

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOE TECHNOLOGY GROUP CO., LTD.,

Petitioner,

v.

OPTRONIC SCIENCES LLC,

Patent Owner.

Case IPR2025-00239

U.S. Patent No. 8,502,757

**DECLARATION OF ERIC BRETSCHNEIDER, PH.D. IN SUPPORT OF
PATENT OWNER'S PRELIMINARY RESPONSE**

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1. I, Eric Bretschneider, declare as follows:

I. INTRODUCTION

2. I have been retained by counsel for Patent Owner Optronic Sciences LLC in this proceeding. My credentials are described in my curriculum vitae, which is Exhibit 2014. I offer this report in response to the Petition for *Inter Partes* Review, Case No. 2025-00239 regarding U.S. Patent No. 8,502,757 (the "'757 Patent"), filed by Petitioner Boe Technology Group Co., Ltd.

3. I have been asked by Patent Owner's counsel to offer technical opinions relating to the '757 Patent, the alleged prior art, and the arguments and opinions presented by Petitioner and its expert, Dr. R. Jacob Baker.

4. I am being compensated at my standard consulting rate of \$500 an hour, plus out-of-pocket expenses. My compensation does not depend on the testimony that I express in this Declaration, or on the outcome of these cases.

5. I have conducted a preliminary review of the papers and exhibits filed in this proceeding as of the date my declaration is signed. I understand that Petition challenged the patentability of claims 1-21 of the '757 Patent. Specifically, the Petition sets forth the following challenges:

Ground	Claims	Stat. Basis	Prior Art
1	1-12, 14-19	35 U.S.C. § 102	Kim406
2	1-20	35 U.S.C. § 103	Kim406 in view of Kim730
3	1-21	35 U.S.C. § 102	Senda
4	1-21	35 U.S.C. § 103	Senda

6. For purposes of my preliminary analysis, I opine on the theories presented in independent claims 1 and 17. I reserve the right to supplement my analysis to address the full breadth of the Petition and to provide greater depth to my analysis of independent claims 1 and 17 in the event the Board decides to institute trial in this proceeding.

7. After performing the analysis described herein and applying the standard outlined below, in my opinion, none of the authorized grounds provide a reasonable basis for concluding that independent claims 1 or 17 of the '757 Patent should be found invalid. Accordingly, it is my opinion that the Petition does not provide a reasonable likelihood that any of the challenged claims are invalid due at least to their dependence from claims 1 or 17 as well as the additional limitations recited. My opinions are based on the record evidence, my knowledge and experience in the field, and my opinion as to the level of ordinary skill in the art.

II. BACKGROUND AND QUALIFICATIONS

8. My complete qualifications and professional experience are described in my Curriculum Vitae, a copy of which is attached as Exhibit 2014.

9. I have over 30 years of experience with LEDs, displays, lighting fixtures, and lighting including a comprehensive background in a full range of LED technologies, including solid state lighting (SSL) fixture/lamp design, integration, and reliability, LED chip and package testing and reliability, fabrication, optical design, thermal management, and color conversion.

10. Throughout the course of my career, I have designed and transferred into manufacturing over 150 different LED-based lighting products, including LED lighting products designed to be installed in fixtures and in different lighting environments and applications. I have also designed and transferred into manufacturing dozens of different LED chips and packages for a variety of different applications with a particular focus on display applications and general lighting.

11. I am recognized as a leading expert in matters related to reliability for all types of LED technology and have consulted with numerous companies to help develop internal testing methods and reliability standards for evaluating their products.

12. I am currently the Chief Technology Officer at EB Designs & Technology. In that capacity, I am, among other things, responsible for the design of solid-state lighting technologies for clients ranging from startups to Fortune 100 companies.

13. I also served as a member of the University of Florida's Department of Chemical Engineering Advisory Board for 25 years, from 1998 until 2022. During my tenure on this Advisory Board, I served as Chair for a total of 8 years. I also served on the Dean's Advisory board for the College of Engineering at the University of Florida from 2007-2009 and 2017-2022. I have been a Conference Chair for LED Measurement and Standards. I am also a member of numerous professional societies, including the International Society for Optics and Photonics (SPIE), Optica, the Society for Information Display (SID), the Materials Research Society (MRS), and the Illuminating Engineering Society (IES).

14. Inside the IES, I am a founding member of the Science Advisory Panel, which has oversight over all testing and technical committees and work groups inside the IES. I am also a full member of the Test Procedures Committee which develops test, measurement and reliability standards for LEDs and lighting fixtures. Inside the Test Procedures Committee, I serve as chair of the projections and reliability subcommittee which develops reliability standards for LED based lighting products including utilizing all forms of lighting technologies. I recently led the work group that revised TM-21 which is the internationally accepted standard for predicting reliability of LED packages. I also developed a new mathematical model that, for the first time, allows prediction of the color shift of an LED package over

its time. This model is the basis for a new IES standard known as TM-35, which predicts the rate of color shift for LED products over time.

15. I joined the IES in 2006 and have been a member of the Test Procedures Committee since that time. As a result, I have been an active participant in the development of testing standards related and have helped to formalize the terminology for solid state lighting since the beginnings of the industry. Additionally, I serve on the IES Color Committee and the IES Photobiology Committee.

16. I previously served as Chief Technology Officer at QuarkStar, LLC., from 2016 until 2023. QuarkStar is primarily a technology development company that is focused on new approaches to improving performance and efficiency of products that rely on LED light sources. In this role, I helped negotiate the company's first technology license to a European manufacturer of lighting fixtures. This technology has since be incorporated into one of their premium product lines. I also lead the efforts to transition products into manufacturing to produce fixtures for the Museum of Fine Arts, Houston (MFAH). These fixtures provide over 60% of the artificial lighting in a \$500 million expansion.

17. Prior to my position at EB Designs & Technology, I served as the Director of Engineering at HeathCo, LLC. In that capacity, I was responsible for

advanced technology/product development related to solid-state lighting, sensors, notifications, and control products.

18. Prior to my position as Director of Engineering at HeathCo, I was at the Elec-Tech International Co., Ltd., where I held the positions of Chief Engineer, ETi Lighting Research Institute and VP of Research and Development, ETi Solid State Lighting. In my Elec-Tech capacities, my responsibilities included developing all technology and product roadmaps for markets in North America, China, Europe, and Japan. I designed and developed LEDs, LED packages and LED based lighting products for all of these markets.

19. Between 2008 and 2011, I was at Lighting Science Group Corporation (LSG), first as a product development manager, and my responsibilities included developing solid state lighting products, then as VP of Research, and my responsibilities included developing advanced LED models for product development and production control. In these roles, I was involved in the design and manufacture of numerous LED-based lighting fixtures and products. The products I helped launch included LSG's C2D (Curb to Door) products. These products were designed to be installed in outdoor locations including wall packs, parking lots, and streetlights. These fixtures, particularly the wall pack fixtures, were also suitable for installation in public transportation areas.

20. Between 2004 and 2008, I was at Toyoda Gosei North America, where I was a sales manager, and my responsibilities included managing and developing LED die and package sales accounts from the eastern region of North America. I was also tasked with providing technical support for the entire western hemisphere. The support I provided included design of LED packages and design of lighting fixtures and products that incorporated LED packages. Notable successes at Toyoda Gosei included expanding market niches and applications for LED based backlights for LCD displays. I provided significant technical and design support to large customers, including 3M, Global Lighting Technologies, Apple, Dell, and Hewlett Packard.

21. Between 2003 and 2004, I was at Beeman Lighting, where I was Director of Solid State Lighting Engineering, and my responsibilities included leading development of solid state lighting systems and materials.

22. Between 1998 and 2003, I was at Uniroyal Optoelectronics. Uniroyal Optoelectronics was a joint venture between Uniroyal Technology Corporation and Emcore Corporation which was initially focused on development and production of GaN-based and AlInGaP-based LED chips. Later, Uniroyal Optoelectronics expanded their scope to include LED packages. At Uniroyal Optoelectronics, I held a number of positions including Team Leader for the Epitaxial Growth and Materials Characterization areas, Sr. Epi Scientist, Director of Intellectual Property, University

Relations and Government Contracts. My responsibilities included MOCVD hardware modification, epitaxial process development as well as design, development and testing of new LED chip structures for both AlInGaP and GaN-based material systems. I was also responsible for providing technical support and assistance to customers on topics related to use of LED chips, design of LED packages and design of LED based lighting products and systems. This support included both optical and thermal design of LED packages and LED lighting products. My work at Uniroyal included providing technical support and package design for Kopin which resulted in the development of full color micro displays that were used as electronic viewfinders for Kodak digital cameras.

23. I have also authored and presented more than a total of 30 publications, presentations, and seminars, and I am a named inventor on over 65 issued patents and more than 25 pending patents.

24. I earned a bachelor's degree in Chemical Engineering from Tulane University in 1989.

25. I earned a Ph.D. in Chemical Engineering from the University of Florida in 1997, where my graduate work focused on development of optoelectronic devices, including novel silicon based visible LEDs and sulfide based TFELD structures and zinc selenide blue LEDs. As a graduate student, I was also an active participant in the Phosphor Technology Center of Excellence (PTCOE). The

PTCOE was a large research consortium that was focused on technology development of display technology for electroluminescent (both alternating current and direct current) displays, field emission displays, and plasma displays.

26. In 1989 I worked for Shell Oil Corporation in Norco, LA. I was tasked with modeling heat exchanger performance for the crude oil distillation column in order to identify cost saving opportunities. I developed an improved model for determining the operating efficiency of heat exchange units that incorporated determined the economic impact on different operating conditions. The model was designed to be compatible with all major operating units on site and resulted in costs savings of over \$20 million/year at the Norco Facility alone. My work was quickly adopted throughout the entire corporation and has resulted in sustained annual cost savings of approximately \$500 million/year.

27. Based on the above education and experience, I believe that I have a detailed understanding of the state of the art during the relevant period, as well as a sound basis for opining how persons of ordinary skill in the art at that time would understand the claim terms and technical issues in this case. I meet Petitioner's proposed definition, which is "a Bachelor's degree in electrical engineering or a comparable field of study, plus approximately one or more years of professional experience with electronic and optoelectronic system design. Additional graduate education could substitute for professional experience, and significant experience in

the field could substitute for formal education”, because I have a B.S. and a Ph.D. in Chemical Engineering as well as over 30 years of experience in LED design.

28. The opinions stated in this declaration are based on my own personal knowledge and professional judgment; if called as a witness during any proceeding in this matter I am prepared to testify competently about them.

29. In forming my opinions, I have considered the materials discussed and cited herein, including the asserted patents, the prosecution histories of the patents, and the prior art references discussed herein, and any other references referred to or cited in this declaration.

III. Brief Technical Background

30. As display technology advanced, manufacturers sought to increase the refresh rate of displays. Refresh rate refers to how many times per second the screen updates with a new image. A higher refresh rate enables smoother motion and more frames per second, which, for example, enhances the perceived quality of videos, reduces motion blur, and reduces eye strain. However, a problem that plagued the industry as it sought to implement faster refresh rates was image retention phenomena (also called “ghosting”). Ghosting occurs when a previous image frame leaves a faint trace (or “ghost”) behind as the screen transitions to a new frame, resulting in blurry visuals or residual visuals from the previous frame being still visible. This phenomenon is often caused by the slower response time of pixels or

residual charge in the driving transistors, and it becomes more noticeable at higher refresh rates where rapid image changes demand faster pixel transitions.

31. A separate problem display manufacturers faced was differences in the threshold voltages of thin film transistors (“TFTs”) in a display. These threshold voltage variations can arise from manufacturing inconsistencies, aging effects, or temperature fluctuations, and they lead to uneven current driving across pixels. As a result, image quality can degrade over time, with artifacts such as non-uniform brightness or color shifts.

IV. OVERVIEW OF THE '757 PATENT

32. Patent 8,502,757 (the “’757 Patent”) relates to the novel design of an organic light emitting display that addresses both threshold voltage compensation and image retention phenomena. *See* Ex. 1001 at Abstract (stating the OLED display avoids “occurrences of image retention phenomenon and pixel brightness distortion” through “the circuit operation of the reset units and the voltage adjustment unit.”).

33. For instance, the ’757 Patent describes the use of a first reference voltage and second reference voltage to perform the threshold compensation and avoid image retention phenomena:

. . . the first reset unit 235 resets the driving voltage V_{dr} according to the second scan signal $SS2_n$ and the first reference voltage V_{ref1} , and the second reset unit 240 resets the control voltage V_{ctr} according to the first scan signal $SS1_n$ and the driving voltage V_{dr} . In view of that,

the driving operation of the driving unit 230 is reset for avoiding an occurrence of image retention phenomenon.

Id. at 5:15–22.

...the voltage adjustment unit 320 adjusts the preliminary control voltage V_{ctr_p} according to the emission signal EM_n and the second reference voltage V_{ref2} , and the couple unit 225 adjusts the control voltage V_{ctr} through coupling a change of the preliminary control voltage V_{ctr_p} , the control voltage V_{ctr} adjusted can be expressed as Formula (4) listed below.

...

Thereafter, the driving unit 230 provides the driving current I_{dr} according to the control voltage V_{ctr} of Formula (4) and the first power voltage V_{dd} , and the driving current I_{dr} provided can be expressed as Formula (5) listed below.

...

As shown in Formula (5), neither the threshold voltage V_{th} of the second transistor 231 nor the first power voltage V_{dd} has an effect on the driving current I_{dr} . For that reason, the voltage drop occurring to a conductive line for transmitting the first power voltage V_{dd} has no effect on the driving current I_{dr} , and therefore an occurrence of pixel brightness distortion on the OLED screen due to the trace resistance of aforementioned conductive line can also be avoided, for improving image display quality of large-size display panels.

Id. at 6:44–7:3.

To sum up, with the aid of the reset and threshold voltage compensation mechanism according to the present invention described above, occurrences of image retention phenomenon and pixel brightness distortion can be avoided in the operation of the organic light emitting

display, thereby achieving high image display quality on the OLED screen.

Id. at 7:4–9.

34. The '757 Patent similarly claims, in independent form, its explanations for how to perform voltage threshold compensation *and* reset and avoid image retention phenomena:

An organic light emitting display, comprising:

a data line for transmitting a data signal;

a first scan line for transmitting a first scan signal;

a second scan line for transmitting a second scan signal;

a transmission line for transmitting an emission signal;

an input unit, electrically connected to the data line and the first scan line, for outputting a preliminary control voltage according to the data signal and the first scan signal;

a voltage adjustment unit, electrically connected to the transmission line and the input unit, for adjusting the preliminary control voltage according to the emission signal and a second reference voltage;

a couple unit, electrically connected to the input unit and the voltage adjustment unit, for adjusting a control voltage through coupling a change of the preliminary control voltage;

a driving unit, electrically connected to the couple unit, for providing a driving current and a driving voltage according to the control voltage and a first power voltage;

a first reset unit, electrically connected to the driving unit and the second scan line, for resetting the driving voltage

according to the second scan signal and a first reference voltage;

a second reset unit, electrically connected to the driving unit, the first reset unit and the first scan line, for resetting the control voltage according to the first scan signal and the driving voltage;

an organic light emitting diode for generating output light according to the driving current; and

an emission enable unit, electrically connected to the transmission line, the driving unit and the organic light emitting diode, for providing a control of furnishing the driving current to the organic light emitting diode according to the emission signal.

Id. at claim 1.

V. SUMMARY OF THE ALLEGED PRIOR ART

A. Overview of Kim406 (Ex. 1004)

35. Kim406 describes a circuit for addressing threshold voltage compensation. Ex. 1004 at [0071] (“... in the pixel according to the embodiments of the present invention and the organic light emitting display device using the same, the amount of current that flows to the OLED is controlled regardless of the threshold voltage of the first transistor. Therefore, it is possible to display an image with uniform brightness. . .”). Notably, Kim406 **does not** disclose anything about preventing image retention phenomena. It also does not disclose resetting using a first and second reference voltage because it uses a single voltage, “Vint,” for threshold voltage compensation. *See id.* at [0070], Fig. 6.

B. Overview of Senda (Ex. 1006)

36. Senda, like Kim406, only describes a circuit for threshold voltage compensation. *See* Ex. 1006 at [0221] (“As described above, according to the display devices according to the embodiments, variations in the threshold voltage of a driving TFT can be properly compensated for, unwanted light emission from an organic EL element can be prevented, the contrast of a display screen can be enhanced, and the lifetime of the organic EL element can be extended. The present invention is not limited to the embodiments and the features of the embodiments can be appropriately combined.”). Nothing in Senda addresses preventing image retention phenomena or resetting.

VI. THE LEVEL OF ORDINARY SKILL IN THE ART

37. I have been informed that my analysis of the Challenged Claims should be viewed from the perspective of a person of ordinary skill in the art (POSITA) as the earliest claimed priority date, which I have been informed is November 15, 2011.

38. I understand that a POSITA is a hypothetical person presumed to have known the relevant art at the time of the invention. I have been informed that in determining the level of ordinary skill in the art the following factors may be considered none of which is predominant: (1) type of problems encountered in the art; (2) prior art solutions to those problems; (3) rapidity with which innovations are

made; (4) sophistication of the technology; and (5) educational level of active workers in the field.

39. I understand that Dr. Baker has opined that a POSITA “a Bachelor’s degree in electrical engineering or a comparable field of study, plus approximately one or more years of professional experience with electronic and optoelectronic system design. Additional graduate education could substitute for professional experience, and significant experience in the field could substitute for formal education.” Ex. 1002, ¶ 49.

40. For purposes of my preliminary opinion, I will use Dr. Baker’s proposed definition of a POSITA but reserve the right to supplement my opinion if trial is instituted.

VII. APPLICABLE LEGAL STANDARDS

41. I am not a lawyer and offer no legal opinions. My analysis and opinions are based on my expertise in this technical field and on the instruction that counsel has given me for the legal standards outlined in the rest of this section. These principles are summarized below.

A. Burden of Proof

42. I understand that the petitioner must prove invalidity of a patent claim by a preponderance of the evidence, that is, the evidence must be sufficient to show that a fact or legal conclusion is more likely than not.

B. Date of Invention

43. I have been asked to use the date of the filing of the earliest application to which priority is claimed (i.e., December 1, 2004) as the date of invention for purposes of my analysis.

C. Anticipation

44. I understand that a claim may be anticipated if a prior art disclosure teaches each and every element required by the claim, either expressly or inherently. The identical invention must be shown in as complete detail as is contained in the claim. When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art.

45. I understand that, once the claims of a patent have been properly construed, the next step in determining anticipation of a patent claim requires a comparison of the properly construed claim language to the prior art on a limitation-by-limitation basis.

D. Obviousness

46. I understand that even if a patent claim is not anticipated, it may still be invalid if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the pertinent art.

47. I also understand that a patent may be rendered obvious based on an alleged prior art reference or a combination of such references plus what a person of ordinary skill in the art would understand based on his or her knowledge and the references. It is also my understanding that in assessing the obviousness of claimed subject matter one should evaluate obviousness over the prior art from the perspective of one of ordinary skill in the art at the time the invention was made (and not from the perspective of either a layman or a genius in that art).

48. I understand that a patent claim composed of several elements is not proved obvious merely by demonstrating that each of its elements was known in the prior art. There must be a reason for combining the elements in the manner claimed. That is, there must be a showing that a person of ordinary skill in the art at the time of the invention would have thought of either combining two or more references or modifying a reference to achieve the claimed invention.

49. I understand that an obviousness determination includes the consideration of the following factors: (1) the scope and content of the prior art, (2) the differences between the prior art and the claims at issue, (3) the level of ordinary skill in the art, and (4) any secondary indicia of non-obviousness (*e.g.*, “secondary considerations” such as commercial success in the marketplace of the claimed invention), to the extent that they exist. I understand that the following are examples of approaches and rationales that may be considered:

50. Combining prior art elements according to known methods to yield predictable results;

51. Simple substitution of one known element for another to obtain predictable results;

52. Use of a known technique to improve similar devices (methods, or products) in the same way;

53. Applying a known technique to a known device (method or product) ready for improvement to yield predictable results;

54. Applying a technique or approach that would have been obvious to try (choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success);

55. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to a person having ordinary skill in the art; and

56. Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

57. I understand that the burden is on the petitioner to explain how an invention is obvious if one of ordinary skill in the art, facing a wide range of needs

created by developments in the field, would have seen an obvious benefit to the solutions tried by the applicant. I further understand when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, it may be obvious to a person of ordinary skill to try the known options. If a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique would have been obvious.

58. I understand that the burden is on the petitioner to explain how specific references could be combined, which combinations of elements in specific references would yield a predictable result, and how any specific combination would operate or read on the claims. I further understand that the petitioner cannot rely on conclusory statements but must instead provide a reasoned explanation supported by evidence. I also understand that obviousness does not exist where the prior art discourages or teaches away from the claimed invention. I also understand that even if a reference does not teach away, its statements regarding preferences are relevant to a finding whether a person skilled in the art would be motivated to combine that reference with another reference.

59. I also understand that one of ordinary skill in the art must have a reasonable expectation of success in combining or modifying prior art references.

60. I also understand that all elements of a claim must be considered in an obviousness analysis.

61. I understand that it is impermissible to use hindsight to arrive at the claimed invention. My understanding is that the inventor's own path never leads to a conclusion of obviousness. I also understand that, when assessing whether there was a motivation to combine references to teach a claim element, defining the problem in terms of its solution reveals improper hindsight.

E. Claim Construction

62. I understand that claims are construed from the perspective of a person of ordinary skill as of the effective filing date of the patent application. A "person of ordinary skill in the art" is a hypothetical person who is presumed to have known the relevant art at the time of the invention.

63. I understand that persons of ordinary skill in the art are deemed to read the claims in the context of the entire patent, including the specification and prosecution history.

64. I understand that the claims define the invention and the terms used in the claims are generally given their plain and ordinary meanings they would have to a person of ordinary skill in the art at the time of the effective filing date of the application. The context of a claim can be particularly helpful, and other claims may inform the meaning of a term in a particular claim.

65. I understand that claim terms are normally used consistently throughout a patent. Thus, the meaning of a term may help inform the meaning of the same term in other claims. Differences between claims may also help define the terms, although this may not be the case where the specification or prosecution history indicate that such differences do not impact the scope of the claims.

66. I understand that a patentee can act as its own lexicographer by defining a term, in the patent specification, to have a specific meaning. It is my understanding that statements made to the patent office by the patentee or its legal representative during prosecution can serve to illuminate, or possibly narrow the proper scope of claim terms, and that such statements must be considered when construing the claim terms. This is sometimes referred to as a disclaimer. I have taken into account these principles in my analysis.

67. I understand that reference materials that were publicly available at the time that the patent application was filed, such as dictionaries, treatises or other technical references, may provide context and background for deciphering how one of ordinary skill in the art would have considered the terms used in the claims.

68. However, I understand that such references, as well as testimony (including this report) are generally known as “extrinsic evidence,” and are accorded less weight than evidence found within the patent and prosecution history. In addition, I understand that extrinsic evidence that is inconsistent with the claims,

specification, or prosecution history should not be considered in the claim construction process.

F. Section 112(f) Means Plus Function

69. I understand that under pre-America Invents Act (AIA) 35 U.S.C. § 112(6) and post-AIA § 112(f) “An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.”

70. I understand that when claim terms use the words “means . . . for” and recites a function, and the term does not recite any structure for performing that function, the term should be construed pursuant to Section 112(f) looking for a corresponding structure, material, or act described in the specification and equivalents.

G. Section 112 Definiteness

71. I understand that, under 35 U.S.C. § 112 ¶ 2, “[t]he specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.”

72. I understand that that claims must be definite. This means that the claims must particularly point out and distinctly claim the subject matter that the

applicant regards as her invention. I understand that indefiniteness is evaluated from the perspective of a person of ordinary skill in the art at the time of a patent's filing. I understand that a patent claim is indefinite if the claim, when read in light of the specification and the prosecution history, fails to inform, with reasonable certainty, a person of ordinary skill in the art of the scope of the invention. Absolute or mathematical precision in claim language is not required and even if more than one interpretation is presented for a claim term, the term may still be definite if an informed and confident choice is available among the contending alternative definitions.

VIII. INSTITUTION SHOULD BE DENIED

73. In my opinion, institution should be denied because the Petition has not shown a likelihood of success on the merits.

74. First, in my opinion, the Petition is based on improper claim constructions. For example, the Petition's primary construction is that the claimed "'first' and 'second' reference voltages encompasses reference voltages that are the same or different." Petition at 12. In my opinion, a POSITA would not have understood the plain and ordinary meaning of the terms in such a way—the Patent specifically claims two voltages, a "first" and a "second." Nothing in the claims suggests that the first and the second refer to the same reference voltage. Further, the specification discloses separate sources for the first and second reference

voltages where it discloses a “first reference voltage V_{ref1} ” and a “second reference voltage V_{ref2} .” Ex. 1001 at Fig. 4, 4:5, 6:35-36. It is my opinion that the Petition has not identified anything that would change the plain and ordinary meaning of the terms “first reference voltage” and “second reference voltage.”

75. The Petition’s alternate construction also has problems. The Petition states that “[u]nder an alternative construction, the ‘first’ and ‘second’ reference voltages are limited to different voltages.” Petition at 13. Under such a construction, the first and second reference voltages could not have the same numeric value. As explained above, the terms refer to different reference voltages, not just “different voltages.”

76. In my opinion, a POSITA would understand the plain and ordinary meaning to be that there is a first and second reference voltage (such as the preferred embodiment using a V_{ref1} and V_{ref2}), but it does not matter if the measured voltages are the same or different.

77. In my opinion, Ground 1 (alleging anticipation by Kim406) fails. The Petition argues that Kim406’s initialization voltage (V_{int}) is both the first and the second reference voltage, which is contrary to the understanding of a POSITA as explained above. *See, e.g.*, Petition at 25, 33, 35, 41, 44.

78. Further, for Grounds 1 and 2, the Petition does not contain any evidence that Kim406’s initialization voltage V_{int} is a reference voltage—rather, the Petition

states that the word “reference” is “not relevant” and simply states that “Vint in Kim406 is a reference voltage.” Petition at 20. In my opinion, this is insufficient reasoning—the terms are not synonymous, and an initialization voltage is not the same thing a reference voltage. In my opinion, the Petition has not met its burden.

79. In my opinion, Grounds 3 and 4 of the Petition are based on hindsight. Nothing in Senda addresses image retention phenomena. The Petition points to a “modified third embodiment” of Senda. Petition at 47. As acknowledged by Petitioner, Senda describes changes to a fifth embodiment (shown in Figure 11), which results in Figure 15. *Id.*; Ex. 1006, Fig. 11 (shown below), Fig. 15 (shown below):

Fig. 11

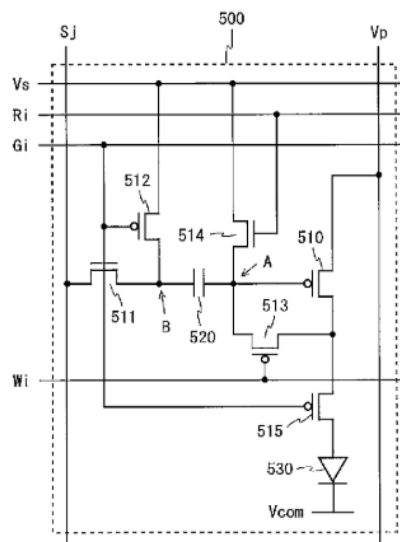
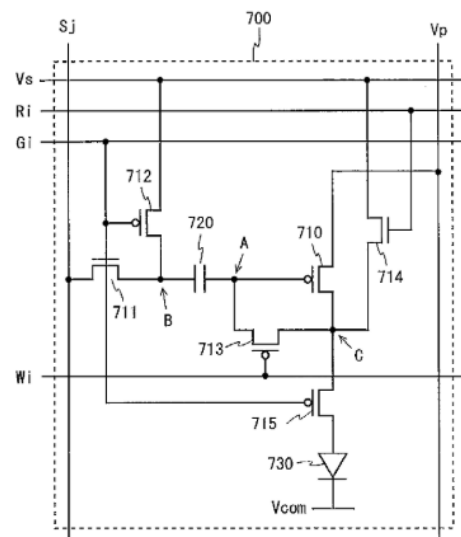
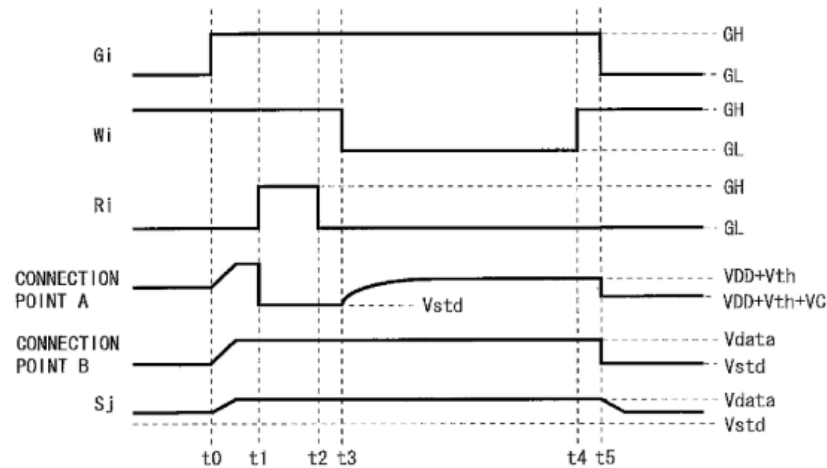


Fig. 15



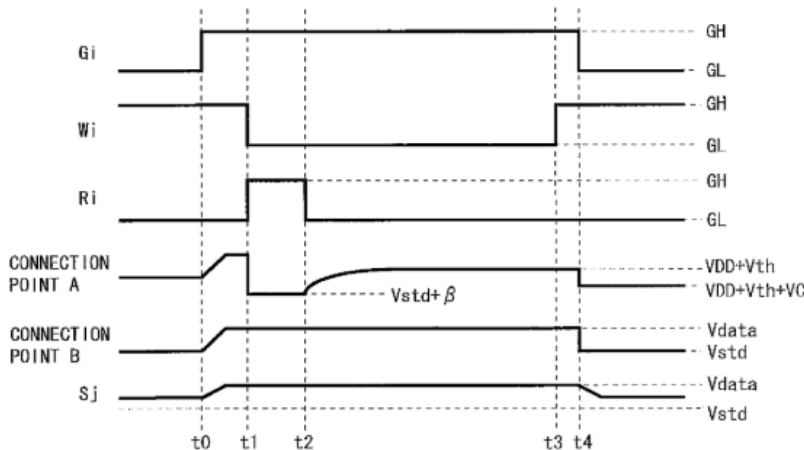
80. In addition to the changes in the structure of the fifth embodiment, Senda teaches changes to the operation of the circuit:

Fig. 12



Ex. 1006, Fig. 12 (corresponding to the fifth embodiment shown in Fig. 11).

Fig. 16



Id. at Fig. 16 (corresponding to the modified fifth embodiment shown in Fig. 16).

As easily seen by comparing the figures above, the circuits have different timing periods—for example Figure 12 has an additional time period not present in Figure 16, and the timing of the Wi signal is materially changed.

81. The Petition, on the other hand, relies on the exact same timing chart, despite changing the structure of the circuit. Petition at 49 (“a POSITA would have

understood the Modified 3rd Embodiment to still use the timing chart of Figure 7.”).

In fact, the Petition states “[b]ased on Senda’s disclosure that the only modification that should be made to the third embodiment is to connect the transistor to Node C, a POSITA would have understood the Modified 3rd Embodiment to still use the timing chart of Figure 7.” Petition at 49. If this were as simple as the Petition makes it out to be, the modified fifth embodiment would use the same timing diagram as the unmodified fifth embodiment because “the only modification . . . is to connect the transistor to Node C.” But the modified fifth embodiment does not use the same timing diagram as the unmodified fifth embodiment, as I describe above. Thus, in my opinion, the Petition’s theory in Grounds 3 and 4 is based on an improper modification to Senda, and the Petition has not put forth sufficient evidence to have met its burden.

82. It is my opinion that institution should be denied.

IX. CONCLUSION

83. In signing this Declaration, I understand that the Declaration will be filed as evidence in contested cases before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I acknowledge that I may be subject to cross-examination in this case and that cross examination will take place within the United States. If cross examination is required of me, I will appear for cross examination within the United States during the time allotted for cross examination.

84. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the '757 Patent.

Executed on July 16, 2025 at Parker, Colorado.

A handwritten signature in black ink, appearing to read "Eric Bretschneider", written over a horizontal line.

Eric Bretschneider, Ph.D.