

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD. and SAMSUNG ELECTRONICS
AMERICA, INC.,
Petitioner

v.

POLARIS POWERLED TECHNOLOGIES, LLC,
Patent Owner

Case IPR2023-00484
U.S. Patent No. 8,217,887 B2

PATENT OWNER'S PRELIMINARY RESPONSE

Mail Stop "PATENT BOARD"
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	THE '887 PATENT	2
A.	Overview	2
B.	Level of Skill in the Art	4
III.	PETITIONER FAILS TO DEMONSTRATE A REASONABLE LIKELIHOOD THE CLAIMS WOULD HAVE BEEN OBVIOUS	6
A.	Petitioner fails to demonstrate that the art, alone or in combination, teaches, suggests, or renders obvious the “plurality of strings” recited in independent claims 1, 13, and 17.....	8
1.	<u>Ground 1</u> : Petitioner fails to show that Seo alone teaches, suggests, or renders obvious elements 1[A] and 13[Ci].....	9
2.	<u>Ground 2</u> : Petitioner fails to show that the Seo-Fung combination renders obvious elements 1[A] and 13[Ci].....	15
3.	<u>Ground 3</u> : Petitioner fails to show that the Seo-Fung combination renders obvious element 17[A].....	21
4.	<u>Ground 5</u> : Petitioner fails to show that the Seo-Honbo combination renders obvious elements 1[A], 13[Ci], and 17[A].	22
B.	Petitioner fails to demonstrate that the art, alone or in combination, teaches, suggests, or renders obvious “adjusting the luminosity levels” or “luminosity levels ... are adjusted,” as recited in independent claims 1, 13, and 17.....	27
IV.	THE BOARD SHOULD NOT CREDIT DR. HATALIS’S OPINIONS	30
A.	Dr. Hatalis’s opinions are conclusory and repeat <i>verbatim</i> the Petition, and thus are entitled to no weight.....	31
B.	Dr. Hatalis fails to qualify under his own definition of a POSITA.	33
V.	CONCLUSION	35

PATENT OWNER'S EXHIBIT LIST

Exhibit	Description
2001	Declaration of Thomas L. Credelle
2002	<i>Curriculum Vitae</i> of Thomas L. Credelle
2003	U.S. Pub. No. 2010/0073903 to Yun et al.
2004	U.S. Pub. No. 2010/0177258 to Shinozaki et al.
2005	Redline Comparison of Petition to Hatalis Declaration
2006	<i>Samsung Elecs. Co., Ltd. v. Power2B Inc.</i> , IPR2021-01190, Exhibit 1002 (P.T.A.B. June 25, 2021)

I. INTRODUCTION

The Board should deny institution of *inter partes* review of claims 1-21 of U.S. Patent No. 8,217,887 (“the ’887 patent”). In each of its obviousness Grounds, Petitioner fails to demonstrate a reasonable likelihood that the art discloses or renders obvious key elements of the independent claims requiring “a plurality of strings of light emitting diodes (LEDs)” in the backlight of a liquid crystal display (LCD). Petitioner’s first Ground relies solely on Seo, which describes an edge-type backlight that does not disclose using strings of LEDs. In the remaining Grounds, Petitioner proposes combining Seo’s edge-type backlight with references teaching direct-type backlights, which are fundamentally different in structure and function than Seo’s edge-type backlight. Petitioner’s conclusory analysis fails to account for the fundamental differences between the references, undermining Petitioner’s proposed combinations and demonstrating that the Petition fails to satisfy the threshold for institution.

The Petition also fails to demonstrate that the art discloses or renders obvious adjusting “luminosity levels” of the LEDs, as recited in the independent claims. In all Grounds, Petitioner relies solely on the Seo reference for these elements, but fails to show how the pulse-width modulation (PWM) described in Seo adjusts luminosity levels in LEDs. Again, Petitioner’s analysis of the art and the claims is cursory and fails to satisfy the threshold for institution. Moreover,

Petitioner fails to reconcile the plainly different aims of Seo and the '887 patent:

Seo is concerned with removing visual artifacts while *maintaining* a consistent brightness, while the '887 patent is expressly directed to making multiple *changes* to luminosity during a frame to achieve a visibly smooth transition between different frames.

Compounding these deficiencies, Petitioner's alleged expert, Dr. Hatalis, advances opinions that are cut-and-paste copies of the Petition's conclusory and flawed arguments, and thus are not entitled to weight under Federal Circuit and Board precedent. Additionally, Petitioner and Dr. Hatalis fail to properly resolve the level of skill in the art, proposing a definition that Petitioner appears to have mechanically copied from other IPRs prepared by Petitioner's counsel, which Dr. Hatalis blindly adopts. Ironically, Dr. Hatalis does not appear to possess ordinary skill under his own proposed definition, which, if adopted by the Board, would render his opinions irrelevant. In any event, his cut-and-paste and inaccurate opinions should be given no weight and cannot save this fatally flawed Petition.

II. THE '887 PATENT

A. Overview

The '887 patent is entitled "System and method for backlight control for an electronic display," and describes methods and apparatuses that control the backlight for an electronic display. Claim 1 below recites an apparatus embodying

the invention.

1. A control circuit for an electronic display comprising:

a first circuitry for controlling luminosity levels of a plurality of strings of light emitting diodes (LEDs);

a second circuitry for controlling a plurality of pixels for displaying a plurality of image frames of a video;

the second circuitry for displaying each image frame of the plurality of image frames for a predetermined period of time, the second circuitry configured to change a displayed image frame once every cycle of a first clock signal having a first frequency; and

the first circuitry for adjusting the luminosity levels of the plurality of strings of LEDs for a plurality of times within the predetermined period of time, the first circuitry configured to adjust the luminosity levels according to a second clock signal having a second frequency that is a multiple of the first frequency and is higher than the first frequency.

EX1001, 6:39-55.

As shown in claim 1, the '887 patent describes and claims a specific manner of controlling the luminosity levels of a plurality of strings of LEDs involving a first and second clock signal to adjust the luminosity a plurality of times during the display of a single frame of a displayed image. The advantages of controlling string luminosity in accordance with the '887 patent include at least (1) the ability to make a gradual transition between the luminosities of two successive frames and

(2) superior contrast control. EX1001, 2:35-53.

B. Level of Skill in the Art

“[T]he level of skill in the art is a prism or lens through which ... the Board views the prior art and the claimed invention.” *Okajima v. Bourdeau*, 261 F.3d 1350, 1354-55 (Fed. Cir. 2001). “This reference point prevents these factfinders from using their own insight or, worse yet, hindsight, to gauge obviousness.” *Id.*

Petitioner and Dr. Hatalis allege that a person of ordinary skill in the art (“POSITA”) would “have had a bachelor’s degree in electrical engineering, computer engineering, computer science, or a related field, and at least two years of experience in the research, design, development, and/or testing of touch and/or proximity sensors, human-machine interaction and interfaces, and related firmware and software, or the equivalent,” with the caveat that “additional education substituting for experience and vice versa.” Pet., 8; EX1002, ¶40. But neither Petitioner nor Dr. Hatalis explains how they arrived at this definition, such as which factors they considered to assess the level of skill or whether the ’887 patent supports their proposed definition. *See* EX1002, ¶25. In particular, they fail to explain why a POSITA would need “experience in the research, design, development, and/or testing of touch and/or proximity sensors, human-machine interaction and interfaces, and related firmware and software,” Pet., 8; EX1002, ¶40, which is inconsistent with the ’887 patent and the asserted art, *see Okajima*,

261 F.3d at 1355 (explaining that the art may reflect the appropriate level of skill).

As Petitioner and Dr. Hatalis acknowledge, the '887 patent describes an “apparatus and techniques relating to the intelligent control of a display’s backlight LED strings.” EX1001, Abstract; Pet., 4; EX1002, ¶32. Each of the references—Seo, Yeo, Fung, and Honbo—are directed to liquid crystal displays (LCDs), including backlight units. EX1005, Abstract; EX1006, ¶19; EX1007, ¶¶1-2; EX1008, Abstract. Yet, Petitioner’s and Dr. Hatalis’s proposed definition of a POSITA does not require any experience with LCDs, backlights, or LEDs. *See* Pet., 8; EX1002, ¶40. Their definition is plainly wrong and the Board should not adopt it.

As to the origin of Petitioner’s misplaced definition of a POSITA, Patent Owner discovered twelve other expert declarations with identical language,¹ all submitted by Petitioners’ counsel in other IPR proceedings by a different declarant. *See, e.g.*, EX2006, ¶45. It appears that Petitioner mechanically copied and Dr.

¹ IPR2021-01190, EX1002, ¶20; IPR2022-00300, EX1002, ¶22; IPR2022-01378, EX1002, ¶22; IPR2021-01257, EX1002, ¶20; IPR2021-01220, EX1002, ¶20; IPR2021-01239, EX1002, ¶20; IPR2021-01266, EX1002, ¶20; IPR2022-00405, EX1002, ¶22; IPR2022-00334, EX1002, ¶22; IPR2022-00325, EX1002, ¶22; IPR2022-00315, EX1002, ¶22; IPR2021-01254, EX1002, ¶22.

Hatalis blindly adopted the POSITA definition that Petitioner’s counsel proffered in other proceedings, undermining the credibility of both the Petition and Dr. Hatalis’s Declaration and suggesting that both documents were hastily prepared and are inaccurate.

Ironically, as discussed in Section IV below, Dr. Hatalis adopted a definition of a POSITA that he does not appear to satisfy based on his own description of his background and experience. *See* EX1002, ¶¶5-20. Thus, applying his own definition would render his opinions irrelevant. *See Kyocera Senco Industrial Tools Inc. v. Int’l Trade Commission*, 22 F.4th 1369, 1376-77 (Fed. Cir. 2022) (“To offer expert testimony from the perspective of a skilled artisan in a patent case—like for claim construction, validity, or infringement—a witness must at least have ordinary skill in the art. Without that skill, the witness’ opinions are neither relevant nor reliable.”).

III. PETITIONER FAILS TO DEMONSTRATE A REASONABLE LIKELIHOOD THE CLAIMS WOULD HAVE BEEN OBVIOUS

“Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved.” *Graham v. John Deere Co. of Kansas City*, 383 US 1, 17 (1966). “An obviousness determination requires finding that a person of ordinary skill in the art would have been motivated to combine or modify the teachings in the prior art and would have had a reasonable

expectation of success in doing so.” *Regents of University of California v. Board Institute, Inc.*, 903 F.3d 1286, 1291 (Fed. Cir. 2018). “[A] clear, evidence-supported account of the contemplated workings of the combination is a prerequisite to adequately explaining and supporting a conclusion that a relevant skilled artisan would have been motivated to make the combination and reasonably expect success in doing so.” *Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017).

“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Likewise, “conclusory expert testimony is inadequate to support an obviousness determination” *TQ Delta, LLC v. Cisco Systems, Inc.*, 942 F.3d 1352, 1359 (Fed. Cir. 2019); *see also Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, 15-16 (P.T.A.B. August 24, 2022) (precedential) (declining to credit to expert testimony that “merely repeats, verbatim, the conclusory assertion for which it is offered to support.”), *aff’d* IPR2022-00624, Paper 12 (P.T.A.B. February 10, 2023) (director review); 37 C.F.R. § 42.65(a).

The Board should deny institution on the merits because Petitioner fails to demonstrate that Seo and the various Seo-based combinations presented in Grounds 1-5 disclose or render obvious (1) the “plurality of strings” limitations that are recited in independent claim elements 1[A], 13[Ci], and 17[A], and (2)

adjusting “luminosity levels” of the LEDs, as recited in independent claim elements 1[Di], 13[Cii], and 17[Fi].

Amplifying these deficiencies, the opinions of Petitioner’s alleged expert on salient issues are conclusory and generally repeat the Petition, and thus should not be given weight under Federal Circuit and Board precedent.

A. Petitioner fails to demonstrate that the art, alone or in combination, teaches, suggests, or renders obvious the “plurality of strings” recited in independent claims 1, 13, and 17.

Independent claims 1, 13, and 17 recite one or more “plurality of strings of light emitting diodes (LEDs).” Specifically, using Petitioner’s nomenclature, claim elements 1[A], 13[Ci], and 17[A] recite:

1[A] a first circuitry for controlling luminosity levels of a plurality of strings of light emitting diodes (LEDs).

13[Ci] using the clock signal for adjusting luminosity levels of a plurality of strings of light emitting diodes (LEDs) in a backlighting circuitry of the electronic display.

17[A] a plurality of strings of light emitting diodes (LEDs) including a string of red LEDs, a string of green LEDs and a string of blue LEDs.

EX1001, 6:40-41, 8:1-3, 8:17-19.

In Ground 1, Petitioner alleges that Seo alone teaches, suggests, or renders obvious elements 1[A] and 13[Ci]. Pet., 23-24. In Ground 2, Petitioner alleges that the Seo-Fung combination renders obvious elements 1[A] and 13[Ci]. Pet., 24-25.

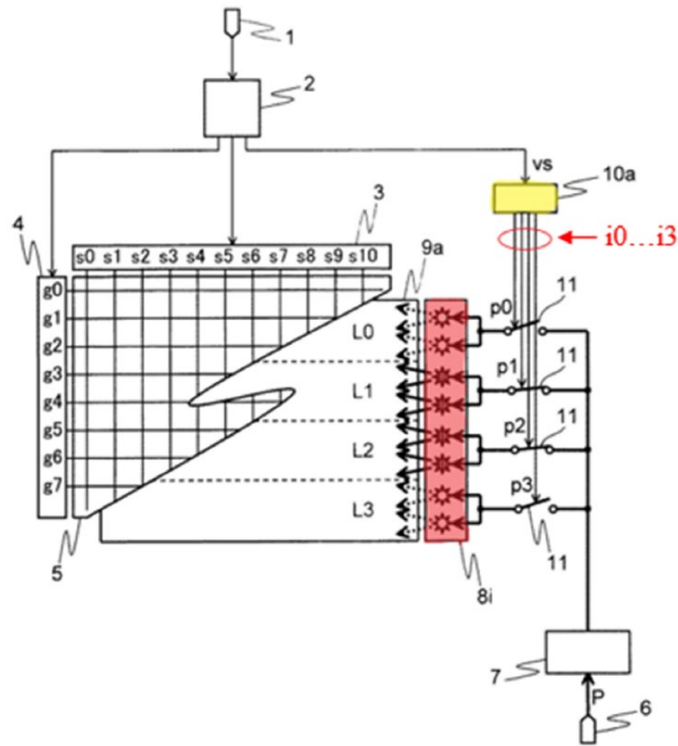
In Ground 3, Petitioner alleges that the Seo-Fung combination renders obvious element 17[A], relying on the same analysis it presented in Ground 2. Pet., 50-51. And, in Ground 5,² Petitioner alleges that the Seo-Honbo combination renders obvious elements 1[A], 13[Ci], and 17[A]. Pet., 62-64, 66-67. Each of Petitioner's arguments fails to demonstrate a reasonable likelihood of prevailing.

1. Ground 1: Petitioner fails to show that Seo alone teaches, suggests, or renders obvious elements 1[A] and 13[Ci].

Petitioner argues that Seo teaches or suggests elements 1[A] and 13[Ci], or, alternatively, that a POSITA would have found it “obvious to implement Seo's LED's [sic] as strings of multiple LEDs.” Pet., 23-24. Petitioner's arguments rely on Figure 1 of Seo, which Petitioner annotated as shown below:

² In Ground 4, Petitioner challenges only dependent claims that depend from claims challenged in Grounds 1-3. Pet., 3. Thus, the deficiencies in the Petition's analysis of the independent claims in Grounds 1-3 also apply to Ground 4.

FIG. 1



Pet., 20 (annotating EX1005, FIG. 1).

As shown above, Figure 1 of Seo depicts an LCD device having an edge- or side-type backlight. EX1005, ¶¶16-19 (describing Figure 35), 112 (explaining that the only difference between Figures 1 and 35 is circuit 10a of Figure 1); *see* EX2001, ¶29; EX2003, ¶7 (published Samsung patent application explaining that an “edge type backlight unit includes a light source disposed on a side surface of the liquid crystal panel”); EX2004, ¶21. As Petitioner depicts in red, Figure 1 of Seo includes “a lamp 8i,” EX1005, ¶16, which may include LEDs, EX1005, ¶¶17, 144.

Light generated by lamp 8i is directed into “light guide plate 9a[, which] is

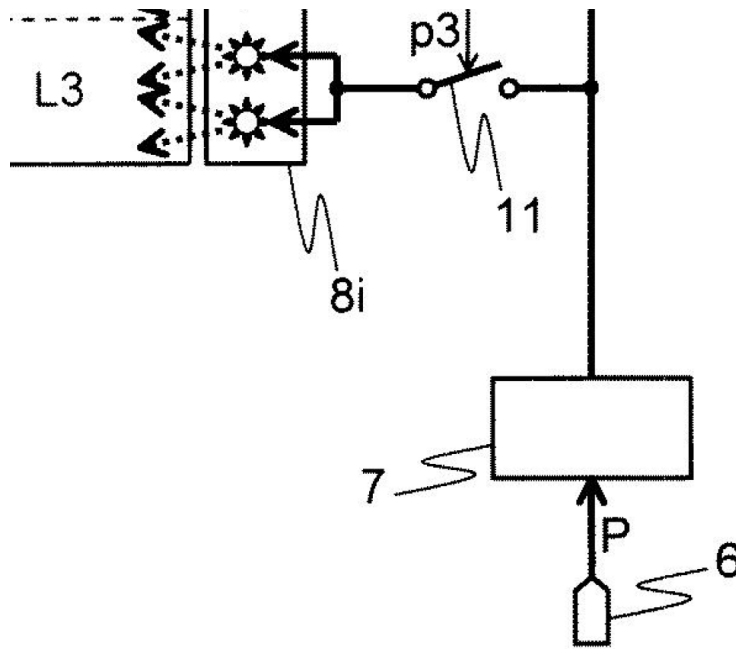
divided into a plurality of rectangular areas parallel to gate lines g0 to g7.”

EX1005, ¶18. Figure 1 shows that “the light guide plate 9a is divided into four areas L0 to L3.” *Id.* Seo explains, for example, that “[t]he area L0 [of light guide plate 9a] illuminates the picture elements scanned by the gate lines g0 and g1.” *Id.* In Figure 1 of Seo, each area (L0-L3) of light guide plate 9a is illuminated by two lamps, but Seo explains that “[t]he number of lamps illuminating one area is not limited to two.” EX1005, ¶144.

Based on Figure 1 of Seo, Petitioner first argues that Seo teaches or suggests elements 1[A] and 13[Ci]. Pet., 23. Petitioner does not allege that Seo expressly discloses strings of LEDs. *See id.* Rather, because “the ’887 Patent explains that ‘[t]ypically, each string [of LEDs] is coupled to a power supply on one end and to the ground on the other end,’” Pet., 23 n.8 (citing EX1001, 3:23-24), Petitioner alleges that “[a] POSITA would have understood that the LEDs in Seo would have been implemented as a plurality of strings of LEDs because, as shown in Figure 1, Seo’s multi-LED light sources in each zone (L0 though L3) are coupled to a power supply on one end (controlled by signals p0 to p3) *and to ground on the other end . . .*,” Pet., 23 (emphasis added). That is, Petitioner interprets a string of LEDs as LEDs connected in series (e.g., power→LED→LED→ground), and alleges that Figure 1 of Seo depicts (at least implicitly) such a configuration.

Petitioner is incorrect. Figure 1 of Seo does not show LEDs connected in

series or light source(s) coupled to ground. It is not clear (and Petitioner does not explain) what Petitioner is referring to as “ground on the other end,” Pet., 23, but g0-g7 are gate lines, not ground connections, EX1005, ¶18. Dr. Hatalis’s opinions are not helpful, as they merely repeat *verbatim* Petitioner’s flawed analysis without providing any further support or explanation. EX1002, ¶82. In any event, the portion of Seo’s Figure 1 shown below depicts that “power supply circuit 7” is coupled to lamps (or LEDs) that appear to be connected in parallel, not in series (but, again, Seo does not depict ground connections). EX1005, ¶17; EX2001, ¶¶31, 37. Petitioner’s arguments thus fail because (1) they are conclusory and do not identify, “with particularity,” Petitioner’s position and (2) are technically incorrect. 35 U.S.C. § 312(a)(3); *Magnum Oil Tools*, 829 F.3d at 1380. Accordingly, Petitioner fails to demonstrate that Seo teaches or suggests the claimed “plurality of strings” of LEDs recited in elements 1[A] and 13[Ci].



EX1005, FIG. 1 (reproduced-in-part).

Petitioner next argues that “it would have been obvious to implement Seo’s LED’s [sic] as a string of multiple LEDs” because, according to Petitioner, “having a string of series LED’s [sic] was the common way to implement multiple LEDs in display panels at the time.” Pet., 23-24. This conclusory argument is deficient on its face because neither Petitioner nor Dr. Hatalis explains (1) why and how a POSITA would have purportedly modified Seo to implement strings of LEDs and (2) that a POSITA would have reasonably expected this modification to succeed.

“[A] clear, evidence-supported account of the contemplated workings of the combination is a prerequisite to adequately explaining and supporting a conclusion that a relevant skilled artisan would have been motivated to make the combination and reasonably expect success in doing so.” *Personal Web*, 848 F.3d at 994. This

includes “explain[ing], or cit[ing] evidence showing, *how* the combination of the two references was supposed to work.” *Id.* These requirements must be met even for a single-reference obviousness theory, such as in Petitioner’s Ground 1. *In re Stepan Co.*, 868 F.3d 1342, 1346 n.1 (Fed. Cir. 2017) (explaining that “there must be a motivation to make the combination and a reasonable expectation that such a combination would be successful” for challenges based on “a single reference”).

Here, neither Petitioner nor Dr. Hatalis explains how, given the structure of Seo’s LCD in Figure 1, a POSITA would have modified Seo’s LCD to use string(s) of LEDs connected in series or how Seo’s LCD would work after such modification. Pet., 23-24; EX1002, ¶82 (repeating *verbatim* Petitioner’s attorney argument); *see also* EX2001, ¶37. And, critically, neither Petitioner nor Dr. Hatalis even addresses the requisite reasonable expectation of success. Pet., 23-24; EX1002, ¶82. Merely alleging that an element was known in the field, as Petitioner does here, is not sufficient to demonstrate that a claimed invention would have been obvious under Section 103. *See KSR Intern. Co. v. Teleflex Inc.*, 550 U.S. 398, 418-19 (2007) (instructing that “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does . . . because inventions in most, if not all, instances rely upon building blocks long since uncovered . . .”).

Petitioner’s argument amounts, at most, to a contention that a POSITA *could*

have used a string of LEDs. But a showing of obviousness requires more. *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.”); *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 1092 n.16 (Fed. Cir. 1985) (“The question, however, is never whether an invention *could* be made, but whether there is anything in the prior art as a whole that would have rendered its making obvious to one skilled in the art when the invention was made”), *vacated and remanded on other grounds, Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809 (1986).

In sum, Petitioner fails to demonstrate a reasonable likelihood that Seo teaches or suggests the claimed “plurality of strings” of LEDs, and that a POSITA would have been motivated to and had a reasonable expectation of success in modifying Seo to use strings of LEDs. Accordingly, Petitioner does not establish a reasonable likelihood of prevailing for Ground 1.

2. Ground 2: Petitioner fails to show that the Seo-Fung combination renders obvious elements 1[A] and 13[Ci].

Petitioner fails to establish that a POSITA would have combined Seo and Fung because Petitioner fails to account for fundamental differences between the references that undermine its proposed combination. *Adidas AG v. Nike, Inc.*, 963 F.3d 1355, 1359 (Fed. Cir. 2020) (“Fundamental differences between the

references are central to this motivation to combine inquiry.”); *see id.* at 1358-59 (affirming the Board’s decision that certain claims were nonobvious because the proposed combination would have altered the principle of operation of the primary reference or rendered the primary reference inoperable for its intended use).

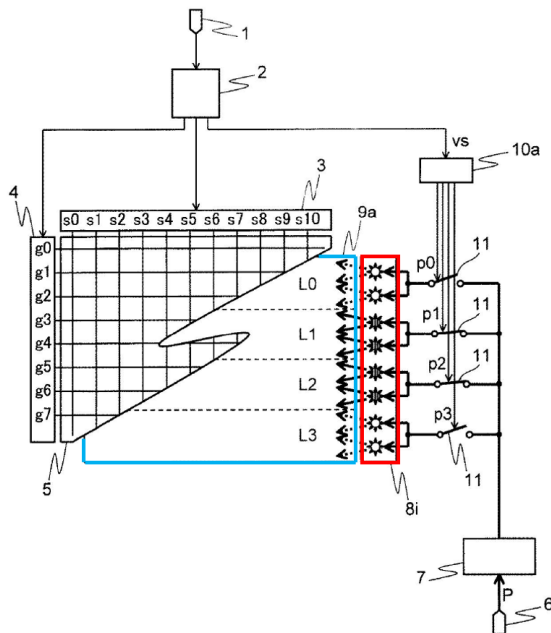
As explained in a Samsung patent application that published in 2010, in the field of LCD technology, “[t]he backlight unit may be divided into a direct type and an edge type depending on the position of a light source.” EX2003, ¶7. “The direct type backlight unit includes a light source disposed under the liquid crystal panel,” whereas “the edge type backlight unit includes a light source disposed on a side surface of the liquid crystal panel.” *Id.*

These different backlight structures have different advantages and disadvantages. For example, because the light source is arranged directly behind the LCD panel, LCDs having a direct-type backlight can more easily implement local dimming, resulting in a high contrast ratio and clear image. *Id.*, ¶8. But direct-type backlights typically consume more power and require the LCD to be thicker than LCDs having edge-type backlights. *Id.*, ¶¶8-9. And although LCDs with edge-type backlights are thinner, their structure—arranging the light source on a side surface and a light guide plate behind the LCD panel—result in functional limitations not present in direct-type backlights. *Id.*, ¶9; *see also* EX2004, ¶21 (describing differences between direct- and edge-type backlights).

By contrast, as explained above, Seo's LCD of Figure 1 has an *edge-type* backlight that arranges lamp 8i on the right-hand edge and uses light guide plate 9a disposed behind the LCD panel to illuminate picture elements. EX1005, ¶¶16-19, FIG. 1; EX2001, ¶29; Section III.A.1. Below is a side-by-side comparison showing (on the left) Seo's edge-type backlight structure (light source in red and light guide plate in blue) with Fung's direct-type backlight structure.

Seo's edge-type backlight

FIG. 1



EX1005, FIG. 1 (annotated).

Fung's direct-type backlight

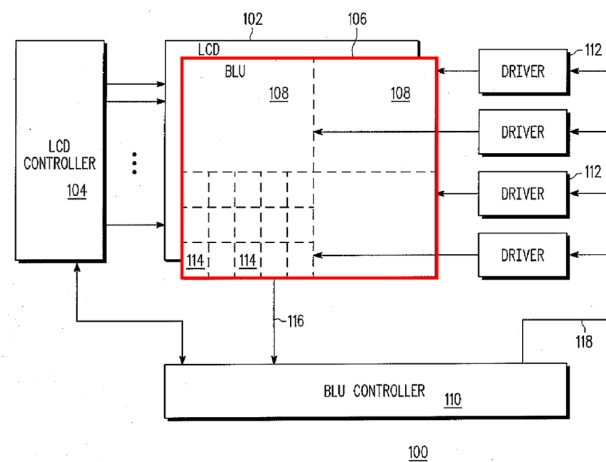


FIG. 1

EX1007, FIG. 1 (annotated).

Addressing limitations 1[A] and 13[Ci] in Ground 2, Petitioner alleges that a POSITA would have been motivated to implement Seo's light source (lamp 8i) using Fung's strings of LEDs based on statements Fung makes in its background

section about the general benefits of using LEDs in a backlight of an LCD, including “greater control, longer life, and uniformity of light output.” Pet., 17-18, 24-25; EX1007, ¶2. Petitioner further alleges that a POSITA would have had a reasonable expectation of success in combining Seo and Fung as proposed because, according to Petitioner, both references “teach techniques for implementing LEDs as backlight light sources, and a POSITA would simply implement the teachings of the respective references with predictable results that are well within the level of skill of a POSITA.” Pet., 18.

Petitioner’s arguments fail to establish the requisite motivation to combine and reasonable expectation of success. First, Petitioner completely overlooks that Seo and Fung disclose structurally and functionally different backlight structures. *Adidas*, 963 F.3d at 1359 (“Fundamental differences between the references are central to this motivation to combine inquiry.”). Fung’s LEDs are arranged in series connections between power and a driver circuit and are disposed directly behind the LCD panel to illuminate the panel. EX1007, ¶20, FIG. 2. By contrast, Seo’s lamps/LEDs appear to be connected in parallel and are disposed on the side of the LCD panel to provide light to a light guide plate that illuminates the LCD panel. EX1005, ¶¶16-19, FIG. 1. Petitioner provides no explanation how a POSITA would have allegedly implemented Seo’s edge-type backlight using the strings of LEDs in Fung’s direct-type backlight. *See Personal Web Techs.*, 848

F.3d at 994 (instructing that “a clear, evidence-supported account of the contemplated workings of the combination is a prerequisite to adequately explaining and supporting a conclusion that a relevant skilled artisan would have been motivated to make the combination and reasonably expect success in doing so.”).

Second, the reasons that Petitioner alleges a POSITA would have combined Seo and Fung—to “provide greater control, longer life, and uniformity of light output,” Pet., 18, 25³—are merely benefits that Fung attributes to LEDs in general. *See* EX1007, ¶2 (“Whilst LEDs can provide greater control, longer life, and uniformity of light output . . .”). As Petitioner recognizes, Seo already discloses using LEDs as a light source, Pet., 23, and thus the general benefits of using LEDs would not have motivated a POSITA to look to Fung when implementing Seo.

Finally, Petitioner’s arguments are conclusory and insufficient to support an

³ Petitioner also quotes a portion of the sentence in paragraph 3 of Fung as allegedly supporting its proposed combination. Pet., 18, 25. In Paragraph 3, Fung merely states: “It would be advantageous to have greater control over LED brightness.” EX1007, ¶3. Petitioner fails to explain how Fung’s aspirational statement about controlling LED brightness would have motivated a POSITA to combine Fung’s strings of LEDs in Seo’s LCD.

obviousness determination. *Magnum Oil Tools*, 829 F.3d at 1380 (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements.”). Compounding this deficiency, Dr. Hatalis repeats *verbatim* the salient points of Petitioner’s attorney argument, and thus his opinions are entitled no weight and do not save the Petition. EX1002, ¶¶74-75; *TQ Delta*, 942 F.3d at 1359 (“conclusory expert testimony is inadequate to support an obviousness determination”); *Xerox*, IPR2022-00624, Paper 9, 15-16; 37 C.F.R. § 42.65(a). Accordingly, Petitioner does not establish a reasonable likelihood of prevailing for Ground 2.

3. Ground 3: Petitioner fails to show that the Seo-Fung combination renders obvious element 17[A].

In Ground 3, Petitioner argues that the Seo-Fung combination “teaches element 17[A] for the same reasons discussed” with respect to elements 1[A] and 13[Ci],” and advances reasons a POSITA would have allegedly used colored LEDs in Seo’s LCD. Pet., 50-51. That is, Petitioner’s basis for combining Seo and Fung to address element 17[A] is the same as in Ground 2 with respect to elements 1[A] and 13[Ci], and thus fails for the same reasons discussed in Section III.A.2 above. Namely, Petitioner fails to account for fundamental structural and functional differences between Seo’s and Fung’s backlight units; Petitioner’s alleged reasons to combine rely only on generic statements about the benefits of LEDs, which Seo already uses; and Petitioner’s and Dr. Hatalis’s analysis is conclusory and

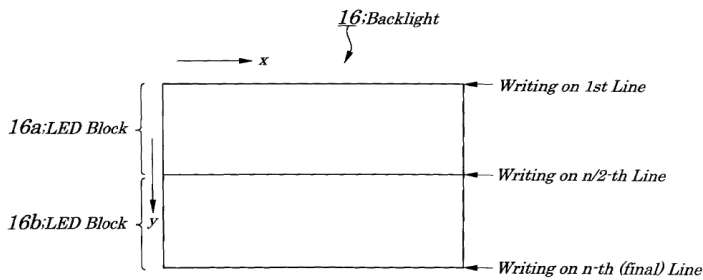
insufficient to support the proposed combination. Section III.A.2. Accordingly, Petitioner does not establish a reasonable likelihood of prevailing for Ground 3.

4. Ground 5: Petitioner fails to show that the Seo-Honbo combination renders obvious elements 1[A], 13[Ci], and 17[A].

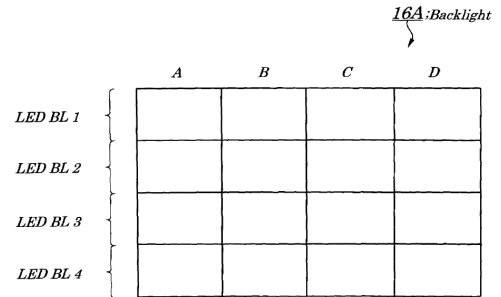
In Ground 5, Petitioner argues that the Seo-Honbo combination renders obvious elements 1[A], 13[Ci], and 17[A]. Pet., 62-64, 66-67. Addressing elements 1[A] and 13[Ci], Petitioner first repeats its flawed position that Seo teaches a string of LEDs, Pet., 62, which fails for the reasons discussed with respect to Ground 1 above. Section III.A.1. Petitioner next alleges that “it would have been obvious to a POSITA to implement Seo’s LED’s [sic] as a plurality of strings of LEDs in view of Honbo”—specifically, in view of the embodiments of Honbo’s backlight shown in Figures 4 and 14. Pet., 62-63; *see also* Pet., 66 (referring back to Petitioner’s analysis of elements 1[A] and 13[Ci] when addressing element 17[A]).

Figure 4 of Honbo depicts “backlight 16” of the first embodiment of Honbo’s LCD device. EX1008, 11:51-64. In the first embodiment, Honbo explains that “the backlight 16, its light emitting region, as shown in FIG. 4, is divided into two portions, LED blocks 16*a* and 16*b*, in a y direction of the liquid crystal display panel 14.” EX1008, 11:52-54. Figure 14 of Honbo depicts “backlight 16A” of the sixth embodiment of Honbo’s LCD device. EX1008, 16:42-53. In the sixth embodiment, Honbo explains that “[t]he backlight 16A, as shown in FIG. 14, is

divided into 4 rows×4 columns and is made up of LED block 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D, 3A, 3B, 3C, 3D, 4A, 4B, 4C, and 4D.” EX1008, 16:49-53; *see also id.*, 16:64-17:12 (explaining that the different embodiments operate differently). Figures 4 and 14, the first and sixth embodiments of Honbo’s backlight, respectively, are reproduced below.



EX1008, FIG. 4.



EX1008, FIG. 14.

Petitioner fails to demonstrate a reasonable likelihood that the Seo-Honbo combination renders obvious elements 1[A], 13[Ci], and 17[A] for at least two reasons. First, neither Seo nor Honbo teaches, suggests, or renders obvious the plurality of strings of LEDs recited in these claim elements. Seo’s deficiencies in this regard are addressed above with respect to Ground 1. Section III.A.1.

Regarding Honbo, Petitioner appears to be improperly conflating distinct embodiments of the disclosed backlight: Honbo’s first embodiment shown in Figure 4 (backlight 16 having LED blocks 16a and 16b) and Honbo’s sixth embodiment shown in Figure 14 (backlight 16A having LED blocks 1A-D, 2A-D, 3A-D, and 4A-D). *See Pet.*, 63 (referring to “backlight 16a,” which Honbo does

not disclose). Notwithstanding Petitioner's unclear mapping, Honbo does not teach or suggest that the LED blocks 16a and 16b of Figure 4 or that LED blocks 1A-D, 2A-D, 3A-D, and 4A-D of Figure 14 include, or have LEDs that are connected, as a plurality of strings of LEDs. Indeed, nowhere does Honbo even use the word "strings" or describe how LEDs are arranged and connected in Figures 4 and 14.

Tellingly, Petitioner does not point to any express disclosure in Honbo that satisfies the claimed "plurality of strings" of LEDs. *See* Pet., 62-64. Rather, Petitioner alleges the single, conclusory statement that "[a] POSITA would have understood that Honbo's LED block 1A-4D includes strings associated with backlight 16a in a LCD device." Pet., 63 (citing EX1002, ¶149). Petitioner thus advances an implied or inherent teaching theory but provides no explanation to support its theory. *See* Pet., 62-64. Petitioner's argument here is the quintessential conclusory statement that the Federal Circuit instructs is insufficient to prove obviousness. *Magnum Oil Tools*, 829 F.3d at 1380 ("To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements.").

And Dr. Hatalis's opinions on this issue are equally conclusory. EX1002, ¶¶146-150. He repeats *verbatim* Petitioner's attorney argument, adding that it was allegedly "well known that LEDs within an LCD backlight [sic] the LEDs were arranged in strings" and citing Exhibit 1025 without any explanation or pin-cite. EX1002, ¶150. Even taking Dr. Hatalis's opinions as true, which Patent Owner

does not concede, his generic statement about using LEDs in an LCD backlight and rote citation to Exhibit 1025 in no way support or establish that a POSITA would have understood that *Honbo*'s blocks of LEDs include LEDs connected to form a plurality of strings. Like Petitioner's argument, Dr. Hatalis's conclusory opinion is inadequate to support an obviousness theory. *TQ Delta*, 942 F.3d at 1359; *Xerox*, IPR2022-00624, Paper 9 at 15-16; 37 C.F.R. § 42.65(a).

Turning to the second reason that the Seo-Honbo combination fails to render obvious elements 1[A], 13[Ci], and 17[A], Petitioner fails to establish the requisite motivation to combine and reasonable expectation of success for the proposed combination *with respect to the backlight*. At the beginning of Ground 5, Petitioner alleges motivations to combine Seo and Honbo that focus on combining Honbo's colored LEDs and ambient light sensor; it does not address strings of LEDs. Pet., 60-61. This discussion also addresses reasonable expectation of success, but only with respect to Honbo's ambient light sensor. Pet., 61. And, addressing elements 1[A] and 13[Ci], Petitioner's only alleged motivation to combine Honbo's backlight with Seo's light source is to allegedly "reduce 'the trail-leaving in moving images,'" but Petitioner does not provide any discussion of the requisite reasonable expectation of success with respect to the claimed strings of LEDs. Pet., 63-64.

Petitioner's conclusory motivation to combine is insufficient and its failure

to address reasonable expectation of success confirms that the Board should deny institution. Petitioner's conclusory motivation completely fails to explain how a POSITA would have allegedly modified Seo to include Honbo's backlight, *see Personal Web*, 848 F.3d at 994 (rejecting obviousness combination that lacked "clear[] expl[anation], or cit[ation of] evidence showing, *how* the combination of the two references was supposed to work"). And Petitioner again completely overlooks that Seo and Honbo describe fundamentally different backlight devices. *Adidas*, 963 F.3d at 1359 ("Fundamental differences between the references are central to this motivation to combine inquiry."). Seo discloses an edge-type backlight, *see* Section III.A.2, whereas Honbo discloses direct-type backlights, EX1008, FIGS. 4, 14. As in the Seo-Fung combination, Petitioner fails to account for the fundamental differences between Seo's and Honbo's backlights, which undermines Petitioner's proposed combination and demonstrates that a POSITA would not have combined Seo and Honbo as Petitioner suggests.

At bottom, neither Seo nor Honbo teaches, suggests, or renders obvious the claimed plurality of strings of LEDs, and Petitioner fails to demonstrate that a POSITA would have been motivated to and reasonably expected success in combining Seo and Honbo to achieve the strings of LEDs recited in elements 1[A], 13[Ci], and 17[A]. Further, Petitioner's arguments and Dr. Hatalis's opinions are conclusory and insufficient to prove obviousness. Accordingly, Petitioner does not

establish a reasonable likelihood of prevailing for Ground 5.

B. Petitioner fails to demonstrate that the art, alone or in combination, teaches, suggests, or renders obvious “adjusting the luminosity levels” or “luminosity levels ... are adjusted,” as recited in independent claims 1, 13, and 17.

Independent claims 1, 13, and 17 of the '887 patent recite “adjusting the luminosity levels of the plurality of strings of LEDs for a plurality of times within the predetermined period of time” (claims 1 and 17) and “wherein the luminosity levels of at least one of the plurality of strings of LEDs are adjusted a plurality of times based on the clock signal during display of one image frame” (claim 13), as follows, using Petitioner’s nomenclature:

1[Di] the first circuitry for adjusting the luminosity levels of the plurality of strings of LEDs for a plurality of times within the predetermined period of time.

13[Cii] wherein luminosity levels of at least one of the plurality of strings of LEDs are adjusted a plurality of times based on the clock signal during display of one image frame in a sequence of image frames.

17[Fi] the first circuitry for adjusting the luminosity levels of the plurality of strings of LEDs for a plurality of times within the predetermined period of time.

EX1001, 6:49-51, 8:3-7, 8:31-33.

In all Grounds, Petitioner relies on Seo alone as allegedly teaching or suggesting these elements. Pet., 30-36, 52, 65, 68. But Petitioner fails to

demonstrate a reasonable likelihood that Seo (or the Seo-based combinations) teach, suggest, or renders obvious elements 1[Di], 13[Cii], and 17[Fi].

Petitioner relies on but fails to show that Seo's pulse-width modulation (PWM) scheme satisfies the claimed adjustments of luminosity levels. EX2001, ¶¶32-33. Merely pulsing a backlight on and off does not implicitly or inherently result in an adjustment to luminosity. EX2001, ¶33. Seo itself expressly teaches PWM that results in reduced flicker and luminance while keeping brightness constant: "since the luminance based on the pulse component i can be reduced by the amount [of] light emission luminance contributed by the pulse component h, flicker can be reduced while keeping the display brightness constant as a whole." EX1005, ¶41. Seo does not teach that luminance levels are adjusted, much less the claim elements "adjusting the luminosity levels" (claims 1 and 17) and "luminosity levels ... are adjusted" (claim 13). EX2001, ¶¶31-36.

Similarly, the '887 patent discusses the use of PWM backlight control but never refers to an LED pulse as a luminosity adjustment:

To control the intensity of the LED backlight, pulse-width modulation is often used. PWM of a signal or power source involves the modulation of its duty cycle, to control the amount of power sent to a load. PWM uses a square wave whose duty cycle is modulated resulting in the variation of the average value of the waveform. PWM alternates between a high voltage that causes the emission of bright light and a low voltage that does not cause the emission of light

EX1001, 1:47-56; *see also* EX2001, ¶33.

Without any explanation, Petitioner and Dr. Hatalis urge the Board to accept that the pulses in Seo's drawings are "used for adjusting the luminosity levels" or "will adjust the luminosity." Pet., 32-34. For example, according to Petitioner, six pulses of " 'h' will adjust the luminosity 6 times." Pet., 33.

Petitioner then relies on Figure 6 to jump to the conclusion that Seo's PWM signals result in adjustments to luminosity levels:

As can be seen in Figure 6, the light emission (i.e., luminosity) is adjusted at least 5 times during the "vs" time period. *Id.*; Ex-1005, Fig. 6 (counting 5 discrete luminosity peaks in the figure).
Pet., 36.

But Seo's Figure 6 does not show luminosity levels. Instead, Seo explains that Figure 6 is "a calculation result of the Fourier series of the light emission waveform of the area L0 according to invention 1." EX1005, ¶130. Neither Petitioner nor Dr. Hatalis makes any attempt to explain whether or how "a calculation result of the Fourier series" relates to luminosity levels.

Indeed, Petitioner's inability to map Seo's disclosures to the '887 patent comes as no surprise, given that the prior art and the patent are directed at wholly different aims. EX2001, ¶¶27-28, 34. The key difference between Seo and the '887 patent is that Seo aims to maintain brightness at constant levels, while the '887 patent is designed to adjust luminosity at a high rate. *Id.*

As Seo itself touts, its goal is to reduce flicker “while keeping the display brightness constant as a whole.” EX1005, ¶41. That is, Seo is targeted to solving a display quality problem without affecting the brightness of the display at all. Seo describes flicker, or visible brightness fluctuations, as “suspected of causing dizziness, malaise, vomiting, and epilepsy. In the future, flicker may even be transformed into a safety issue rather than a display quality issue. For this reason, it can be said that the adverse effect of flicker is currently greater than the effect of reducing motion blur [...]” EX1005, ¶¶33-34. As such, Seo considered maintenance of a uniform brightness to be a “safety issue” of paramount importance. The ’887 patent, unlike Seo, expressly aims to adjust the luminosity levels of the backlight multiple times during a frame to achieve a smooth transition between frames of different luminosities. EX1001, 2:35-53; EX2001, ¶28.

Accordingly, Petitioner has not shown that Seo adjusts luminosity levels of LEDs as set forth in claim elements 1[Di], 13[Cii], and 17[Fi]. EX2001, ¶¶31-36. Thus, Petitioner does not establish a reasonable likelihood of prevailing for Grounds 1-5, which all rely only on Seo to address those claim elements.

IV. THE BOARD SHOULD NOT CREDIT DR. HATALIS’S OPINIONS

Further compounding the case for denial, the Board should not credit Dr. Hatalis’s opinions because (1) they are conclusory and generally repeat *verbatim* the Petition, and (2) applying his own definition, Dr. Hatalis is not a POSITA and

thus cannot opine from the perspective of one.

A. Dr. Hatalis’s opinions are conclusory and repeat *verbatim* the Petition, and thus are entitled to no weight.

“[C]onclusory expert testimony is inadequate to support an obviousness determination” *TQ Delta*, 942 F.3d at 1359. Board precedent instructs that testimony that “merely repeats, verbatim, the conclusory assertion for which it is offered to support” is entitled to little or no weight. *Xerox*, IPR2022-00624, Paper 9 at 15-16; *see also id.* at 15 (“[T]he cited declaration testimony is conclusory and unsupported, adds little to the conclusory assertion for which it is offered to support, and is entitled to little weight.”); IPR2022-00624, Paper 12 at 5 (declining to credit declaration testimony that “copies, word-for-word, Petitioner’s conclusory assertions.”); 37 C.F.R. § 42.65(a). Particularly, where a purported expert simply provides “word-for-word” recitations of the Petition, rather than “technical detail, explanation, or statements supporting why the expert determines that the feature in question . . . would have been obvious based on the prior art disclosure,” the Board should not credit the declarant’s opinions. IPR2022-00624, Paper 12 at 5.

That is exactly what the Hatalis Declaration does. Rather than providing his opinions and facts that support the arguments made in the Petition, Dr. Hatalis merely repeats the Petition almost *verbatim*, particularly on the key substantive issues. *See* EX2005. Exhibit 2005 and the table below demonstrate the wholesale replication of the two documents. Each of the sections is almost identical, save for

minor formatting differences or references to Dr. Hatalis's declaration, which are not present in the declaration itself.

Petition	Hatalis Declaration
Section V (Pet., 3)	Section V (EX1002, p. 13)
Section VI (Pet., 4-6)	Section VI (EX1002, pp. 13-16)
Section VII (Pet., 6-7)	Section VII (EX1002, pp. 16-18)
Section VIII (Pet., 8)	Section VIII (EX1002, p. 18)
Section XI (Pet., 9-16)	Section XII (EX1002, pp. 29-37)

The “word-for-word” copying in Dr. Hatalis's declaration includes the claim-by-claim analysis presented in the Petition itself. *See* EX2005. Dr. Hatalis's opinions provide the exact same analysis, barring limited additional sentences lacking any substantive importance. *Compare* Petition, Section XII and EX1002, Section XIII. But the copying in Dr. Hatalis's declaration extends well beyond the substantive analysis to footnotes and even to typographical errors copied over from the Petition. *Compare* Pet., 11 n.4, *with* EX1002, 31 n.2; *compare* Pet., 14 n.5, *with* EX1002, 35 n.3; *compare* Pet., 21 n.6-7, *with* EX1002, 43 n.4, n.5; *compare* Pet., 61 (including the typo “includee[ing]”), *with* EX1002, ¶43 (including same typo); *compare* Pet., 23-24 (including the typos “it would have been obvious to implement Seo's LED's as strings” and “a string of series LED's”), *with* EX1002, ¶82 (including same typos).

At bottom, Dr. Hatalis's Declaration is the quintessential cut-and-paste copy

of attorney argument that *TQ Delta* and *Xerox* instructs should be given no weight.

B. Dr. Hatalis fails to qualify under his own definition of a POSITA.

“To offer expert testimony from the perspective of a skilled artisan in a patent case—like for claim construction, validity, or infringement—a witness must at least have ordinary skill in the art.” *Kyocera*, 22 F.4th at 1376-77. “Without that skill, the witness’ opinions are neither relevant nor reliable.” *Id.*; *see also Avail Medsystems, Inc. v. Teladoc Health, Inc.*, IPR2022-00444, Paper 10, 22-26, 28-29, 31 (P.T.A.B. July 21, 2022) (in decision denying institution, according no weight to purported expert’s “testimony from the perspective of a skilled artisan” because they lacked the specific experience with teleconferencing systems required under the adopted definition of a skilled artisan); *Incyte Corp. v. Concert Pharmaceuticals, Inc.*, PGR2021-00006, Paper 68, 8-9 (P.T.A.B. May 11, 2022) (in final written decision, according no weight to purported expert’s opinions “with regard to issues of treating hair loss disorder” because they lacked the specific experience with such issues that were required under the adopted definition of a POSITA).

Taking Dr. Hatalis’s signed declaration as an accurate reflection of his opinions, Dr. Hatalis appears not to believe himself to possess the requisite level of experience to testify as to the state of mind, knowledge, or motivations of a POSITA at the time of the ’887 patent. Specifically, he does not appear to have

experience in “research, design, development, and/or testing of touch and/or proximity sensors” or “human-machine interaction and interfaces.” *See* EX1002, ¶¶5-20. So, to the extent the Board adopts Petitioner’s and Dr. Hatalis’s definition of a POSITA, under *Kyocera* it cannot credit any of Dr. Hatalis’s opinions rendered from the perspective of a POSITA.

Conversely, if the Board rejects Petitioner’s and Dr. Hatalis’s definition of a POSITA (which it should for the reasons discussed above), the Board should still decline to credit Dr. Hatalis’s opinions. That he appears to have blindly adopted a definition used in other IPRs that is plainly wrong significantly undermines his credibility and calls into question the accuracy of his entire Declaration, lending further weight to the conclusion that the Declaration is simply a copy of the Petition.

V. CONCLUSION

The Board should deny institution because Petitioner fails to demonstrate a reasonable likelihood that claims 1-21 would have been obvious. The Petition fails to demonstrate that Seo, the Seo-Fung combination, and the Seo-Honbo combination renders obvious (1) the “plurality of strings” of LEDs recited in independent claim elements 1[A], 13[Ci], and 17[A], and (2) adjusting “luminosity levels” of the LEDs, as recited in independent claim elements 1[Di], 13[Cii], and 17[Fi]. Petitioner also fails to properly resolve the level of skill in the art and proffers conclusory expert testimony that is not credible because it merely repeats the attorney argument in the Petition and is from a declarant who does not satisfy his own definition of a person of ordinary skill in the art.

Respectfully submitted,

KRAMER ALBERTI LIM & TONKOVICH LLP

/ Robert C. Mattson/

Robert C. Mattson
Registration No. 42,850
Counsel for Patent Owner

Date: May 23, 2023

577 Airport Boulevard, Suite 250
Burlingame, California 94010
(650) 825-0514

**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATION,
TYPEFACE REQUIREMENTS, AND TYPE STYLE REQUIREMENTS**

1. This Patent Owner's Preliminary Response complies with the type-volume limitation of 14,000 words, comprising 7,418 words, excluding the parts exempted by 37 C.F.R. § 42.24(a)(1).

2. This Patent Owner's Preliminary Response complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word 2016 in 14 point Times New Roman.

Respectfully submitted,

KRAMER ALBERTI LIM & TONKOVICH LLP

/ Robert C. Mattson/

Robert C. Mattson
Registration No. 42,850
Counsel for Patent Owner

Date: May 23, 2023

577 Airport Boulevard, Suite 250
Burlingame, California 94010
(650) 825-0514

CERTIFICATION OF SERVICE

The undersigned hereby certifies that true and correct copies of the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE** and **EXHIBITS 2001-2006** were served electronically via e-mail on May 23, 2023, in their entirety on the following counsel for Petitioner:

William M. Fink (Lead Counsel)
Benjamin Haber (Back-up Counsel)
Daniel A. Silverman (Back-up Counsel)
O'MELVENY & MYERS LLP
ommsamsungpolarisipr@omm.com

Respectfully submitted,

KRAMER ALBERTI LIM & TONKOVICH LLP

/ Robert C. Mattson/

Robert C. Mattson
Registration No. 42,850
Counsel for Patent Owner

Date: May 23, 2023

577 Airport Boulevard, Suite 250
Burlingame, California 94010
(650) 825-0514