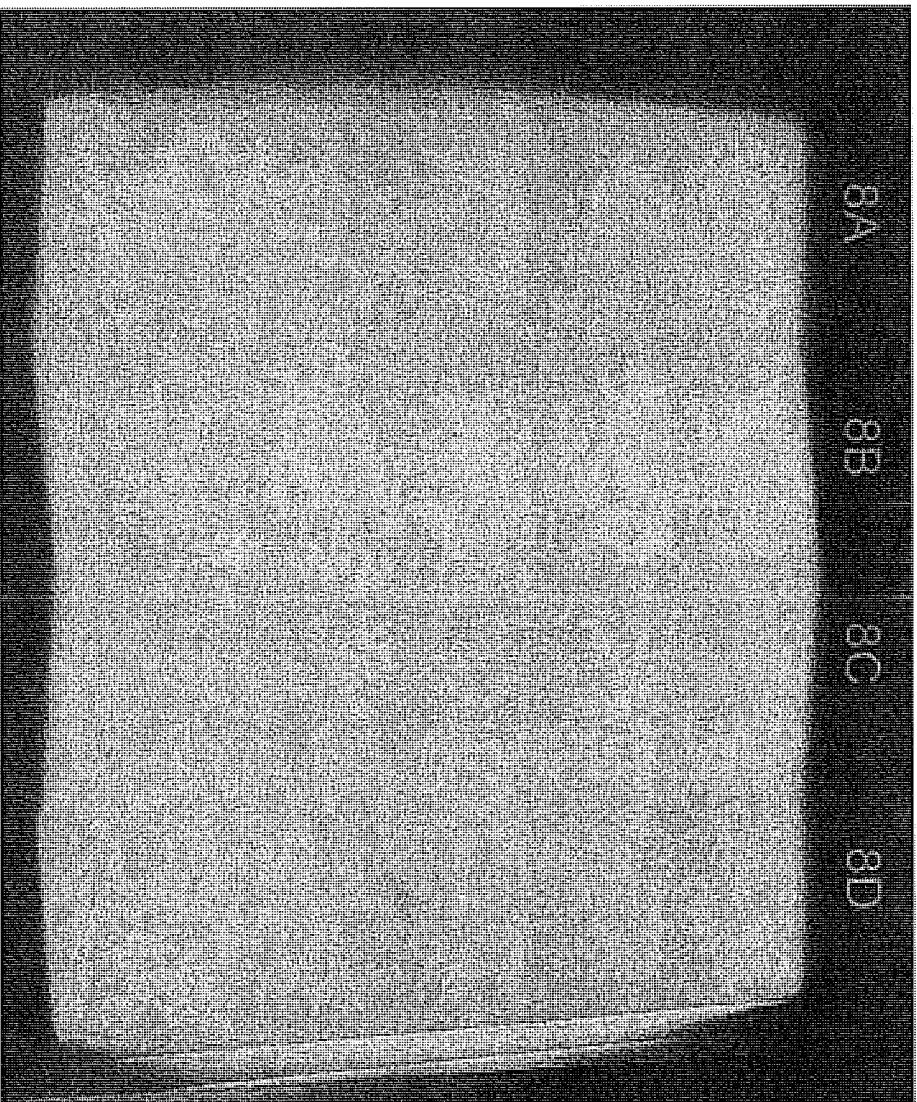
Lighting Class – LED chip

2700K CCT

3000K CCT



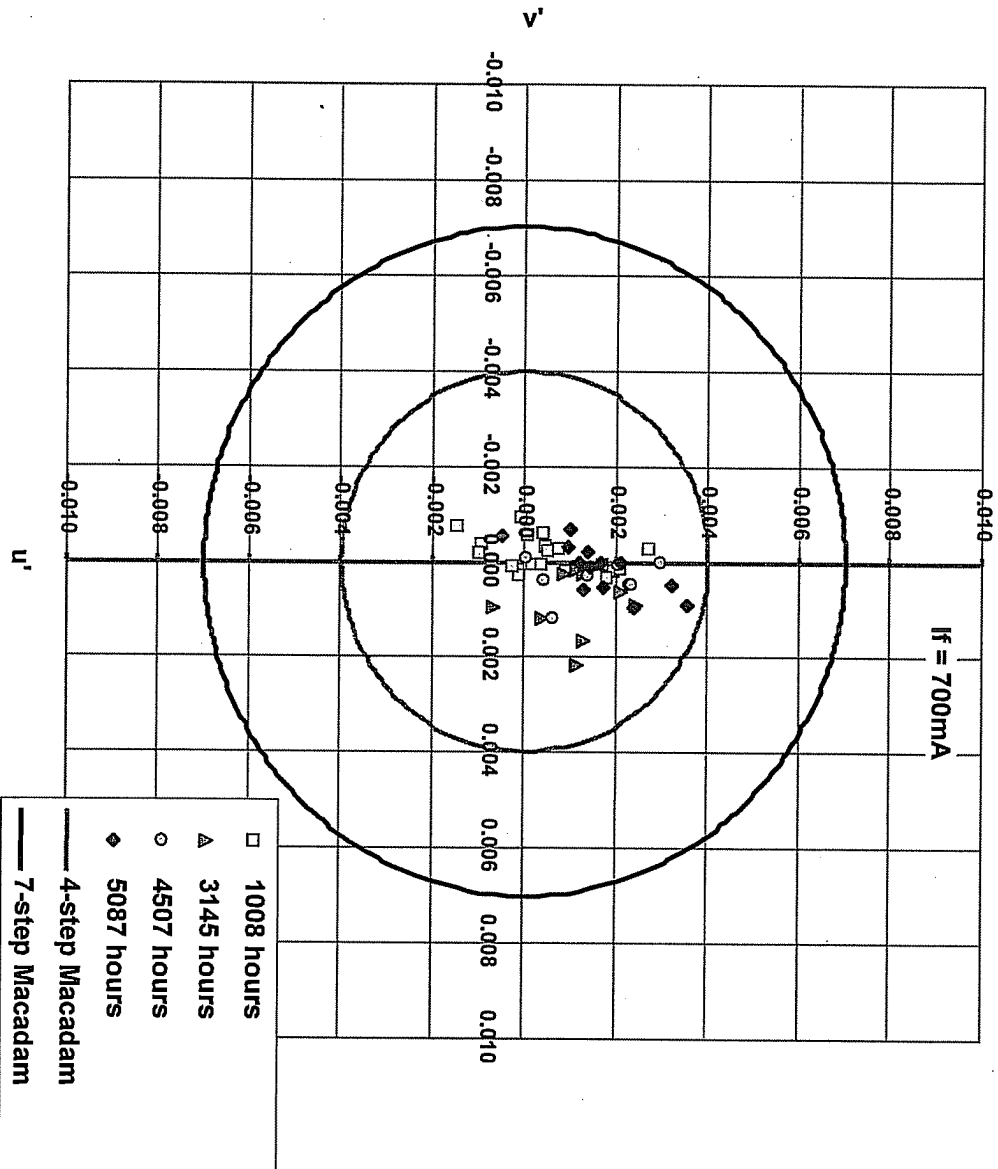
Lighting Class – Phosphor: Color Point



(this is all 4 bins from Cree's E8 chromaticity order code)

Lighting Class – Phosphor: Stable White Point

Warm White XR-E Chromaticity Shifting
during 85C High Temp Operating Life Test



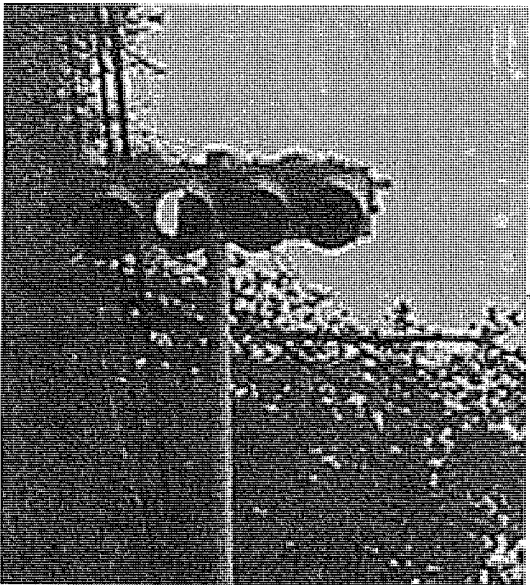
Your LED Lighting Mileage May Vary...

- To enable general illumination, LED systems must deliver "real" benefits
- Keys to success
 - Lighting-class LEDs
 - Thermal design
 - Optical design
 - Electronic design

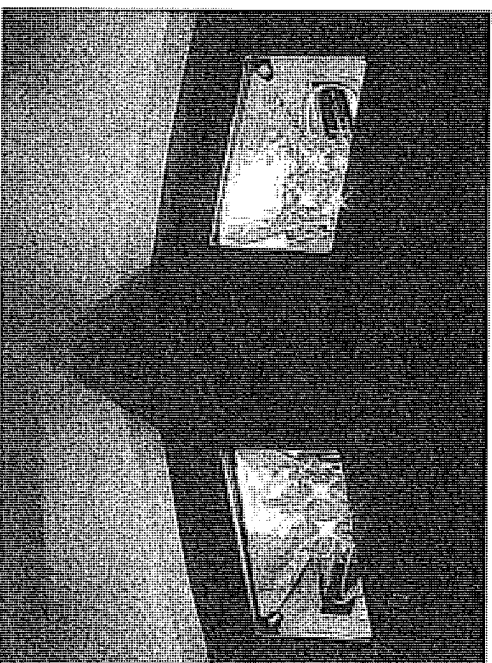
Quality of LED		Luminaire Design	
		Good	Bad
Bad	Good	<i>Excellent</i>	<i>BAD</i>
	Bad	<i>BAD</i>	<i>BAD</i>

Results

Quality Matters – Driver & Thermal Problems



- Driver /circuit board failure



- Color Shift Due to poor thermal design

Quality Matters – Optical Design & Poor LEDs



Lighting Class LED Summary

**Cree's
leadership
in...**

**Enables LED
lights that
have...**

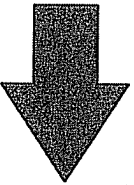
**Creating value
through...**

LED chip



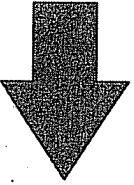
**Energy
Savings**

**Phosphor
System**



**Minimum
Requirements
for Lighting
Applications**

LED Package



**Maintenance
Avoidance**

**Long
Lifetime**

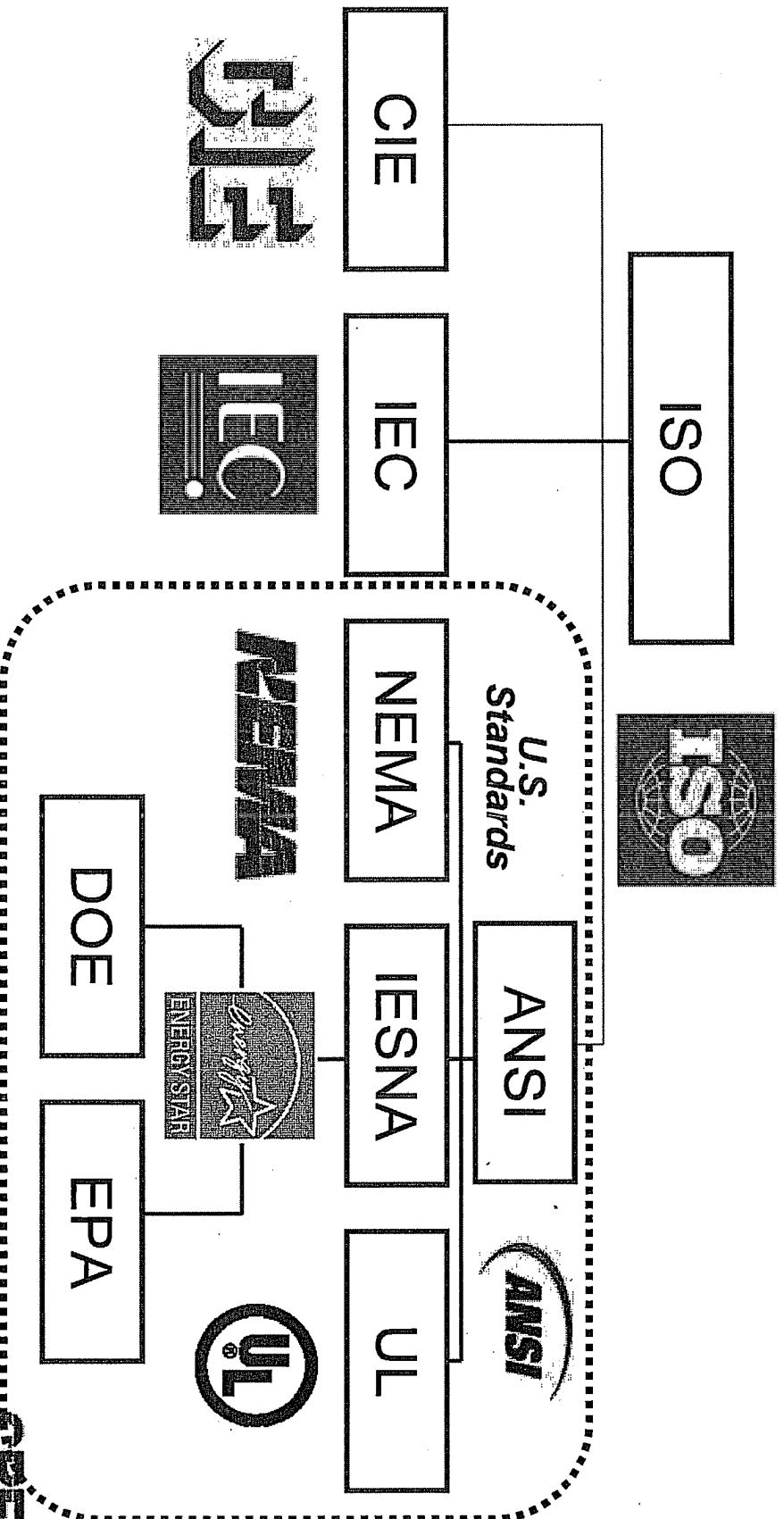
What standards apply to LED luminaires?

How will customers judge LED lighting products?

ENERGY STAR SSL & CRI

Standards – You Should Care, Your Customers Do...

- Needed to ensure common language, test methods, fair competition, public safety, environmental protection



SSL Standards Status

Status of ANSI, IESNA, and CIE Solid State Lighting Standards (Partial List)

Standard	Draft	Comment	Comment Resolution	Projected Publication
IESNA RP-8 <i>Definitions</i>	X	X	X	Complete
ANSI BSR C78.377A, <i>Chromaticity</i>	X	X	X	Complete
IESNA LM 79, <i>Luminous Flux</i>	X	X	X	Complete
IESNA LM 80, <i>Lumen Depreciation</i>	X	X	X	3Q08
ANSI BSR 82.LED, <i>Drivers</i>	X			
ANSI BSR C78.378, Standard to Characterize LED Light Sources for Safety				
ANSI BSR C78.379, Standard for Binning				
CIE S009, Photobiological Safety	X	X		



ENERGY STAR SSL Overview



http://www.netl.doe.gov/ssl/energy_star.html

Overview

- Helps guide the American public to select cost-effective, energy-efficient products
- Part of the United States Department of Energy's national strategy to accelerate the adoption of solid-state lighting

What's Different?

- Focuses on efficacy & quality of light of entire luminaire, not light source
- Spurred creation of many new SSL measurement standards
- Lays the foundation for similar testing worldwide

Timeline

- Finalized: September 12, 2007
- Effective: September 30, 2008 (two-phased approach)

ENERGY STAR Requirements Summary



Efficacy

- Measured for entire luminaire
- Near-term & future efficacy targets, depending on application

Quality of Light

- Minimum CRI: 75
- Designated CCT ranges
- Color spatial uniformity
- Color maintenance

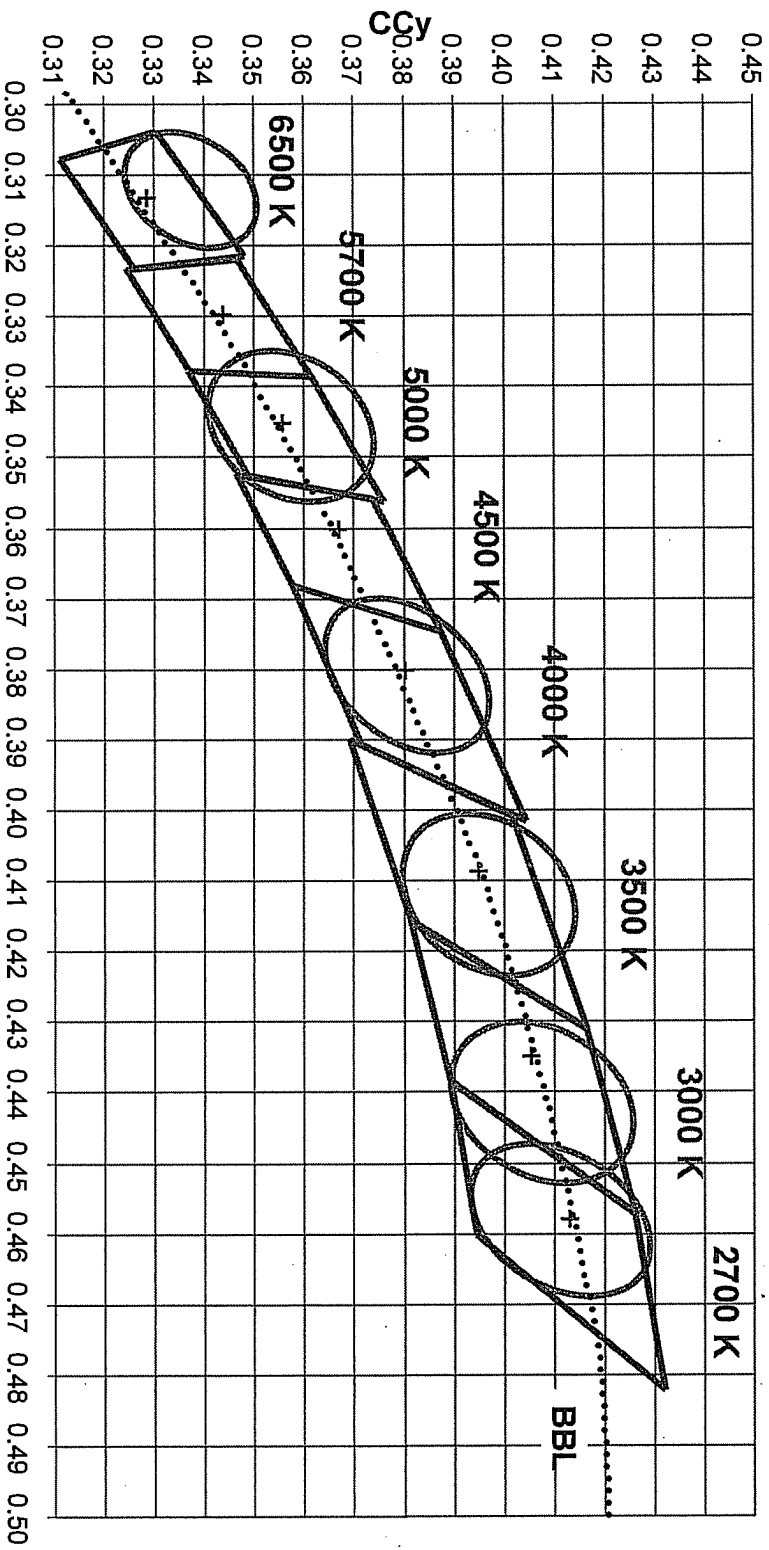
Efficiency

- No off-state power draw

Quality of Product

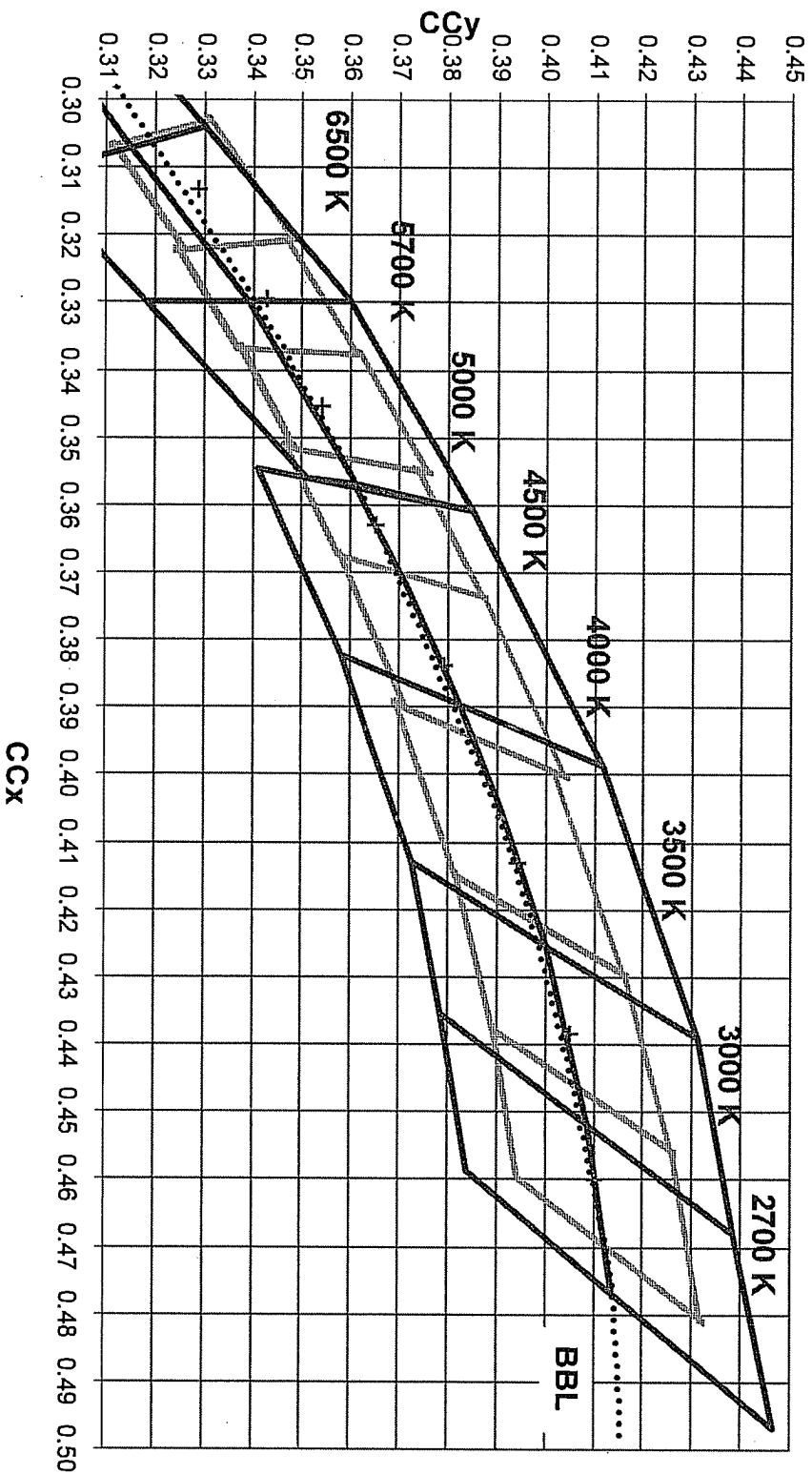
- Minimum warranty: 3 years
- Required thermal management
- Minimum L70 lifetime: 25,000 hrs (Indoor) / 35,000 hrs (Outdoor/Comm.)

ANSI Chromaticity Standard



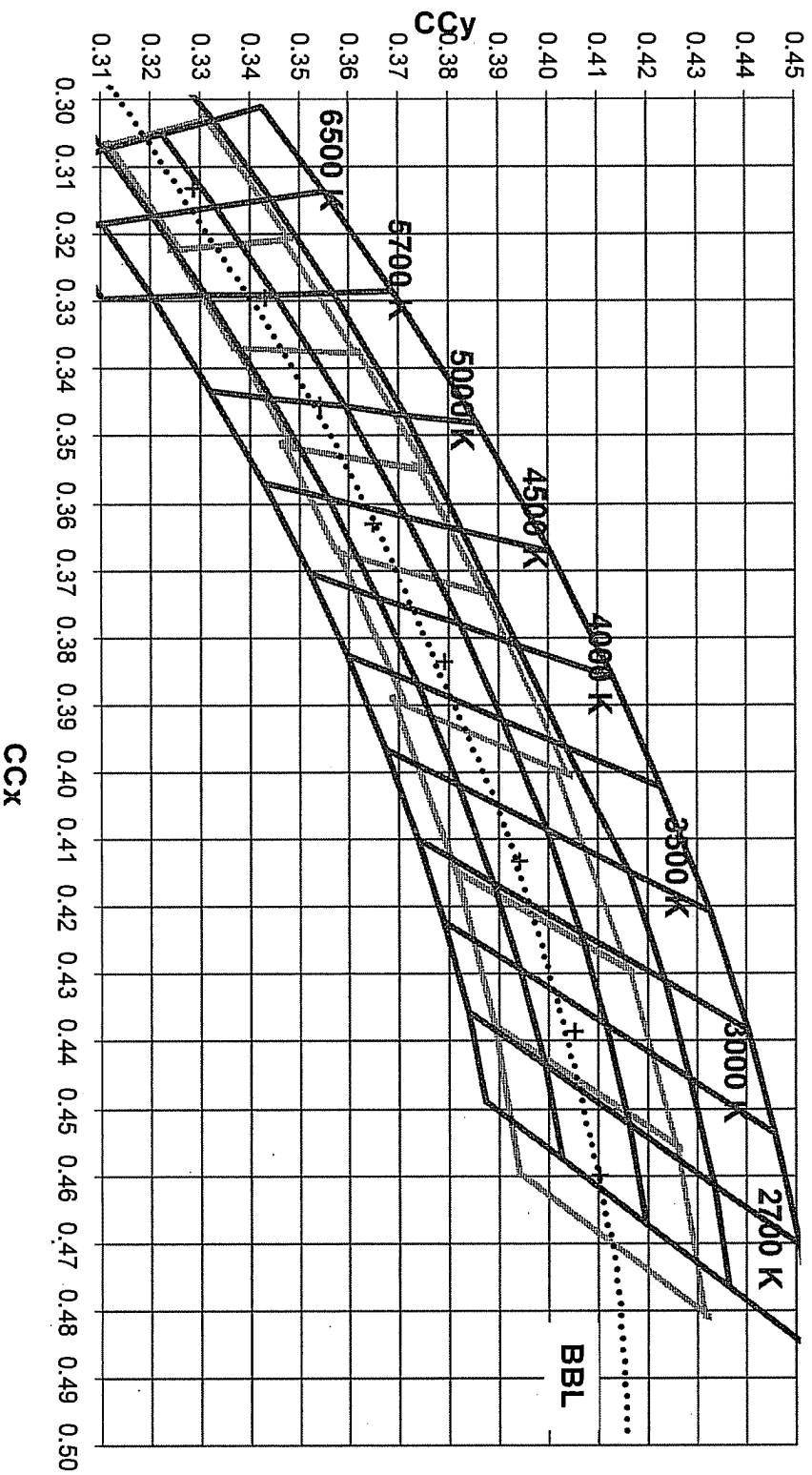
- ANSI Fluorescent Lamp Standard
- ANSI C78.377A Chromaticity Standard

ANSI Chromaticity Standard v. Competitor



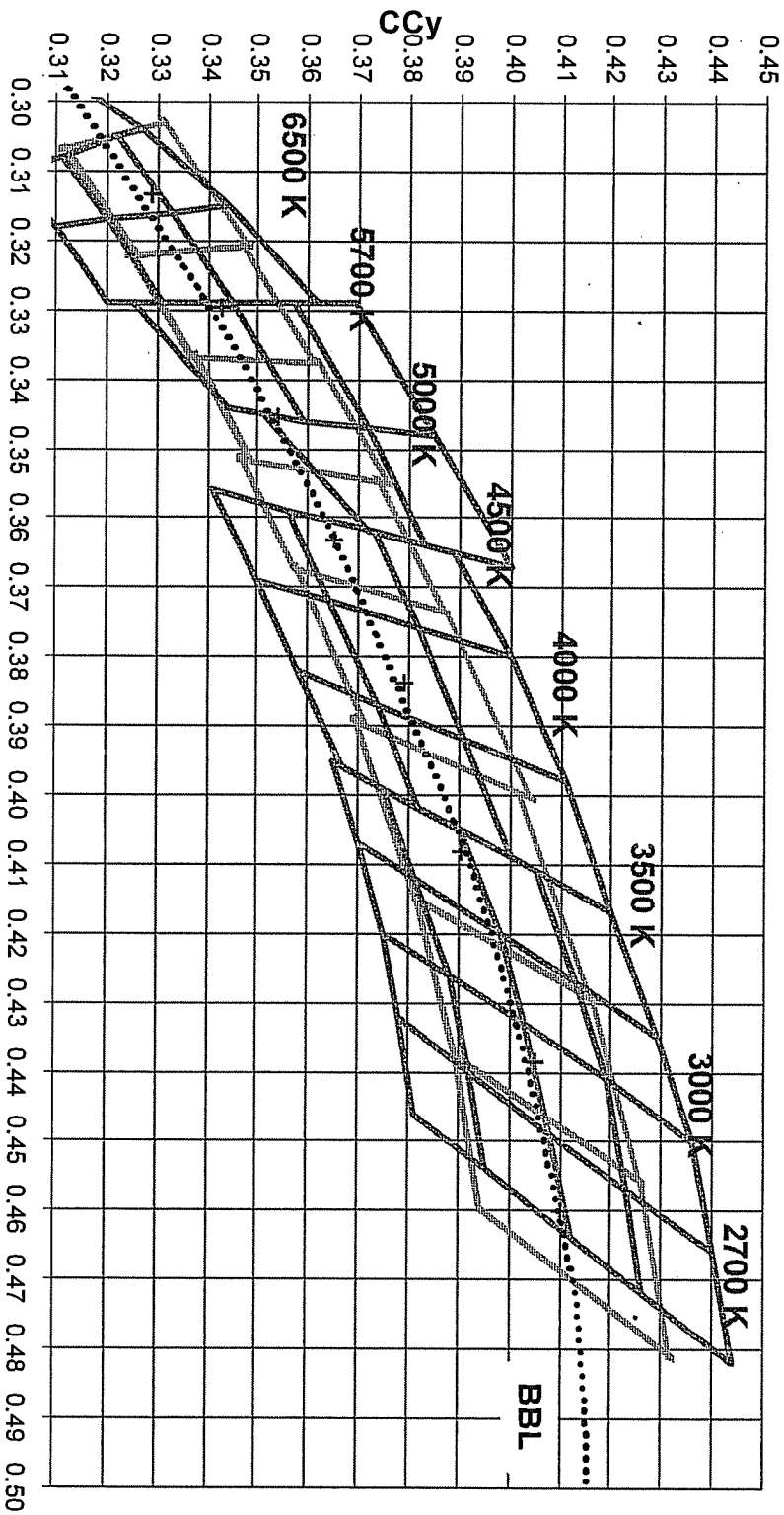
- Competitor Standard Chromaticity Binning
- ANSI C78.377A Chromaticity Standard

ANSI Chromaticity Standard v. Competitor



- Competitor Standard Chromaticity Binning
- ANSI C78.377A Chromaticity Standard

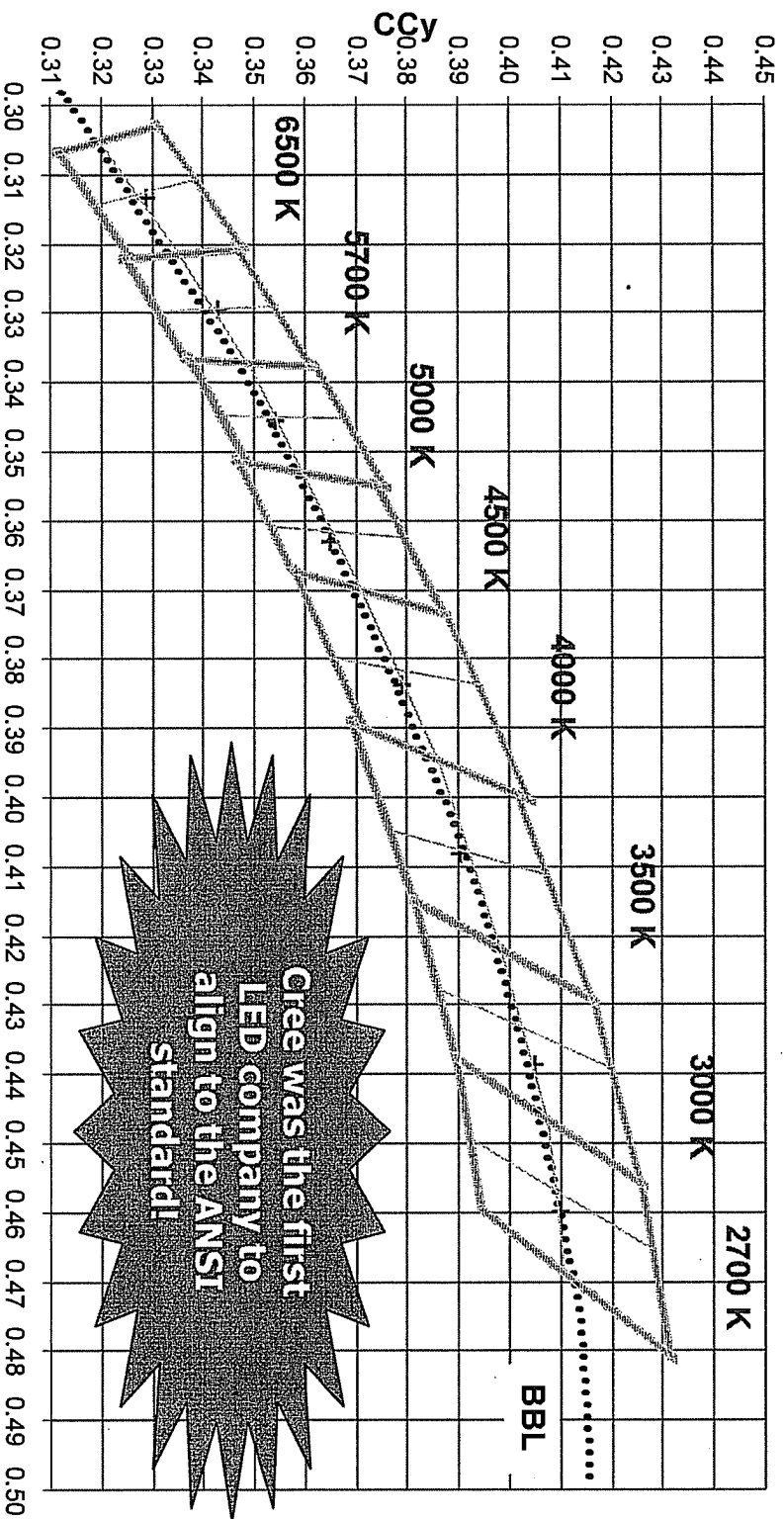
ANSI Chromaticity Standard v. Competitor



cc_x

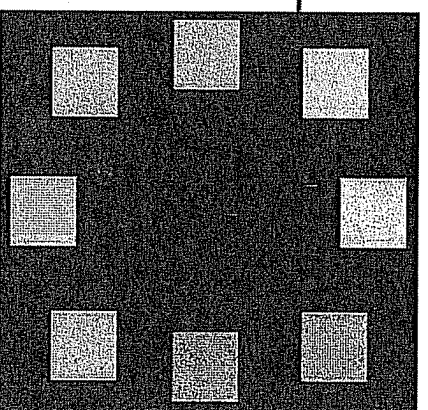
- Competitor Standard Chromaticity Binning
- ANSI C78.377A Chromaticity Standard

ANSI Chromaticity Standard v. Cree



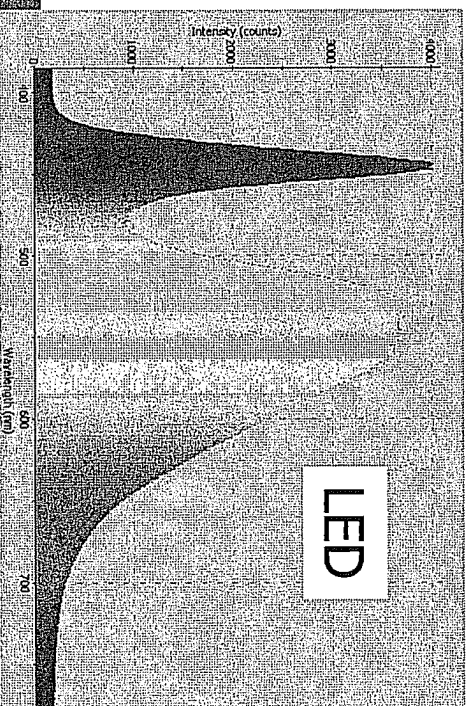
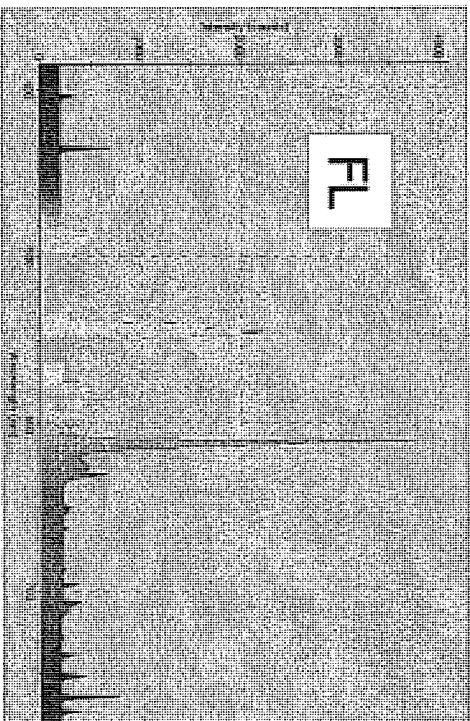
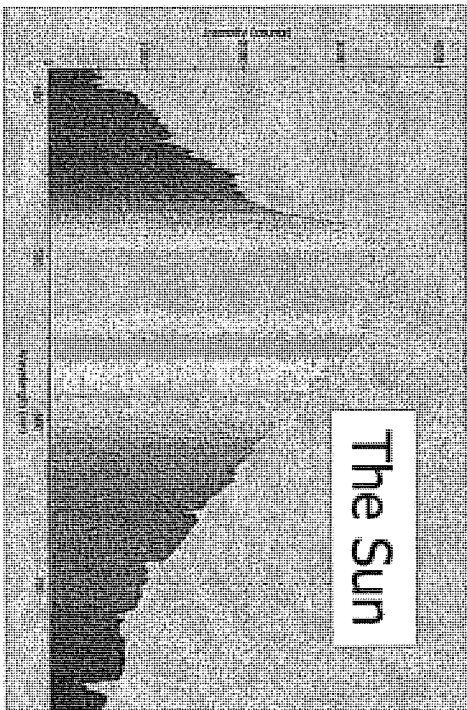
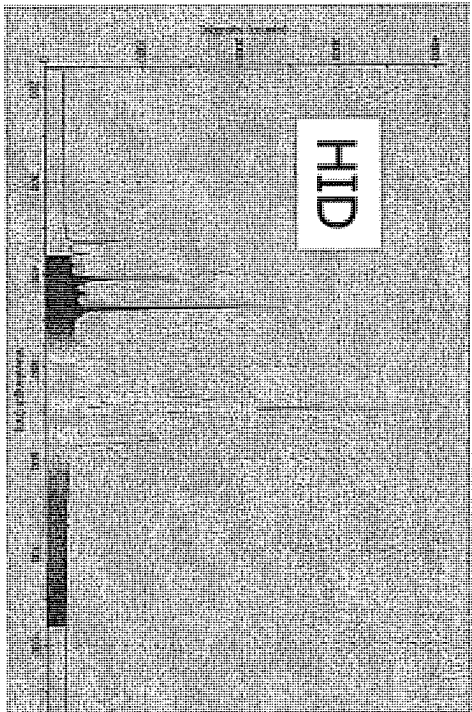
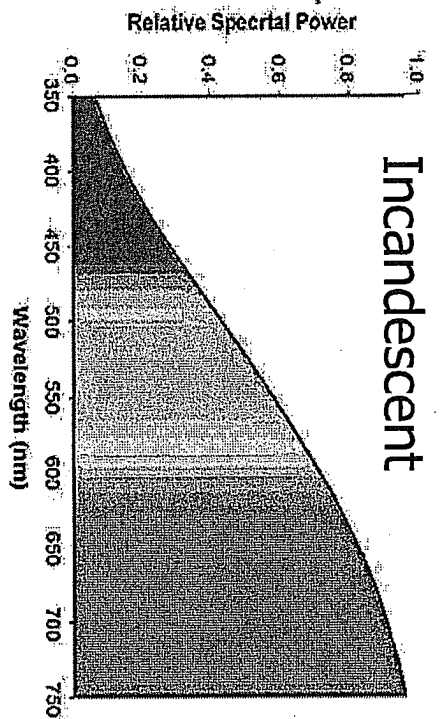
Color Rendering Index (CRI)

- CRI is an objective standard used to judge how well a light source renders colors compared to a black-body radiator. Incandescent bulbs are -- by definition -- normalized to 100
- Eight pastel colors are measured under the test light source
- CRI measures how much these colors are affected by the light source
 - Note: LEDs have fully saturated color and actually pay a mathematical penalty in the CRI system



Light Source	CRI
Low pressure sodium	< 18
High pressure sodium	25
Warm white fluorescent tube	55
Typical Cool White LED	70-80
Daylight fluorescent tube	79
Metal halide	75-85
Typical Warm White LED	75-85
Halogen MR16	95-100
Incandescent	100

Visible Light Spectrum of Various Sources



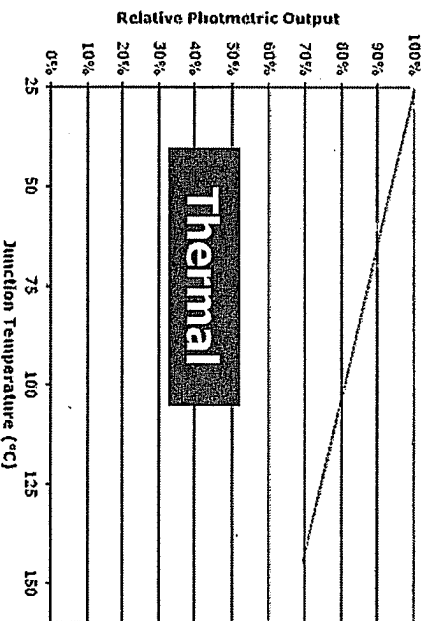
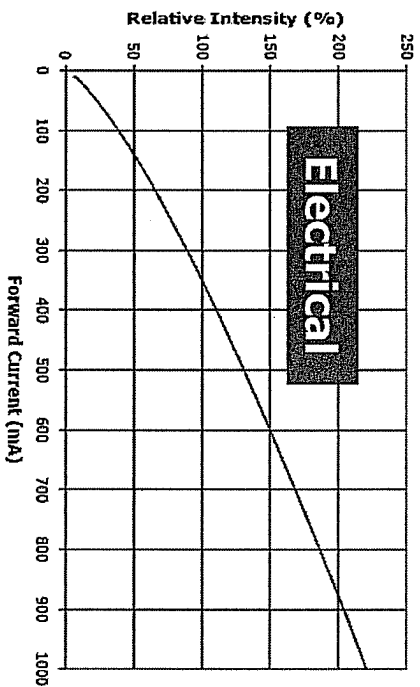
- Which one is closer to the Sun?
- Normalizing Incandescent to CRI = 100 makes the CRI scale somewhat arbitrary
- A new standard – Color Quality Index (CQI) is currently being set for ALL light sources

**How do I make sense of all this and make
a good product???**

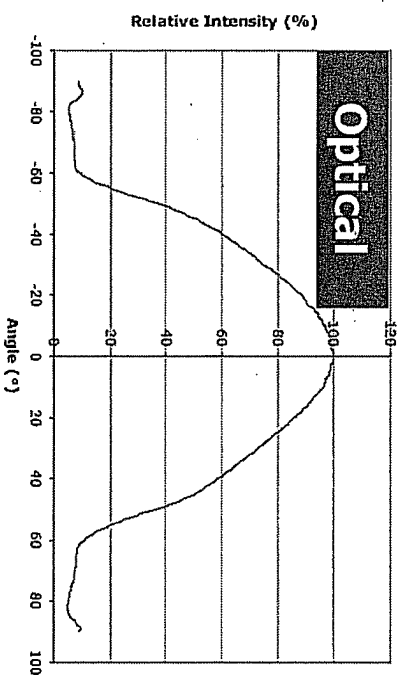
LED Luminaire Design Process

Electrical, Thermal & Optical Affect Light Output

- Calculating light output requires an integrated approach
- LED light is not similar to existing light technologies
- Not intuitive at first



Light Output



Process for Designing LEDs into Luminaires

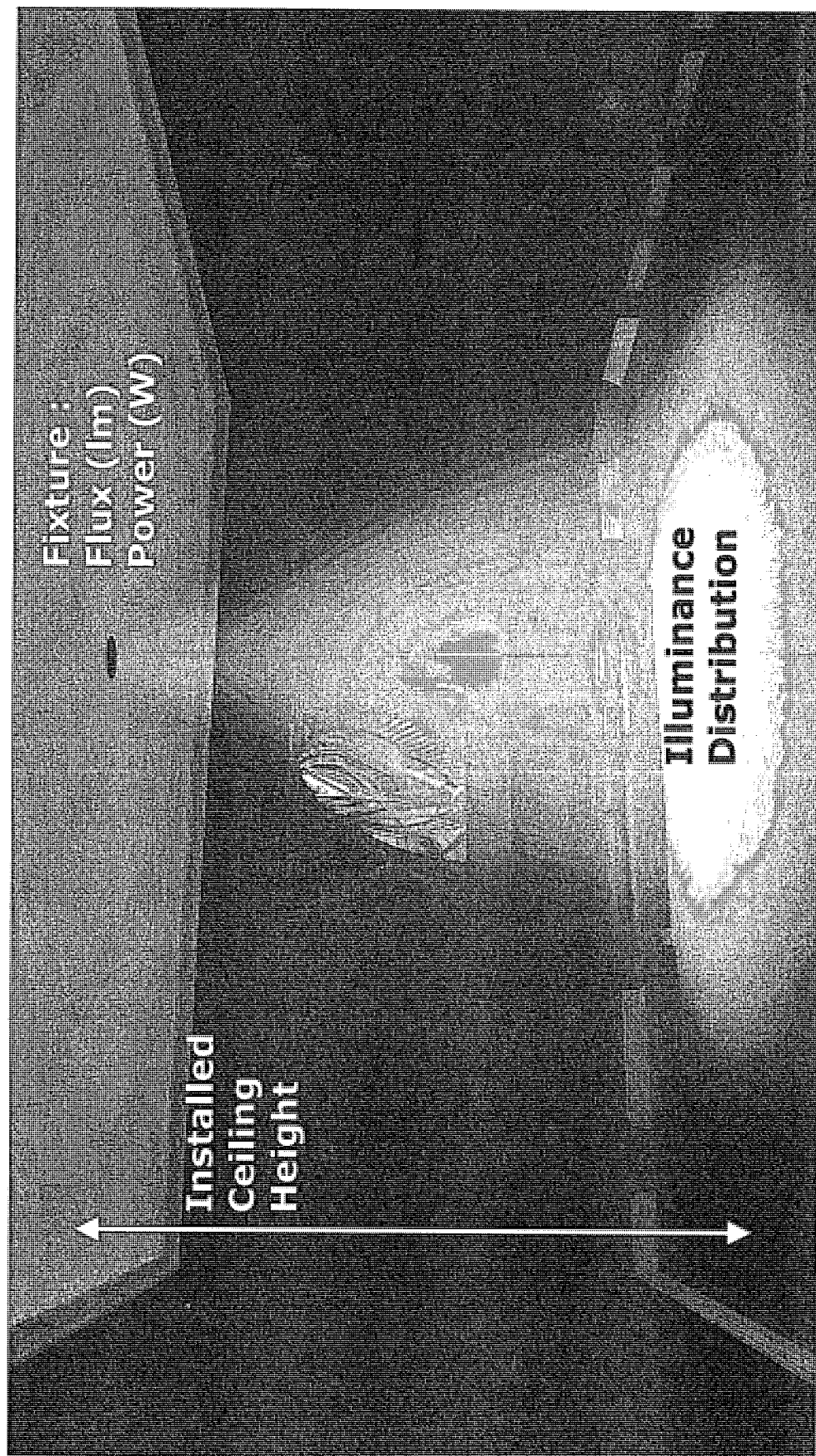
1. Define lighting requirements of application
2. Define design goals for LED luminaire
3. Estimate efficiencies of optical, thermal and electrical subsystems
4. Calculate the number of LEDs needed
5. Consider all design options and choose the best
6. Build a prototype and test against design goals

1) Define Lighting Requirements

? What kind of light is required in this application?

Importance	Characteristic	Unit
Critical	Luminous flux	lumens (lm)
	Illuminance distribution	footcandles (fc)
	Electrical power consumption	Watts (W)
Potentially Important	Luminaire aesthetics	
	Price	
	Lifetime	hours
	Operating temperature	°C
	Color temperature	K CCT
	CRI	
	Form factor	
	Ease of installation	

Critical Characteristics for Down Light



Example CFL Down Light Characterization

Importance	Characteristic	Unit	Value
Critical	Luminous flux	lumens (lm)	810
	Illuminance distribution	footcandles (fc)	(defined in IES file)
	Electrical power consumption	Watts (W)	23 (excluding ballast)
Important	Lifetime	hours	10,000
	Color temperature	K CCT	4,000
	CRI		75
	Form factor		6 inch diameter can

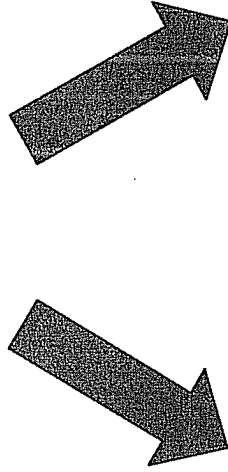
2) Define Design Goals

?

How will this new product create value?

Value:

- Same amount of light
- Same quality of light
- Longer lifetime without maintenance



Critical:

- Same amount of light
- Same distribution of light
- Same or lower power consumption

Important:

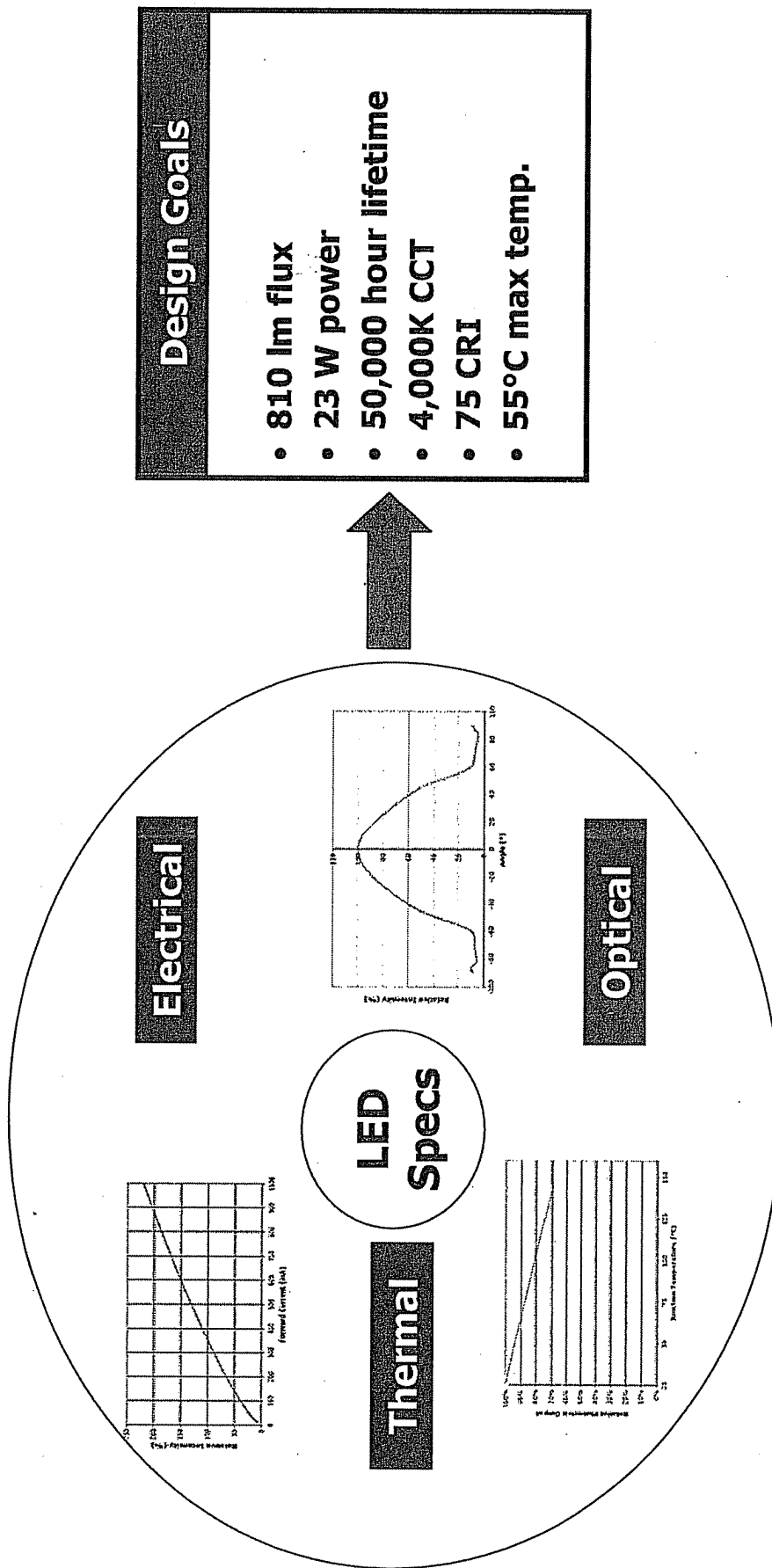
- Same quality of light (CCT & CRI)
- Same ambient temp rating
- Longer lifetime

Design Goals to Replace CFL Down Light

Importance	Characteristic	Unit	Value
Critical	Luminous flux	lumens (lm)	810
	Illuminance distribution	footcandles (fc)	Same as example
	Electrical power consumption	Watts (W)	23 (excluding ballast)
Important	Lifetime	hours	50,000
	Color temperature	K CCT	4,000
	CRI		75
	Form factor		6 inch diameter can
	Operating temperature	°C	55

3) Estimate Efficiencies of Subsystems

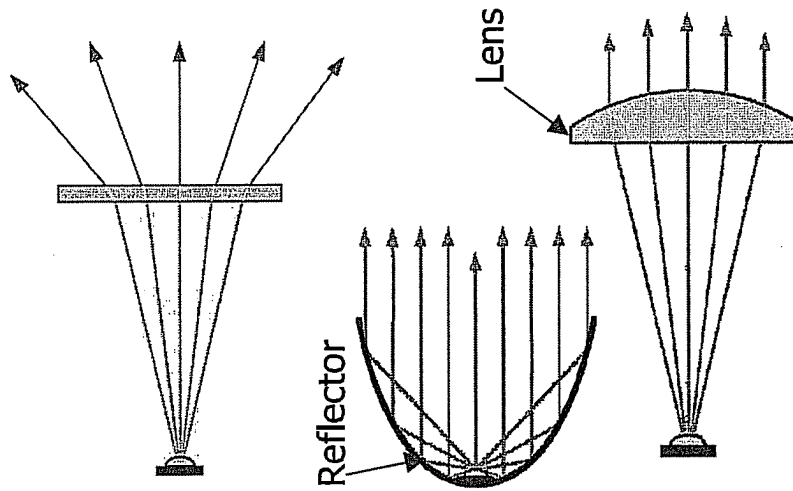
? What kind of losses need to be taken into account?



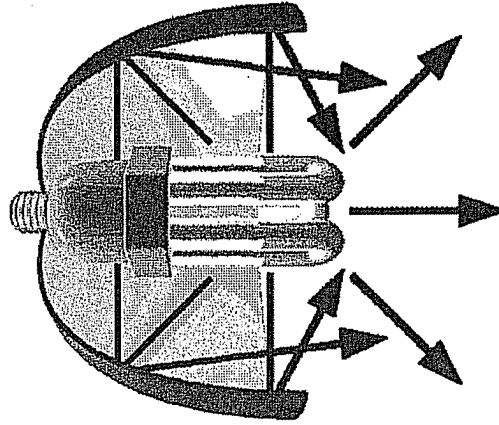
LED Luminaire

Sources of Optical Loss

Secondary Optics



Coefficient of Utilization



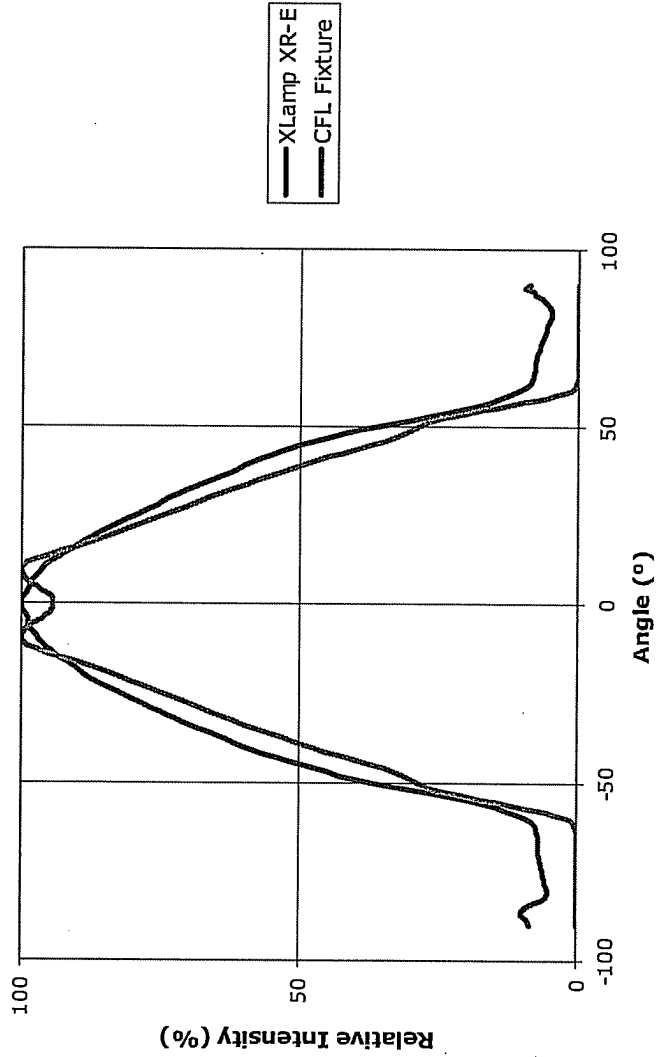
85%-90% Efficient

Varies

Need for Secondary Optics?

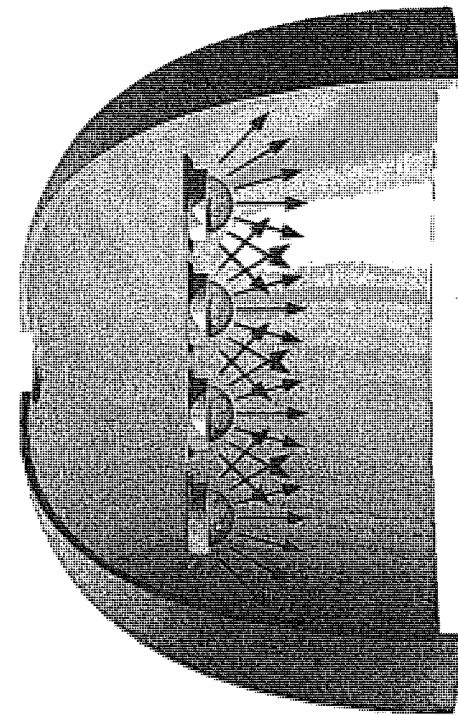
Reasons

- LED beam angle too narrow
- LED beam angle too wide
- Want to diffuse light



No secondary optics needed, so no optical loss

Estimating LED Coefficient of Utilization



70% - General



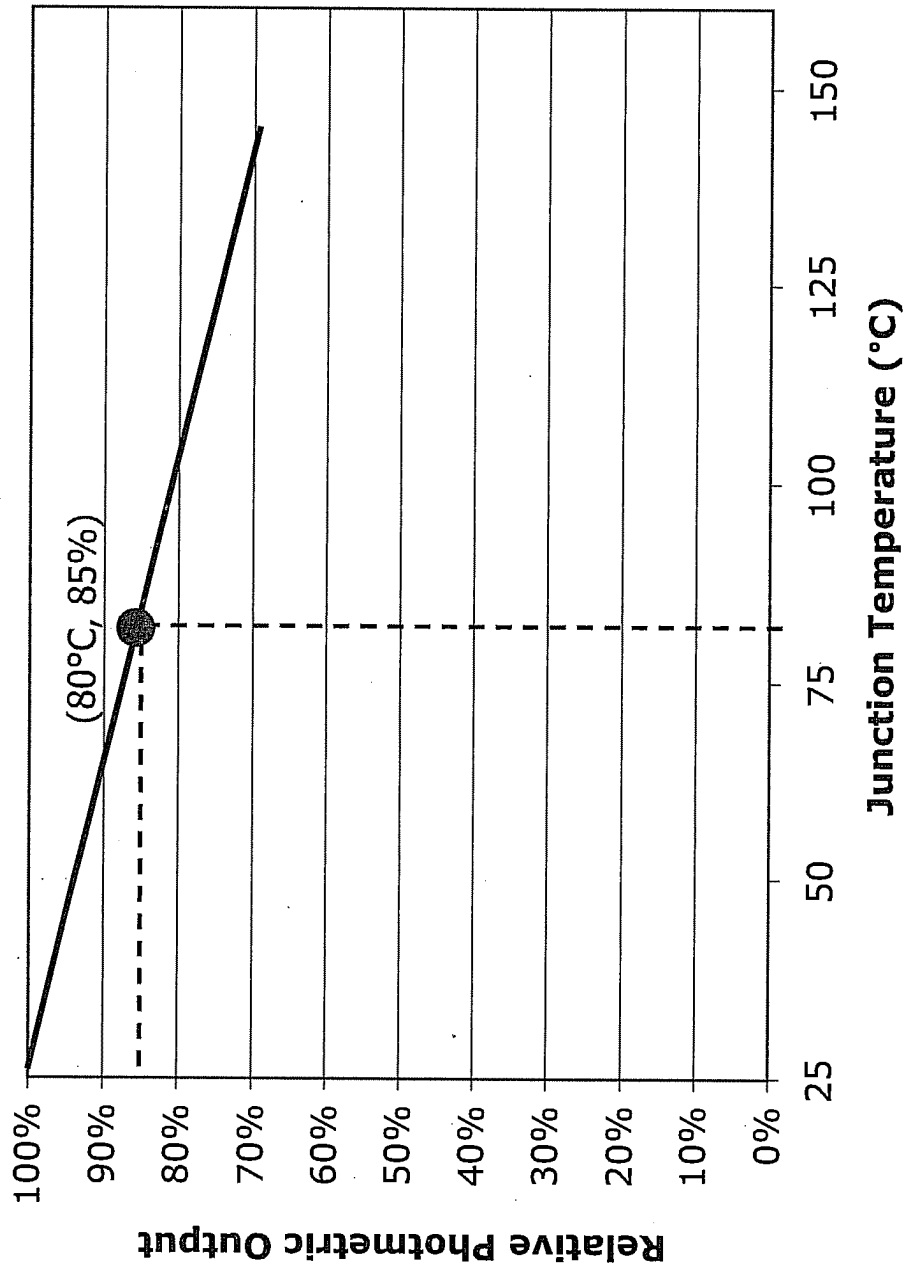
90% - Directional

Assuming no diffuser element
(secondary optic) or any
obvious obstruction in front of
LED light path

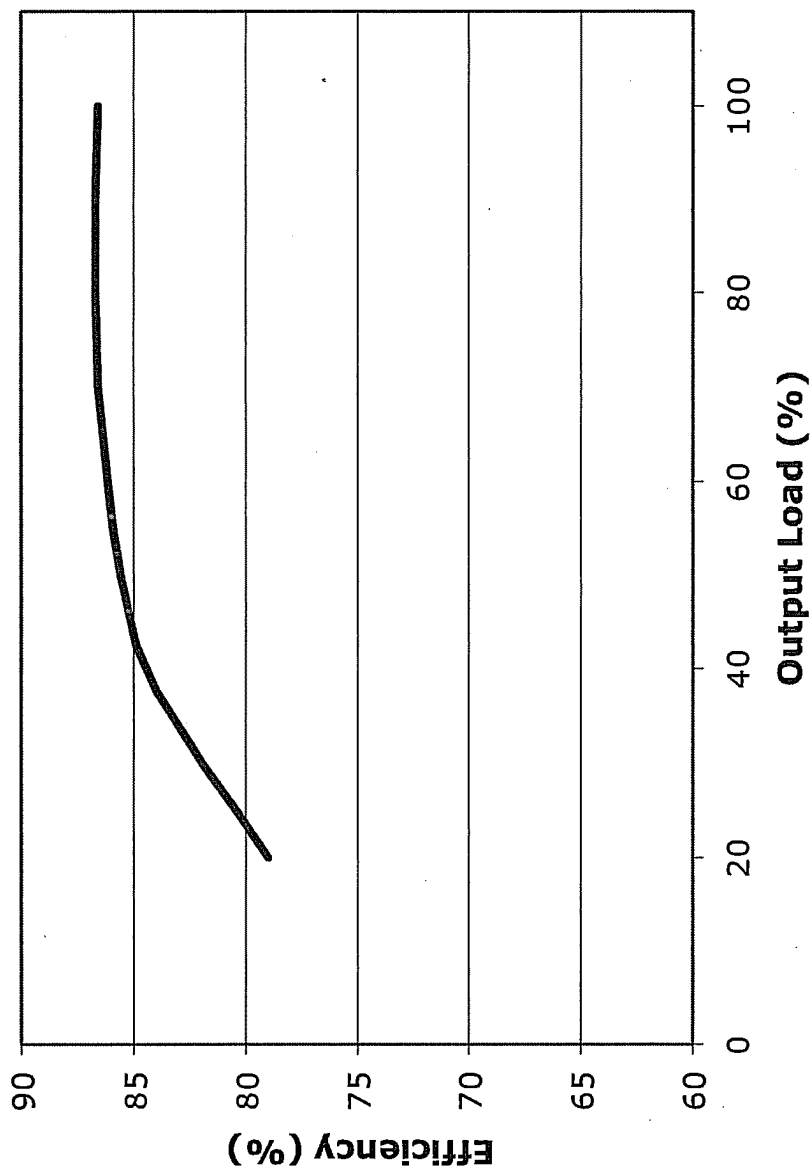
Example down light = 90% efficient

Thermal Loss

From XLamp XR-E datasheet:



Electrical Loss



Generally, 85% - 87% is a good estimate for DC-DC LED drivers, except for high ambient temps or long lifetime

Review of Subsystem Efficiencies

Subsystem	Efficiency	Type
Optical	90%	Light
Thermal	85%	Light
Electrical	87%	Power

Only optical & thermal losses will affect the # of LEDs
needed to meet the design goals

Electrical efficiency only affects the total "wall-plug"
efficiency of the luminaire

4) Determine Number of LEDs

?

How do I calculate how many LEDs are needed?

How many LED lumens are needed?



What drive current to use?



Lumens per LED?



Number of LEDs

How Many LED Lumens Are Needed?

Actual Lumens Needed = Target Lumens / (Optical Eff. x Thermal Eff.)

Example:

Actual Lumens Needed = 810 lm / (91% x 85%)

Actual Lumens Needed = 1,050 lm

What Drive Current to Use?

Operating Current	Pros	Cons
Lower	• Higher efficacy (lm/W) • Longer LED lifetime • Better lumen maintenance	• Less flux per LED (more LEDs in system)
Higher	• More flux per LED (fewer LEDs in system)	• Reduced efficacy (lm/W) • Reduced maximum ambient temperature OR Decreased lifetime

**Decision on operating current should be driven
by the design goals**

Example down light = low drive current (350 mA)

Lumens Per LED?

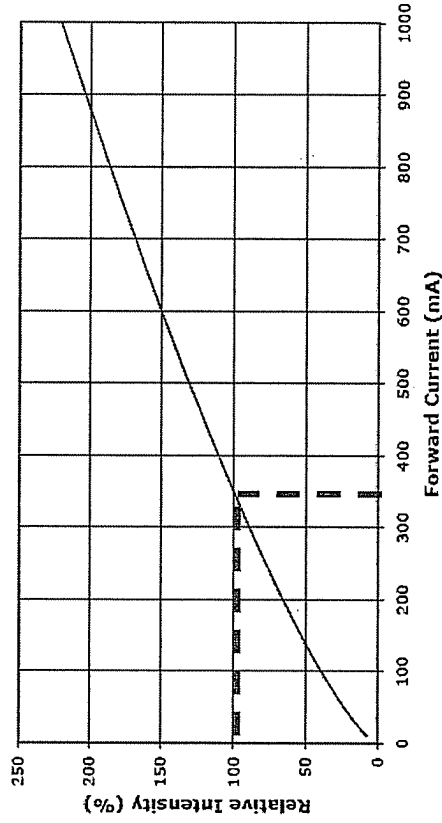
Lumens per LED is a function of both:

Flux of LED order code



Relative intensity
@ operating current

Color	CCT Range		Base Order Codes Min Luminaire Flux (lm)		Order Code
	Min.	Max.	Group	Flux (lm)	
Cool White	5,000 K	10,000 K	M4	62.0	XREWHT-L1-0000-006A01
			P2	67.2	XREWHT-L1-0000-007001
			P3	73.9	XREWHT-L1-0000-008001
			P4	80.6	XREWHT-L1-0000-009001
Neutral White	3,700 K	5,000 K	Q2	87.4	XREWHT-L1-0000-00A001
			Q3	93.9	XREWHT-L1-0000-00B001
			Q4	100	XREWHT-L1-0000-00C001
			M4	62.0	XREWHT-L1-0000-006F04
Warm White	2,500 K	3,700 K	P2	67.2	XREWHT-L1-0000-007E04
			P3	73.9	XREWHT-L1-0000-008E04
			N3	86.0	XREWHT-L1-0000-0095E7
			M4	62.0	XREWHT-L1-0000-0065E7



67.2 lm min @ 350 mA

100% @ 350 mA

67.2 lm per LED

Number of LEDs

Number of LEDs = Actual Lumens Needed / Lumens per LED

Example:

Number of LEDs = 1,050 lm / 67.2 lm

Number of LEDs = 16 LEDs

5) Consider All Design Options & Choose Best

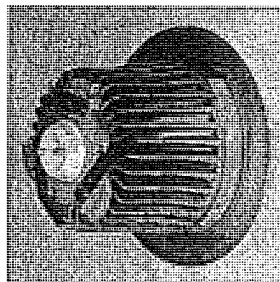
?

What are the best design decisions?

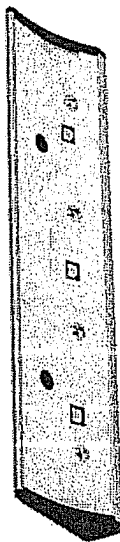
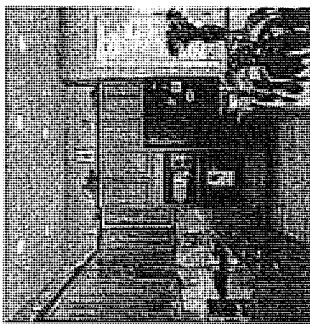
The best designs are usually NOT retrofits!

LIGHTING
tomorrow

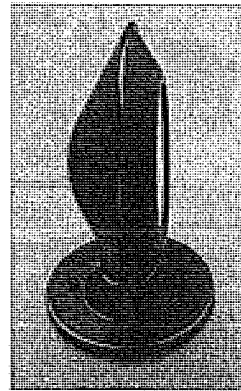
2007 SSL Competition Winners



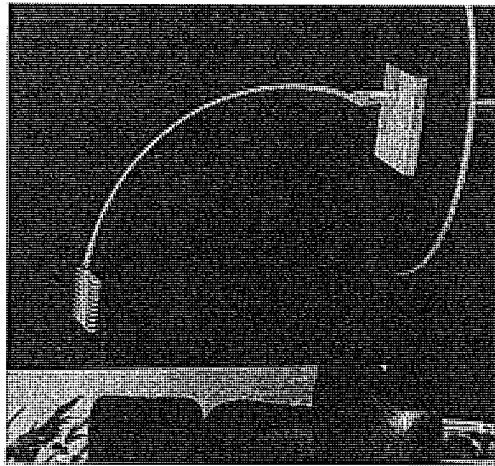
"LR6 Recessed Downlight"
by LED Lighting Fixtures (LLF), Inc.



"PLS Undercabinet"
by Finelite, Inc.



"Strata Outdoor"
Progress Lighting



"PLS Desk Lamp"
by Finelite, Inc.

http://www.lightingfortomorrow.com/2007/ssl_winners07.shtml

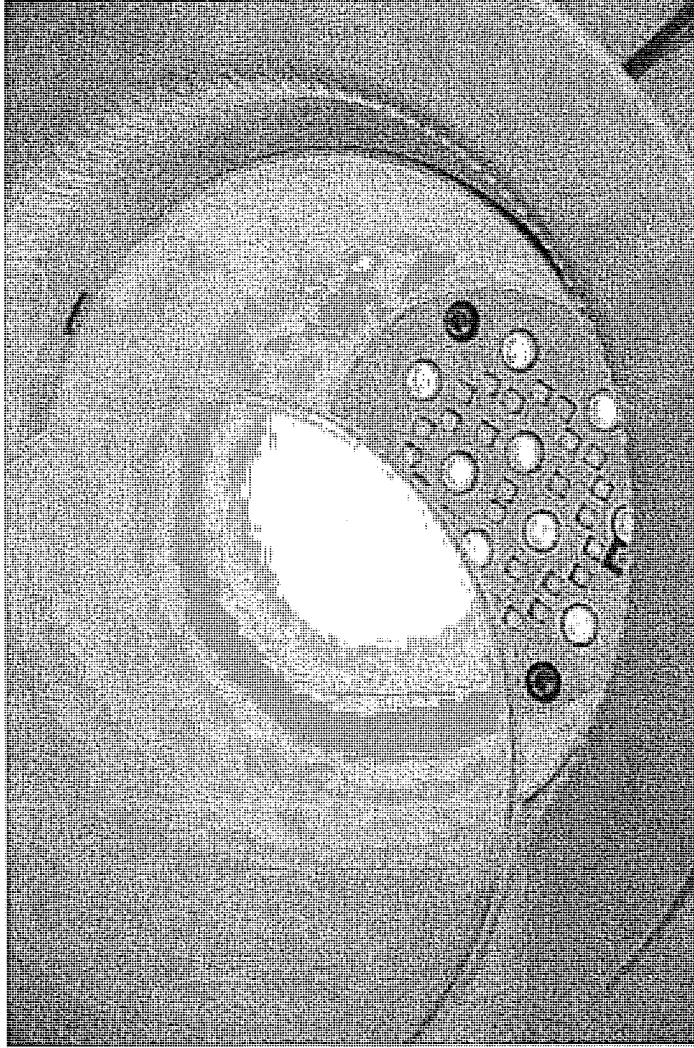
CREE
LED Light

Copyright © 2008, Cree, Inc.

pg. 73

Paradigm Shift Needed?

- 650 lm
- 12 W
- 54 LPW
- 92 CRI

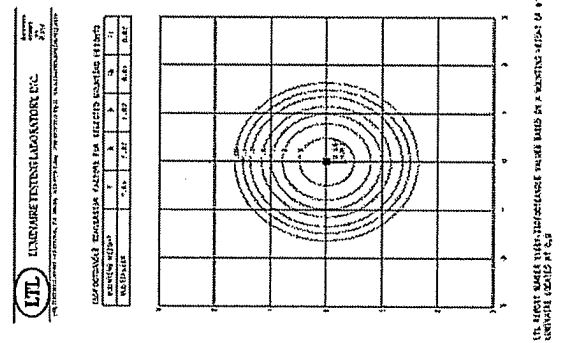
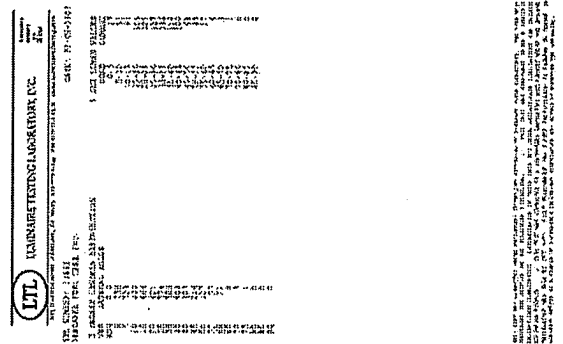
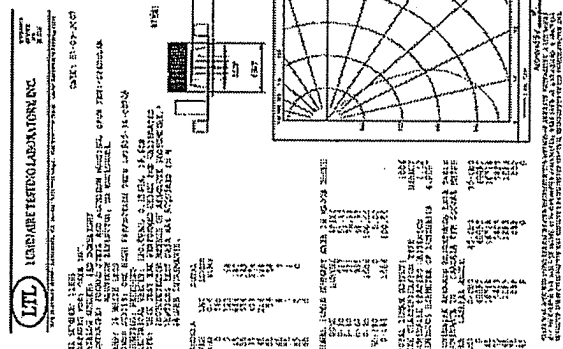
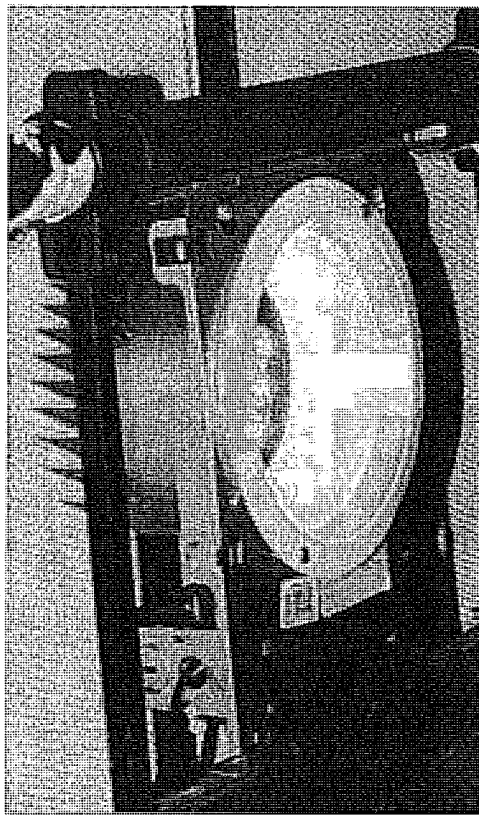


Cree LR6



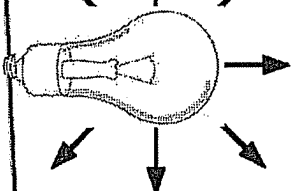
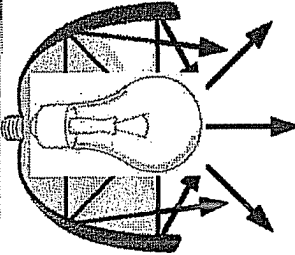
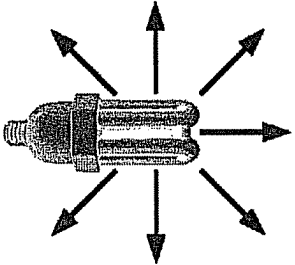
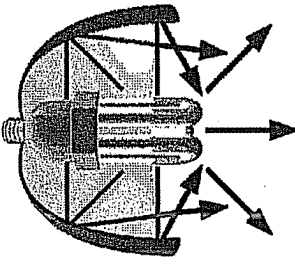
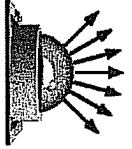
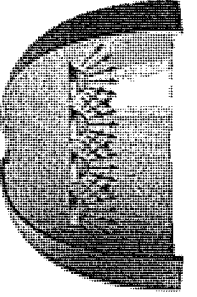
Amateur Hour in Indoor SSL (something we threw together)

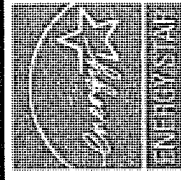
- **Cree XLamp LEDs**
- **1006 lumens @ 18.6 W**
- **4000K CCT**
- **54 LPW wall-plug efficiency**
- **Independent testing - IES file & full report available**



NOTE: 'Dia' spans the edge-points that are half of nadir EC

Even an Amateur Can Beat Incand. & CFL...

Incand		17 lm/W	X		Coefficient of Utilization 58%	=	WARM WHITE Fixture Efficacy 10 lm/W
CFL		60 lm/W	X		Coefficient of Utilization 58%	=	Fixture Efficacy 35 lm/W
XLamp		75 lm/W	X			=	Fixture Efficacy 54 lm/W

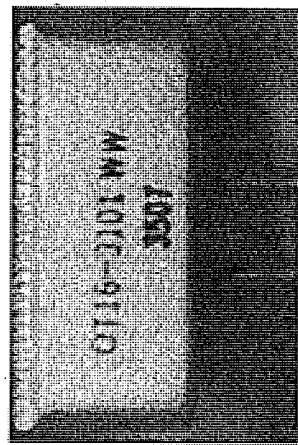
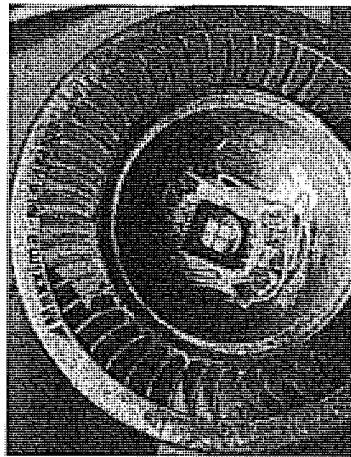


CA
Title 24

* Including loss for thermal equilibrium @ Tj = 65 °C



Amateur Hour #2



Heat sink	Maxxima 4W
LED	XLamp MC-E cool white
Connection	2S+2P
Driver	Opto Tech
Optic	Frosted Carclo 28°

Electrical	Voltage	Current	Power
Input			4.8 W
Output	6 V	700 mA	4.2 W

Results

- 341 lm (71 LPW)
- 6130K CCT
- Heat sink @ 72°C
- LED case @ 87°C
- 71% system efficiency

Notes

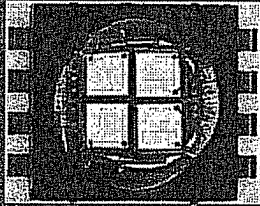
- Not designed to be placed in enclosure

Where is the LED lighting market going?

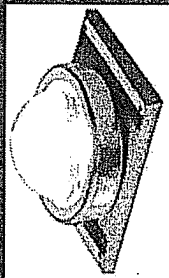
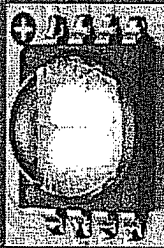
Expanding the Portfolio

Proven Lighting Class Performance

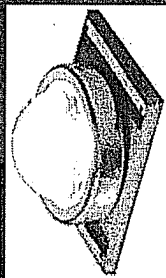
Point Source
Lighting



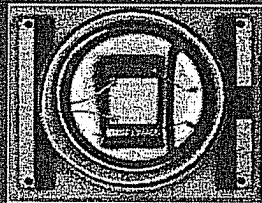
XLamp MC-E



XLamp XR-E



XLamp XR-C



XLamp XP-E

XLamp XP-C



General
Lighting

2006

2007

2008

2009

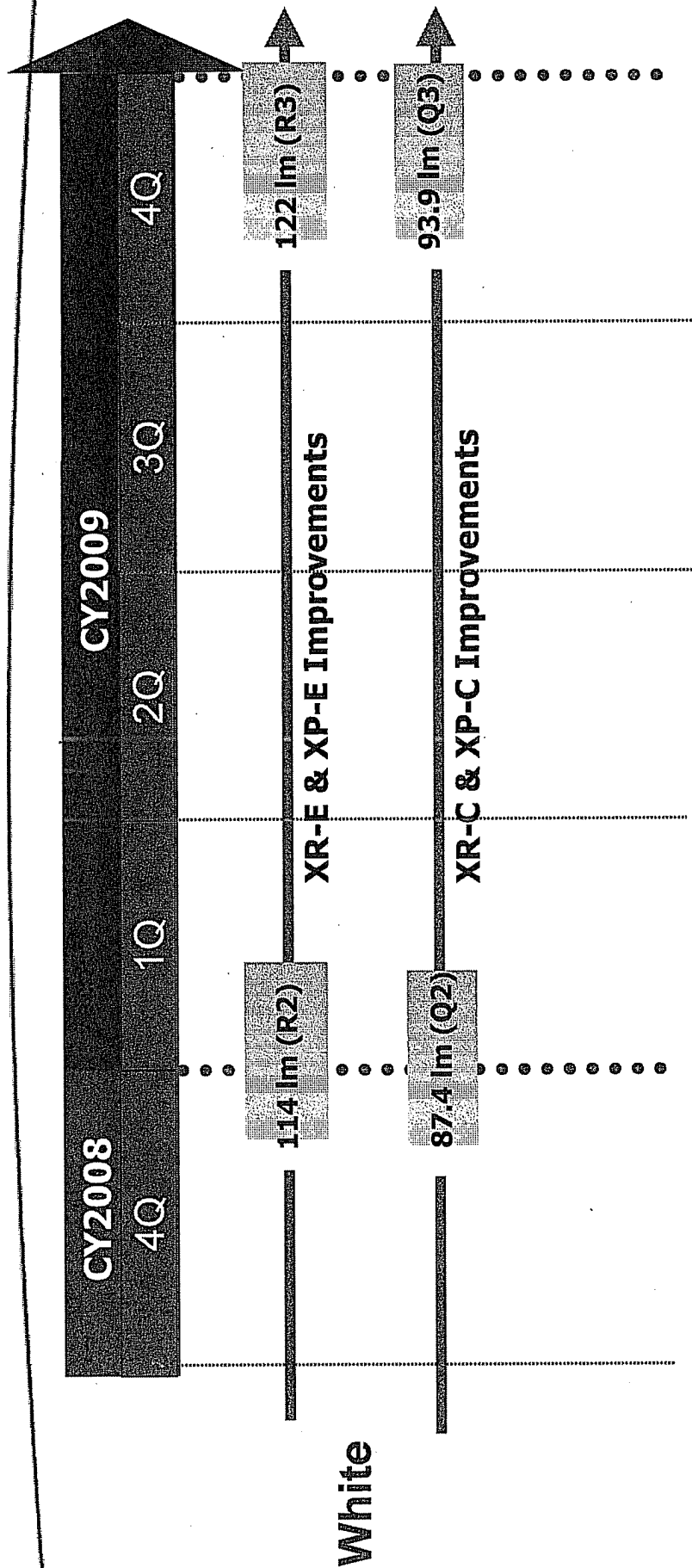
CREE

LED Light

Copyright © 2008, Cree, Inc.

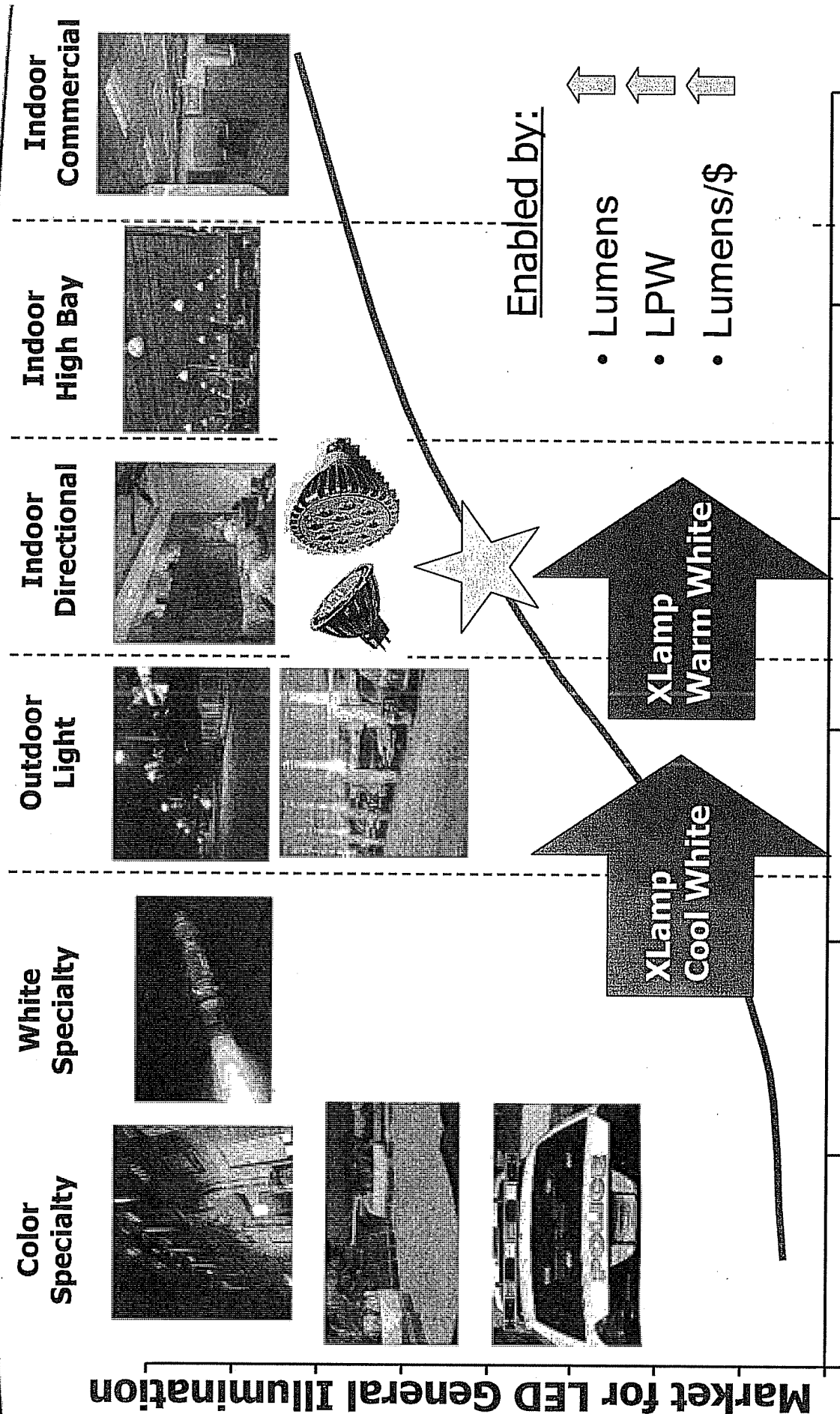
pg. 79

Single Die Flux Improvement Roadmap

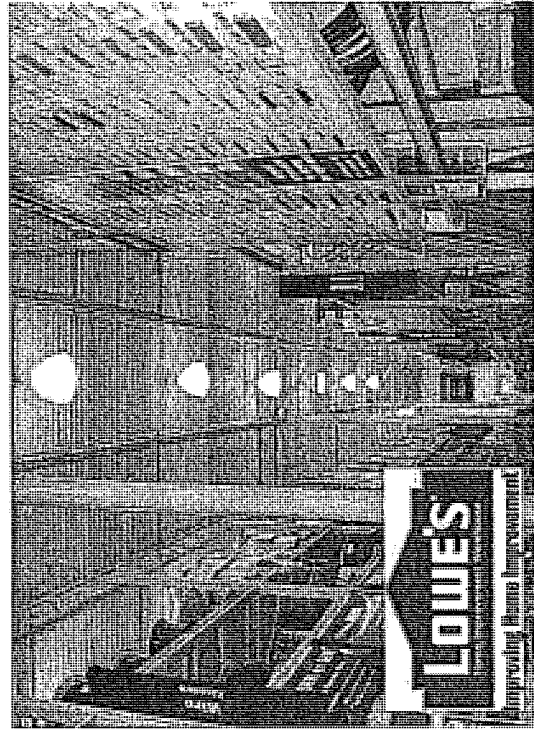
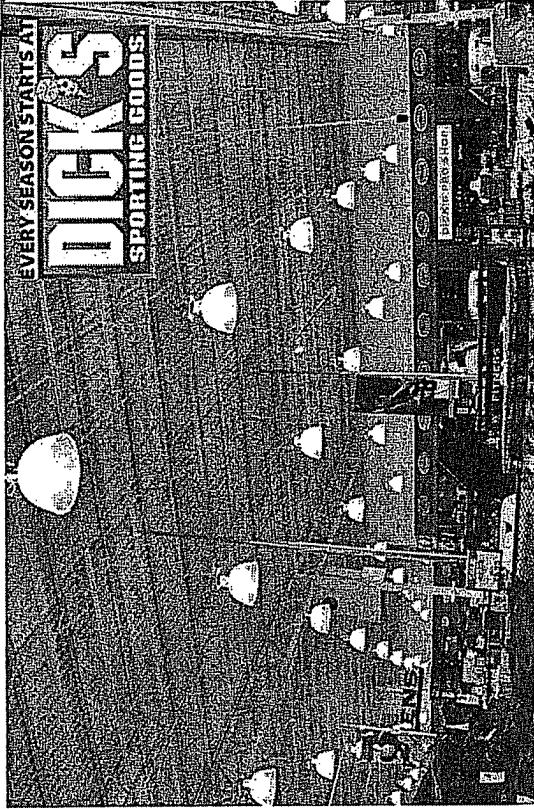
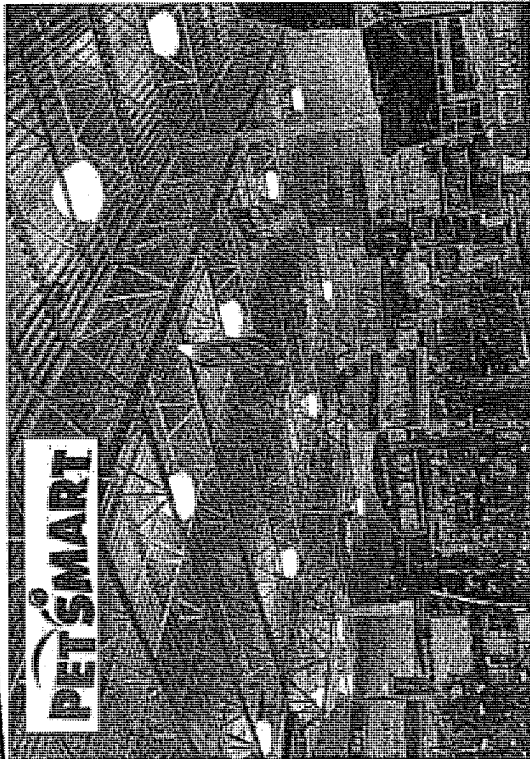


- We **expect** performance improvements – 6-10%/yr
- Current performance is adequate for most applications today
- Position our proven ability to deliver today not just promise what we can do next year

Cree Has Enabled LED Light in General Illumination



Indoor High Bay is Everywhere

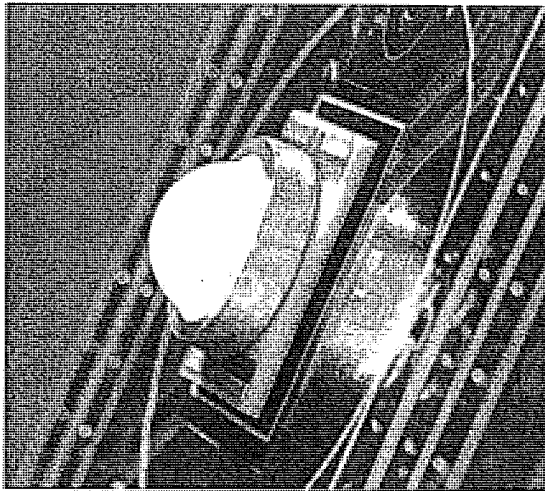


CREE LED Light

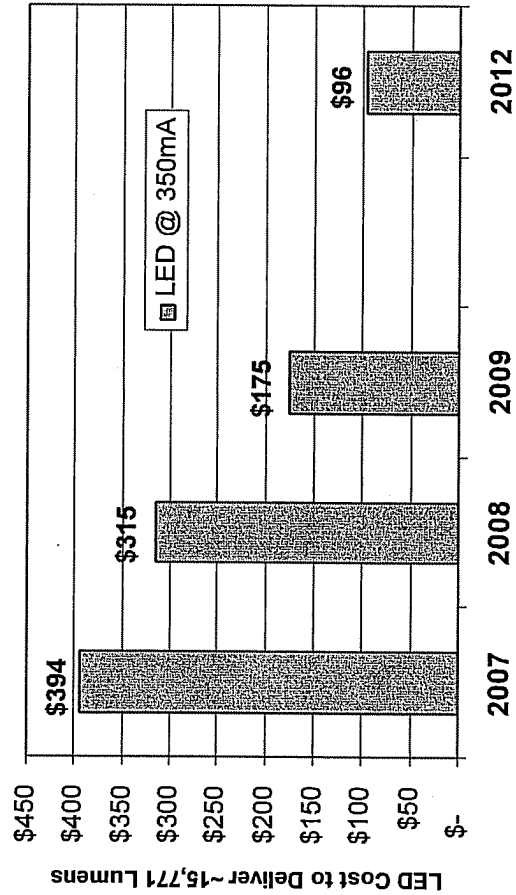
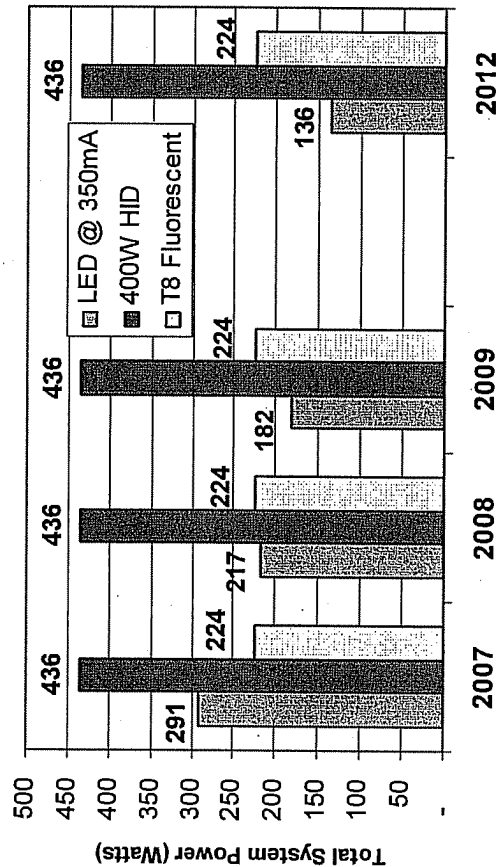
Copyright © 2008, Cree, Inc.

pg. 82

Where Can This Go...?



- LED system is currently at about energy parity with T8 FL – and improving*
 - 40% Longer lamp life
 - 54% higher S/P Ratio
 - Costs dropping rapidly*



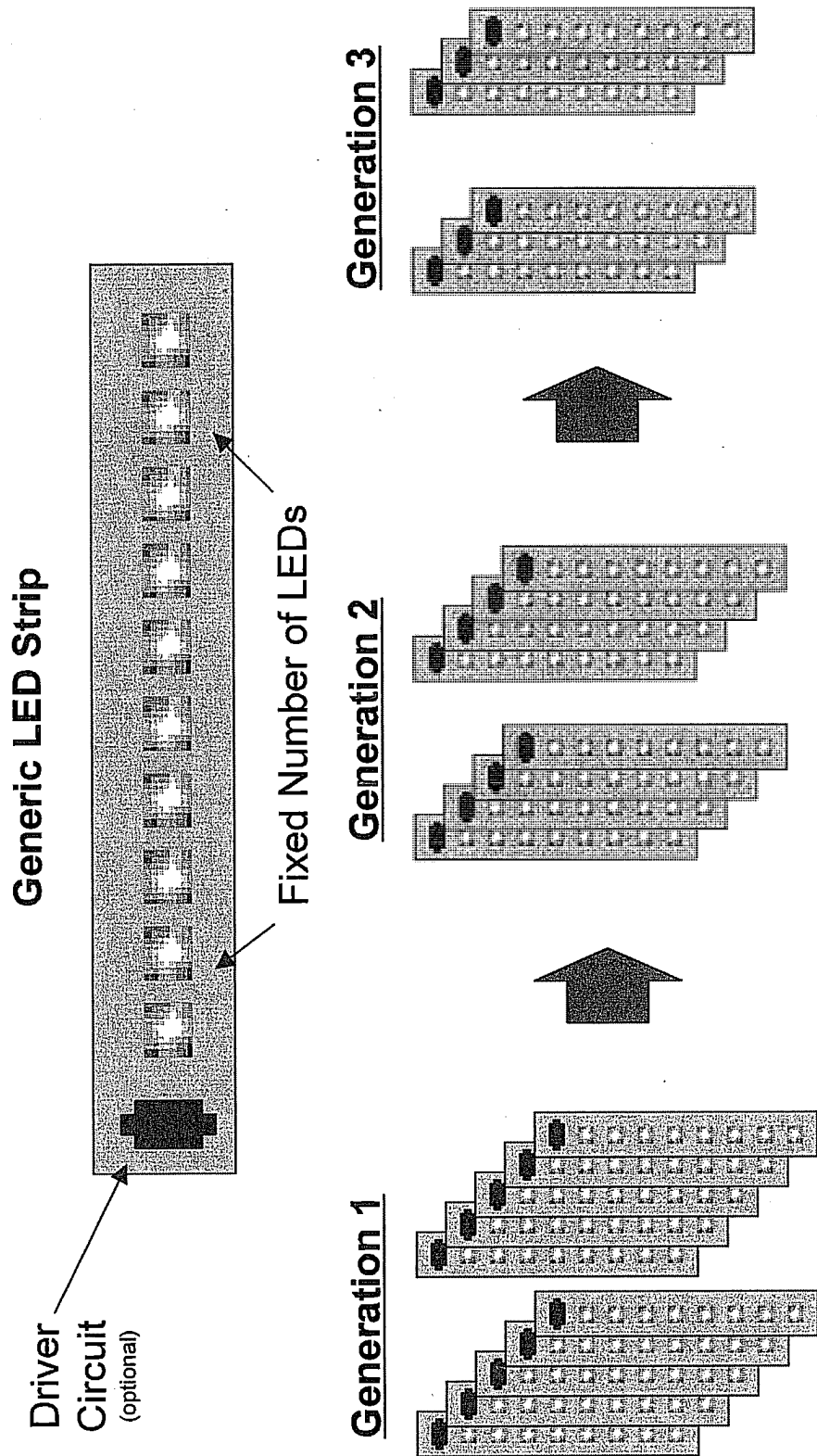
* Per DOE Solid State Lighting Roadmap, 2008

Copyright © 2008, Cree, Inc.

pg. 83

Strategy #1 for Coping With Rapid Change in LED Performance

Modular Approach to MH Source Replacement

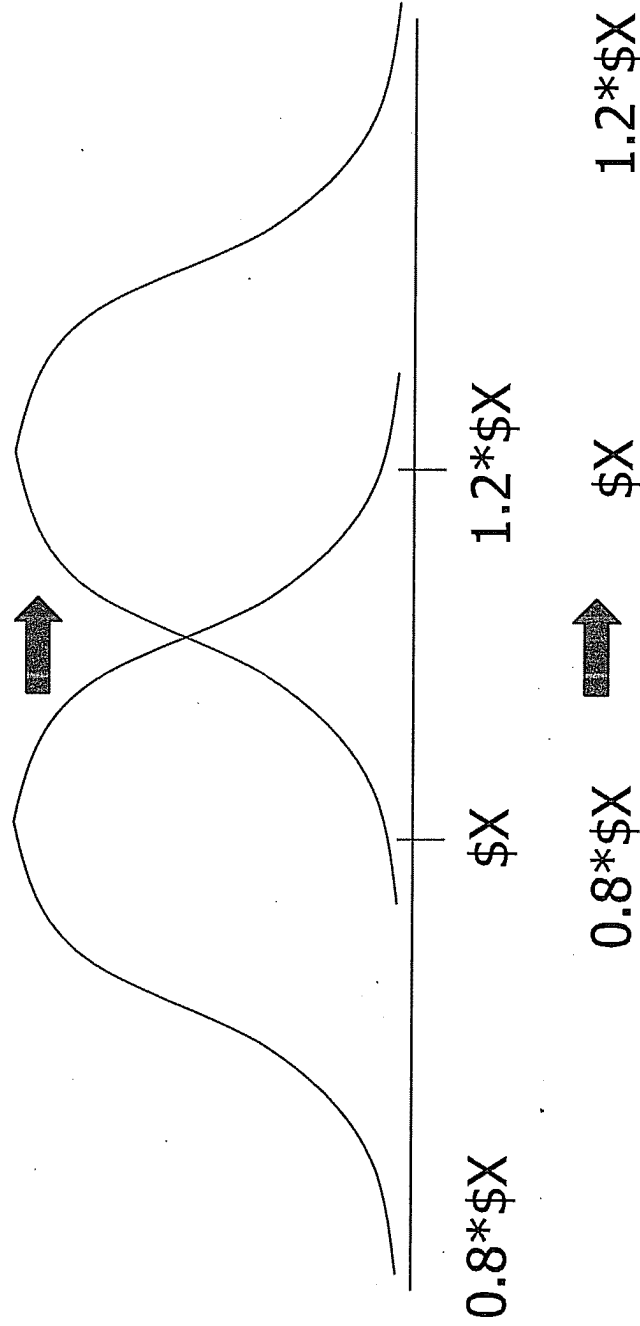


A modular design approach can yield constant photometric output while facilitating ongoing cost reductions each time LED brightness is improved

Strategy #2 for Coping With Rapid Change in LED Performance

Aim Ahead of the Duck...

LF Distribution

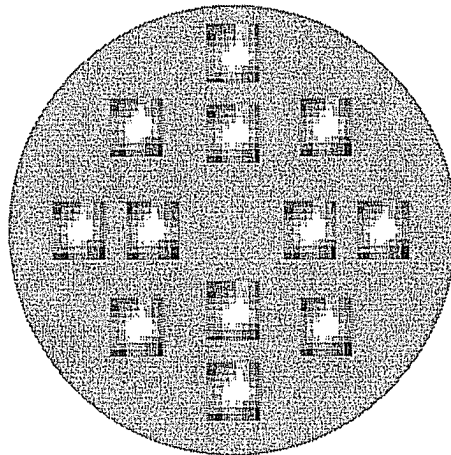


Prototyping with the highest performance LEDs currently available is more expensive, but can yield a more competitive and longer life product over the long term

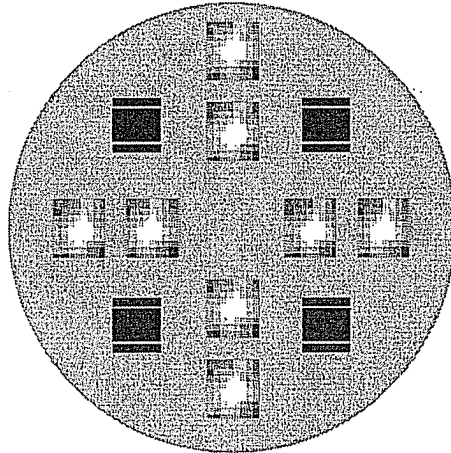
Strategy #3 for Coping With Rapid Change in LED Performance

Plan for BOM savings

Generation 1



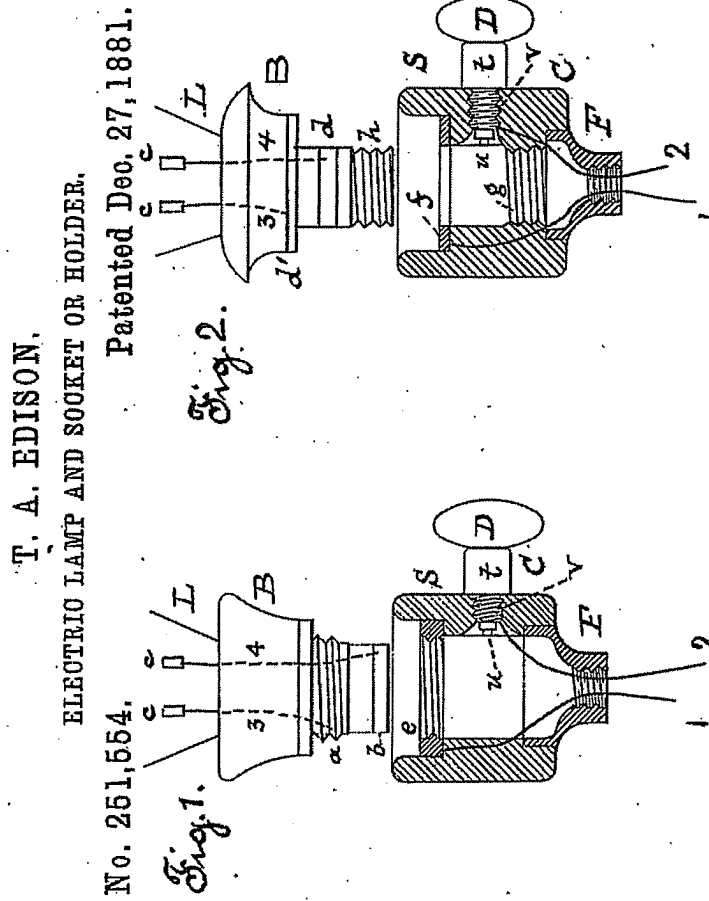
Generation 2



25% brighter LEDs can also mean 25% fewer LEDs. Need to plan flexibility in your driver design to accomplish this

Strategy #4 for Coping With Rapid Change in LED Performance

Wait for the other guy to do all the work



Waiting could be both expensive and risky...

Summary

- **The LED Lighting Revolution is happening NOW!**
- **LED light creates value through:**
 - **Energy savings**
 - **Maintenance avoidance**
 - **Improved quality of light**
- **Your customers will care about ENERGY STAR & other efficient lighting standards**
- **There is a way to create a link between LED specifications and practical design goals**

LED lighting

Energy efficient & planet friendly.

Cree. Leading the lighting revolution.

