

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MERCEDES-BENZ USA, LLC and
MERCEDES-BENZ U.S. INTERNATIONAL, INC.,
Petitioner,

v.

INNOVATIVE DISPLAY TECHNOLOGIES LLC,
Patent Owner.

Inter Partes Review of U.S. Patent No. 7,434,974

Issue Date: October 14, 2008

Patent Title: Light Emitting Panel Assemblies

IPR Case No.: *To Be Assigned*

PETITION FOR *INTER PARTES* REVIEW OF CLAIMS 1, 3-5, 7-11, 13, AND
17 OF U.S. PATENT NO. 7,434,974

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PETITIONER’S EXHIBIT LIST

Description	Exhibit #
U.S. Patent No. 7,434,974	1001
Prosecution History of U.S. Patent No. 7,434,974	1002
Complaints filed in Related District Court Cases	1003
Declaration of Michael J. Escuti, Ph.D. (“Escuti Decl.”)	1004
U.S. Patent No. 5,461,547 (“Ciupke”)	1005
U.S. Patent No. 5,005,108 (“Pristash”)	1006
U.S. Patent No. 5,619,351 (“Funamoto”)	1007
U.S. Patent No. 5,548,271 (“Tsuchiyama”)	1008
U.S. Patent No. 5,654,779 (“Nakayama”)	1009
U.S. Patent No. 6,108,060 (“the ’060 Patent”) and corresponding file history	1010
U.S. Patent No. 5,160,195 (“Miller”)	1011
J. A. Castellano, <i>Handbook of Display Technology</i> , Academic Press Inc., San Diego, 1992, at pp. 9-13 and Ch. 8	1012
U.S. Patent No. 5,598,280 (“Nishio”)	1013
U.S. Patent No. 5,384,658 (“Ohtake”)	1014
U.S. Patent No. 5,303,322 (“Winston”)	1015
U.S. Patent No. 5,050,946 (“Hathaway”)	1016
EP500960 (“Ohe”)	1017
U.S. Patent No. 5,828,488 (“Ouder Kirk”)	1018
3M product brochure 75-0500-0403-7, “Brightness Enhancement Film (BEF)”, 2 pages (1993)	1019
U.S. Patent No. 5,706,134 (“Konno”)	1020
U.S. Patent No. 5,944,405 (“Takeuchi”)	1021
U.S. Patent No. 5,381,309 (“Borchardt”)	1022
U.S. Patent No. 4,915,478 (“Lenko”)	1023

Pursuant to 35 U.S.C. §311, Petitioner hereby respectfully request *inter partes* review of Claims 1, 3-5, 7-11, 13, and 17 of Ex. 1001, U.S. Patent No. 7,434,974 (“the ’974 Patent”) which issued on October 14, 2008. The challenged claims are unpatentable under 35 U.S.C. § 103 over the prior art publications identified and applied in this Petition.

I. MANDATORY NOTICES

Pursuant to 37 C.F.R. §42.8, Petitioner provides the following mandatory disclosures:

A. Real Parties-In-Interest. Mercedes-Benz USA, LLC, a Delaware limited liability company with its principal place of business at 1 Mercedes Drive, Montvale, New Jersey 07465, and Mercedes-Benz U.S. International, Inc., an Alabama corporation with its principal place of business at 1 Mercedes Drive, Vance, Alabama 35490, are real parties-in-interest.

B. Related Matters. Pursuant to 37 C.F.R. §42.8(b)(2), Petitioner submits that the ’974 Patent is the subject of a patent infringement lawsuit brought by the Patent Owner, Innovative Display Technologies LLC (*see* Ex. 1003), against Petitioner in the United States District Court for the Eastern District of Texas: *Innovative Display Technologies LLC v. Mercedes-Benz U.S. International, Inc. and Mercedes-Benz USA, LLC*, Case No. 2:14-cv-535. In addition, the ’974 Patent is the subject of another IPR,

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IPR2014-01092. The '974 Patent is also asserted in at least the actions listed in the chart below.

Description	Docket Number
<i>Innovative Display Technologies LLC ("IDT") v. Acer Inc. et al.</i>	2:13-cv-522, EDTX
<i>IDT v. Apple Inc.</i>	2:14-cv-00030, EDTX
<i>IDT v. Apple Inc.</i>	2:14-cv-00301, EDTX
<i>IDT v. AT&T Inc., et. al.</i>	2:14-cv-00720, EDTX
<i>IDT v. Best Buy Co., Inc., et. al.</i>	2:14-cv-00532, EDTX
<i>IDT v. BMW of North America, LLC, et. al.</i>	2:14-cv-00106, EDTX
<i>IDT v. Canon U.S.A. Inc., et. al.</i>	2:14-cv-00142, EDTX
<i>IDT v. Research in Motion Limited et al.</i>	2:13-cv-00526, EDTX
<i>IDT v. Dell Inc.</i>	2:13-cv-00523, EDTX
<i>IDT v. Garmin International, Inc., et. al.</i>	2:14-cv-00143, EDTX
<i>IDT v. Google Inc., et. al.</i>	2:14-cv-00302, EDTX
<i>IDT v. Hewlett-Packard Corporation</i>	2:13-cv-00524, EDTX
<i>IDT v. Huawei Investment et al.</i>	2:13-cv-00525, EDTX
<i>IDT v. Hyundai Motor Group, et. al.</i>	2:14-cv-00201, EDTX
<i>IDT v. Mazda Motor Corporation, et. al.</i>	2:14-cv-00624, EDTX
<i>IDT v. Mercedes-Benz U.S. International, Inc., et. al.</i>	2:14-cv-00535, EDTX
<i>IDT v. Microsoft Corporation</i>	2:13-cv-00783, EDTX
<i>IDT v. Mitac Digital Corporation, et. al.</i>	2:14-cv-00144, EDTX
<i>IDT v. Nikon Inc., et. al.</i>	2:14-cv-00145, EDTX
<i>IDT v. Nissan Motor, Co., Ltd., et. al.</i>	2:14-cv-00202, EDTX
<i>IDT v. Nokia Corporation and Nokia Inc.</i>	2:13-cv-00784, EDTX
<i>IDT v. Sprint Corporation, et. al.</i>	2:14-cv-00721, EDTX
<i>IDT v. T-Mobile US, Inc., et. al.</i>	2:14-cv-00723, EDTX
<i>IDT v. Tomtom North America Inc., et. al.</i>	2:14-cv-00146, EDTX

Description	Docket Number
<i>IDT v. Toyota Motor Corporation, et. al.</i>	2:14-cv-00200, EDTX
<i>IDT v. Verizon Communications, Inc., et. al.</i>	2:14-cv-00722, EDTX
<i>IDT v. Volkswagen AG, et. al.</i>	2:14-cv-00300, EDTX
<i>IDT v. ZTE Corporation and ZTE (USA) Inc.</i>	2:13-cv-00527, EDTX
<i>Delaware Display Group LLC (“DDG”) and IDT v. Amazon.com, Inc.</i>	1:13-cv-2106, D.Del.
<i>DDG and IDT v. HTC Corporation et al.</i>	1:13-cv-02107, D.Del.
<i>DDG and IDT v. Lenovo Group Ltd., et al.</i>	1:13-cv-02108, D.Del.
<i>DDG and IDT v. LG Electronics Inc., et al.</i>	1:13-cv-02109, D.Del.
<i>DDG and IDT v. Pantech Co.,Ltd, et al.</i>	1:13-cv-02110, D.Del.
<i>DDG and IDT v. Sony Corporation et al.</i>	1:13-cv-02111, D.Del.
<i>DDG and IDT v. Vizio, Inc.</i>	1:13-cv-02112, D.Del.
<i>IDT v. Ford Motor Company</i>	1:14-cv-00849, D. Del.
<i>IDT v. General Motors LLC</i>	1:14-cv-00850, D. Del.

Petitioner is concurrently filing petitions to review U.S. Patent Nos. 7,300,194, 7,404,660, 7,384,177, 6,755,547, and 8,215,816, which are in the same family as the ’974 Patent. The ’974 Patent is a continuation of U.S. Patent No. 7,160,015.

C. Lead and Back-up Counsel.

Petitioner provides the following designation of counsel:

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D. Service Information. Pursuant to 37 C.F.R. §42.8(b)(4), Petitioner identifies the following service information: Please direct all correspondence regarding this proceeding to lead counsel at the address identified above. Petitioner consents to electronic service by email: sweingaertner@kslaw.com and nmoftt@kslaw.com.

II. PAYMENT OF FEES

The U.S. Patent Office is authorized to charge the filing fee for this Petition, as well as any other fees that may be required in connection with this Petition or these proceedings on behalf of Petitioner, to the deposit account of King & Spalding LLP, Deposit Account No. 11-0980.

III. STANDING

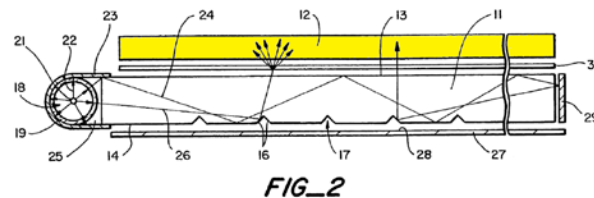
Pursuant to 37 C.F.R. §42.104(a), Petitioner certifies that the patent sought for review, the '974 Patent, is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review of the patent.

IV. REQUEST FOR *INTER PARTES* REVIEW OF CLAIMS 1, 3-5, 7-11, 13, AND 17 OF THE '974 PATENT

Pursuant to 37 C.F.R. §42.104(b), Petitioner requests that the Board find unpatentable Claims 1, 3-5, 7-11, 13, and 17 of the '974 Patent. Such relief is justified as the alleged invention of the '974 Patent was described by others prior to the effective filing date of the '974 Patent.

A. Technology Background

Generally, light emitting panel assemblies are used in conjunction with liquid crystal displays (“LCDs”) and various applications thereof, as a backlight module to provide light to the display. Ex. 1004, Declaration of Michael J. Escuti, Ph.D. (“Escuti Decl.”), ¶38. The light emitting panel assembly is composed of all the elements of the LCD other than the liquid crystals themselves. *Id.* For example, the light emitting panel assembly is all but element 12 (in yellow) in the annotated figure below from Ex. 1005, U.S. Patent No. 5,461,547 (“Ciupke”).



In order to produce surface illumination with the target brightness and uniformity at the lowest possible electrical power, the light emitting panel assembly can include features to spatially homogenize and control the angular distribution of emitted light. Escuti Decl., ¶42. Examples of these features include light pipes, transition area, reflectors, and various types of microstructured deformities (*e.g.*, microprisms, diffusers, and microlenses). *Id.* The light pipe, also sometimes called a light guide or wave guide, accepts light injected from the side and distributes it across the emission area. The '974 Patent calls the light pipe a “transparent panel member” (*e.g.*, 1:19-20), “light emitting panel member” (*e.g.*, 1:33-34), and “transparent light

emitting panel” (*e.g.*, 2:66). Escuti Decl., ¶43. The transition area, which is usually between the light source and the light pipe, is used to securely position the light source relative to the light pipe, and to spread and transmit light to produce a more uniform input illumination. Escuti Decl., ¶44. Deformities, such as microprisms, diffusers, and microlenses, are employed to control the direction and spatial uniformity of light within light emitting panel assemblies. *Id.* ¶45.

B. The Alleged Invention Of The '974 Patent

The '974 Patent relates “to light emitting panel assemblies each including a transparent panel member for efficiently conducting light, and controlling the light conducted by the panel member to be emitted from one or more light output areas along the length thereof.” Ex. 1001, 1:18-22. The '974 Patent discloses an edge-lit light emitting panel assembly, which can also be referred to as a backlight. Edge-lit light emitting panel assemblies are often preferred because they can be physically thinner and lower weight. Escuti Decl., ¶40. As the '974 Patent acknowledges, “[l]ight emitting panel assemblies are generally known.” Ex. 1001, 1:23. The purported advantage of the alleged invention described in the '974 Patent relates to several different light emitting panel assembly configurations which allegedly provide for better control of light output from the panel assembly and for more “efficient” utilization of light, thereby resulting in greater light output from the panel assembly. *Id.* 1:24-28. Yet, such advantages are common knowledge, as prior art such as U.S.

Patent No. 5,005,108 (“Pristash”) has already disclosed them. *See, e.g.*, Ex. 1006, 1:10-16.

The ’974 Patent discloses a light emitting assembly including a light emitting panel member received in a cavity or recess in a tray or housing. Ex. 1001, Abstract. The panel member has a pattern of light extracting deformities on or in at least one surface of the panel member to cause light received from at least one LED light source positioned near or against the light entrance surface of the panel member to be emitted from a light emitting surface of the panel member. *Id.* The tray or housing acts as an end edge and/or side edge reflector for the panel member to reflect light that would otherwise exit the panel member through the end edge and/or side edge back into the panel member for causing additional light to be emitted from the panel member. *Id.*

V. CLAIM CONSTRUCTION

A. Standards For Claim Construction

1. Broadest Reasonable Construction

A claim subject to *inter partes* review is given its “broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. §42.100(b). This means that the words of the claim are given their plain meaning from the perspective of one of ordinary skill in the art unless that meaning is inconsistent with the specification. *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989).

Petitioner submits, for the purposes of *inter partes* review only, that the claim terms are presumed to take on their broadest reasonable interpretation in light of the specification of the '974 Patent.

B. “deformities” (Claims 1, 7, 13, And 17)

The '974 Patent expressly defines the term “deformities” as follows: “As used herein, the term deformities or disruptions are used interchangeably to mean any change in the shape or geometry of the panel surface and/or coating or surface treatment that causes a portion of the light to be emitted.” Ex. 1001, 4:36-40. Thus, based on the express definition of deformities in the specification, “deformities” (Claims 1, 7, 13, and 17) should be construed to mean “any change in the shape or geometry of a surface and/or coating or surface treatment that causes a portion of the light to be emitted.” Escuti Decl., ¶64.

VI. SUMMARY OF PRIOR ART TO THE '974 PATENT FORMING THE BASIS FOR THIS PETITION

The following documents serve as a basis to show that Petitioner has a reasonable likelihood of prevailing with respect to at least one of the Claims 1, 3-5, 7-9, 13, and 17 of the '974 Patent. Petitioner provides a detailed explanation of the pertinence and manner of applying the cited prior art to Claims 1, 3-5, 7-11, 13, and 17 of the '974 Patent in Section VII, *infra*. It will be shown that, in light of the prior art references, the light emitting assembly in the '974 Patent is a function of prior art and obvious design decisions, not innovation or invention.

A. Admitted Prior Art

The '974 Patent discusses the following functionality and structure of prior art light emitting assemblies: (1) a “transparent light emitting panel 2,” (2) “one or more light sources 3 which emit light in a predetermined pattern,” and (3) “a light transition member or area 4 used to make the transition from the light source 3 to the light emitting panel.” Ex. 1001, 2:58-65 (describing these elements and their functionalities as being “well known in the art”).

B. U.S. Patent No. 5,619,351 (“Funamoto”) (Ex. 1007)

Funamoto discloses a surface-type illumination device suitable for providing a backlight in an LCD. Ex. 1007, Abstract. Funamoto qualifies as prior art under 35 U.S.C. §102(e) because Funamoto entered national stage under 35 U.S.C. §371 on May 10, 1994 before the June 27, 1995 priority date to which the '974 Patent may be entitled. Funamoto was not cited or considered during prosecution of the application that led to the '974 Patent.

C. U.S. Patent No. 5,548,271 (“Tsuchiyama”) (Ex. 1008)

Tsuchiyama discloses a data display radio pager including an LCD provided with at least one backlight LED for illuminating the LCD, and a backlight structure for accommodating, together with the backlight LED, at least one alert LED for alerting a user of the radio pager to an incoming call in the LCD. Ex. 1008, 1:58-62. Tsuchiyama qualifies as prior art under 35 U.S.C. §102(e) because Tsuchiyama was filed on June 24, 1994, before the June 27, 1995 priority date to which the '974 Patent

may be entitled. Tsuchiyama was not cited or considered during prosecution of the application that led to the '974 Patent.

D. U.S. Patent No. 5,654,779 (“Nakayama”) (Ex. 1009)

Nakayama discloses an LCD device wherein at least a part of the light guiding board can be removed from the lighting unit section or lighting means can be removed from the LCD panel section without removing the frames and without the need of varying the outer dimensions and thickness of the device, utilizing light with higher efficiency and with lighter weight removable portions. Ex. 1009, 2:12-24. Nakayama qualifies as prior art under 35 U.S.C. §102(e) because Nakayama was filed on December 29, 1994, before the June 27, 1995 priority date to which the '974 Patent may be entitled. Nakayama was not cited or considered during prosecution of the application that led to the '974 Patent.

VII. GROUNDS FOR UNPATENTABILITY OF EACH CLAIM

In light of the disclosures detailed below, the '974 Patent is unpatentable for at least the reasons summarized in the chart below and discussed in more detail herein.

Ground #	Ground	Prior art	Exhibit(s) #	Claims
1	103(a)	Funamoto	1007	1, 3-5, 7-11, 13
2	103(a)	Tsuchiyama in view of Funamoto	1008 and 1007	1, 3-5, 7-8, 10-11, 13
3	103(a)	Funamoto in view of Nakayama	1007 and 1009	13, 17

A. Ground 1: Claims 1, 3-5, 7-11, And 13 Are Unpatentable Under 35 U.S.C. §103(a) As Being Obvious Over Funamoto

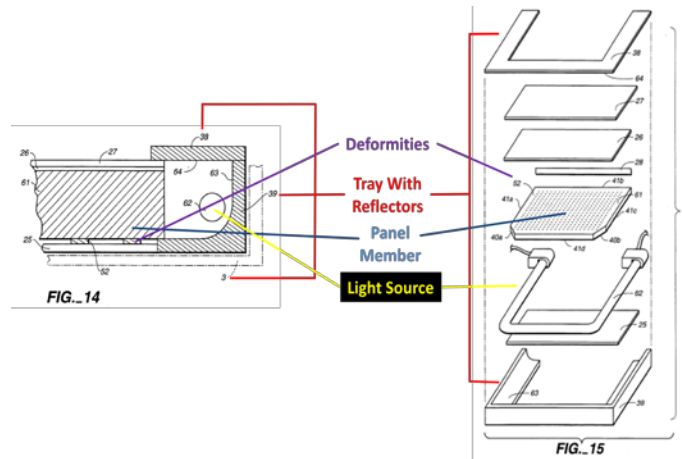
It is well known in the light emitting panel assembly field to include a light

emitting panel member and the other structural features, as required by independent Claims 1 and 13. Indeed, in the Background of the Invention, the '974 Patent concedes "[l]ight emitting panel assemblies are generally known." Ex. 1001, 1:23. The "novel" feature was "light emitting panel assembly configurations which provide for better control of the light output from the panel assemblies and for more efficient utilization of light, which results in greater light output from the panel assemblies." *Id.* 1:24-28. However, the purportedly "novel" feature was fully described in Funamoto.

Funamoto (Ex. 1007) discloses Claims 1, 3-5, 7-11, and 13 of the '974 Patent and therefore renders those claims unpatentable under 35 U.S.C. §103. According to Funamoto, the increased use of surface-type illumination devices with a cylindrical light source and a flat polarizer as backlights for LCD panels in addition to the increased use of LCD panels for color displays calls for the LCD panels to become thinner and lighter with less power consumption. Ex. 1007, 1:15-38. Some problems Funamoto aimed to solve include overheating and the increased number of necessary driver circuits. *Id.* 1:42-66. To address these concerns, Funamoto discloses an illumination device for color LCDs that are small, lightweight, with high and uniform brightness, which can also be temperature controlled, and without increasing the number of driver circuits needed. *Id.* 2:3-23.

The elements of Claim 1 of the '974 Patent are shown in the annotated figure to the right, composed of Figures 14 and 15 of Funamoto that are labeled as claim

elements.

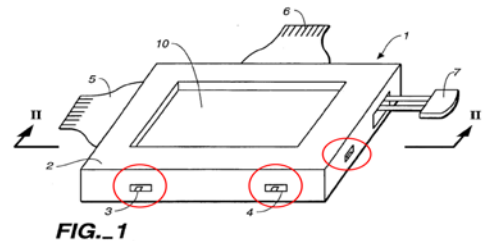


Notably, the “polarizer” of Funamoto is the panel member of the ’974 Patent. Although it is not immediately clear that the polarizer is a light emitting panel member, consideration of Funamoto’s child patent, U.S. Patent No. 6,108,060 (“the ’060 Patent”) (Ex. 1010) illustrates that the ’060 Patent includes the exact same sentence as in Funamoto, but with “polarizer” replaced with “light guide plate (*“Illumination device 20 is a surface-type illumination device set up with a cylindrically-shaped fluorescent light 22 at the edge of substantially rectangular light guide plate 21.”* Ex. 1010, 6:31-33). As previously discussed, a light guide is an example of a light pipe/panel member. Therefore, the “polarizer” of Funamoto is the same as the light emitting panel member of the ’974 Patent because the light polarizer has a light entrance surface and a light emitting surface, as is clear from the assembly structure and the function of the polarizer. *See* Escuti Decl., ¶¶72-74.

The ’974 Patent requires at least one LED light source positioned near or

against the light entrance surface. Although Funamoto does not explicitly disclose an LED, it does describe a light source (“*cylindrically-shaped fluorescent light 22*,” Ex. 1007, 6:24-25). Funamoto also repeatedly mentions decreased power consumption as an objective. *Id.* 1:5-12, 12:66-67. As such, a person of ordinary skill in the art would easily substitute an LED for the fluorescent light source disclosed. *See* Escuti Decl., ¶¶76-78. This is particularly true because an LED would have been an obvious design choice at the time of Funamoto, selected for its efficiency and low power consumption, among other things. *See id.* ¶77.

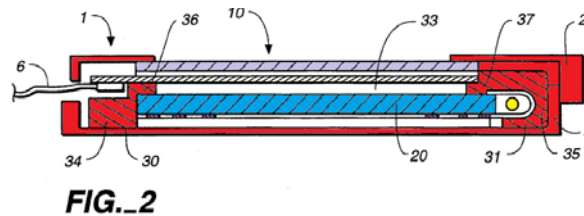
Finally, Funamoto teaches a tray with posts, tabs, or other structural features that provide a mount for mounting of the assembly into a larger assembly or device as seen to the



right as element 4, encircled in annotated Figure 1. The structural feature represented by element 4 allows for the bottom tray with all of the components within, to be mounted into the top case. *See id.* ¶¶79-81.

With respect to Claim 7, the annotated figure and explanation above illustrates that Funamoto teaches all the elements of Claim 1, in addition to the tray or housing having posts, tabs, or other structural features that provide a mount or structural support for at least one other part or component. Any other component that is unlabeled within annotated Figures 14 and 15 qualifies as the “at least one other part

or component” that the tray’s structural features provide structural support. *See id.* ¶¶103-106. This component can be an LCD as required in Claim 8 of the ’974 Patent as disclosed (“Upper frame 38 acts as a spacer to secure the gap between liquid crystal display panel 10 and illumination device 60.” Ex. 1007, 13:53-54), and as also seen in lilac in annotated Figure 2 below, where the other components are colored in accordance to their labels in annotated Figs. 14 and 15.



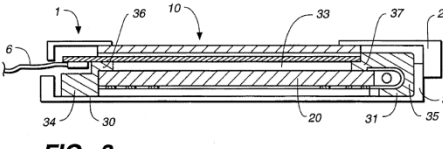
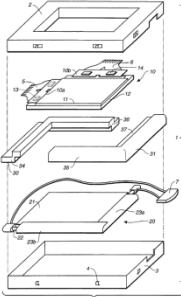
The “component” can also be a printed circuit (“Also, at side 10b, which is adjacent to side 10a, a plurality of driver ICs 14 are installed for latching pixel data for the columns and sending it to the liquid crystal display panel.” Ex. 1007, 6:3-9), as required by Claim 9 of the ’974 Patent. *See Escuti Decl.*, ¶¶114-115.

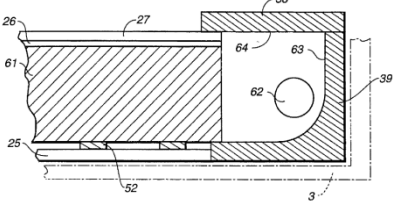
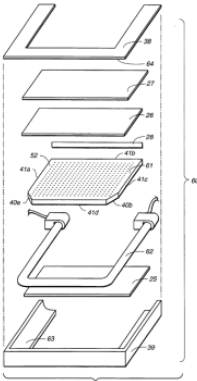
Claim 13 of the ’974 is met by Funamoto, as shown above in annotated Figures 14 and 15 of Funamoto. An additional component is overlaying the panel member, including any element located above the “panel member” in the expanded view in Figure 15. *See id.* ¶¶124-128. Further, Funamoto teaches the panel member having at least one of a tab, hole, cavity, or protrusion that positions the tray or housing relative to the panel member. The corners of the panel member are removed in order to install the light source so that the light source and the panel member fit together

appropriately. Ex. 1007, 14:12-27; *see also* Escuti Decl., ¶¶124-128. The cavity, or empty space within a solid object, in the corner of the panel allows for positioning of the panel relative to the light source and into the tray. *See id.*

The claim chart below shows a detailed analysis of how each element of Claims 1, 3-5, 7-11, and 13 of the '974 Patent is obvious over Funamoto. For all these reasons, Claims 1, 3-5, 7-11, and 13 are unpatentable in view of Funamoto and thus, Petitioner has a reasonable likelihood of prevailing with respect to at least one claim.

'974 Claim Element	Funamoto (Ex. 1007)
1. A light emitting panel assembly comprising	<p data-bbox="573 856 1417 1014">“In liquid crystal display 1, illumination device 20 is installed in lower case 3. Above that, liquid crystal display panel 10 is installed using frame 30 and 31.” Ex. 1007, 5:61-67; <i>see also</i> Fig. 2 below.</p> <div data-bbox="771 1035 1218 1161"> <p data-bbox="812 1171 885 1197">FIG. 2</p> </div> <p data-bbox="573 1218 876 1255"><i>See</i> Escuti Decl., ¶71.</p>
[1.a] at least a light emitting panel member having a light entrance surface and a light emitting surface,	<p data-bbox="573 1276 1417 1434">“Illumination device 20 is a surface-type illumination device set up with a cylindrically-shaped fluorescent light 22 at the edge of substantially rectangular <u>polarizer 21</u>.” Ex. 1007, 6:24-26.</p> <p data-bbox="573 1455 1417 1791">“Illumination device 20 is comprised of <u>polarizer 21</u>, which is substantially rectangular in shape and is missing the corner of edge 40, fluorescent light 22, which encompasses edge 40 in an L-shape, and reflectors 23a and 23b, which cover fluorescent light 22 in the direction of <u>polarizer 21</u> and efficiently reflect light from fluorescent light 22 to <u>polarizer 21</u>.” <i>Id.</i> 6:32-40; <i>see also</i> 4:49-53, Fig. 4.</p> <p data-bbox="573 1812 941 1850"><i>See</i> Escuti Decl., ¶¶72-75.</p>
[1.b] at least one LED	“Illumination device 20 is a surface-type illumination

'974 Claim Element	Funamoto (Ex. 1007)
light source positioned near or against the light entrance surface, and	<p>device set up with a cylindrically-shaped fluorescent light 22 at the edge of substantially rectangular polarizer 21.” Ex. 1007, 6:24-26; 13:47.</p> <p>“This invention relates in general to a thin, surface-type illumination device that can be used as a backlight for liquid crystal displays (LCD) and, in particular, to a suitable illumination device for use in a notebook computer display that provides high brightness with low power consumption as well as to a liquid crystal display that uses this illumination device.” <i>Id.</i> 1:6-12.</p> <p>“Further, because the light conversion efficiency can be raised, power consumption can be reduced.” <i>Id.</i> 12:66-67.</p> <p><i>See</i> Escuti Decl., ¶¶76-78.</p>
[1.c] a tray or housing having a cavity or recess in which the panel member is entirely received,	<p>“Liquid crystal display 1 is constructed with liquid crystal display panel 10 and an illumination device to be described later sandwiched between <u>upper case 2 and lower case 3</u>. Upper case 2 and lower case 3 are fixed in place by tooth 4.” Ex. 1007, 5:47-51; <i>see also</i> Fig. 2 below.</p> <div style="text-align: center;">  <p>FIG. 2</p> </div> <div style="text-align: center;">  <p>FIG. 3</p> </div> <p>“In liquid crystal display 1, illumination device 20 is installed in lower case 3. Above that, liquid crystal display panel 10 is installed using <u>frame 30 and 31</u>.” <i>Id.</i> 5:61-67; <i>see also</i> Fig. 3 above.</p> <p>“<u>Frames 30 and 31</u> are used to protect illumination device 20 and to position it within the case. At the same time, it also fills the role of maintaining a fixed distance for gap 33 between illumination device 20 and liquid crystal display panel 10, for example, 0.2-1 mm. For this reason, frames 30 and 31 are prepared so that their lower halves [sic] 34 and 35 support illumination device 20 and their upper</p>

'974 Claim Element	Funamoto (Ex. 1007)
	<p>halves [sic] 36 and 37 act as spacers between illumination device 20 and liquid crystal display panel 10.” <i>Id.</i> 6:10-17.</p> <p>“Illumination device 60 is enclosed within <u>frames 38 and 39</u>, which are divided into an upper and lower section. Upper frame 38 acts as a spacer to secure the gap between liquid crystal display panel 10 and illumination device 60.... Within the U-shaped lower frame 39 of illumination device 60 are enclosed the following in the order from bottom to top, reflecting sheet 25, polarizer 61, diffusion sheet 26, and prism sheet 27.... On top of lower frame 39, which encloses all of these, is the flat, L-shaped upper frame 38.” <i>Id.</i>, 13:47-65; <i>see also</i> Figs. 14, 15 below.</p> <div style="text-align: center;">  <p>FIG. 14</p> </div> <div style="text-align: center;">  <p>FIG. 15</p> </div> <p><i>See</i> Escuti Decl., ¶¶79-81.</p>
<p>[1.d] wherein the panel member has a pattern of light extracting deformities on or in at least one surface to cause light to be emitted from the light emitting surface of the panel member, and</p>	<p>“In this example, the pattern sheet is omitted because the <u>diffusion sheet 52 is printed on lower surface 61b of polarizer 61.</u>” Ex. 1007, 14:10-12.</p> <p>“FIG. 17 shows <u>diffusion pattern 52, which is printed on polarizer 61</u>, when looking from the direction of lower side 21b of polarizer 21 ... Through diffusion pattern 52, the light introduced to polarizer 61 is diffused and a uniform light is released from upper surface 61a of polarizer 61 towards the liquid crystal display panel.” <i>Id.</i> 14:27-41; <i>see also</i> Figs. 14, 15.</p> <p><i>See</i> Escuti Decl., ¶¶82-83.</p>
<p>[1.e] the tray or housing includes end walls and side walls that act as end</p>	<p>“<u>Edge reflective tape 28</u> is arranged at the two edges 41a and 41b, which are opposite the edges 41c and 41d where fluorescent light 22 and reflector 23 are installed. . . . <u>The</u></p>

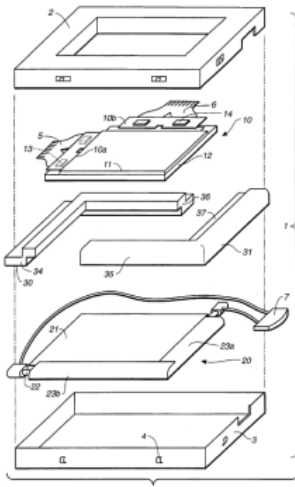
'974 Claim Element	Funamoto (Ex. 1007)
edge reflectors and side edge reflectors for the panel member to reflect light that would otherwise exit the panel member through an end edge and/or side edge back into the panel member and toward the pattern of light extracting deformities for causing additional light to be emitted from the light emitting surface of the panel member,	<p><u>light that reaches the edges of the opposite side is returned back to polarizer 21.</u>” Ex. 1007, 7:60-67.</p> <p>“The remaining edge 41b is equipped with edge reflecting tape 28.” <i>Id.</i> 13:63-64.</p> <p>“Materials such as white PET sheets, aluminum, and such can be used for the <u>edge reflective tape</u> as well as the reflectors mentioned above. <u>It is also possible to integrate these into the case or frame as well.</u>” <i>Id.</i> 7:67-8:4</p> <p>“Concerning this liquid crystal display, the drawings and descriptions substantially similar to the embodiment shown in FIG. 1 are eliminated.” <i>Id.</i> 13:42-44.</p> <p><i>See</i> Escuti Decl., ¶¶84-86.</p>
[1.f] wherein the tray or housing provides structural support to the panel member	<p>“Liquid crystal display 1 is constructed with liquid crystal display panel 10 and an <u>illumination device to be described later sandwiched between upper case 2 and lower case 3.</u>” Ex. 1007, 5:47-50; <i>see also</i> Fig. 2 above.</p> <p>“In liquid crystal display 1, <u>illumination device 20 is installed in lower case 3.</u>” <i>Id.</i> 5:64-66; <i>see also</i> Fig. 3 above.</p> <p>“<u>Frames 30 and 31 are used to protect illumination device 20 and to position it within the case. At the same time, it also fills the role of maintaining a fixed distance for gap 33 between illumination device 20 and liquid crystal display panel 10, for example, 0.2-1 mm. For this reason, frames 30 and 31 are prepared so that their lower halves [sic] 34 and 35 support illumination device 20 and their upper halves [sic] 36 and 37 act as spacers between illumination device 20 and liquid crystal display panel 10.</u>” <i>Id.</i> 6:10-17.</p> <p>“Illumination device 60 is enclosed within frames 38 and 39, which are divided into an upper and lower section. Upper frame 38 acts as a spacer to secure the gap between liquid crystal display panel 10 and illumination device 60.... Within the U-shaped lower frame 39 of illumination device 60 are enclosed the following in the order from bottom to top, reflecting sheet 25, polarizer 61, diffusion</p>

'974 Claim Element	Funamoto (Ex. 1007)
	<p>sheet 26, and prism sheet 27.... On top of lower frame 39, which encloses all of these, is the flat, L-shaped upper frame 38.” <i>Id.</i> 13:51-65; <i>see also</i> Figs. 14, 15 above.</p> <p><i>See</i> Escuti Decl., ¶87.</p>
<p>[1.g] and has posts, tabs, or other structural features that provide a mount for mounting of the assembly into a larger assembly or device.</p>	<div data-bbox="1117 493 1404 661" data-label="Image"> </div> <p>“Upper case 2 and lower case 3 are fixed in place by <u>tooth 4.</u>” Ex. 1007, 5:50-51; <i>see also</i> Fig. 1 right.</p> <p>“Frames 30 and 31 are used to protect illumination device 20 and to position it within the case. At the same time, it also fills the role of maintaining a fixed distance for gap 33 between illumination device 20 and liquid crystal display panel 10, for example, 0.2-1 mm. For this reason, <u>frames 30 and 31 are prepared so that their lower halves [sic] 34 and 35 support illumination device 20 and their upper halves [sic] 36 and 37 act as spacers between illumination device 20 and liquid crystal display panel 10.</u>” <i>Id.</i> 6:10-17.</p> <p>“Concerning this liquid crystal display, the drawings and descriptions substantially similar to the embodiment shown in FIG. 1 are eliminated.” <i>Id.</i> 13:42-44.</p> <p>“Illumination device 60 is enclosed within frames 38 and 39, which are divided into an upper and lower section. <u>Upper frame 38 acts as a spacer to secure the gap between liquid crystal display panel 10 and illumination device 60.</u>” <i>Id.</i> 13:51-65; <i>see also</i> Fig. 14.</p> <p><i>See</i> Escuti Decl., ¶¶88-90.</p>
<p>3. The assembly of claim 1 wherein the tray or housing provides a support for supporting and/or positioning a film near the panel member.</p>	<p>“Liquid crystal display 1 is constructed with liquid crystal display panel 10 and an illumination device to be described later sandwiched between upper case 2 and lower case 3. Upper case 2 and lower case 3 are fixed in place by tooth 4.” Ex. 1007, 5:47-51; <i>see also</i> Fig. 2 above.</p> <p>“Illumination device 60 is enclosed within frames 38 and 39, which are divided into an upper and lower section. Upper frame 38 acts as a spacer to secure the gap between liquid crystal display panel 10 and illumination device 60.... <u>Within the U-shaped lower frame 39 of illumination</u></p>

'974 Claim Element	Funamoto (Ex. 1007)
	<p><u>device 60 are enclosed the following in the order from bottom to top, reflecting sheet 25, polarizer 61, diffusion sheet 26, and prism sheet 27.... On top of lower frame 39, which encloses all of these, is the flat, L-shaped upper frame 38.”</u> <i>Id.</i> 13:51-65; <i>see also</i> Figs. 14, 15 above.</p> <p><i>See</i> Escuti Decl., ¶¶93-94.</p>
<p>4. The assembly of claim 3 wherein the film is at least one of a diffuser and a brightness enhancing film.</p>	<p>“<u>Prism sheet 27</u>, which is arranged on diffusion sheet 26, is made up of very small linear prisms lined in a cross-sectional array. The angle of the light radiating from diffusion sheet 26 is arranged to improve the illuminating intensity of the liquid crystal display panel 10.” Ex. 1007, 7:30-34; <i>see also</i> 13:56-65.</p> <p><i>See</i> Escuti Decl., ¶¶96-97.</p>
<p>5. The assembly of claim 1 further comprising a film positioned near the light emitting surface of the panel member for changing the output ray angle distribution of the emitted light to fit a particular application.</p>	<p>“<u>Prism sheet 27</u>, which is arranged on diffusion sheet 26, is made up of very small linear prisms lined in a cross-sectional array. The angle of the light radiating from diffusion sheet 26 is arranged to improve the illuminating intensity of the liquid crystal display panel 10.” Ex. 1007, 7:30-34; <i>see also</i> 13:56-65.</p> <p><i>See</i> Escuti Decl., ¶¶99-101.</p>
<p>7. A light emitting panel assembly comprising</p>	<p><i>See</i> citations to claim 1, preamble above.</p> <p><i>See</i> Escuti Decl., ¶103.</p>
<p>[7.a] at least a light emitting panel member having a light entrance surface and a light emitting surface,</p>	<p><i>See</i> citations to claim element 1.a above.</p> <p><i>See</i> Escuti Decl., ¶103.</p>
<p>[7.b] at least one LED light source positioned near or against the light entrance surface, and</p>	<p><i>See</i> citations to claim element 1.b above.</p> <p><i>See</i> Escuti Decl., ¶103.</p>
<p>[7.c] a tray or housing having a cavity or recess</p>	<p><i>See</i> citations to claim element 1.c above.</p> <p><i>See</i> Escuti Decl., ¶103.</p>

'974 Claim Element	Funamoto (Ex. 1007)
in which the panel member is entirely received,	
[7.d] wherein the panel member has a pattern of light extracting deformities on or in at least one surface to cause light to be emitted from the light emitting surface of the panel member, and	<p><i>See</i> citations to claim element 1.d above.</p> <p><i>See</i> Escuti Decl., ¶103.</p>
[7.e] the tray or housing includes end walls and side walls that act as end edge reflectors and side edge reflectors for the panel member to reflect light that would otherwise exit the panel member through an end edge and/or side edge back into the panel member and toward the pattern of light extracting deformities for causing additional light to be emitted from the light emitting surface of the panel member,	<p><i>See</i> citations to claim element 1.e above.</p> <p><i>See</i> Escuti Decl., ¶103.</p>
[7.f] wherein the tray or housing has posts, tabs or other structural features that provide a mount or structural support for at least one other part or component,	<p>“Liquid crystal display 1 is constructed with liquid crystal display panel 10 and an illumination device to be described later sandwiched between upper case 2 and lower case 3.” Ex. 1007, 5:47-50; <i>see also</i> Fig. 2 above.</p> <p>“In liquid crystal display 1, <u>illumination device 20 is installed in lower case 3.</u>” <i>Id.</i> 5:64-66; <i>see also</i> Fig. 3 above.</p> <p>“Frames 30 and 31 are used to protect illumination device</p>

'974 Claim Element	Funamoto (Ex. 1007)
	<p>20 and to position it within the case. At the same time, it also fills the role of maintaining a fixed distance for gap 33 between illumination device 20 and liquid crystal display panel 10, for example, 0.2-1 mm. For this reason, <u>frames 30 and 31 are prepared so that their lower halves [sic] 34 and 35 support illumination device 20 and their upper halves [sic] 36 and 37 act as spacers between illumination device 20 and liquid crystal display panel 10.</u>" <i>Id.</i> 6:10-17.</p> <p>"Illumination device 60 is enclosed within frames 38 and 39, which are divided into an upper and lower section. Upper frame 38 acts as a spacer to secure the gap between liquid crystal display panel 10 and illumination device 60.... Within the U-shaped lower frame 39 of illumination device 60 are enclosed the following in the order from bottom to top, reflecting sheet 25, polarizer 61, diffusion sheet 26, and prism sheet 27.... On top of lower frame 39, which encloses all of these, is the flat, L-shaped upper frame 38." <i>Id.</i> 13:51-65; <i>see also</i> Figs. 14, 15 above.</p> <p><i>See</i> Escuti Decl., ¶¶104-105.</p>
[7.g] and the tray or housing provides structural support to the panel member.	<p><i>See</i> citations to claim element 1.f above.</p> <p><i>See</i> Escuti Decl., ¶106.</p>
8. The assembly of claim 7 wherein the other part or component is a liquid crystal display.	<p>FIG. 13 shows a liquid crystal display using an illumination device 60, which differs from that described above, and liquid crystal panel 10 installed on illumination device 60.... Upper frame 38 acts as a spacer to secure the gap between <u>liquid crystal display panel 10</u> and illumination device 60." Ex. 1007, 13:38-54.</p> <p><i>See</i> Escuti Decl., ¶¶109-111.</p>
9. The assembly of claim 7 wherein the other part or component is a printed circuit.	<p>"At side 10a of liquid crystal display panel 10, a plurality of driver ICs 13 are installed for latching pixel data for the rows and sending it to the liquid crystal display panel. Also, at side 10b, which is adjacent to side 10a, a plurality of driver ICs 14 are installed for latching pixel data for the columns and sending it to the liquid crystal display panel."</p>

'974 Claim Element	Funamoto (Ex. 1007)
	<p>Ex. 1007, 6:3-9; <i>see also</i> Fig. 3 right.</p>  <p>FIG. 3</p> <p>“FIG. 5 shows the installment of liquid crystal display panel 10 on illumination device 20. Driver IC 13 and 14 are arranged on sides 10a and 10b, adjacent to liquid crystal display panel 10.” <i>Id.</i> 8:5-8; <i>see also</i> Fig. 5.</p> <p>“In the present embodiment of the liquid crystal display device, as shown in FIG. 13, driver IC 13 is arranged on one of the sides of the U-shaped fluorescent light.” <i>Id.</i> 14:62-64.</p> <p><i>See</i> Escuti Decl., ¶¶113-115.</p>
<p>10. The assembly of claim 7 wherein the film is at least one of a diffuser and a brightness enhancing film.</p>	<p>“Prism sheet 27, which is arranged on diffusion sheet 26, <u>is made up of very small linear prisms lined in a cross-sectional array</u>. The angle of the light radiating from diffusion sheet 26 is arranged to improve the illuminating intensity of the liquid crystal display panel 10. Although the brightness can be improved through prism sheet 27, when sufficient brightness is achieved through diffusion sheet 26, prism sheet 27 can be omitted, thus reducing manufacturing cost.” Ex. 1007, 7:30-38; <i>see also</i> 13:56-65.</p> <p><i>See</i> Escuti Decl., ¶¶117-118.</p>
<p>11. The assembly of claim 7 further comprising a film positioned near the light</p>	<p>“Prism sheet 27, which is arranged on diffusion sheet 26, <u>is made up of very small linear prisms lined in a cross-sectional array</u>. The angle of the light radiating from diffusion sheet 26 is arranged to improve the illuminating</p>

'974 Claim Element	Funamoto (Ex. 1007)
emitting surface of the panel member for changing the output ray angle distribution of the emitted light to fit a particular application.	<u>intensity of the liquid crystal display panel 10</u> . Although the brightness can be improved through prism sheet 27, when sufficient brightness is achieved through diffusion sheet 26, prism sheet 27 can be omitted, thus reducing manufacturing cost.” Ex. 1007, 7:30-38; <i>see also</i> 13:56-65. <i>See</i> Escuti Decl., ¶¶120-122.
13. A light emitting panel assembly comprising	<i>See</i> citations to claim 1, preamble above. <i>See</i> Escuti Decl., ¶124.
[13.a] at least a light emitting panel member having a light entrance surface and a light emitting surface,	<i>See</i> citations to claim element 1.a above. <i>See</i> Escuti Decl., ¶124.
[13.b] at least one LED light source positioned near or against the light entrance surface, and	<i>See</i> citations to claim element 1.b above. <i>See</i> Escuti Decl., ¶124.
[13.c] a tray or housing having a cavity or recess in which the panel member is entirely received,	<i>See</i> citations to claim element 1.c above. <i>See</i> Escuti Decl., ¶124.
[13.d] wherein the panel member has a pattern of light extracting deformities on or in at least one surface to cause light to be emitted from the light emitting surface of the panel member, and	<i>See</i> citations to claim element 1.d above. <i>See</i> Escuti Decl., ¶124.
[13.e] the tray or housing includes end walls and side walls that act as end edge reflectors and side edge reflectors for the panel	<i>See</i> citations to claim element 1.e above. <i>See</i> Escuti Decl., ¶124.

'974 Claim Element	Funamoto (Ex. 1007)
member to reflect light that would otherwise exit the panel member through an end edge and/or side edge back into the panel member and toward the pattern of light extracting deformities for causing additional light to be emitted from the light emitting surface of the panel member, and	
[13.f] an additional component overlaying the panel member,	<p>“In liquid crystal display 1, illumination device 20 is installed in lower case 3. Above that, <u>liquid crystal display panel 10</u> is installed using frame 30 and 31.” Ex. 1007, 5:64-67.</p> <p>“Frames 30 and 31 are used to protect illumination device 20 and to position it within the case. At the same time, it also fills the role of maintaining a fixed distance for gap 33 between illumination device 20 and liquid crystal display panel 10, for example, 0.2-1 mm. For this reason, frames 30 and 31 are prepared so that their lower halves [sic] 34 and 35 support illumination device 20 and their <u>upper halves [sic] 36 and 37 act as spacers between illumination device 20 and liquid crystal display panel 10.</u>” <i>Id.</i> 6:10-17; <i>see also</i> Fig. 2 above.</p> <p>“FIG. 13 shows a liquid crystal display using an illumination device 60, which differs from that described above, and <u>liquid crystal panel 10 installed on illumination device 60....</u> Upper frame 38 acts as a spacer to secure the gap between liquid crystal display panel 10 and illumination device 60.” <i>Id.</i> 13:38-54; <i>see also</i> Fig. 14 above.</p> <p><i>See</i> Escuti Decl., ¶125.</p>
[13.g] the panel member having at least one of a tab, hole, cavity, or	<p>“<u>The two corners are removed from edge 40a and 40b of polarizer 61</u> in order to install U-shaped fluorescent light 62 with an appropriate gap 42 at the polarizer, as has</p>

'974 Claim Element	Funamoto (Ex. 1007)
<p>protrusion that positions the tray or housing relative to the panel member.</p>	<p>explained in the embodiment above. FIG. 16 shows the relationship of fluorescent light 62 and polarizer 61. The corners of edge 40b, which is between edges 41c and 41d, and edge 40a, which is between edges 41a and 41d, are removed so that they do not stick out. In this way, fluorescent light 62 can be installed with fixed gap 42 near edge 41, and the incident efficiency towards polarizer 61 maintained at a high level. Also, damage to fluorescent light 62 due to such things as thermal expansion and shock can be prevented. The shape of the removed corner, in this example, is a triangle with two sides of approximate equal length. However, as explained earlier, it is of course possible to use other shapes as well.” Ex. 1007, 14:12-27; <i>see also</i> Fig. 16 below.</p> <div data-bbox="812 871 1177 1081" data-label="Image"> </div> <p style="text-align: center;">FIG. 16</p> <p><i>See</i> Escuti Decl., ¶¶126-127.</p>

B. Ground 2: Claims 1, 3-5, 7-8, 10-11, And 13 Are Unpatentable Under 35 U.S.C. §103(a) As Being Obvious Over Tsuchiyama In View Of Funamoto

Tsuchiyama discloses a data display radio pager including an LCD provided with at least one backlight LED for illuminating the LCD, and a backlight structure for accommodating, together with the backlight LED, at least one alert LED for alerting a user of the radio pager to an incoming call in the LCD. Ex. 1008, 1:58-62. According to Tsuchiyama, locating an alert LED of a pager next to the LCD on a pager casing is problematic because this would make the card type pagers undesirably

thicker and larger. *Id.* 1:39-47. To solve this problem, Tsuchiyama discloses a backlight assembly including a backlight 32A that has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other. *Id.* 3:32-34. The light conducting plate 38 is formed with openings 38a and 38b at opposite ends thereof, and the backlight LEDs 12a and alert LEDs 12b are securely received in the openings 38a and 38b, respectively. *Id.* 3:34-38. A diffusion sheet 40 is positioned on the light conducting plate 38, and the backlight 32A is located at the rear of the LED 12 for illuminating it, as shown in FIG. 3B. *Id.* 3:38-40.

Notably, a comparison of Fig. 4 of Tsuchiyama showing rectangular saucer-like reflection frame (36, in red), the accompanying cavity or recess formed (in light blue) and the light conducting plate (38, in blue) with Fig. 6 of the '974 Patent, which shows an embodiment of the tray (35, in red), cavity or recess (36, in light blue) and the panel (33, in blue), shown annotated below, reveals the almost identical structures disclosed in the two patents.

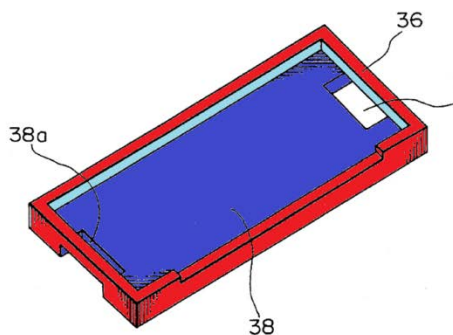


FIG. 4 of Tsuchiyama

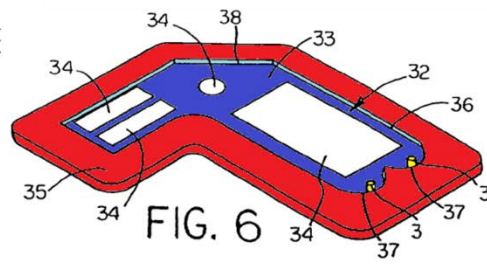
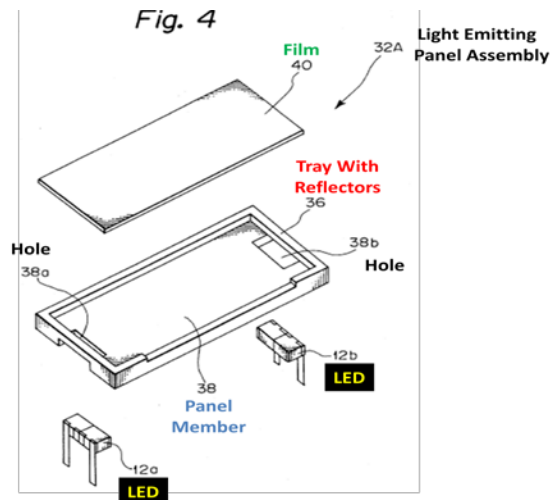


FIG. 6 of '974 Patent

As previously discussed, Funamoto discloses a light emitting assembly directed

to be thinner and lighter. Ex. 1007, 1:15-38, 2:3-23. Tsuchiyama discloses a light emitting assembly aimed at keeping the device thin and small, providing a miniature configuration. Ex. 1008, 1:41-47, 3:50-51. A person of ordinary skill in the art would have been motivated to combine the teachings of Tsuchiyama with the teachings of Funamoto because they are both directed to a thinner and smaller device, including thinner and smaller LCD devices. Tsuchiyama in view of Funamoto teaches each and every element of Claims 1, 3-5, 7-8, 10-11, and 13 of the '974 Patent and therefore, renders those claims unpatentable under 35 U.S.C. §103.

Elements of Claim 1 of the '974 Patent are shown in the annotated figure below, composed of Figure 4 of Tsuchiyama that is labeled as claim elements.



The light conducting plate 38 functions as the panel member and is formed integrally with the rectangular saucer-like reflection frame 36, as is almost identical to the '974 Patent. Escuti Decl., ¶¶134-135. Notably, Tsuchiyama does not explicitly disclose the panel member having a pattern of light extracting deformities. A person

of ordinary skill in the art would have been motivated to combine the assembly of Tsuchiyama with the deformities of Funamoto because the deformities are used to control characteristics of the light, including output, uniformity, etc. *See* Ex. 1001, 5:2-7. Because a person of ordinary skill in the art would desire such control over and uniformity of the light in the light assemblies of both Tsuchiyama and Funamoto, one would have been motivated to add the deformities of Funamoto to the assembly of Tsuchiyama. *See* Escuti Decl., ¶138. Further, given the objectives of Tsuchiyama, the panel member would necessarily have deformities. *See id.* As previously described, Funamoto discloses the panel member has a pattern of light extracting deformities on or in at least one surface to cause light to be emitted from the light emitting surface of the panel member. *See* Section VII.A, *supra*. The two labeled “holes” are structural features that provide a mount for the mounting of the assembly into a larger assembly or device because the LEDs fit into the holes in such a manner as to allow the entire structure to come together. *See* Escuti Decl., ¶155.

The elements of Claim 7 of the '974 Patent are likewise present in annotated Figure 4 of Tsuchiyama above just as they are in Claim 1, with the addition of the tray having structural features that provide structural support to at least one other component. Again, the “holes” in annotated Figure 4 are the structural features that provide structural support to at least the LEDs, if not the entire assembly because the assembly would not fit together if not for the holes. *See id.*, ¶¶154-155.

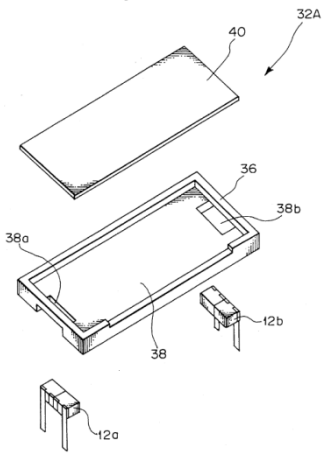
For dependent Claim 8, Tsuchiyama specifically discloses the interaction of the assembly within the context of the LCD (“*As shown in FIGS. 3A and 3B, the backlight 32 is received in the casing 10a of the pager 10 and extends along the rear of the LCD 12.... As a result, the light illuminates the LCD 12 from the rear uniformly.*” Ex. 1008, 2:41-51). *See* Escuti Decl., ¶163. Although the LCD cannot be seen in annotated Figure 4, a person of ordinary skill in the art would know that the LCD is disclosed for functionality and for the objective of the invention. *See id.*, ¶¶164-165.

Regarding Claims 10-11 and 13, annotated Figure 4 above again shows most of the elements. *See id.*, ¶175. In addition, it is clear from Figure 4 that an additional component overlays the panel member, which is labeled “film.” Also, the “holes” meet the limitation of the panel member having at least one of a tab, hole, cavity, or protrusion that positions the tray or housing relative to the panel member. *See id.*, at ¶175.

The claim chart below shows a detailed analysis of how each element of Claims 1, 3-5, 7-8, 10-11, and 13 of the '974 Patent is obvious over Tsuchiyama in view of Funamoto. For all these reasons, Claims 1, 3-5, 7-8, 10-11, and 13 are unpatentable over Tsuchiyama in view of Funamoto and thus, Petitioner has a reasonable likelihood of prevailing with respect to at least one claim.

'974 Claim Element	Tsuchiyama (Ex. 1008) in view of Funamoto (Ex. 1007)
1. A light emitting panel assembly comprising	“A data display radio pager of the present invention comprises an LCD provided with <u>at least one backlight</u>

'974 Claim Element	Tsuchiyama (Ex. 1008) in view of Funamoto (Ex. 1007)
	<p><u>LED for illuminating the LCD, and a backlight structure for accommodating, together with the backlight LED, at least one alert LED for alerting a user of the radio pager to an incoming call in the LCD.</u>" Ex. 1008, 1:57-62.</p> <p>"FIG. 4 shows another specific structure of the backlight. As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other. The light conducting plate 38 is formed with openings 38a and 38b at opposite ends thereof. The backlight LEDs 12a and alert LEDs 12b are securely received in the openings 38a and 38b, respectively. A diffusion sheet 40 is positioned on the light conducting plate 38. The backlight 32A is located at the rear of the LED 12 for illuminating it, as shown in FIG. 3B." <i>Id.</i> 3:31-40.</p> <p><i>See</i> Escuti Decl., ¶133.</p>
[1.a] at least a light emitting panel member having a light entrance surface and a light emitting surface,	<p>"FIG. 4 shows another specific structure of the backlight. As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a <u>light conducting plate 38</u> which are formed integrally with each other. The light conducting plate 38 is formed with openings 38a and 38b at opposite ends thereof. The backlight LEDs 12a and alert LEDs 12b are securely received in the openings 38a and 38b, respectively. A diffusion sheet 40 is positioned on the light conducting plate 38. The backlight 32A is located at the rear of the LED 12 for illuminating it, as shown in FIG. 3B." Ex. 1008, 3:31-40; <i>see also</i> Fig. 4 below.</p>

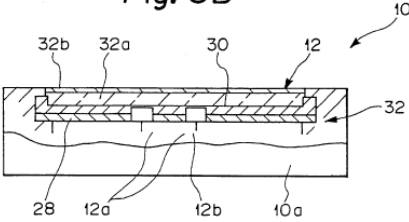
'974 Claim Element	Tsuchiyama (Ex. 1008) in view of Funamoto (Ex. 1007)
	<p style="text-align: center;"><i>Fig. 4</i></p>  <p><i>See Escuti Decl., ¶¶134-135.</i></p>
<p>[1.b] at least one LED light source positioned near or against the light entrance surface, and</p>	<p>“The light conducting plate 38 is formed with openings 38a and 38b at opposite ends thereof. The <u>backlight LEDs 12a</u> and alert LEDs 12b are securely received in the openings 38a and 38b, respectively.” Ex. 1008, 3:34-38; <i>see also</i> Fig. 4 above.</p> <p><i>See Escuti Decl., ¶136.</i></p>
<p>[1.c] a tray or housing having a cavity or recess in which the panel member is entirely received,</p>	<p>“As shown, the backlight, generally 32A, has a rectangular saucer-like <u>reflection frame 36</u> and a light conducting plate 38 which are formed integrally with each other.” Ex. 1008, 3:32-34; <i>see also</i> Fig. 4 above.</p> <p><i>See Escuti Decl., ¶137.</i></p>
<p>[1.d] wherein the panel member has a pattern of light extracting deformities on or in at least one surface to cause light to be emitted from the light emitting surface of the panel member, and</p>	<p>“In this example, the pattern sheet is omitted because the <u>diffusion sheet 52 is printed on lower surface 61b of polarizer 61.</u>” Ex. 1007, 14:10-12.</p> <p>“FIG. 17 shows <u>diffusion pattern 52, which is printed on polarizer 61</u>, when looking from the direction of lower side 21b of polarizer 21. Diffusion pattern 52 is formed by using the density distribution generated by the generation method discussed above. In this embodiment, because in addition to edge 41c there is a light source 41a, the area density of the diffusion pattern on this side is low and the area density of the diffusion pattern in the middle of lower surface 21b is high. Also, the area density of the diffusion</p>

'974 Claim Element	Tsuchiyama (Ex. 1008) in view of Funamoto (Ex. 1007)
	<p>pattern along edge 41d is low, and the area density of the diffusion pattern opposite this side near edge 41b is high. <u>Through diffusion pattern 52, the light introduced to polarizer 61 is diffused and a uniform light is released from upper surface 61a of polarizer 61 towards the liquid crystal display panel.</u>" <i>Id.</i> 14:27-41.</p> <p><i>See</i> Escuti Decl., ¶¶138-139, 82.</p>
<p>[1.e] the tray or housing includes end walls and side walls that act as end edge reflectors and side edge reflectors for the panel member to reflect light that would otherwise exit the panel member through an end edge and/or side edge back into the panel member and toward the pattern of light extracting deformities for causing additional light to be emitted from the light emitting surface of the panel member,</p>	<p>"As shown, the backlight, generally 32A, has a rectangular saucer-like <u>reflection</u> frame 36 and a <u>light conducting plate 38</u> which <u>are formed integrally with each other.</u>" Ex. 1008, 3:32-34; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶140.</p>
<p>[1.f] wherein the tray or housing provides structural support to the panel member</p>	<p>"As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are <u>formed integrally</u> with each other." Ex. 1008, 3:32-34; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶141.</p>
<p>[1.g] and has posts, tabs, or other structural features that provide a mount for mounting of the assembly into a</p>	<p>"As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other. The light conducting plate 38 is formed with <u>openings 38a and 38b at opposite ends thereof.</u> The backlight LEDs 12a and</p>

'974 Claim Element	Tsuchiyama (Ex. 1008) in view of Funamoto (Ex. 1007)
larger assembly or device.	<p><u>alert LEDs 12b are securely received in the openings 38a and 38b, respectively.</u> A diffusion sheet 40 is positioned on the light conducting plate 38. The backlight 32A is located at the rear of the LED 12 for illuminating it, as shown in FIG. 3B.” Ex. 1008, 3:32-40; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶142.</p>
3. The assembly of claim 1 wherein the tray or housing provides a support for supporting and/or positioning a film near the panel member.	<p>“As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other.... A <u>diffusion sheet 40</u> is positioned on the light conducting plate 38.” Ex. 1008, 3:32-39; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶¶145-146.</p>
4. The assembly of claim 3 wherein the film is at least one of a diffuser and a brightness enhancing film.	<p>“As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other.... A <u>diffusion sheet 40</u> is positioned on the light conducting plate 38.” Ex. 1008, 3:32-39; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶¶148-149.</p>
5. The assembly of claim 1 further comprising a film positioned near the light emitting surface of the panel member for changing the output ray angle distribution of the emitted light to fit a particular application.	<p>“As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other.... A <u>diffusion sheet 40</u> is positioned on the light conducting plate 38.” Ex. 1008, 3:32-39; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶¶151-152.</p>
7. A light emitting panel assembly comprising	<p><i>See</i> citations to claim 1, preamble above.</p> <p><i>See</i> Escuti Decl., ¶154.</p>
[7.a] at least a light emitting panel member having a light entrance	<p><i>See</i> citations to claim element 1.a above.</p> <p><i>See</i> Escuti Decl., ¶154.</p>

'974 Claim Element	Tsuchiyama (Ex. 1008) in view of Funamoto (Ex. 1007)
surface and a light emitting surface,	
[7.b] at least one LED light source positioned near or against the light entrance surface, and	<i>See</i> citations to claim element 1.b above. <i>See</i> Escuti Decl., ¶154.
[7.c] a tray or housing having a cavity or recess in which the panel member is entirely received,	<i>See</i> citations to claim element 1.c above. <i>See</i> Escuti Decl., ¶154.
[7.d] wherein the panel member has a pattern of light extracting deformities on or in at least one surface to cause light to be emitted from the light emitting surface of the panel member, and	<i>See</i> citations to claim element 1.d above. <i>See</i> Escuti Decl., ¶154.
[7.e] the tray or housing includes end walls and side walls that act as end edge reflectors and side edge reflectors for the panel member to reflect light that would otherwise exit the panel member through an end edge and/or side edge back into the panel member and toward the pattern of light extracting deformities for causing additional light to be emitted from the light emitting surface of the panel	<i>See</i> citations to claim element 1.e above. <i>See</i> Escuti Decl., ¶154.

'974 Claim Element	Tsuchiyama (Ex. 1008) in view of Funamoto (Ex. 1007)
member,	
[7.f] wherein the tray or housing has posts, tabs or other structural features that provide a mount or structural support for at least one other part or component,	<p>“As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other. The light conducting plate 38 is formed with openings 38a and 38b at opposite ends thereof. The backlight LEDs 12a and alert LEDs 12b are securely received in the openings 38a and 38b, respectively. A diffusion sheet 40 is positioned on the light conducting plate 38. The backlight 32A is located at the rear of the LED 12 for illuminating it, as shown in FIG. 3B.” Ex. 1008, 3:32-40; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶¶155-156.</p>
[7.g] and the tray or housing provides structural support to the panel member.	<i>See</i> citations to claim element 1.f above.
8. The assembly of claim 7 wherein the other part or component is a liquid crystal display.	<p>“As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other. The light conducting plate 38 is formed with openings 38a and 38b at opposite ends thereof. <u>The backlight LEDs 12a and alert LEDs 12b are securely received in the openings 38a and 38b, respectively.</u> A diffusion sheet 40 is positioned on the light conducting plate 38. The backlight 32A is located at the rear of the LED 12 for illuminating it, as shown in FIG. 3B.” Ex. 1008, 3:32-40; <i>see also</i> Fig. 4 above.</p> <p>“As shown in FIGS. 3A and 3B, the backlight 32 is received in the casing 10a of the pager 10 and extends along the rear of the LCD 12. When the backlight LEDs 12a are turned on, light emitted therefrom is extended to around the LEDs 12a by the light conducting plate 32a and then diffused by the diffusion sheet 32b. As a result, <u>the light illuminates the LCD 12 from the rear uniformly.</u> In the illustrative embodiment, the light from the LEDs 12a is yellow-green light which is high in visual sensitivity</p>

'974 Claim Element	Tsuchiyama (Ex. 1008) in view of Funamoto (Ex. 1007)
	<p>and, therefore, brightly illuminates the LCD 12. When the alert LEDs 12b are turned on, light from the LEDs 12b are diffused in the same manner as the light from the LEDs 12, thereby illuminating the LCD 12. In the embodiment, the light from the LEDs 12b is red light and, therefore, highlights the LCD 12 in red.” <i>Id.</i> at 2:41-56; <i>see also</i> Fig. 3B below.</p> <p style="text-align: center;">Fig. 3B</p>  <p><i>See</i> Escuti Decl., ¶¶161-165.</p>
<p>10. The assembly of claim 7 wherein the film is at least one of a diffuser and a brightness enhancing film.</p>	<p>“As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other.... A diffusion sheet 40 is positioned on the light conducting plate 38.” Ex. 1008, 3:32-39; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶¶167-168.</p>
<p>11. The assembly of claim 7 further comprising a film positioned near the light emitting surface of the panel member for changing the output ray angle distribution of the emitted light to fit a particular application.</p>	<p>“As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other.... A diffusion sheet 40 is positioned on the light conducting plate 38.” Ex. 1008, 3:32-39; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶¶170-171.</p>
<p>13. A light emitting panel assembly comprising</p>	<p><i>See</i> citations to claim 1, preamble above.</p> <p><i>See</i> Escuti Decl., ¶173.</p>
<p>[13.a] at least a light emitting panel member</p>	<p><i>See</i> citations to claim element 1.a above.</p> <p><i>See</i> Escuti Decl., ¶173.</p>

'974 Claim Element	Tsuchiyama (Ex. 1008) in view of Funamoto (Ex. 1007)
having a light entrance surface and a light emitting surface,	
[13.b] at least one LED light source positioned near or against the light entrance surface, and	<i>See</i> citations to claim element 1.b above. <i>See</i> Escuti Decl., ¶173.
[13.c] a tray or housing having a cavity or recess in which the panel member is entirely received,	<i>See</i> citations to claim element 1.c above. <i>See</i> Escuti Decl., ¶173.
[13.d] wherein the panel member has a pattern of light extracting deformities on or in at least one surface to cause light to be emitted from the light emitting surface of the panel member, and	<i>See</i> citations to claim element 1.d above. <i>See</i> Escuti Decl., ¶173.
[13.e] the tray or housing includes end walls and side walls that act as end edge reflectors and side edge reflectors for the panel member to reflect light that would otherwise exit the panel member through an end edge and/or side edge back into the panel member and toward the pattern of light extracting deformities for causing additional light to be emitted from the light	<i>See</i> citations to claim element 1.e above. <i>See</i> Escuti Decl., ¶173.

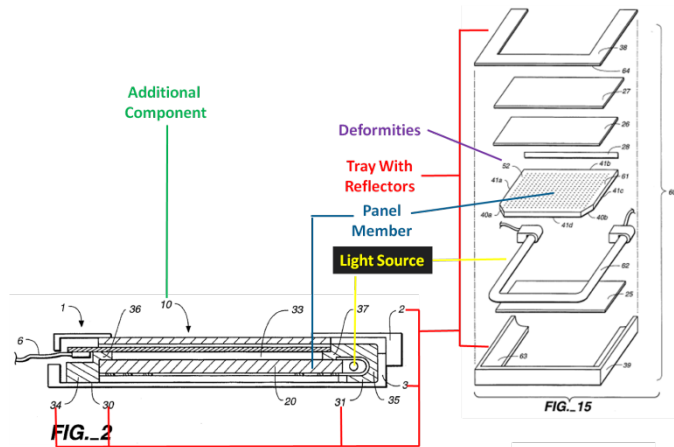
'974 Claim Element	Tsuchiyama (Ex. 1008) in view of Funamoto (Ex. 1007)
emitting surface of the panel member, and	
[13.f] an additional component overlaying the panel member,	<p>“As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other. The light conducting plate 38 is formed with openings 38a and 38b at opposite ends thereof. The backlight LEDs 12a and alert LEDs 12b are securely received in the openings 38a and 38b, respectively. <u>A diffusion sheet 40 is positioned on the light conducting plate 38.</u> The backlight 32A is located at the rear of the LED 12 for illuminating it, as shown in FIG. 3B.” Ex. 1008, 3:32-40; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶174.</p>
[13.g] the panel member having at least one of a tab, hole, cavity, or protrusion that positions the tray or housing relative to the panel member.	<p>“FIG. 4 shows another specific structure of the backlight. As shown, the backlight, generally 32A, has a rectangular saucer-like reflection frame 36 and a light conducting plate 38 which are formed integrally with each other. <u>The light conducting plate 38 is formed with openings 38a and 38b at opposite ends thereof. The backlight LEDs 12a and alert LEDs 12b are securely received in the openings 38a and 38b, respectively.</u> A diffusion sheet 40 is positioned on the light conducting plate 38. The backlight 32A is located at the rear of the LED 12 for illuminating it, as shown in FIG. 3B. The backlight 32A is simple in structure since it does not need a printed circuit board for supporting the LEDs 12a and 12b.” Ex. 1008, 3:31-43; <i>see also</i> Fig. 4 above.</p> <p><i>See</i> Escuti Decl., ¶175.</p>

C. Ground 3: Claims 13 And 17 Are Unpatentable Under 35 U.S.C. §103(a) As Being Obvious Over Funamoto In View Of Nakayama

As previously shown, Funamoto renders obvious Claims 1, 3-5, 7-11, and 13 of the '974 Patent. Nakayama further illustrates the obviousness of Claims 13 and 17 of

the '974 Patent. A person of ordinary skill in the art would have been motivated to combine the teachings of Funamoto and Nakayama because the patents were directed to the same goals. *See* Escuti Decl., ¶178. Specifically, Funamoto aimed to provide an illumination device for color LCDs that are small, lightweight, with high and uniform brightness, which can also be temperature controlled, and without increasing the number of driver circuits needed. Ex. 1007, 2:3-23. Similarly, Nakayama is directed to an LCD device where part of the light guiding board can be removed without varying the outer dimensions and thickness of the device. 1008, 2:12-18. Funamoto in view of Nakayama discloses each and every element of Claims 13 and 17 of the '974 Patent and therefore, renders those claims unpatentable under 35 U.S.C. §103.

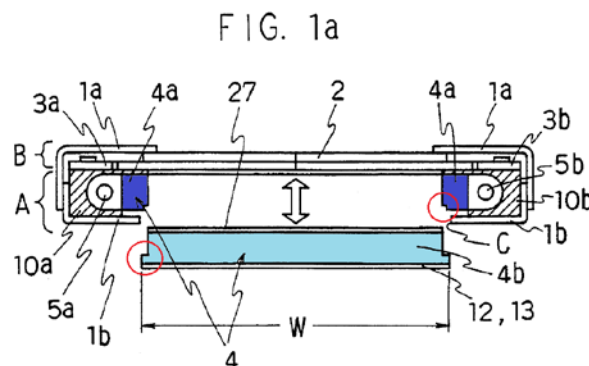
The elements of Claim 13 of the '974 Patent are disclosed in Funamoto, as seen in annotated Figures 2 and 15 from Funamoto at right, with claim elements labeled.



Further, all the structural elements of Claims 13 and 17 are present in the combination of Funamoto and Nakayama. Funamoto discloses a polarizer with a diffusion pattern printed thereon, a light source (as well as decreased power consumption, a frame and case within which the polarizer is located) therefore an

LED would have been an obvious design choice, a reflectorized case and frame which forms a housing within which the polarizer is entirely received, an LCD panel overlaying the polarizer. Funamoto also discloses the polarizer including cavities in the corners in order to fit properly with the light source and therefore, within the housing itself.

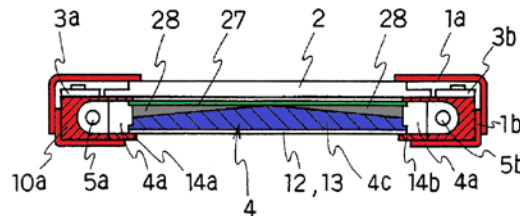
Petitioner maintains that Funamoto alone renders Claim 13 unpatentable, as further shown above. Additionally, Nakayama clearly discloses a light emitting panel assembly wherein the panel member 4 includes outer light guiding part 4a and inner light guiding part 4b that function as both part of the panel member in its light guide function. Ex. 1009, 4:63-5:3. A tab, hole, cavity, or protrusion that positions the tray or housing relative to the panel member as can be seen in annotated Figure 1a, below. Outer light guiding part 4a (dark blue) and inner light guiding part 4b (light blue) both have a notches, encircled in red, that allow for fitting of panel member 4 within the assembly which includes the tray. *See* Escuti Decl., ¶¶199-204.



With respect to Claim 17 of the '974 Patent, Funamoto discloses all the

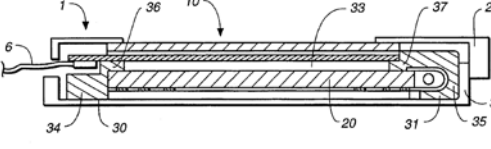
structural elements listed above. In addition, Nakayama discloses the tray (red) that encloses the assembly including the panel member 4 (blue) of Nakayama can be beveled shaped, which allows for an air gap (gray) between the panel member 4 (blue) and the additional component, in this case, light diffusing film 27 (green). *See* Escuti Decl., ¶¶207-210. Therefore, all the elements of Claim 17 of the '974 Patent are met by Funamoto in view of Nakayama. *See id.* ¶211.

FIG. 5

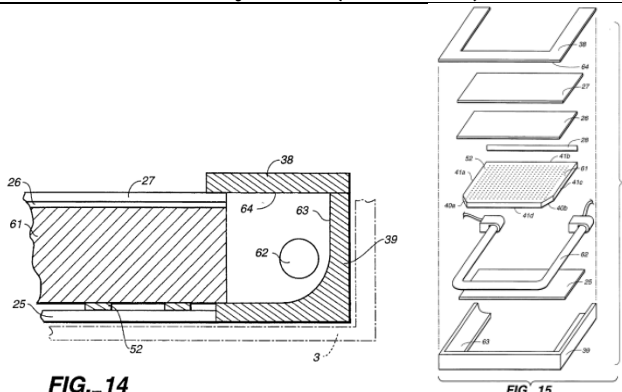


The claim chart below shows a detailed analysis of how each element of Claims 13 and 17 of the '974 Patent is obvious over Funamoto in view of Nakayama. For all these reasons, Claims 13 and 17 are unpatentable in view of Funamoto in view of Nakayama and thus, Petitioner has a reasonable likelihood of prevailing with respect to at least one claim.

'974 Claim Element	Funamoto (Ex. 1007) in View of Nakayama (Ex. 1009)
13. A light emitting panel assembly comprising	"In liquid crystal display 1, illumination device 20 is installed in lower case 3. Above that, liquid crystal display panel 10 is installed using frame 30 and 31." Ex. 1007, 5:61-67; <i>see also</i> Fig. 2 below.

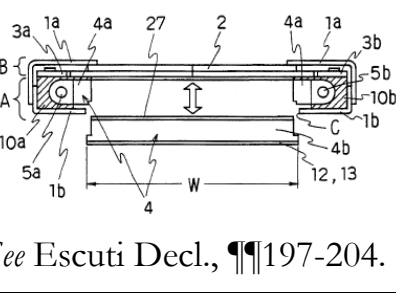
'974 Claim Element	Funamoto (Ex. 1007) in View of Nakayama (Ex. 1009)
	 <p>FIG. 2</p> <p>See Escuti Decl., ¶180.</p>
(13.a) at least a light emitting panel member having a light entrance surface and a light emitting surface,	<p>“Illumination device 20 is a surface-type illumination device set up with a cylindrically-shaped fluorescent light 22 at the edge of substantially rectangular <u>polarizer 21</u>.” Ex. 1007, 6:24-26.</p> <p>“Illumination device 20 is comprised of <u>polarizer 21</u>, which is substantially rectangular in shape and is missing the corner of edge 40, fluorescent light 22, which encompasses edge 40 in an L-shape, and reflectors 23a and 23b, which cover fluorescent light 22 in the direction of <u>polarizer 21</u> and efficiently reflect light from fluorescent light 22 to <u>polarizer 21</u>.” <i>Id.</i> 6:32-40; see also 4:49-53, Fig. 4.</p> <p>See Escuti Decl., ¶¶181-184.</p>
(13.b) at least one LED light source positioned near or against the light entrance surface, and	<p>“Illumination device 20 is a surface-type illumination device set up with a cylindrically-shaped fluorescent light 22 at the edge of substantially rectangular polarizer 21.” Ex. 1007, 6:24-26; 13:47.</p> <p>“This invention relates in general to a thin, surface-type illumination device that can be used as a backlight for liquid crystal displays (LCD) and, in particular, to a suitable illumination device for use in a notebook computer display that provides high brightness with low power consumption as well as to a liquid crystal display that uses this illumination device.” <i>Id.</i> 1:6-12.</p> <p>“Further, because the light conversion efficiency can be raised, power consumption can be reduced.” <i>Id.</i> 12:66-67.</p> <p>See Escuti Decl., ¶¶185-187.</p>
(13.c) a tray or housing having a cavity or recess	<p>“Liquid crystal display 1 is constructed with liquid crystal display panel 10 and an illumination device to be</p>

'974 Claim Element	Funamoto (Ex. 1007) in View of Nakayama (Ex. 1009)
<p>in which the panel member is entirely received,</p>	<p>described later sandwiched between <u>upper case 2 and lower case 3</u>. Upper case 2 and lower case 3 are fixed in place by tooth 4.” Ex. 1007, 5:47-51; <i>see also</i> Fig. 2 below.</p> <div data-bbox="665 451 1315 766"> <p>FIG. 2 is a cross-sectional view of a liquid crystal display assembly. It shows a liquid crystal display panel 10 sandwiched between an upper case 2 and a lower case 3. The panel 10 is supported by a frame 30 and 31. An illumination device 20 is located below the panel 10. Spacers 36 and 37 are used to maintain a gap 33 between the panel 10 and the illumination device 20. Other components labeled include 1, 6, 34, 35, 38, and 39.</p> <p>FIG. 3 is an exploded view of the assembly. It shows the upper case 2, the liquid crystal display panel 10, the frame 30 and 31, the illumination device 20, and the lower case 3. The illumination device 20 is shown with its internal components: a reflecting sheet 25, a polarizer 61, a diffusion sheet 26, and a prism sheet 27. The upper frame 38 and lower frame 39 are also shown.</p> </div> <p>“In liquid crystal display 1, illumination device 20 is installed in lower case 3. Above that, liquid crystal display panel 10 is installed using <u>frame 30 and 31</u>.” <i>Id.</i> 5:61-67; <i>see also</i> Fig. 3 above.</p> <p>“<u>Frames 30 and 31</u> are used to protect illumination device 20 and to position it within the case. At the same time, it also fills the role of maintaining a fixed distance for gap 33 between illumination device 20 and liquid crystal display panel 10, for example, 0.2-1 mm. For this reason, frames 30 and 31 are prepared so that their lower halves [sic] 34 and 35 support illumination device 20 and their upper halves [sic] 36 and 37 act as spacers between illumination device 20 and liquid crystal display panel 10.” <i>Id.</i>, 6:10-17.</p> <p>“Illumination device 60 is enclosed within <u>frames 38 and 39</u>, which are divided into an upper and lower section. Upper frame 38 acts as a spacer to secure the gap between liquid crystal display panel 10 and illumination device 60.... Within the U-shaped lower frame 39 of illumination device 60 are enclosed the following in the order from bottom to top, reflecting sheet 25, polarizer 61, diffusion sheet 26, and prism sheet 27.... On top of lower frame 39, which encloses all of these, is the flat, L-shaped upper frame 38.” <i>Id.</i> 13:47-65; <i>see also</i> Figs. 14, 15 below.</p>

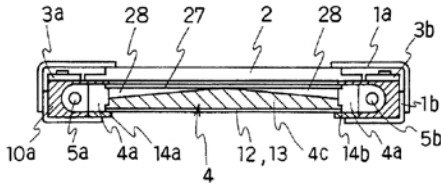
'974 Claim Element	Funamoto (Ex. 1007) in View of Nakayama (Ex. 1009)
	 <p>FIG. 14</p> <p>FIG. 15</p> <p><i>See Escuti Decl., 188-190.</i></p>
(13.d) wherein the panel member has a pattern of light extracting deformities on or in at least one surface to cause light to be emitted from the light emitting surface of the panel member, and	<p>“In this example, the pattern sheet is omitted because the <u>diffusion sheet 52 is printed on lower surface 61b of polarizer 61.</u>” Ex. 1007, 14:10-12.</p> <p>“FIG. 17 shows <u>diffusion pattern 52, which is printed on polarizer 61</u>, when looking from the direction of lower side 21b of polarizer 21 ... Through diffusion pattern 52, the light introduced to polarizer 61 is diffused and a uniform light is released from upper surface 61a of polarizer 61 towards the liquid crystal display panel.” <i>Id.</i> 14:27-41; <i>see also</i> Fig. 15.</p> <p><i>See Escuti Decl., ¶¶191-192.</i></p>
(13.e) the tray or housing includes end walls and side walls that act as end edge reflectors and side edge reflectors for the panel member to reflect light that would otherwise exit the panel member through an end edge and/or side edge back into the panel member and toward the pattern of light extracting	<p>“<u>Edge reflective tape 28</u> is arranged at the two edges 41a and 41b, which are opposite the edges 41c and 41d where fluorescent light 22 and reflector 23 are installed. . . . <u>The light that reaches the edges of the opposite side is returned back to polarizer 21.</u>” Ex. 1007, 7:60-67.</p> <p>“The remaining edge 41b is equipped with edge reflecting tape 28.” <i>Id.</i> 13:63-64.</p> <p>“Materials such as white PET sheets, aluminum, and such can be used for the <u>edge reflective tape</u> as well as the reflectors mentioned above. <u>It is also possible to integrate these into the case or frame as well.</u>” <i>Id.</i> at 7:67-8:4</p> <p>“Concerning this liquid crystal display, the drawings and descriptions substantially similar to the embodiment</p>

'974 Claim Element	Funamoto (Ex. 1007) in View of Nakayama (Ex. 1009)
deformities for causing additional light to be emitted from the light emitting surface of the panel member, and	shown in FIG. 1 are eliminated.” <i>Id.</i> 13:42-44. <i>See</i> Escuti Decl., ¶¶193-195.
(13.f) an additional component overlaying the panel member,	<p>“In liquid crystal display 1, illumination device 20 is installed in lower case 3. Above that, <u>liquid crystal display panel 10</u> is installed using frame 30 and 31.” Ex. 1007, 5:64-67.</p> <p>“Frames 30 and 31 are used to protect illumination device 20 and to position it within the case. At the same time, it also fills the role of maintaining a fixed distance for gap 33 between illumination device 20 and liquid crystal display panel 10, for example, 0.2-1 mm. For this reason, frames 30 and 31 are prepared so that their lower halves [sic] 34 and 35 support illumination device 20 and their <u>upper halves [sic] 36 and 37 act as spacers between illumination device 20 and liquid crystal display panel 10.</u>” <i>Id.</i> 6:10-17; <i>see also</i> Fig. 2 below.</p> <div data-bbox="587 1129 1396 1354" data-label="Image"> </div> <p>“FIG. 13 shows a liquid crystal display using an illumination device 60, which differs from that described above, and <u>liquid crystal panel 10 installed on illumination device 60....</u> Upper frame 38 acts as a spacer to secure the gap between liquid crystal display panel 10 and illumination device 60.” <i>Id.</i> 13:38-54; <i>see also</i> Fig. 14 above. <i>See</i> Escuti Decl., ¶196.</p>
(13.g) the panel member having at least one of a tab, hole, cavity, or protrusion that	“ <u>The two corners are removed from edge 40a and 40b of polarizer 61</u> in order to install U-shaped fluorescent light 62 with an appropriate gap 42 at the polarizer, as has explained in the embodiment above. FIG. 16 shows the

'974 Claim Element	Funamoto (Ex. 1007) in View of Nakayama (Ex. 1009)
positions the tray or housing relative to the panel member.	<p>relationship of fluorescent light 62 and polarizer 61. The corners of edge 40b, which is between edges 41c and 41d, and edge 40a, which is between edges 41a and 41d, are removed so that they do not stick out. In this way, fluorescent light 62 can be installed with fixed gap 42 near edge 41, and the incident efficiency towards polarizer 61 maintained at a high level. Also, damage to fluorescent light 62 due to such things as thermal expansion and shock can be prevented. The shape of the removed corner, in this example, is a triangle with two sides of approximate equal length. However, as explained earlier, it is of course possible to use other shapes as well.” Ex. 1007, 14:12-27; <i>see also</i> Fig. 16 below.</p> <div data-bbox="812 871 1177 1081" data-label="Image"> </div> <p style="text-align: center;">FIG. 16</p> <p>“As shown in FIG. 1(a), the lower end C of a frame 1b is located outside the lateral extent W of the inner light guiding part 4b. The <u>inner light guiding part 4b is held on its lower side (rear side) by holding members 14a and 14b mounted on the frame 1b, as shown in FIG. 1(b).</u>” Ex. 1009, 4:26-30; <i>see also</i> Figs. 1a, 2a below.</p> <p>“Since the <u>outer light guiding part 4a</u> serves as a rigid member connecting the lamp holders 10a and 10b, the light guiding board is supported with higher strength.” <i>Id.</i> 5:10-12.</p>

'974 Claim Element	Funamoto (Ex. 1007) in View of Nakayama (Ex. 1009)
	<p style="text-align: right;">FIG. 2a</p>  <p>FIG. 1a is a cross-sectional view of a light emitting panel assembly. It shows a central light emitting member (2) with a light entrance surface (4a) and a light emitting surface (4b). The assembly is housed within a tray or housing (1) with a cavity (3). The housing has a light entrance surface (10a) and a light emitting surface (10b). The assembly is shown in a perspective view with dimensions W and H. FIG. 2a is a top view of the assembly showing the light entrance surface (4a) and light emitting surface (4b) with dimensions 2b and 4a.</p> <p>See Escuti Decl., ¶¶197-204.</p>
17. A light emitting panel assembly comprising	<p>See citations to claim element 13, preamble above.</p> <p>See Escuti Decl., ¶207.</p>
[17.a] at least a light emitting panel member having a light entrance surface and a light emitting surface,	<p>See citations to claim element 13.a above.</p> <p>See Escuti Decl., ¶207.</p>
[17.b] at least one LED light source positioned near or against the light entrance surface, and	<p>See citations to claim element 13.b above.</p> <p>See Escuti Decl., ¶207.</p>
[17.c] a tray or housing having a cavity or recess in which the panel member is entirely received,	<p>See citations to claim element 13.c above.</p> <p>See Escuti Decl., ¶207.</p>
[17.d] wherein the panel member has a pattern of light extracting deformities on or in at least one surface to cause light to be emitted from the light emitting surface of the panel member, and	<p>See citations to claim element 13.d above.</p> <p>See Escuti Decl., ¶207.</p>

'974 Claim Element	Funamoto (Ex. 1007) in View of Nakayama (Ex. 1009)
[17.e] the tray or housing includes end walls and side walls that act as end edge reflectors and side edge reflectors for the panel member to reflect light that would otherwise exit the panel member through an end edge and/or side edge back into the panel member and toward the pattern of light extracting deformities for causing additional light to be emitted from the light emitting surface of the panel member, and	See citations to claim element 13.e above. See Escuti Decl., ¶207.
[17.f] an additional component overlying the panel member,	See citations to claim element 13.f above. See Escuti Decl., ¶207.
[17.g]the panel member having at least one of a tab, hole, cavity or protrusion that positions the additional component relative to the panel member,	“FIG. 5 is a sectional view showing the structure of one embodiment of a liquid crystal display device according to the second aspect of the present invention. Since the basic structure is similar to Embodiment 1, descriptions of common parts are omitted.” Ex. 1009, 5:14-18. “In the liquid crystal display device according to Embodiment 2, an <u>inner light guiding part 4c</u> has a <u>beveled shape</u> so that the thickness increases from the opposite ends and is fitted into the outer light guiding member toward the center. The way of holding the inner light guiding part 4c within the frame 1b is the same as in Embodiment 1 and so the description is omitted.” <i>Id.</i> 5:19-25; <i>see also</i> Fig. 5 below.

'974 Claim Element	Funamoto (Ex. 1007) in View of Nakayama (Ex. 1009)
	<p style="text-align: center;">FIG. 5</p>  <p style="text-align: center;">See Escuti Decl., ¶¶208-209.</p>
<p>[17.h]wherein the at least one of a tab, hole, cavity, or protrusion holds the additional component away from the panel member to create an air gap between the panel member and the additional component.</p>	<p>“In the liquid crystal display device according to Embodiment 2, an <u>inner light guiding part 4c</u> has a <u>beveled shape</u> so that the thickness increases from the opposite ends and is fitted into the outer light guiding member toward the center. The way of holding the inner light guiding part 4c within the frame 1b is the same as in Embodiment 1 and so the description is omitted.” Ex. 1009, 5:18-24.</p> <p>“. . . liquid crystal display panel section B including a liquid crystal display panel 2, circuit boards 3a and 3b, and outer frames 1a and 1b that sandwich and hold the panel 2 and circuit boards 3a and 3b.” <i>Id.</i> 1:34-37.</p> <p>“The liquid crystal display device according to Embodiment 2 operates as follows. Of the light rays emitted from the lamps 5a and 5b, those passing through the inner light guiding part 4c and directed upward by the light scattering processing part 12 or reflector sheet 13 disposed on the lower side of the inner light guiding part 4c and those passing through a <u>vacancy 28</u> and reflected upward by the inclined upper surface of the inner light guiding part 4c are added together, diffused by the diffusing plate 27, and applied to the liquid crystal display panel 2 as uniform light. The light can be rendered uniform over the entire area of the liquid crystal display panel 2 by adjusting the light scattering processing part 12 and the pattern of the reflector sheet 13, taking the distribution of incident light into consideration.” <i>Id.</i> 5:26-37.</p>

'974 Claim Element	Funamoto (Ex. 1007) in View of Nakayama (Ex. 1009)
	See Escuti Decl., ¶210.

VIII. CONCLUSION

Substantial, new, and noncumulative technical teachings have been presented for each of Claims 1, 3-5, 7-11, 13, and 17. For these reasons, and the disclosures identified in the claim charts above, the references above teach and suggest the subject matter of the '974 Patent in such a manner that there is a reasonable likelihood that Petitioner will prevail on at least one claim. Accordingly, the Petitioner requests that the Board grant this petition for *inter partes* review.

Dated: December 4, 2014

Respectfully submitted,

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Patent No. 7,434,974
Petition for *Inter Partes* Review

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CERTIFICATE OF SERVICE

The undersigned certifies that, on this 4th day of December, 2014, a true and correct copy of the foregoing PETITION FOR INTER PARTES REVIEW OF CLAIMS 1, 3-5, 7-11, 13, AND 17 OF U.S. PATENT NO. 7,434,974 together with all exhibits and PETITIONER POWER OF ATTORNEY was served by UPS NEXT DAY AIR on the attorney of record for the patent owner, with a courtesy copy being sent by electronic mail to the attorneys of record in the co-pending litigation, at the following addresses:

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