

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG ELECTRONICS, INC. AND HISENSE CO. LTD.,
Petitioners,

v.

POLARIS POWERLED TECHNOLOGIES, LLC,
Patent Owner.

Case No. IPR2020-01283
Patent No. 8,223,117

PATENT OWNER'S PRELIMINARY RESPONSE

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EXHIBIT LIST

Exhibit No.	Description
2001	Notice Letter to LG
2002	Notice Letter to Hisense
2003	Petitioners' English Translation of Japanese Patent Application Publication No. 2003-150291A ("Oki") from IPR2020-01337
2004	"Minimum Illumination - an overview ScienceDirect Topics," including Vlado Damjanovski, <i>Minimum Illumination</i> in CCTV (3d. ed.) (2014).
2005	Printouts of https://www.waze.com/forum/viewtopic.php?f=3&t=180608&start=590&sk=t&sd=d&sid=9afc0c5d1bd66f1d42a33d15251d7442&view=print , https://i.imgur.com/K642ymg.png , https://i.imgur.com/pW4ATMd.png , and https://i.imgur.com/InMefom.png
2006	International Publication No. WO 2011/066399 A1
2007	Screen capture of https://www.northernontario.travel/motorcycle-touring/best-apps-for-snowmobile-motorcycle-offroad-utv-atv-and-boating
2008	Declaration of Bridget A. Smith Regarding Exhibits 2005 and 2007
2009	Scott Gabree, Ph.D., Stephanie Chase, Ph.D. & Kim Cardosi, Ph.D., Federal Aviation Administration, Human Factors Research & Engineering Division, Use of Color on Airport Moving Maps and Cockpit Displays of Traffic Information (CDTIs) (Report Nos. DOT-VNTSC-FAA-14-13, DOT/FAA/TC-14/18), June 2014
2010	Avidyne Corporation, Entegra EX5000C: Cirrus SR20 and SR22 Multi-Function Display Pilot's Guide (600-00108-000 Rev 06) (2006)
2011	International Publication No. WO 2019/195512 A1

I. INTRODUCTION

Patent Owner respectfully requests that the Board deny institution because Petitioners have failed to show a reasonable likelihood of prevailing as to any challenged claim.

II. CLAIM CONSTRUCTION

To streamline disputes at this stage, this paper applies Petitioners' constructions.

III. NOMENCLATURE

“User input signal” and “input signal” in claim 15 and “user signal” in claim 1 are referred to collectively as “user [input] signal” or “[user/input] signal.” “Sensing signal” in claim 1 and “sense signal” in claim 15 are referred to collectively as “[sensing/sense] signal.”

IV. THE PETITION SHOULD BE DENIED UNDER 35 U.S.C. §314(a) AS AN IMPROPER FOLLOW-ON PETITION.

This is a classic example of improper serial petitioning. This is one of *four* petitions filed to date against the '117 patent. The first two petitions (IPR2018-01262 and IPR2020-00043) were denied institution on the merits. The Petition

here is one of two parallel petitions (along with IPR2020-01337) filed by Petitioners.¹ The Board should deny institution under 35 U.S.C. §314(a).

A. The Board Applies The Precedential *General Plastic* Factors.

The Board should deny institution of the Petition under *General Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 (PTAB Sept. 6, 2017) (precedential) and *Valve Corp. v. Elec. Scripting Prods., Inc.*, IPR2019-00062, Paper 11 (PTAB Apr. 2, 2019) (precedential) (“*Valve I*”) (denying second petition against same claims filed by different petitioner than first petition). In exercising discretion under 35 U.S.C. §314(a), the Board applies the seven factors below. *General Plastic*, 16-17. “[N]ot all the factors need to weigh against institution for [the Board] to exercise [its] discretion under §314(a) ” to deny institution. *Abiomed, Inc. v. Maquet Cardiovascular, LLC*, IPR2017-02150, Paper 11, 7 (PTAB Mar. 12, 2018). Here, all factors weigh against institution.

¹ The other proceedings are referred to herein as the -1262 IPR, -0043 IPR, and -1337 IPR.

B. The General Plastic Factors Weigh In Favor Of Denying Institution.**1. Factor 1: Whether Petitioners Previously Filed A Petition Directed To The Same Claims Of The Same Patent.**

The claims challenged in this Petition (in yellow) overlap completely with the earlier petitions, which Petitioners admit. Pet., 14.

IPR No.	Claims Challenged
IPR2018-01262	1-2, 4-7, 9, 13-16, 18-20
IPR2020-00043	1-2, 4-7, 9, 13-16, 18
IPR2020-01283	1-2, 4-7, 9, 15-16
IPR2020-01337	1-2, 4-7, 9, 15-16, 18

This favors denying institution. See *Valve I*, 9 (same claims challenged in previous proceeding).

It is immaterial that the earlier petitions were filed by different petitioners because there is a relationship between them. *Id.*, 2. By using the prior proceedings as a roadmap, Petitioners created an implied relationship with the prior petitioners. The Board has previously determined that such an implied relationship satisfies Factor 1:

It seems clear that Petitioner is not a codefendant with the prior petitioners.... We determine, however, that ***Petitioner implicitly created such a relationship by using the prior petitioners' work as a menu and picking and choosing from their work product. The instant Petitioner's decision to use the prior petitions as a roadmap for its own petition ties the interests of all of the petitioners together.***

See General Plastic, Paper 19 at 11, 17 (“[m]ultiple, staggered petitions challenging the same patent and same claims raise the potential for abuse.”)

Ericsson Inc. v. Uniloc 2017, LLC, IPR2019-01550, Paper 8, 13 (PTAB Mar. 17, 2020) (all emphasis in this paper is added unless otherwise indicated).

Petitioners admit they used the prior proceedings as a roadmap by studying the previous petitions, Patent Owner's preliminary responses, and the Board's decisions. *See, e.g.*, Pet., 11 (summarizing Board's bases for denying institution in -1262 IPR), 14 (“Petitioners have Polaris's preliminary responses filed in both earlier IPRs and the decisions denying institution”), 26 (citing Patent Owner arguments in -1262 IPR preliminary response).

Because Petitioners have an implied relationship with the earlier petitioners, Factor 1 favors denial.

2. Factor 2: Whether At The Time Of Filing Of The First Petition Petitioners Knew Of The Prior Art Asserted In The Second Petition Or Should Have Known Of It.

Petitioners knew or should have known of the art in the Petition around the time of the -0043 IPR petition. LG was on notice of its infringement of the '117 patent by August 29, 2019. Ex. 2001. Hisense was on notice of its infringement by November 25, 2019. Ex. 2002. Because the -0043 IPR, filed on October 15, 2019, challenges a patent Petitioners were accused of infringing, it is reasonable to conclude Petitioners knew or should have known about its prior art at or around the

filing date of the -0043 IPR. *See Am. Honda Motor Co. v. Intellectual Ventures II, LLC*, IPR2018-00349, Paper 9, 16 (PTAB June 27, 2018) (denying institution under §314(a) ; finding Factor 2 weighs against institution where “monitoring litigation activity” of cases against other defendants would have apprised petitioner of at least some of the art asserted in petition and petitioner offered no rebuttal to such reasonable assumption).

Petitioners' knowledge of each reference is discussed below.

Toffolo

Since Petitioners were on notice of infringement of the '117 patent, Petitioners knew or should have known of Toffolo at or around the time of the -0043 IPR because Toffolo was relied on in **both** the -1262 IPR and the -0043 IPR. *Samsung Elecs Co. v. Polaris PowerLED Techs., LLC*, IPR2018-01262, Paper 4, v (June 15, 2018); *Vizio, Inc. v. Polaris PowerLED Techs., LLC*, IPR2020-00043 IPR, Paper 2, iii (Oct. 15, 2019) (hereinafter “VIZIO Pet.”); *Valve I*, 11 (“Valve [the later petitioner] knew or should have known of the Welch-HiBall reference around the time HTC [the earlier petitioner] filed its petition”).

Yanagiuchi

The Petition admits LG had actual knowledge of Yanagiuchi years before filing this Petition. Pet., 14 (“Yanagiuchi had been cited against an early LG patent application in Korea many years ago”).

Fujimaki

Petitioners' assertion that "Petitioners were unaware of Fujimaki when the earlier IPRs were filed" only goes to *actual* knowledge and does not address *constructive* knowledge. Pet., 14. Petitioners were obliged to explain both, for Factor 2 addresses not only whether a later petitioner knew of the relevant prior art (actual knowledge), but also whether the petitioner "should have known of it" (constructive knowledge). Petitioners' failure to address constructive knowledge supports denial under Factor 2. *Apple Inc. v. UNILOC 2017 LLC*, IPR2020-00854, Paper 9, 9 (PTAB Oct. 28, 2020) (precedential) (petitioner's failure to offers facts or explanation concerning knowledge of prior art at time of earlier filing weighs in favor of denying institution under Factor 2).

Ottenstein

The Office applied Ottenstein to reject claims during prosecution. Ex. 1022, 106-07. Petitioners' allegations that Ottenstein was "buried" and "not applied" are wrong. Pet., 12-13. Petitioners knew or should have known about Ottenstein around the time of the -0043 IPR when they were on notice of infringement of the '117 patent. Ex. 2001; Ex. 2002.

Henry

Petitioners never indicate when they learned of Henry. Pet., 10-16. Henry and sixteen litigation documents concerning Henry (U.S. Patent No. 6,198,234)

were considered during prosecution. Ex. 1022, 46, 130, 137-38. With reasonable diligence, Petitioners knew or should have known of Henry at or around the time VIZIO filed the -0043 IPR Petition *because Henry is cited in the '117 patent* and Petitioners were on notice of infringement. *See Valve I*, 11 (finding factor 2 satisfied where evidence “suggests that [petitioner] could have found [] references through the exercise of reasonable diligence around the time of [prior] petition”); *Apple Inc. v. Zomm, LLC*, IPR2019-01030, Paper 8, 11 (PTAB Nov. 14, 2019) (“[I]n the absence of any explanation as to why a reasonably diligent search would not (or did not) uncover the reference, the second *General Plastic* factor weighs towards exercising our discretion to deny institution.”); Ex. 1001, 3-5; Pet., 13 n.2; Ex. 2001; Ex. 2002.

Because Petitioners knew or should have known about Toffolo, Yanagiuchi, Fujimaki, Ottenstein, and Henry at or around the time of the -0043 IPR Petition (and fail to provide adequate argument to contravene such a finding), Factor 2 favors denial.

3. Factor 3: Whether At The Time Of Filing Of The Second Petition Petitioners Already Received The Patent Owner's Preliminary Response To The First Petition Or Received The Board's Decision On Whether To Institute Review In The First Petition.

In *Valve I*, the Board held that allowing petitioners to use prior proceedings as a “roadmap” “is unfair to patent owners and is an inefficient use” of the IPR

process. *Valve I*, 12. This factor can “weigh[] heavily against institution.” See, e.g., *BMW of N. Am., LLC v. Blitzsafe Tex., LLC*, IPR2018-00926, Paper 7, 11 (PTAB Oct. 19, 2018).

Petitioners filed this Petition on July 16, 2020. By that time, Patent Owner already filed its preliminary responses in the -1262 IPR and the -0043 IPR. Moreover, in the -1262 IPR, the Board had denied the petition on the merits and denied the petitioner's request for rehearing. See *Samsung Elecs. Co., Ltd. v. Polaris PowerLED Techs., LLC*, IPR2018-01262, Paper 14 (PTAB Jan. 17, 2019) (Ex. 1034); Paper 16 (PTAB May 8, 2019). The Board also had denied the -0043 IPR petition. Petitioners concede they “have [Patent Owner's] preliminary responses filed in both earlier IPRs and the decisions denying institution” Pet., 14.

Petitioners admit they used the prior proceedings as a roadmap by studying the previous petitions, Patent Owner's preliminary responses, and the Board's decisions. See, e.g., Pet., 11 (summarizing Board's bases for denying institution in the -1262 IPR), 14 (“Petitioners have Polaris's preliminary responses filed in both earlier IPRs and the decisions denying institution”), 26 (citing Patent Owner arguments in -1262 IPR Preliminary Response). This strategy is impermissible. *Google LLC v. Uniloc Luxembourg S.A.*, IPR2017-01665, Paper 10, 22 (PTAB Jan. 11, 2018) (denying follow-on petition). Factor 3 thus favors denial.

4. Factors 4 & 5: The Length Of Time That Elapsed Between The Time Petitioners Learned Of The Prior Art Asserted In The Second Petition And The Filing Of The Second Petition And Whether Petitioners Provide Adequate Explanation For The Time Elapsed Between The Filings Of Multiple Petitions Directed To The Same Claims Of The Same Patent.

Factors 4 and 5, which “seek[] to address a delay, if any, in filing a second petition,” weigh against institution. *Apple*, IPR2020-00854, Paper 9, 11. Petitioners had notice of the ’117 patent since at least August 2019 (LG) and November 2019 (Hisense), bookending the -0043 IPR’s filing on October 15, 2019. Ex. 2001; Ex. 2002. Petitioners had at least constructive, if not actual, knowledge of the references at or around the time the -0043 IPR was filed. Section IV.B.2, *supra*.

Petitioners fail to explain their nine-month delay. Petitioners argue they “had little incentive” to file before being sued in January 2020. Pet., 15. Even if true, that does not explain their further delay until July 2020. Petitioners also make generalized allegations regarding the pandemic, prior art review, and obtaining expert opinion. Pet., 15. These would apply to any IPR. Thus, Petitioners have not adequately explained the filing delay.

Petitioners cite three Board decisions, which are inapposite. In *Alphatech Holdings, Inc. v. Nuvasive, Inc.*, IPR2019-00361, Paper 19 (PTAB July 9, 2019), the Board weighed heavily the fact that the second petition challenged additional

claims that were not previously challenged. *Id.*, 11. Here, by contrast, no additional claims are challenged that were not challenged previously.

In *LG Electronics, Inc. v. Bell Northern Research, LLC*, IPR2020-00319, Paper 15 (PTAB June 23, 2020), the Board found it significant that an additional claim was challenged in the second petition using different lead references. *Id.*, 15. Here, again, no additional claims are challenged.

In *Microsoft Corp. v. Iron Oak Technologies, Inc.*, IPR2019-00107, Paper 8 (PTAB May 15, 2019), the Board found the petition was filed *before* the filing of the POPR in an earlier case, and in another earlier case, the petitioner relied on different primary references. *Id.*, 56-57. Here, however, the Petition was filed after two preliminary responses and after two earlier institution decisions.

Finally, Petitioners remonstrate repeatedly against Patent Owner's "serial litigation tactics," implying that filing multiple suits somehow favors institution. Pet., 13, 16. This narrative is a blatant attempt to change the subject prejudicially. The Board does not weaponize its discretion to institute under §314(a) to punish a patent owner for asserting a patent it has a constitutional and statutory right to assert. See *Intel Corp. v. VLSI Tech. LLC*, IPR2020-00106, Paper 17, 12-13 (PTAB May 5, 2020) (finding arguments regarding serial litigation unpersuasive in declining to institute review under *NHK/Fintiv*). Petitioners provide no reason

why these lawful, appropriate actions are relevant to the Board's analysis. Quite simply, they aren't.

Factors 4 and 5 weigh against institution.

5. Factors 6 & 7: The Finite Resources Of The Board And The Requirement Under 35 U.S.C. §316(a)(11) To Issue A Final Determination Not Later Than 1 Year After The Date On Which The Director Notices Institution Of Review.

"The sixth and seventh factors are efficiency considerations," and consider "the finite resources of the Board." *Valve I*, 15. "In general, having multiple petitions challenging the same patent ... is inefficient and tends to waste resources." *Id.*

The Board has already substantively evaluated two challenges to the '117 patent. Compounding the burden on the parties and the Board, Petitioners filed **two** additional parallel petitions challenging the '117 patent (this one and the -1337 IPR). Institution should thus be denied. *Valve I*, 15 ("Here, Valve waited until after the institution decision in the 1031 IPR, and then filed not one but three additional petitions. These serial and repetitive attacks implicate the efficiency concerns underpinning *General Plastic*, and, thus, favor denying institution.").

Factors 6 and 7 support denying institution.

All *General Plastic* factors weigh in favor of denying institution. If Petitioners wish to challenge the patent's validity *yet again*, they can do so in District Court. There is no prejudice to Petitioners from denying institution here.

V. THE PETITION SHOULD BE DENIED UNDER 35 U.S.C. §325(d).

“[U]nder §325(d), the Board uses the following two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.” *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6, 8 (PTAB Feb. 13, 2020) (precedential).

A. Whether The Same Or Substantially The Same Art Or Arguments Previously Were Presented To The Office.

1. Yanagiuchi And Fujimaki Are Substantially Similar To Oki, And Petitioners Present Substantially The Same Arguments.

Every Ground is anchored by Yanagiuchi or Fujimaki, which are substantially similar to Oki, the primary reference in the -0043 IPR filed by VIZIO. Petitioners make substantially the same arguments regarding Yanagiuchi as VIZIO did regarding Oki. In Yanagiuchi, Petitioners point to a “mx+b” style equation and

argue that a user setting, P_1 , which sets the minimum brightness, is **both** the “dark level bias” and “[user/input] signal.” Pet., 30-40.

Oki

$$Y = (b - a)x + a$$

“Maximum Used Luminance Value” “Minimum Used Luminance Value” as
 “[User/Input] Signal” and “Dark Level Bias”

Yanagiuchi

$$P_a = (A_a - A_1) \cdot \frac{(P_2 - P_1)}{(A_2 - A_1)} + P_1$$

“ P_1 ” as “[User/Input] Signal”
 and “Dark Level Bias”

Ex. 2003 ¶29; Ex. 1003 ¶7 (annotations added). This is substantially the same argument as in the -0043 IPR where VIZIO argued the user setting “minimum used luminance value” “a” in Oki was **both** a “[user/input] signal” and a “dark level bias.” VIZIO Pet., 30, 33-37.

The Board already considered and rejected this argument holding that the “dark level bias” and “user signal” are different elements. *VIZIO, Inc. v. Polaris PowerLED Techs., LLC*, IPR2020-00043, Paper 32, 18-28 (PTAB Sept. 15, 2020) (“VIZIO Rh’g”).

In Fujimaki, Petitioners again point to a “mx+b” equation and argue that the minimum brightness setting, L_{min} , is also a “dark level bias.” *Compare* Pet., 51, 53 with *VIZIO* Rh’g, 19-20.

Oki

$$Y = (b - a)x + a$$

“Maximum Used Luminance Value”
Setting Maximum Brightness

“Minimum Used Luminance Value”
Setting Minimum Brightness

Fujimaki

$$L_n = \frac{1}{N}(L_{max} - L_{min})n + L_{min}$$

Maximum Duty
Setting Maximum Brightness

Minimum Duty
Setting Minimum Brightness

Ex. 2003 ¶29; Ex. 1009 ¶23 (annotations added).

Therefore, Yanagiuchi and Fujimaki are substantially similar to Oki; and Petitioners present substantially the same arguments as *VIZIO* did in the -0043 IPR.

2. Ottenstein And Henry Were Considered During Prosecution.

As discussed above in Section IV.B.2, Ottenstein was applied in a rejection during prosecution, and Henry was considered by the Examiner during prosecution

along with sixteen litigation documents regarding Henry. Ex. 1022, 46, 74, 78, 106-7, 130, 137-38, 154-56; Ex. 1001, 3-5.

3. Toffolo Was Considered In An Earlier Petition That Was Denied On The Merits.

VIZIO asserted that the same claims were anticipated and obvious based on Toffolo. *VIZIO Rh'g*, 2. The Board denied institution on the merits, finding that Toffolo did not disclose the “multiplier,” “multiplying,” and “dark level bias” limitations of claims 1 and 15. *Id.*, 31-38 & n.11. Petitioners rely on Toffolo with regard to these limitations. Pet., 35, 39, 45-46.

B. Whether Petitioners Have Demonstrated That The Office Erred In A Manner Material To The Patentability Of The Challenged Claims.

Petitioners make no argument that the Board or Office erred in any manner material to the patentability of the challenged claims. Petitioners argue that “[t]he Office never applied Ottenstein against the claims” (Pet., 12), but that statement is false as the Examiner applied Ottenstein in a rejection during prosecution (Ex. 1022, 106-07). Petitioners never allege any error regarding Ottenstein or Henry. Petitioners also do not allege any error in the Board’s finding that Oki and Toffolo do not anticipate or render obvious the challenged claims. Pet., 11-13; *VIZIO Rh'g*, 15-38.

Because the same or substantially the same prior art and arguments were previously presented to the Office and Petitioners have not demonstrated any error on the part of the Office, let alone a material one, this Petition should be denied. 35 U.S.C. §325(d); *Advanced Bionics*, IPR2019-01469, Paper 6, 22.

VI. GROUNDS 1-2, 5-6 FAIL TO COMPLY WITH 37 C.F.R. §§42.22(a)(2), 42.104(b)(4), AND 42.104(b)(5).

For Grounds 1-2 and 5-6, the Petition fails to comply with 37 C.F.R. §§42.22(a)(2), 42.104(b)(4)-(5). **First**, the Petition improperly argues both Grounds 1 and 2 *together* without distinguishing between them, thereby obfuscating its arguments as to both Grounds. *Neulion, Inc. v. Costanzo*, IPR2014-00526, Paper 23, 9 (PTAB Sept. 3, 2014) (denying institution for failure to comply with 37 C.F.R. §§42.22(a)(2), 42.104(b)(4)-(5) because, “[b]y presenting and arguing multiple grounds together, the Petition obfuscates the arguments as to each ground individually.”); *Zetec Inc. v. Westinghouse Elec. Co.*, IPR2014-00384, Paper 10, 14 (PTAB July 23, 2014) (denying institution for failure to comply with 37 C.F.R. §§42.22(a)(2), 42.104(b)(4)-(5) because “numerous grounds are presented and argued together in the Petition, thereby obfuscating the arguments as to each ground.”).

Second, Petitioners do not identify differences between the claims and the references as required for a proper obviousness analysis, thereby further

obfuscating their arguments as to Grounds 1-2. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). This ambiguity forces the Board and Patent Owner to guess at what differences Petitioners are alleging are obvious. Such ambiguity should be resolved against Petitioners, and these Grounds should be rejected as failing to show a reasonable likelihood of success as to any challenged claim. *Shopkick Inc. v. Novitaz, Inc.*, IPR2015-00279, Paper 7, 29 (PTAB May 29, 2015) (The Board “must resolve all vagueness and ambiguity in Petitioner’s arguments against the Petitioner.”); *Adaptics Ltd. v. Perfect Co.*, IPR2018-01596, Paper 20, 18-24 (PTAB Mar. 6, 2019) (precedential) (denying institution under 35 U.S.C. §314(a) for failure to identify grounds with particularity).

Third, Petitioners provide multiple alternative constructions for limitations without arguing for any specific construction. In element 1C, Petitioners propose multiple constructions of “selectively generating” (*i.e.*, using different curves, not using “user-settable values,” and “ability to select between manual and automatic brightness adjustment”) without taking a position on which is the correct construction or providing any support for any construction. Pet., 34-35. The same deficiencies apply to “selectively multiplying” in limitation 15B. Pet., 45-46. Petitioners’ failure to state a claim construction fails to provide the clarity required by 37 C.F.R. §§42.22(a)(2), 42.104(b)(4)-(5). Institution should be denied as

Petitioners failed to state its theories as to claim scope and how the prior art applies to that scope.

VII. GROUNDS 1-2 AND 5-6 DO NOT RENDER THE CHALLENGED CLAIMS OBVIOUS.

Because the Petition improperly argues both Grounds 1-2 *together* without clearly distinguishing each ground, Patent Owner must address both together. Because Grounds 1-2 do not have a reasonable likelihood of prevailing as to independent claims 1 and 15, Grounds 1-2 and 5-6 fail as to all challenged claims.

A. There Is No Rationale To Combine Yanagiuchi And Toffolo.

Petitioners do not provide an evidence-based analysis of why a POSA would have combined Yanagiuchi and Toffolo. Petitioners make conclusory statements about modifying Yanagiuchi to add the manual control of Toffolo to provide “maximum control” and “freedom” to control the brightness levels. Pet., 27, 39. This ignores Yanagiuchi’s disclosure, however. While manual control was well-known, Yanagiuchi excluded manual control and thus teaches away from using it. Ex. 1003, claims 1-3, ¶¶1, 4, 18-19. Further, because Yanagiuchi allows the user to adjust the luminance changing curve by setting minimum, maximum, and breakpoints, the user would have no need for additional manual control, as the user’s preferences have already been accounted for in the adjustments to the stored luminance changing curve. *Id.*, claim 1, ¶¶3-4, 6-8, 10-11, 18-19. Petitioners

provide no explanation why the user controls in Yanagiuchi are insufficient. Pet., 25-36.

Petitioners call Yanagiuchi's system "irresponsible" and "difficult" in the context of vehicle displays to suggest that the manual control of Toffolo was necessary. Pet., 27-28. This logic does not make sense. Automatic control in vehicle displays is safer than manual control, as it always ensures an acceptable degree of visibility whereas manual control does not. If a driver manually turned down the display brightness in a dark tunnel or a shaded road, the display would suddenly be hard to see in the glare of the bright sunlight as the car exits the tunnel or shaded road. Toffolo's manual control would thus require frequent adjustments by the driver and result in periods during which the display is difficult to see given changing light conditions. Therefore, there would have been no rationale to redesign Yanagiuchi to add the manual brightness control of Toffolo.

B. 1A: "a first input configured to receive a user signal indicative of a user selectable brightness setting" / 15A: "receiving a user input signal indicative of a user selectable brightness setting"

1. Petitioners' Argument That "User [Input] Signal" And "User Selectable Brightness Setting" Are The Same Structure Is Contrary To Federal Circuit Precedent And Intrinsic Evidence.

Contrary to Federal Circuit precedent, the claim language, the Petitioners' proposed constructions, and the '117 patent specification, Petitioners contend that

the “user [input] signal” and “user selectable brightness setting” in claims 1 and 15 can be satisfied by the same structure (i.e., “points” entered by the user). Pet., 31-32, 45. As shown below, Petitioners allege that **both** the “user [input] signal” and “user selectable brightness setting” are digital representations of “breakpoints” (A_1, P_1) (A_2, P_2) , “start point” (A_{min}, P_1) , and “end point” (A_{max}, P_{max}) .

The “*user signal*” such as *signals representing digitized representations of user settings (A_{min}, P_a) , (A_1, P_1) , (A_2, P_2) , and (A_{max}, P_{max}) *

A first *setting is a “breakpoint” (A_2, P_2)* , reflecting, at least in part, Yanagiuchi’s solution to the problem that users could not set luminance values “between the min-max values.” Ex. 1003, ¶¶ [0003], [0006]. A second *setting is the “start point” (A_{min}, P_1)* , which solves the problem that users could not set the “minimum value min on the luminance changing curve.” *Id.*

Yanagiuchi teaches a multiplier that generates a combined signal based on both the *user signal* (i.e., signal representing values ***A_{min}***, ***A₁***, ***A₂***, ***A_{max}***, ***P₁***, ***P₂***, ***P_{max}***)

Pet., 31, 33; *accord id.*, 45 (referencing above discussion).

There is no distinction between points (A_{min}, P_a) , (A_1, P_1) , (A_2, P_2) , and (A_{max}, P_{max}) and their digital representation as these points can only exist as digital values in the Yanagiuchi system. These points cannot be “user selectable brightness settings” before they are entered into the system because they are not set

prior to that point. In the system, there can be no reasonable dispute that these points ***only exist as digitized values stored in E²PROM*** because when the settings are entered by the user, they are stored in E²PROM by the microcomputer, which can ***only*** store digitized values.

A luminance changing curve indicating the relationship between ambient illuminance and LCD luminance is linearly approximated, and ***a start point, one or more intermediate breakpoints, and an end point*** are discretely set for the approximate curve and ***stored in the memory (E²PROM)*** 3.

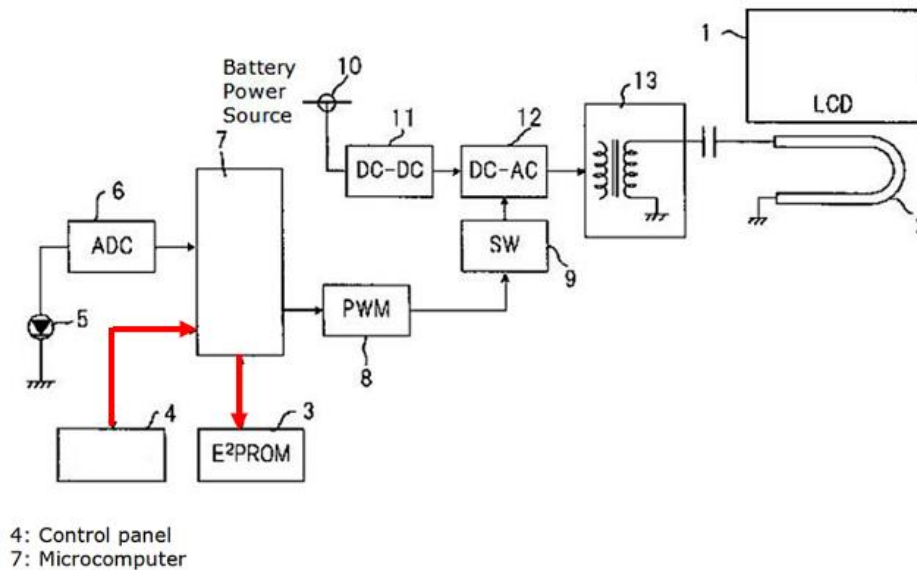
... a setting unit for ***setting a start point, one or more intermediate breakpoints, and an end point*** for a curve used to linearly approximate the luminance changing curve and ***storing these points in the memory*** ...

Also, 4 is a control panel for inputting discrete points to specify the luminance changing curve 51, that is, ***a start point (A_{min}, P₁), one or more breakpoints (A₁, P₁), (A₂, P₂) and an end point (A_{max}, P_{max})***

Set relationship (start point, breakpoint(s), end point) between ambient illuminance and LCD luminance (PWM value) and store in E²PROM

[FIG. 1]

Schematic diagram of automatic dimmer in the first example of the present invention



Ex. 1003, [Solution], claim 1, ¶7, Figs. 3, 1 (colorization added). Petitioners are thus alleging that the same points are both the “user selectable brightness setting” and “user [input] signal.” Pet., 29-31.

Petitioners’ allegation that the “user signal” and “user selectable brightness setting” are the same structures is contrary to Federal Circuit precedent, the claim language, Petitioners’ proposed constructions, and the specification of the ’117 patent. **First**, Petitioners’ argument that these digitized points are both a “user [input] signal” and a “user selectable brightness setting” is contrary to Federal Circuit precedent. A “user [input] signal” and a “user selectable brightness setting” are claimed as two separate claim limitations; and thus, they are distinct and cannot be the same structure as Petitioners erroneously contend. *Becton Dickinson & Co.*

v. Tyco Healthcare Grp., LP, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (“Where a claim lists elements separately, the clear implication of the claim language is that those elements are distinct component[s] of the patented invention.”); *HTC Corp. v. Cellular Commc’n Equip. LLC*, 701 F. App’x. 978, 982 (Fed. Cir. 2017) (unpublished) (“The separate naming of two structures in the claim strongly implies that the named entities are not one and the same structure.”). Petitioners’ allegations are thus contrary to the law.

Second, Petitioners’ allegations contradict the claim language. Because the claims require “a user [input] signal *indicative of* a user selectable brightness setting,” the “user [input] signal” and “user selectable brightness setting” must be different elements as one has to be *indicative* of the other. Ex. 1001, claims 1, 15. Therefore, the points set by the user *cannot be both* a “user [input] signal” and “user selectable brightness setting” under the plain language of the claims.

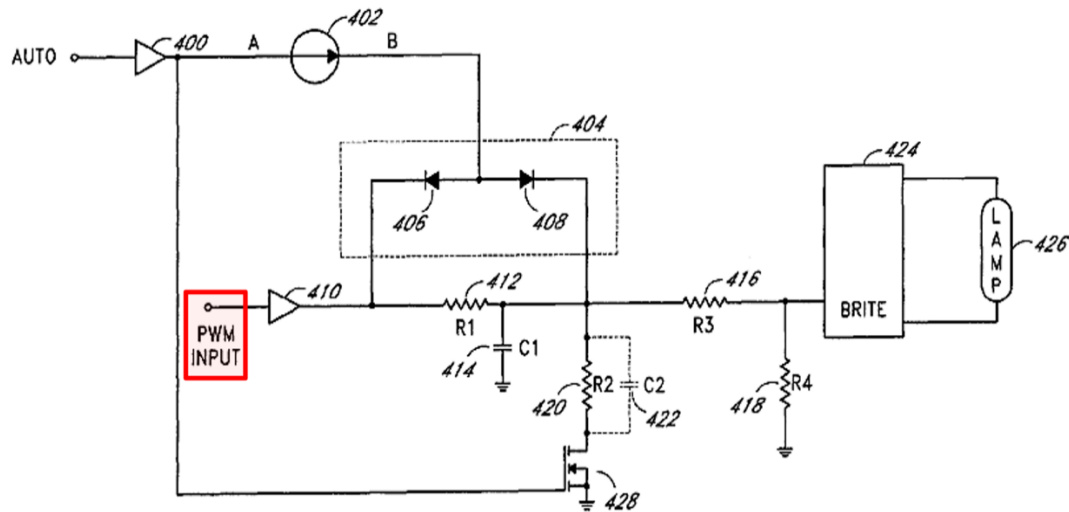
Third, Petitioners’ allegation that the “user signal” and “user selectable brightness setting” are the same structure is contrary to Petitioners’ proposed construction from the district court. Pet., 17. The district court construed these as separate components (*i.e.*, “first input actually programmed or implemented with hardware or software to receive a *user signal* indicative of a *user selectable brightness setting*”). *Id.*

Fourth, Petitioners' allegation that "user signal" and "user selectable brightness setting" are the same structure contravenes the specification, where the distinction between "user [input] signal" and "user selectable brightness setting" is important. The "user selectable brightness setting" is chosen by the user, whereas the "user [input] signal" is a signal (*e.g.*, electrical or software) generated by the internal circuitry and software of the device. For example, in Fig. 4 of the '117 patent, the user chooses a screen brightness setting. The microprocessor takes that information and generates a pulse width modulation ("PWM") signal, which is the "user [input] signal" received by the "first input" of the "brightness control circuit." That PWM user signal generated by the microprocessor is different than the "user selectable brightness setting."

The PWM logic signal can be generated by a microprocessor based on user preference.

A microprocessor can generate the user adjustable PWM logic signal based on user input

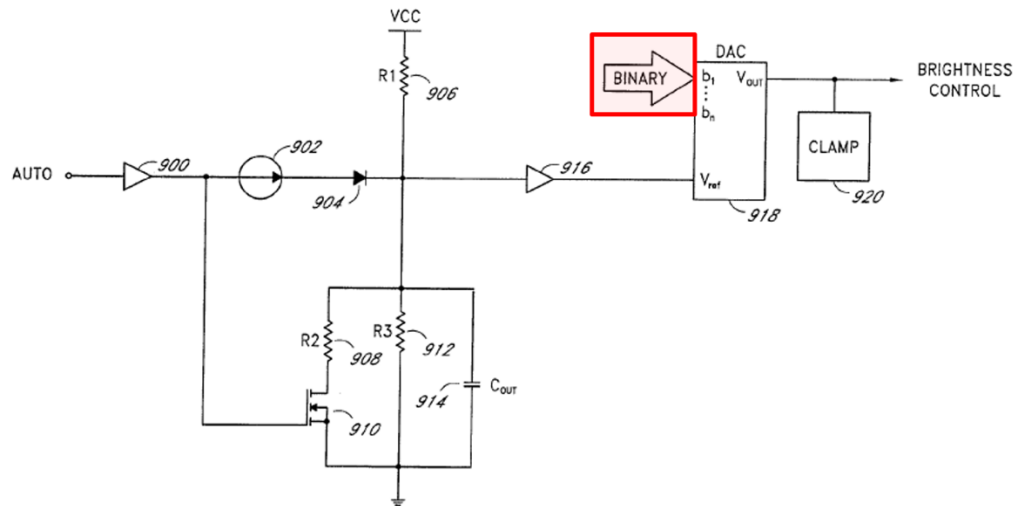
FIG. 4



Ex. 1001, 3:23-24, 6:28-31, Fig. 4 (annotation added).

Similarly, the “user [input] signal” in Fig. 9 is a binary word (*e.g.*, 00101110). Ex. 1001, 3:59-4:4, 4:35-37, 10:33-43. A user does not enter a binary word. The binary word is a “user [input] signal” generated by the device’s software. While it may be indicative of a “user selectable brightness setting,” the binary word “user [input] signal” is *not* a “user selectable brightness setting.”

FIG. 9



Ex. 1001, Fig. 9 (annotation added). Therefore, Petitioners' allegation that the point settings are both a "user signal" and "user selectable brightness setting" is contrary to the specification.

2. The Board Rejected Petitioners' Arguments In A Prior IPR.

Petitioners' allegations that the values of the points set by the user are a "user [input] signal" have been found by the Board to be insufficient to establish a reasonably likelihood of success as to any claim. *VIZIO Rh'g*, 25-26. Petitioners contend that the "stored values for (A_{min}, P₁), (A₁, P₁), (A₂, P₂), and (A_{max}, P_{max})" are a "user [input] signal." Pet., 30-33, 45.

Petitioners provide *no explanation or analysis* regarding why these "values" are "signals." On this same basis, the Board denied institution of VIZIO's petition on the '117 patent for similarly failing to explain how values entered by the user

are “signals” as required by claims. Addressing another reference, Oki, The Board explained:

We also agree with Patent Owner that another shortcoming of this ground is that Petitioner does not sufficiently explain why Oki's minimum used luminance value and maximum used luminance value disclose “user [input] signals.”... Oki describes that the “maximum used luminance value is a value at which the user does not sense glare,” and the “minimum used luminance value is a value at which the user does not sense glare when the mobile terminal is used when it is dark outside.” Oki describes that these values are “input” or “selected by the user” and “set in the glare adjustor.” Nowhere does Oki describe, or does Petitioner provide sufficient explanation, that these values are “signals.”

Petitioner thus fails to meet the burden required to support institution of *inter partes* review of independent claims 1 and 15

VIZIO Rh'g, 25-26 (alternation original) (internal citations omitted).

Consistent with the Board's prior decision, the Board should deny institution given Petitioners lack of any explanation regarding how the values input by the user (*e.g.*, A_{min} , A_1 , A_2 , A_{max} , P_1 , P_2 , P_{max}) are “user [input] signals.” *Id.*

- C. **1C: “a multiplier configured to selectively generate a combined signal based on both the user signal and the sensing signal” / 15B: “selectively multiplying the input signal with a sense signal to generate a combined signal”**

Yanagiuchi alone or in combination with Toffolo does not teach limitations 1C and 15B. **First**, Yanagiuchi does not disclose the limitations “a multiplier configured to selectively generate a combined signal” or “multiplying the input signal with a sense signal to generate a combined signal” as claimed. Petitioners erroneously allege that Yanagiuchi discloses performing the following equation to generate a “combined signal,” which must include the product of the user signal and sensing signal under Petitioners’ construction. Pet., 17-18.

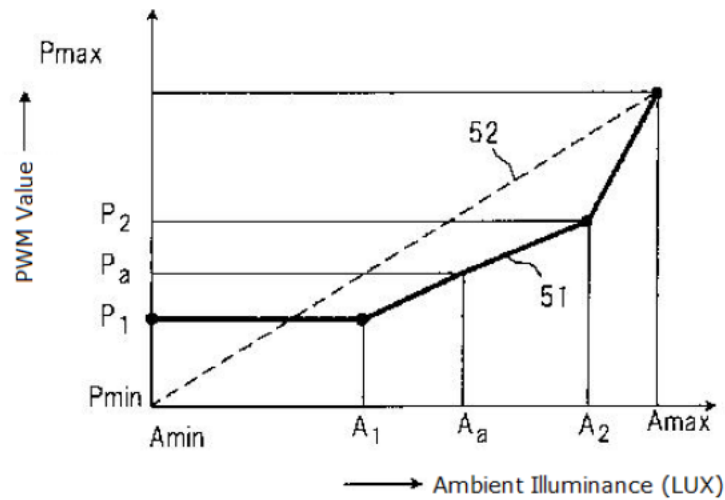
$$P_a = (A_a - A_1) \cdot \frac{(P_2 - P_1)}{(A_2 - A_1)} + P_1$$

Pet., 34 (Petitioners’ colorization and annotation), 45-46. Petitioners’ arguments mischaracterize Yanagiuchi, as Yanagiuchi does not use this equation to calculate a “combined signal” or “brightness control signal” as Petitioners contend.

Rather, in Yanagiuchi, the user can set points on a luminance changing curve by setting minimum, maximum, and/or break points to change the shape of the luminance changing curve. For example, by setting (A_1, P_1) and (A_2, P_2) , a user can change the shape of the luminance changing curve 51 as shown in Fig. 2.

[FIG. 2]

Luminance changing curve in the present invention

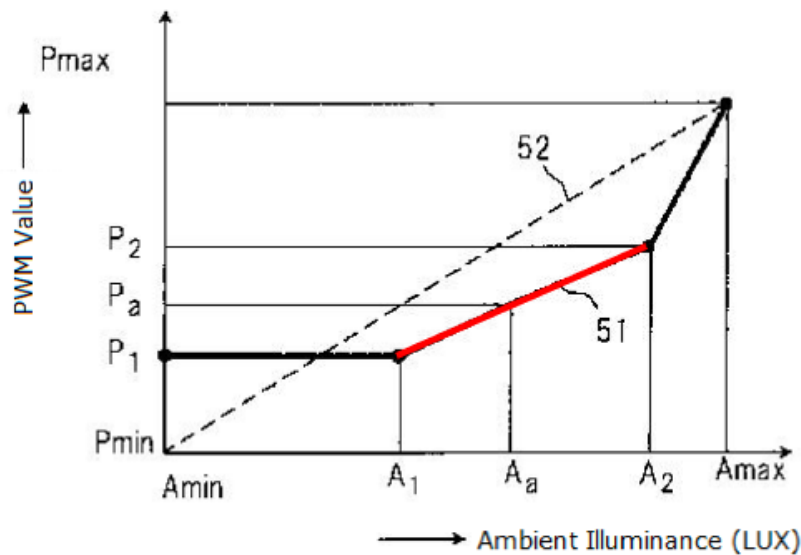


Ex. 1003, Fig. 2. The system then makes a one-time calculation of points along the new curve by, for example, using equations like $P_a = (A_a - A_1) \cdot (P_2 - P_1) / (A_2 - A_1) + P_1$ for an individual segment to generate the points on the luminance changing curve. The fact that the equation identified by Petitioners is a one-time calculation to generate the curve is confirmed by the fact that there is no disclosure of a universal formula to calculate the combined signal for all ambient illuminance values, as would be the case if real time calculations were being performed. The equation that Petitioners cite only applies to one modified segment (in red) of the luminance curve and is irrelevant to all other segments.

$$P_a = (A_a - A_1) \cdot (P_2 - P_1) / (A_2 - A_1) + P_1 \quad (1)$$

[FIG. 2]

Luminance changing curve in the present invention



Ex. 1003 ¶7, Fig. 2 (Petitioners' annotation).

These new points are stored in memory as a “luminance changing curve.” *Id.*, [Solution], claim 1, ¶¶4-6. The “luminance changing curve” that is stored in memory consists of “discrete values for the ambient illuminance and the PWM value.” *Id.* ¶¶5, 19. This “luminance changing curve” indicates the relationship between the ambient illuminance and the LCD luminance, which is determined by the PWM value. *Id.*, [Solution], claim 1, ¶¶4-6, 19.

In other words, the “luminance changing curve” is a data structure stored in memory that matches ambient illuminance to corresponding PWM values for LCD luminance. *Id.* Then, the actual brightness of the LCD display in operation is determined by using only the current ambient light, A_a , and indexing it to the

luminance changing curve to retrieve the corresponding PWM values from memory with no calculations as described below.

The LCD luminance is determined according to the ambient illuminance based on the linearly approximate luminance changing curve

a memory for storing a luminance changing curve indicating the relationship between ambient illuminance and the LCD luminance ... a control unit for ***determining the LCD luminance based on the current ambient illuminance from the linearly approximated luminance changing curve ...***

The present invention realizes this object by providing an automatic dimmer for controlling the luminance of an LCD display device based on ambient illuminance, the automatic dimmer for an LCD display comprising: ***a memory for storing a luminance changing curve indicating the relationship between ambient illuminance and the LCD luminance ...*** and a control unit for ***determining the LCD luminance based on the current ambient illuminance from the linearly approximated luminance changing curve*** and controlling the backlighting luminance to reach the LCD luminance.

The present invention also realizes this object by providing a backlighting generating unit for generating backlighting for the LCD display device, adjusting the LCD luminance by controlling the voltage applied to the backlighting generating unit by PWM, and

specifying the luminance changing curve using discrete values for the ambient illuminance and the PWM value.

Ex. 1003, [Solution], claim 1, ¶¶4-5.

Because Yanagiuchi is only using the current ambient illuminance to look up the corresponding PWM value from memory, the Yanagiuchi system does not generate any “signal” based on the “[user/input] signal” and “[sensing/sense] signal” as required by independent claims 1 and 15. Furthermore, because the determination of LCD luminance is made using only the current ambient illuminance, there is no “combined signal” generated, which, under Petitioners’ construction, must include “the product of the user signal and sensing signal.” Pet., 17-18. Furthermore, there is no calculation to “generate a combined signal” because the LCD luminance is determined from the stored luminance changing curve by using the current ambient illuminance to find the corresponding PWM value. Ex. 1003, [Solution], claim 1, ¶¶4-5. Yanagiuchi thus does not teach “generat[ing] a combined signal” in claims 1 and 15.

Second, Petitioners fail to explain how the expression in the orange box is a “combined signal.”

$$P_a = (A_a - A_1) \cdot \frac{(P_2 - P_1)}{(A_2 - A_1)} + P_1$$

Pet., 34 (Petitioners' colorization and annotation), 45-46. Both claims 1 and 15 require the "combined signal" to be derived from the "[user/input] signal" and the "[sensing/sense] signal." As discussed above, Petitioners have not sufficiently identified a "[user/input] signal." *Supra*, VIII.C. Petitioners also have not identified a "[user/input] signal" separate from a "user selectable brightness setting." Petitioners further fail to explain how the alleged "[user/input] signal" (i.e., points input by the user) is a "signal." The Board denied institution of VIZIO's petition for similarly failing to explain how values entered by the user are "signals" as required by claims. *VIZIO Rh'g*, 25-26.

Third, Petitioners' argument that Yanagiuchi discloses "selectively generate" in claim 1 and "selectively multiplying" in claim 15 is meritless. Pet., 34-35, 46. As discussed above, Yanagiuchi does not disclose "generat[ing] a combined signal" and thus cannot disclose "selectively generate a combined signal" or "selectively multiplying ... to generate a combined signal."

Petitioners' argument is based on the false allegation that the Yanagiuchi system can switch back and forth between curve 51 and curve 52. *Id.*, 34-35. Curve 52 is a dashed line representing "a linear luminance changing curve *of the prior art*." Ex. 1003 ¶6. Curve 52 is thus not part of the invention. Paragraphs 11 and 13, which Petitioners cite, merely describe that, once a user selects start, end,

or break points, the curve will change shape consistent with the user's selections.
Id. ¶¶11, 13.

Then, with no explanation, Petitioners assert that “[t]his results in Yanagiuchi’s multiplier multiplying ‘selectively’ because Yanagiuchi does not use user-settable values when using curve 52.” Pet., 35. There is no such disclosure in Yanagiuchi. The only support is a citation to Petitioners’ expert declaration, which only repeats this same conclusory statement with no explanation and is thus not entitled to any weight. *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1329 (Fed. Cir. 2001) (holding that conclusory statements offered by experts are not evidence); 37 C.F.R. §42.65(a).

Fourth, Petitioners argue that “selectively generate” and “selectively multiplying” would have been obvious based on Yanagiuchi with Toffolo. Pet., 35, 46. As discussed above, Yanagiuchi does not disclose the “selectively” limitations. Further combination with Toffolo also cannot teach these limitations because the Board has already held that Toffolo does not disclose these limitations either. *VIZIO Rh’g*, 31-37.

Therefore, Yanagiuchi does not satisfy elements 1C or 15B, either alone or in combination with Toffolo.

- D. 1D: “a dark level bias configured to adjust the combined signal to generate a brightness control signal that is used to control a brightness level of a visible display such that the brightness control signal is maintained above a predetermined level when the ambient light level decreases to approximately zero” / 15C: “adjusting the combined signal with a dark level bias to generate a brightness control signal for controlling brightness of a visible display such that the brightness control signal is maintained above a predetermined level when the ambient light level decreases to approximately zero”**

Yanagiuchi alone or in combination with Toffolo does not teach the “dark level bias” limitations. Petitioners allege that *one structure*, the “P₁” setting, is *three separate claim elements*, including (1) a “user selectable brightness setting,” (2) a “user [input] signal,” and (3) a “dark level bias.”

The “*user signal*” such as signals representing digitized representations of *user settings (A_{min}, P_a), (A₁, P₁), (A₂, P₂), and (A_{max}, P_{max})*

The user signal is “indicative” of several “user selectable brightness setting[s].”... A second *setting is the “start point” (A_{min}, P₁)*, which solves the problem that users could not set the “minimum value min on the luminance changing curve.”

Yanagiuchi teaches a multiplier that generates a combined signal based on both the *user signal* (i.e., signal representing values *A_{min}, A₁, A₂, A_{max}, P₁, P₂, P_{max})*

Yanagiuchi describes **a dark level bias—i.e., term P_1 . P_1 is a “dark level bias”** because it is “a value deviation from the ambient light level,” as indicated by the sensing signal (Aa), when the ambient light level approaches approximately zero.

Yanagiuchi teaches **a dark level bias P_1** “provided to the multiplier”

....

As explained above, Yanagiuchi has two different **“user selectable brightness setting[s],”** which solve different problems. **One setting is (A_{min} , P_1),** which sets a minimum brightness level at the minimum ambient light level. With this user setting, the amount of adjustment provided by the **dark level bias—i.e., + P_1** —depends on the **user selectable brightness setting (A_{min} , P_1).**

Pet., 31, 33, 35, 40, 45.²

Petitioners have not identified a “dark level bias” as set forth in the claims. **First,** Petitioners’ allegation that P_1 satisfies three different claim elements is contrary to the claim language. The claims separately name each of these elements and discuss their operation in mutually exclusive terms.

² There is no difference between a “digitized representation” of P_1 and P_1 as P_1 only exists as a digitized value stored in E²PROM memory. Ex. 1003, Figs. 1, 3, [Solution], claim 1, ¶4.

1. A brightness control circuit with selective ambient light correction comprising:

a first input configured to receive a ***user signal indicative of a user selectable brightness setting***;

a light sensor configured to sense ambient light and to output a sensing signal indicative of the ambient light level;

a multiplier configured to selectively generate a ***combined signal based on both the user signal*** and the sensing signal; and

a ***dark level bias configured to adjust the combined signal*** to generate a brightness control signal that is used to control a brightness level of a visible display such that the brightness control signal is maintained above a predetermined level when the ambient light level decreases to approximately zero.

2. The brightness control circuit of claim 1, wherein the ***dark level bias*** is provided to the multiplier such that the amount of adjustment to the combined signal is ***dependent on the user selectable brightness setting***.

3. The brightness control circuit of claim 2, wherein the multiplier multiplies a sum of the ***user signal*** and the sensing signal by the ***dark level bias*** to generate an output signal corresponding to the brightness control signal.

4. The brightness control circuit of claim 1, wherein the ***dark level bias*** is added to the combined signal such that the amount of

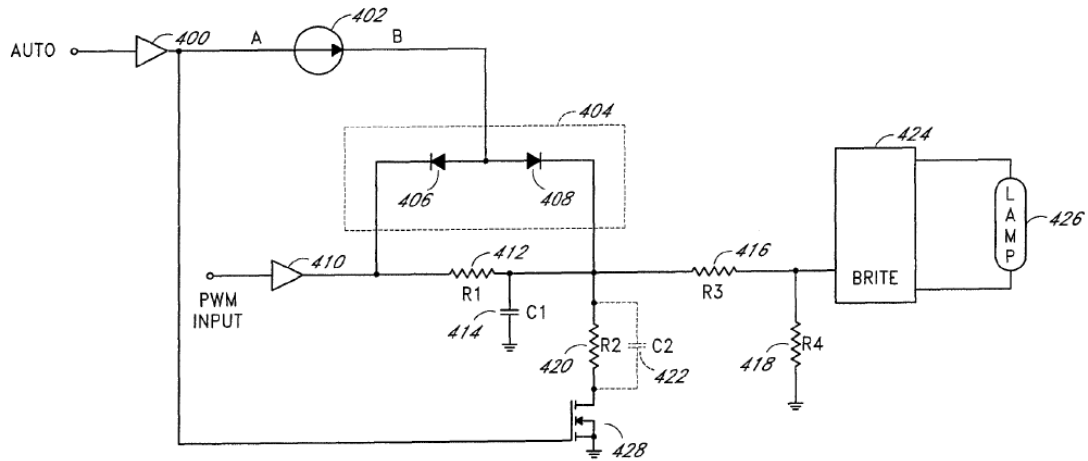
adjustment to the combined signal is ***independent of the user selectable brightness setting***.

Ex. 1001, claims 1-4. Claims 2 and 4 state that the amount of adjustment by the “dark level bias” can be dependent or independent of the “user selectable brightness setting,” confirming that these are distinct structures. Similarly, claim 3 states that “a sum of the user signal and the sensing signal by the dark level bias,” confirming that the “user signal” and “dark level bias” are separate structures.

Second, Petitioners’ allegation that P₁ is three different claim elements is contrary to Federal Circuit precedent. P₁ cannot be a “user selectable brightness setting,” a “user [input] signal,” and a “dark level bias” as these are three separately named claim elements. *Becton*, 616 F.3d at 1254 (“Where a claim lists elements separately, the clear implication of the claim language is that those elements are distinct component[s] of the patented invention.”); *HTC*, 701 F. App’x. at 982 (“The separate naming of two structures in the claim strongly implies that the named entities are not one and the same structure.”).

Third, Petitioners’ argument is also contrary to all embodiments, which show the “dark level bias” and “user [input] signal” as different elements as illustrated in the equations accompanying Figs. 4, 8, and 9.

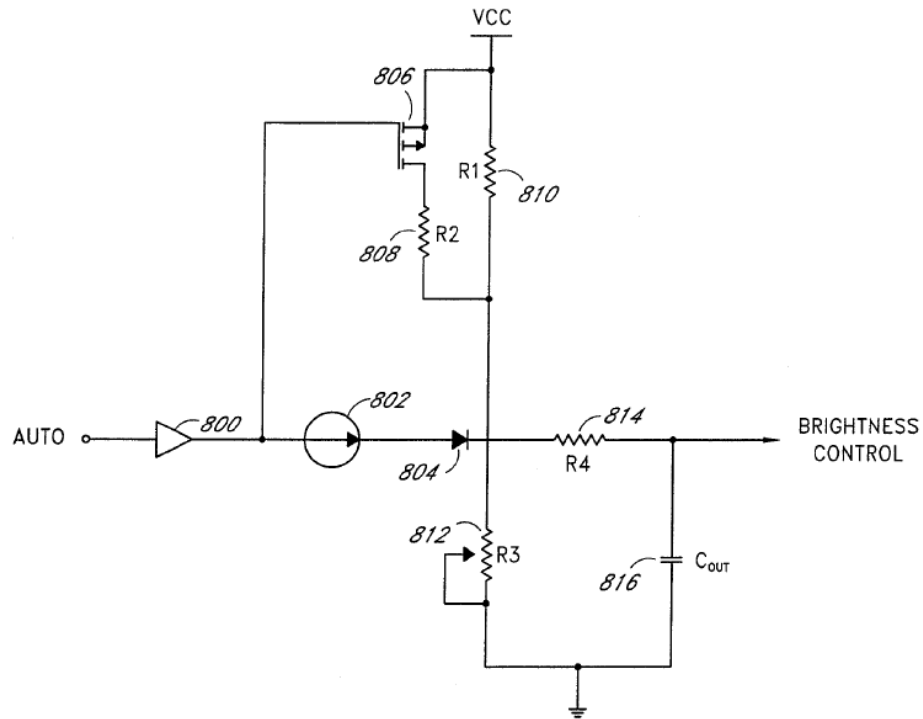
FIG. 4



$$BCS1 = \text{User Signal} \times \left[\left(\frac{VCC \times R2 \times R4}{[(R1 + R2) \times (R3 + R4)] + (R1 \times R2)} \right) + \right. \\ \left. \text{Sensing Signal} \times \left(\frac{ISRC \times R1 \times R2 \times R4}{[(R1 + R2) \times (R3 + R4)] + (R1 \times R2)} \right) \right]$$

Ex. 1001, Fig. 4, 7:17-32 (annotations added).

FIG. 8

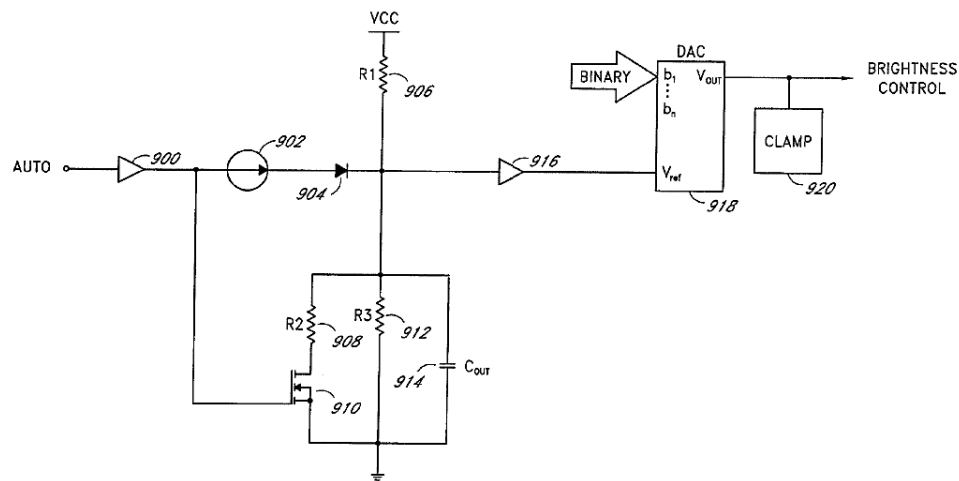


$$BCS3 = \left[VCC \times \frac{R3}{(R1 + R3)} \right] + \left[ISRC \times \frac{(R1 \times R3)}{(R1 + R3)} \right]$$

Dark Level Bias Sensing Signal User Signal

Id., Fig. 8, 10:9-12 (annotations added).

FIG. 9



$$BCS5 = \text{User Signal} \times \left[\frac{VCC \times (R2 \times R3) + ISRC \times R1 \times R2 \times R3}{(R1 \times R2) + (R1 \times R3) + (R2 \times R3)} \right]$$

User Signal Dark Level Bias Sensing Signal

Id., Fig. 9, 11:10-15 (annotations added).

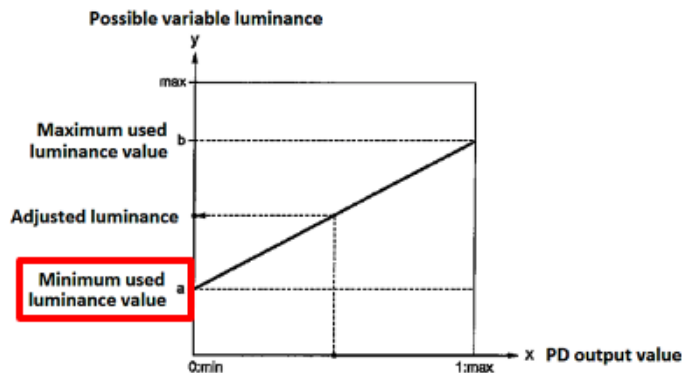
Fourth, the Board has already rejected Petitioners' same argument.

VIZIO Rh'g, 18-26. Petitioners allege that P₁, which is set by the user as the minimum brightness, is both a "user [input] signal" and a "dark level bias." Pet., 31, 33, 35, 40, 45; Ex. 1003 ¶¶4, 6-7. In the -0043 IPR, VIZIO made a virtually identical argument asserting that an alleged prior art reference, "Oki," disclosed a "minimum used luminance value 'a,'" which set the minimum display brightness, that was both a "user [input] signal" and a "dark level bias." VIZIO Pet., 18-20.

Oki Reference

Minimum Used Luminance Value "a"
Is User Selected Minimum Display
Brightness

[FIG. 6]

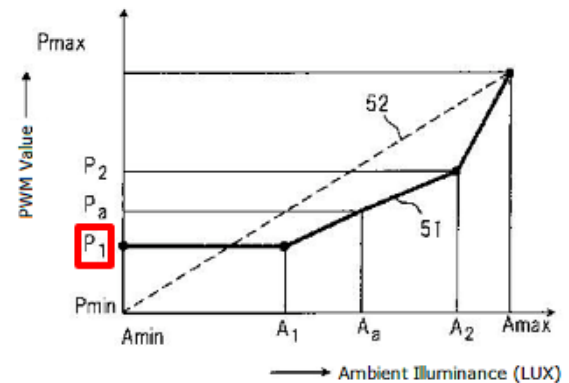


Yanagiuchi Reference

P1 Is User Selected Minimum Display
Brightness

[FIG. 2]

Luminance changing curve in the present invention



Ex. 2003, Fig. 6 (annotations added); Ex. 1003, Fig. 2 (annotations added).

The Board denied institution because the same component (*i.e.*, P_1 in Yangiuchi or “a” in Oki), cannot be both a “user [input] signal” and a “dark level bias.” The Board explained:

Specifically, *Patent Owner argues that “minimum used luminance value ‘a’ cannot be both the ‘dark level bias’ and the ‘user [input] signal’ because they are two different limitations.”*

...

We agree with Patent Owner that Petitioner improperly relies on Oki’s minimum used luminance value “a” as disclosing two separate claim limitations. “Where a claim lists elements separately, ‘the clear implication of the claim language’ is that those elements are ‘distinct component[s]’ of the patented invention.”

...

The Specification of the '117 patent supports that the “user (input) signal” is a distinct, separately identifiable element from the “dark level bias.”

...

Thus, *we determine that the claim language, figures, and written description of the '117 patent demonstrate that the “user (input) signal” and “dark level bias” are separate components* Therefore, Petitioner has not provided sufficient explanation or argument as to its reliance on Oki's minimum variable use luminance “a” as disclosing two separate and distinct claim elements, i.e., the user (input) signal and the dark level bias.

...

Petitioner thus fails to meet the burden required to support institution of inter partes review of independent claims 1 and 15, and, for the same reasons, dependent claims 2, 4-7, 9, 16, and 18 based on anticipation by Oki.

VIZIO Rh'g, 20-26. The Board has thus rejected Petitioners' argument that the same element (*e.g.*, P₁) can be both a “[user/input] signal” and a “dark level bias.”

Furthermore, given Petitioners' allegation that P₁ is both a “user [input] signal” and a “dark level bias,” which Petitioners construed as “a value” (Pet., 18), the failure to explain how P₁ can be both a “signal” and “a value” is fatal to Grounds 1-2 and 5-6, just as it was in the -0043 IPR.

Nor does Petitioner explain how the minimum used luminance value “a” may both be a *signal* (“user [input] signal”) and a *value* (“dark level bias”). Petitioner provides no explanation or discussion of *values* vs. *signals*.

VIZIO Rh’g, 25.

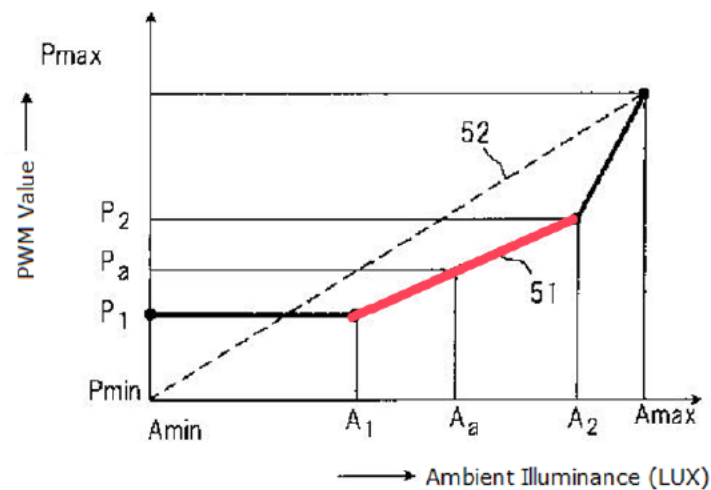
Fifth, the Petition fails to provide any analysis regarding how the alleged “dark level bias” P_1 meets Petitioners’ own proposed construction. Petitioners propose the district court’s construction of “dark level bias” as “a value that causes a deviation from the combined signal, where the value is a voltage value of an electrical signal or value of a software variable.” Pet., 18. Petitioners state “ P_1 is a ‘dark level bias’ because it is ‘a value deviation from the ambient light level,’ as indicated by the sensing signal (Aa), when the ambient light level approaches approximately zero.” Pet., 35. But “a value deviation from the *ambient light level*” is **not** the construction Petitioners’ proposed. Pet., 17-18. Petitioners thus fail to explain how this limitation is met under its own proposed construction .

Sixth, Yanagiuchi does not disclose these limitations because P_1 , the alleged “dark level bias,” does not maintain the alleged “brightness control signal,” P_a , “above a predetermined level when the ambient light level decreases to approximately zero.” Petitioners admit that the only equation in Yanagiuchi does **not** apply when “the ambient light level decreases to approximately zero” and thus cannot show that the “dark level bias” is used to maintain the brightness control

signal “above a predetermined level when the ambient light level decreases to approximately zero.”

$$P_a = \text{combined signal} \left((A_a - A_1) \cdot \frac{(P_2 - P_1)}{(A_2 - A_1)} \right) + \text{dark level bias } P_1$$

Pet., 36 (Petitioners' colorization and annotations) (citing Ex. 1003 ¶7). The POSA would have understood that the exemplary expression above is for the segment of Yanagiuchi's Fig. 2 shown below in red:



Id. (Petitioners' annotation). The segment shown in red is indisputably **not** when the ambient light level is “approximately zero,” which would be at Amin on the x-axis. Therefore, this equation is irrelevant to the “dark level bias” limitations as it

provides no information as to what happens when the ambient light level is “approximately zero.”

Seventh, given that Yanagiuchi has no equations or discussion of a “dark level bias” when the ambient light level is “approximately zero,” Petitioners simply make up equations out of thin air. With the exception of the equation shown above, the other two equations shown on page 36 of the Petition are not disclosed in Yanagiuchi.

$$P_a = \begin{cases} \text{if } A_{min} \leq A_a \leq A_1, & (A_a - A_{min}) \left[\frac{(P_1 - P_1)}{(A_1 - A_{min})} \right] + P_1 = (A_a - A_{min})0 + P_1 = P_1 \\ \text{if } A_1 \leq A_a \leq A_2, & (A_a - A_1) \left[\frac{(P_2 - P_1)}{(A_2 - A_1)} \right] + P_1 \\ \text{if } A_2 \leq A_a \leq A_{max}, & (A_a - A_2) \left[\frac{(P_{max} - P_2)}{(A_{max} - A_2)} \right] + P_2 \end{cases}$$

Id. (annotation added).

It is undisputed that the first equation in blue above, which Petitioners allege applies when ambient light level is zero, is **not disclosed** in Yanagiuchi. Petitioners do not (and cannot) argue that such an equation is inherent. Pet., 35-39, 46. Petitioners have thus failed to identify any disclosure in Yanagiuchi of a “dark level bias” that maintains the brightness control signal “above a predetermined level when the ambient light level decreases to approximately zero.” Pet., 35-39, 46; *VIZIO Rh’g*, 4-37 (denying institution on ’117 patent and holding that petitioner’s equations, which were not disclosed in reference, were insufficient to establish a reasonable likelihood of prevailing).

Furthermore, Petitioners' made-up equation is contrary to the disclosure of Yanagiuchi. The Board in the -1262 IPR held that the "dark level bias" term "recites more than merely maintaining screen brightness above a minimum level; it recites maintaining the screen brightness above a minimum level *in a particular way*" Ex. 1034, 14. As explained above in Section VII.C, the "luminance changing curve" is stored in memory and consists of "discrete values for the ambient illuminance and the PWM value." Ex. 1003 ¶¶5, 19. This "luminance changing curve" in memory indicates the relationship between the ambient illuminance and the LCD luminance, which is determined by the PWM value. *Id.*, [Solution], claim 1, ¶¶4-6, 19. The "luminance changing curve" is thus a data structure that matches ambient illuminance to corresponding PWM values for LCD luminance. *Id.* Then, the actual brightness of the LCD display is determined by using only the current ambient light, Aa, and indexing it to the luminance changing curve to retrieve the corresponding PWM values with no calculations. *Id.*, [Solution], claim 1, ¶¶4-5.

Therefore, Yanagiuchi's disclosure indicates that, when the ambient light is approximately zero, the system will look up the appropriate PWM value in the stored luminance changing curve and use that value without any calculation of a combined signal or adjusting of the combined signal to generate a brightness control signal, as required by the challenged claims.

VIII. GROUNDS 3 AND 7 DO NOT RENDER THE CHALLENGED CLAIMS OBVIOUS.

- A. 1A: “a first input configured to receive a user signal indicative of a user selectable brightness setting” / 15A: “receiving a user input signal indicative of a user selectable brightness setting”**

Petitioners incorrectly contend that these limitations are disclosed by Fujimaki.

- 1. Petitioners' Argument That “User [Input] Signal” And “User Selectable Brightness Setting” Are The Same Structure Is Contrary To Federal Circuit Precedent And Intrinsic Evidence.**

Petitioners contend that the “user [input] signal” and “user selectable brightness setting” are the same structure (i.e., “ $L_{max}-L_{min}$ ”).

Accordingly, Fujimaki discloses a first input that receives ***a user signal indicative of user selectable brightness setting*** as a changeable luminance range (***$L_{max}-L_{min}$***).

The multiplier generates a combined signal based on both the ***user signal (luminance range ($L_{max}-L_{min}$))***

The ***user selectable brightness setting*** is also dependent on L_{min} because that forms part of the user selectable luminance range (***$L_{max}-L_{min}$***).

Although Fujimaki discloses a dark level bias, L_{min} , that is dependent on the ***user selectable brightness setting, range $L_{max}-L_{min}$***

The multiplier generates the combined signal based on the ***user signal (Lmax-Lmin)*** and the sensing signal (n).

The input signal indicative of the ***user selectable brightness setting (Lmax-Lmin)*** is selectively multiplied by the sense signal n by control circuit 7.

Pet., 50-51, 55, 58-59.

Petitioners' allegation that the "user [input] signal" and "user selectable brightness setting" are the same structure (*i.e.*, "Lmax-Lmin") is contrary to Federal Circuit precedent, the claim language, Petitioners' proposed construction, and the specification of the '117 patent. ***First***, Petitioners' argument that "Lmax-Lmin" is ***both*** a "user signal" and a "user selectable brightness setting" is contrary to Federal Circuit precedent stating that separate claim terms are distinct components and thus not the same structure. *Becton*, 616 F.3d at 1254 ("Where a claim lists elements separately, the clear implication of the claim language is that those elements are distinct component[s] of the patented invention."); *HTC*, 701 F. App'x. at 982 ("The separate naming of two structures in the claim strongly implies that the named entities are not one and the same structure."); Ex. 1001, claims 1, 15. Therefore, "Lmax-Lmin" cannot be both a "user signal" and "user selectable brightness setting," as Petitioners contend *Id.*

Second, because the claims require “a user [input] signal *indicative of* a user selectable brightness setting,” the “user [input] signal” and “user selectable brightness setting” must be different elements, as one has to be *indicative* of the other (and thus cannot be satisfied by the same prior-art element the same under the plain language of the claims). Ex. 1001, claims 1, 15.

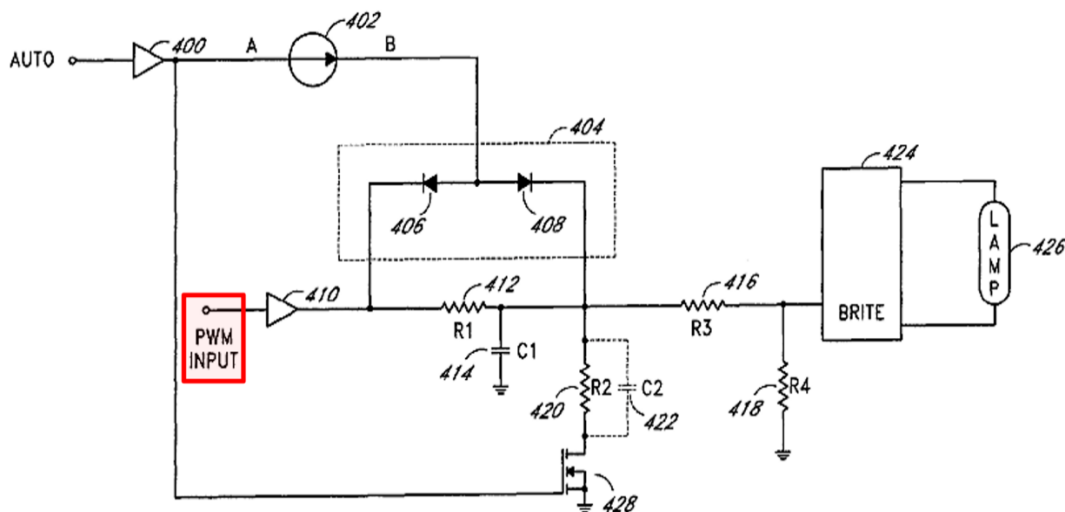
Third, the “user [input] signal” and “user selectable brightness setting” cannot be the same structure under Petitioners’ proposed construction (*i.e.*, “first input actually programmed or implemented with hardware or software to receive a user signal indicative of a user selectable brightness setting”), which identifies these as distinct elements. Pet., 17.

Fourth, Petitioners’ allegation that the “user [input] signal” and “user selectable brightness setting” are the same structure is contrary to the specification. In the ’117 patent, the “user selectable brightness setting” is chosen by the user whereas the “user [input] signal” is a signal (*e.g.*, electrical or software) generated by the internal circuitry and software of the device. For example, in Fig. 4, the user chooses a screen brightness setting. The microprocessor takes that information and generates a pulse width modulation (“PWM”) signal, which is the “user [input] signal” received by the “first input” of the “brightness control circuit.” That PWM “user [input] signal” generated by the microprocessor is different than the “user selectable brightness setting.”

The **PWM logic signal can be generated by a microprocessor based on user preference.**

A microprocessor can generate the user adjustable PWM logic signal based on user input

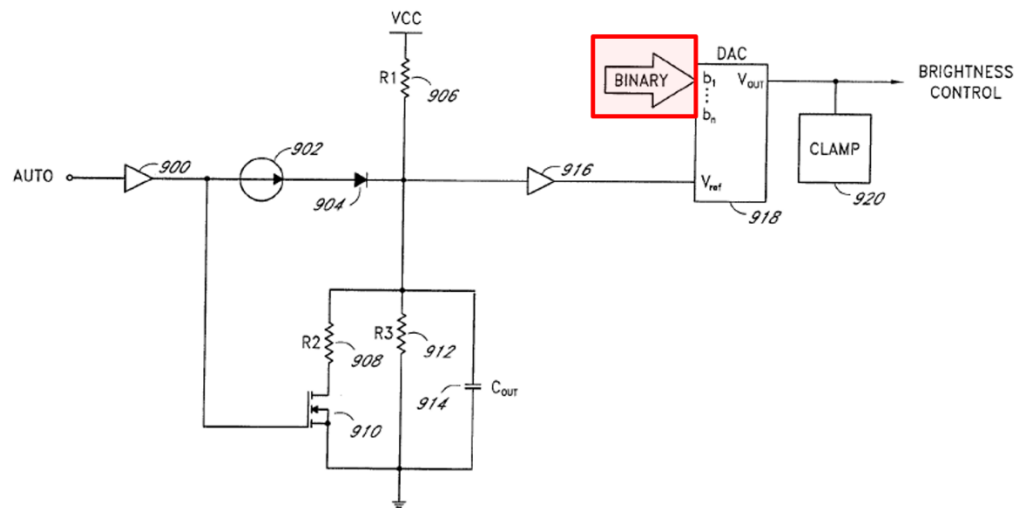
FIG. 4



Ex. 1001, 3:23-24, 6:28-31, Fig. 4 (annotation added).

Similarly, the “user [input] signal” in Fig. 9 is a binary word (*e.g.*, 00101110), which is not entered by a user. Ex. 1001, 3:59-4:4, 4:35-37, 10:33-43. The binary word is a “user [input] signal” generated by the device’s software. While it may be indicative of a “user selectable brightness setting,” the binary word “user [input] signal” is *not* a “user selectable brightness setting.”

FIG. 9



Ex. 1001, Fig. 9 (annotation added).

Therefore, Ground 3 fails because “Lmax-Lmin” cannot be both the “user signal” and “user selectable brightness setting” as Petitioners contend.

2. (Lmax-Lmin) Is Not A “User Signal” Or A “User Selectable Brightness Setting.”

Petitioners contend that “Lmax-Lmin” is *both* a “user signal” and “user selectable brightness setting.” But “Lmax-Lmin” is **not** a “user signal” or “user selectable brightness setting.” **First**, Petitioners provide no explanation how the calculation “Lmax-Lmin” is a “user [input] signal,” which is fatal to Ground 3. The Board previously denied institution of the -0043 IPR for similarly failing to explain how maximum and minimum brightness values are “signals” as required

by the '117 patent's claims. Referring to a different reference, "Oki," the Board explained:

We also agree with Patent Owner that another shortcoming of this ground is that ***Petitioner does not sufficiently explain why Oki's minimum used luminance value and maximum used luminance value disclose "user [input] signals."***... Oki describes that the "maximum used luminance value is a value at which the user does not sense glare," and the "minimum used luminance value is a value at which the user does not sense glare when the mobile terminal is used when it is dark outside." ***Oki describes that these values are "input" or "selected by the user" and "set in the glare adjustor." Nowhere does Oki describe, or does Petitioner provide sufficient explanation, that these values are "signals."***

Petitioner thus fails to meet the burden required to support institution of inter partes review of independent claims 1 and 15

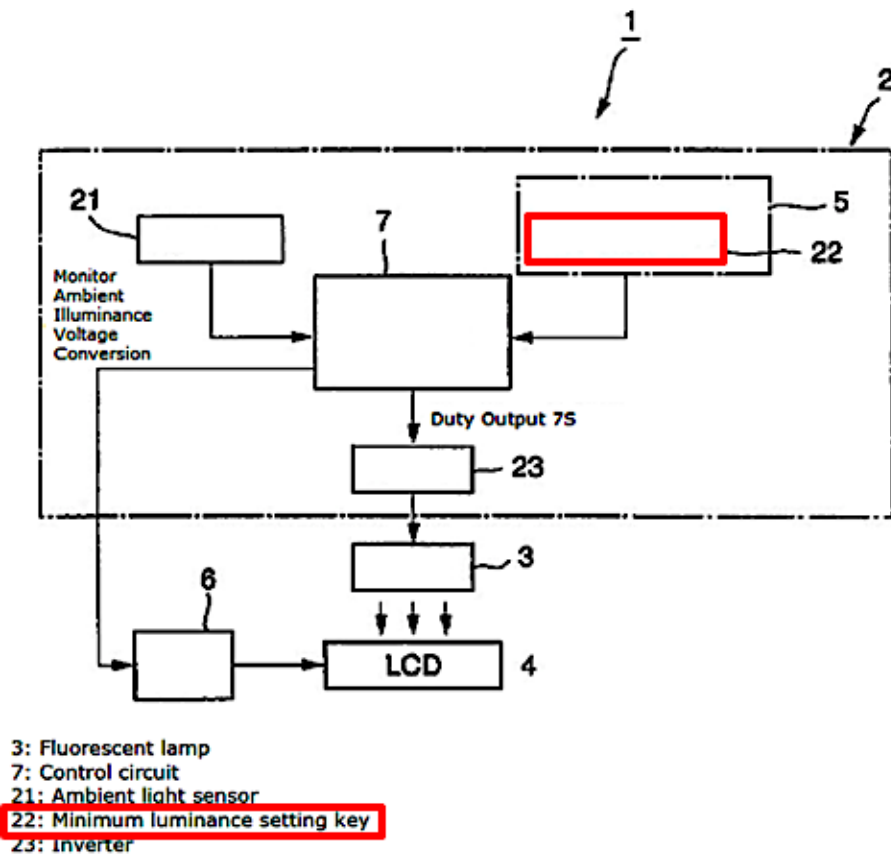
VIZIO Rh'g, 25-26 (alteration original) (internal citations omitted).

Petitioners avoid identifying Lmin, which is the only user setting in Fujimaki, as either the "user signal" or "user selectable brightness setting" because that would similarly be fatal to Grounds 3 and 7. Instead, Petitioners identify Lmin as the "dark level bias." Pet., 52-55. The Board has previously held that the same element (e.g., Lmin) *cannot* be both a "user [input]signal" and a "dark level bias" or both a "dark level bias" and a "user selectable brightness setting." VIZIO Rh'g, 20-26. A detailed explanation of why "dark level bias," "user signal," and "user

selectable brightness setting” have to be different components was explained in detail above in Section VII.D; and that same analysis applies here.

Second, “Lmax-Lmin” is **not** a “user selectable brightness setting.” There is no disclosure in Fujimaki of a user entering or choosing the difference “Lmax-Lmin,” and thus, “Lmax-Lmin” cannot be a user setting. Lmax is a “predetermined maximum luminance,” which is **not** set by the user. Ex. 1009, Abstract, ¶8. The *only* brightness setting disclosed in Fujimaki is “Lmin,” which is entered by the only user interface disclosed in Fujimaki (*i.e.*, “minimum luminance setting key” 22). *Id.* ¶¶8 (“a minimum luminance inputted by the input means”), 19 (“a minimum luminance input key 22 for setting the minimum luminance of the lamp 3”), 25 (“the user can operate a minimum luminance input key 22 to set a minimum luminance for the lamp luminance”), 30 (“When the minimum luminance setting key 22 is operated”), 35 (“the minimum luminance for the lamp luminance to be changed using a minimum luminance setting key 22”), 56 (“the present invention allows the minimum luminance for lamp luminance to be set using a minimum luminance inputting means”).

[FIG. 1]

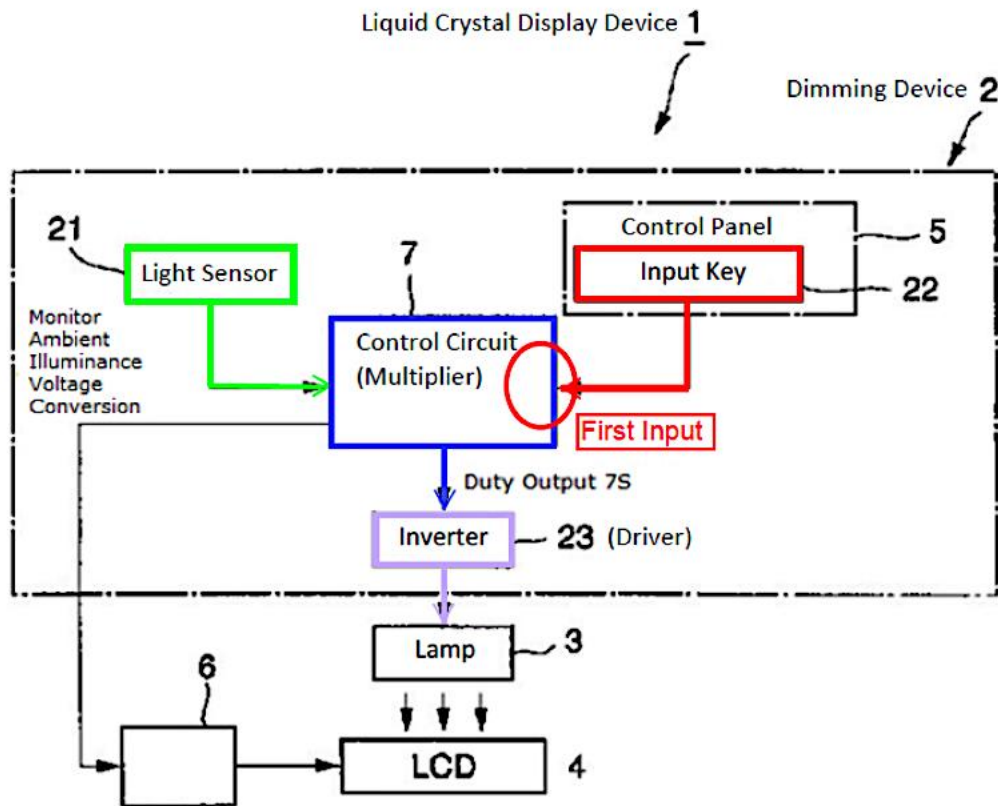


Id., Fig. 1 (annotations added). There is no user interface in Fujimaki to enter L_{max} or “ $L_{max}-L_{min}$.”

3. Fujimaki Does Not Disclose A “First Input.”

Petitioners contend that the connection between the input key 22 and the control circuit 7 is the “first input configured to receive a user signal,” which Petitioners allege is “ $L_{max}-L_{min}$.” Pet., 48-50.

[FIG. 1]



Pet., 49 (Petitioners' annotations).

This is not a "first input" configured to receive a "user signal." **First**, the alleged input never receives the alleged signal, $L_{max}-L_{min}$. Input key 22 **only** allows input of a minimum illuminance value, L_{min} , and **not** L_{max} or $L_{max}-L_{min}$. Ex. 1009, Abstract ("a minimum luminance setting key 22 for setting the minimum luminance of a lamp 3"), ¶¶19 ("a minimum luminance input key 22 for setting the minimum luminance of the lamp 3"), 25 ("the user can operate a minimum luminance input key 22 to set a minimum luminance for the lamp luminance"), 30 (When the minimum luminance setting key 22 is operated"), 35 ("the minimum

luminance for the lamp luminance to be changed using a minimum luminance setting key 22”). Lmax is a “predetermined maximum luminance” that is predetermined by the system and **not** set by the user. *Id.*, Abstract, ¶8. There is no disclosure a user inputting Lmax, including with respect to input key 22. Accordingly, it is impossible for Petitioners’ alleged “input” at the connection of the input key 22 and the control circuit 7 to receive “Lmax-Lmin” because neither Lmax nor “Lmax-Lmin” are entered by, or sent from, input key 22. *Id.*, Abstract, ¶¶8, 19, 21, 25, 30, 35, 56.

Rather, the calculation of Lmax-Lmin occurs *within* control circuit 7 *after* Lmin is received at control circuit 7 from input key 22. *Id.* ¶¶22-23. Because the calculation is done within control circuit 7, Lmax-Lmin is not received from input means 22 at the connection of input means 22 and control circuit 7. Therefore, Fujimaki does not disclose “first input configured to receive a user signal.”

B. 1C: “a multiplier configured to selectively generate a combined signal based on both the user signal and the sensing signal” / 15B: “selectively multiplying the input signal with a sense signal to generate a combined signal”

Petitioners contend that these limitations are disclosed by Fujimaki, and do not put forth any obviousness theory. Ground 3 fails as Fujimaki does not disclose these limitations. **First**, Petitioners never identify what the “combined signal” is in

Fujimaki. Pet., 50-52. The only mention of “combined signal” in Petitioners’ analysis of this limitation is the following conclusory sentence:

The multiplier generates a combined signal based on both the user signal (luminance range ($L_{\max}-L_{\min}$)) (*id.* ¶[0023]), and the sensing signal (represented by “n” – the nth step of ambient illuminance) (*id.*).

Pet., 50-51. This merely reiterates the claim language without specifying what structure in Fujimaki is the “combined signal.” There is no signal in Fujimaki that includes the product of the [user/input] signal and [sensing/sense] signal. While Petitioners show an equation for L_n , L_n cannot be the “combined signal” because Petitioners allege that L_n is the “brightness control signal.” “Combined signal” and “brightness control signal” are separate claim elements and thus cannot be the same structure under Federal Circuit precedent. *Becton*, 616 F.3d at 1254; *HTC*, 701 F. App’x. at 982; Ex. 1001, claims 1, 15. Further, the Board in the -1262 IPR held that the “combined signal” and “brightness control signal” are different components and cannot be satisfied by the same element (*e.g.*, L_n). Ex. 1034, 13-14.

To the extent Petitioners claim that “ $(L_{\max}-L_{\min}) \times n$ ” is a “combined signal,” it is not. Pet., 53. There is no evidence or explanation as to how the calculation “ $(L_{\max}-L_{\min}) \times n$ ” is a signal. Further, under the district court’s construction adopted by Petitioners, a “combined signal” must include the “product

of the user signal and the sensing signal,” which “ $(L_{\max}-L_{\min}) \times n$ ” does not. Fujimaki is clear and unambiguous that “n” represents the step number and **not** the “sensing/sense signal” indicative of the ambient light level.

$$L_n = L_{\min} + (L_{\max}-L_{\min})/N)n$$

L_n : Duty of nth step ($n = 1, 2, 3 \dots$)

$L_{\min}$: Minimum duty (setting)

$L_{\max}$: Maximum duty

N : Variable number of steps ($= 1, 2, 3 \dots$)

Ex. 1009 ¶23. Therefore, because “ $(L_{\max}-L_{\min}) \times n$ ” does not contain a “sensing/sense signal,” there is no “combined signal based on both the user signal and the sensing signal” or “multiplying the input signal with a sense signal to generate a combined signal” as required by claims 1 and 15, respectively.

Second, Fujimaki does not disclose a “multiplier configured to selectively generate a combined signal” or “multiplying the input signal with a sense signal to generate a combined signal” because there is no disclosure of multiplication of the “[user/input] signal” and a “[sensing/sense] signal.” Under Petitioners’ construction, the “combined signal” includes the “product of the user signal and the sensing signal” and thus requires multiplication. Pet., 17.

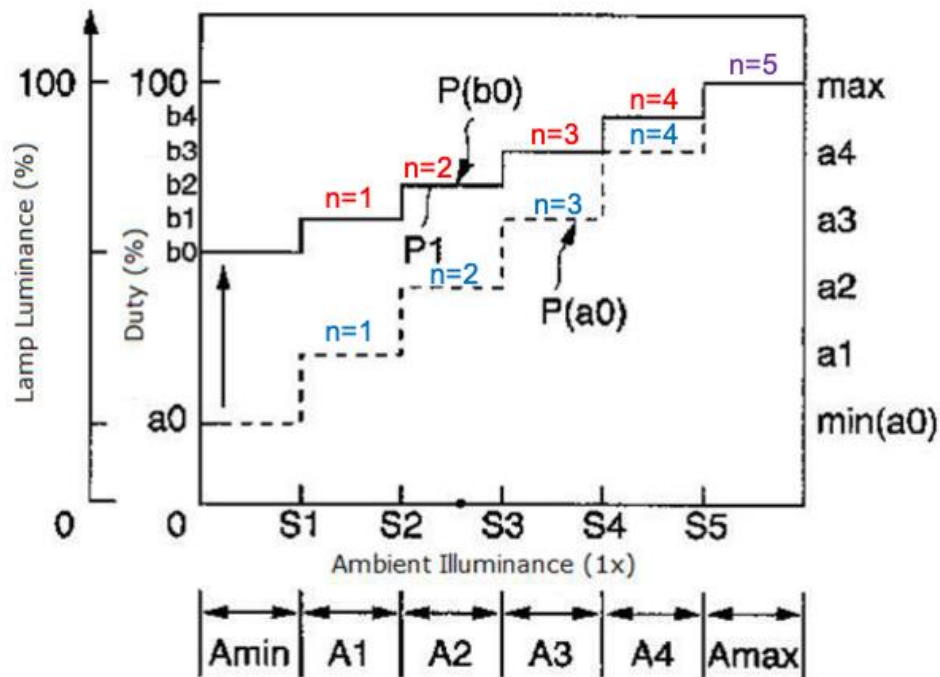
Petitioners falsely allege that the system in Fujimaki performs the following calculation to determine display brightness.

$$L_n = L_{min} + \frac{1}{N} (L_{max} - L_{min}) \times n$$

Pet., 51 (Petitioners' annotations).

This is a gross misunderstanding of Fujimaki as this calculation does not set the brightness of the display and does not include a “[sensing/sense] signal” indicative of the ambient light level. The system of Fujimaki works in two stages, illustrated in regard to Fig. 2. In the system of Fig. 2, there are six total steps in the PWM duty cycle including Lmin, 4 intermediate steps (steps n_1 to n_4), and Lmax. Ex. 1009 ¶¶21-26.

[FIG. 2]



Ex. 1009, Fig. 2 (annotations added); cf. *Pet.*, 52.

In the first stage, the minimum luminance, L_{min} , is changed by the user, for example, from a_0 to b_0 . The system then determines what the 4 steps are between the new L_{min} , b_0 , and the predetermined L_{max} . Ex. 1009 ¶¶21-26. It determines these steps by using the following equation:

$$L_n = L_{min} + (L_{max} - L_{min})/N)n$$

L_n : Duty of n th step ($n = 1, 2, 3 \dots$)

L_{min} : Minimum duty (setting)

L_{max} : Maximum duty

N : Variable number of steps ($= 1, 2, 3 \dots$)

Id. ¶23. Here the duty cycle output of step n is " L_n ." The capital " N " represents the total number of steps (*i.e.*, $N=5$). The lower-case " n " represents which of the steps you are calculating the duty cycle for and **not** the ambient light reading from the ambient sensor. *Id.* ¶¶23-26. This set of 6 duty cycle values is saved in memory as control line $P(b_0)$. *Id.* ¶26.

A table is then stored in memory stating the relationship between ambient illuminance and a corresponding lamp luminance (*i.e.*, brightness), which can be used to look up the duty of the drive pulse signals that correspond to an ambient illuminance measurement.

Memory may be included for storing a ***correspondence table for ambient illuminance and lamp luminance***, and the ***duty of the drive***

pulse signals (duty output) for determining the lamp luminance may be determined by referring to the correspondence table.

Id. ¶21.

In the second stage, the ambient light sensor signal can be indexed in a table of corresponding duty output to see if a change should be made to increase or decrease a step. When the dimmer of Fujimaki is in operation, it retrieves the ambient light sensor signal and determines if it is in the same range of values such that it corresponds to the current duty cycle output. *Id.* ¶¶32-33. If the ambient light sensor signal is lower than the current range, the duty is lowered one step. *Id.* If the ambient light sensor signal is higher than the current range, the duty is increased one step. *Id.*

Therefore, in Fujimaki, the display luminance is determined based on the signal from the ambient light sensor with no calculations being performed. Thus, there is no product of a “[user/input] signal” and “[sensing/sense] signal,” and thus no “combined signal.” Further, there is no “multiplier” or “multiplying the input signal with a sense signal to generate a combined signal” because there is no multiplication.

Third, Petitioners provide no analysis or explanation regarding how Fujimaki allegedly discloses “*selectively* generate” or “*selectively* multiplying” in claims 1 and 15. Petitioners’ failure to address the “selectively” limitations is

cause for rejecting Grounds 3 and 7, as Petitioners have not shown a reasonable likelihood of prevailing as to any challenged claim.

- C. **1D: “a dark level bias configured to adjust the combined signal to generate a brightness control signal that is used to control a brightness level of a visible display such that the brightness control signal is maintained above a predetermined level when the ambient light level decreases to approximately zero.” / 15C: “adjusting the combined signal with a dark level bias to generate a brightness control signal for controlling brightness of a visible display such that the brightness control signal is maintained above a predetermined level when the ambient light level decreases to approximately zero.”**

Petitioners contend that these “dark level bias” limitations are *disclosed* by Fujimaki, and do not put forth any obviousness theory. But Fujimaki does not disclose the “dark level bias” limitations. **First**, Petitioners fail to apply their own proposed constructions, including the constructions for “dark level bias,” “dark level bias configured to adjust a combined signal,” and “approximately zero.” Pet., 18, 52-54. Therefore, Petitioners have failed to show that Fujimaki discloses these limitations as they have been construed.

Second, as explained in the preceding section, there is no multiplier, no multiplication, and no “combined signal” to be adjusted by a “dark level bias.” In one stage, the duty cycles of the steps are determined without regard to the [sensing/sense] signal.” Ex. 1009 ¶¶21-26. Lookup tables of ambient illuminance and their corresponding duties are stored in memory. *Id.* ¶21. In the second stage,

when automatic brightness is in operation, the system retrieves the ambient light sensor signal and determines if the ambient illuminance is in the same range of values such that it corresponds to the current duty cycle output. *Id.* ¶¶32-33. If it is not, it can increase or decrease the duty one step depending on the ambient illuminance. *Id.*

Third, Petitioners mischaracterize the equation they rely on as shown below.

$$L_n = \boxed{L_{min}} + \frac{1}{N} \boxed{(L_{max} - L_{min})} \times \boxed{n}$$

Dark level bias
User signal
Sensing signal
indicative of
ambient light
level

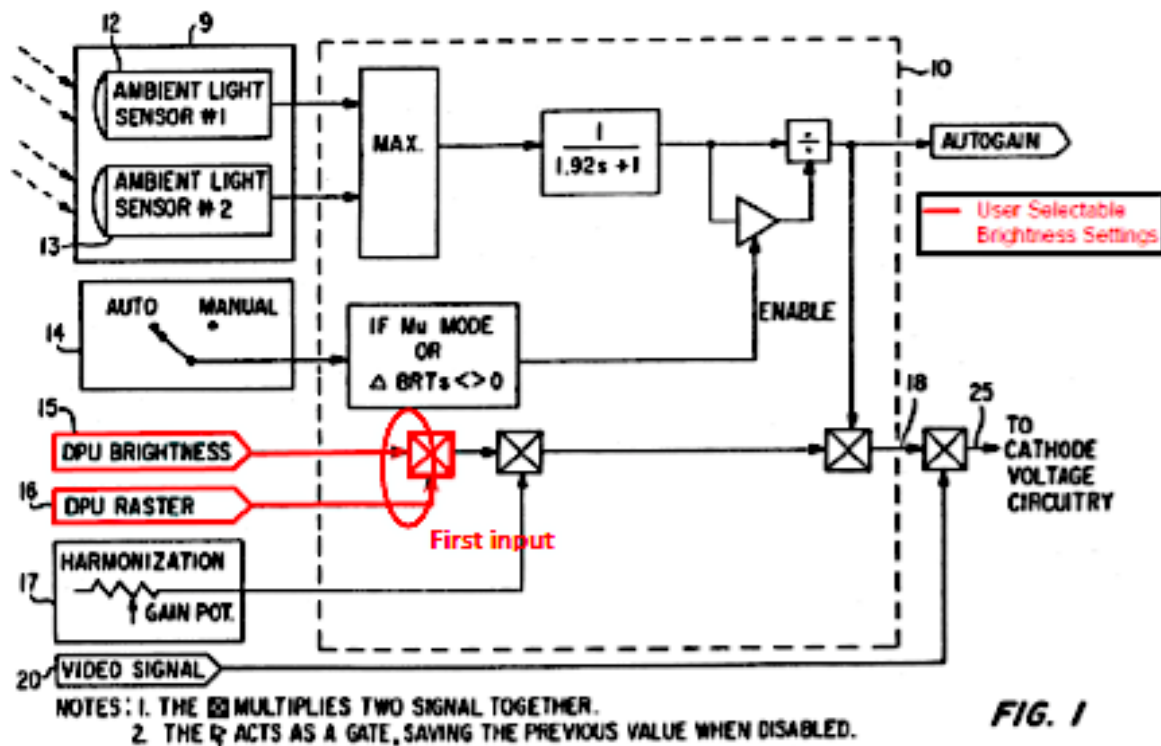
Pet., 53 (Petitioners' annotations). Fujimaki unambiguously states that "n" represents the step number and **not** the "[sensing/sense] signal." Ex. 1009 ¶23 ("nth step (n = 1, 2, 3 ...)").

Petitioners avoid citing the actual definitions of the equation's terms from Fujimaki, which clearly state that "n" is the step number, not a sensing signal indicative of the ambient light level. *Id.* Therefore, "n" is not a "[sensing/sense] signal." There is thus no "combined signal" and thus no "dark level bias."

IX. GROUND 4 DOES NOT RENDER THE CHALLENGED CLAIMS OBVIOUS.

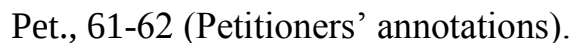
- A. 1A: "a first input configured to receive a user signal indicative of a user selectable brightness setting" / 15A: "receiving a user input signal indicative of a user selectable brightness setting"**

Contrary to Petitioners' allegations, Ottenstein does not disclose these limitations. **First**, Petitioners admit that the "first input" receives "user selectable brightness settings" and not a "user signal" as required by the claims. Petitioners allege that DPU Brightness (BRT) 15 and DPU Raster 16 rocker switches provide the "user selectable brightness settings." Pet., 60-61. Petitioners' own annotated diagram shows that the alleged "first input" is receiving "user selectable brightness settings" (shown in red) and **not** a "user [input] signal" as required by the claims.



Pet., 61 (Petitioners' annotations). Ottenstein confirms that the alleged "first input" receives the "user selectable brightness settings," stating that "[m]icroprocessor 10 also interfaces with selectable auto mode/manual mode switch 14 and two pilot

Second, in addressing these limitations, Petitioners never identify the “user [input] signal.” Pet., 60-61, 68. For limitations 1C and 15B, Petitioners provide another annotated version of Fig. 1. A comparison is shown below.



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software) generated by the internal circuitry and software of the device. Ex. 1001, Fig. 4, 3:23-24, 6:28-31 (PWM “user [input] signal” generated by microprocessor from “user selectable brightness setting”), Fig. 9 (binary word “user [input] signal” generated by software from “user selectable brightness setting”).

Moreover, Petitioners failure to explain precisely what the “user [input] signal” is and how it is “indicative of a user selectable brightness setting” is fatal to Ground 4; and thus Petitioners have not shown a reasonable likelihood of prevailing.

B. 1C: “a multiplier configured to selectively generate a combined signal based on both the user signal and the sensing signal” / 15B: “selectively multiplying the input signal with a sense signal to generate a combined signal”

Contrary to Petitioners’ allegations, Ottenstein does not disclose these limitations. *First*, the Petition fails to address how Ottenstein allegedly teaches “*selectively* generate a combined signal based on both the user signal and the sensing signal” or “*selectively* multiplying the input signal with a sense signal to generate a combined signal.” This failure to address the “selectively” requirement of the asserted claims requires rejecting Ground 4. Pet., 62, 68.

Second, because Petitioners failed to identify a “[user/input] signal,” Petitioners have not shown that Ottenstein discloses “a combined signal based on both the *user signal* and the sensing signal” or “multiplying the *input signal* with a

sense signal to generate a combined signal.” Pet., 60-62. As explained above in Sections VII.B and VIII.A, Petitioners failed to identify a “[user/input] signal” that is distinct from the “user selectable brightness setting” as required by the claims. Ex. 1001, claims 1, 15; *Becton*, 616 F.3d at 1254; *HTC*, 701 F. App’x. at 982.

C. 1D: “a dark level bias configured to adjust the combined signal to generate a brightness control signal that is used to control a brightness level of a visible display such that the brightness control signal is maintained above a predetermined level when the ambient light level decreases to approximately zero.” / 15C: “adjusting the combined signal with a dark level bias to generate a brightness control signal for controlling brightness of a visible display such that the brightness control signal is maintained above a predetermined level when the ambient light level decreases to approximately zero.”

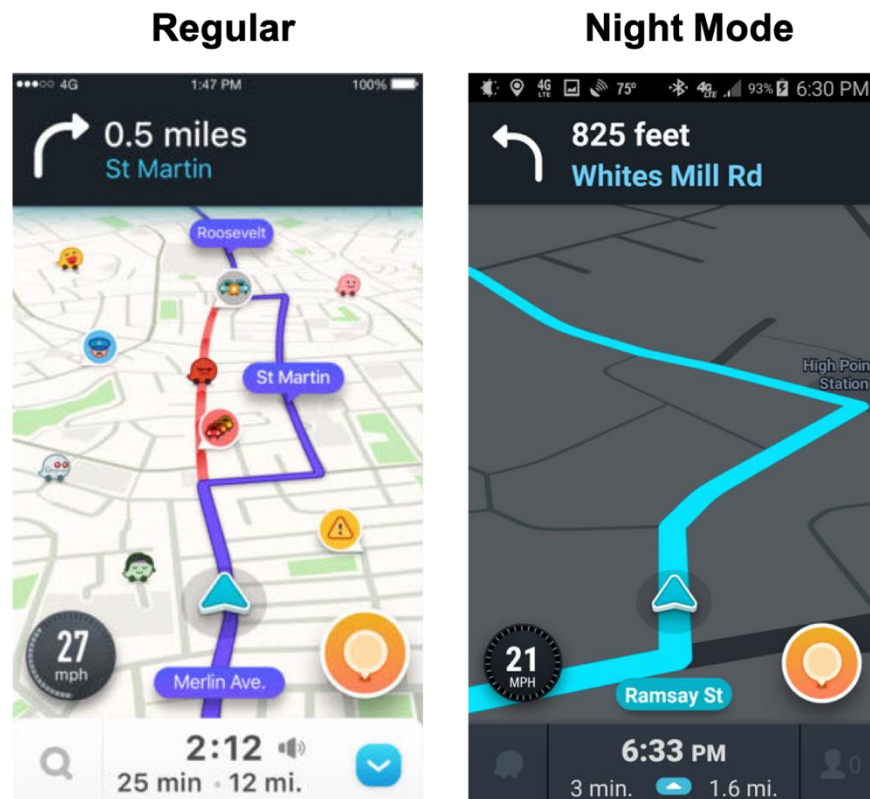
1. Ottenstein Does Not Disclose A “Dark Level Bias” Because The Automatic Brightness Control Is Inoperable “When The Ambient Light Level Decreases To Approximately Zero.”

Ottenstein does not disclose the “dark level bias” limitations because Ottenstein unequivocally states that the automatic brightness control of Fig. 1 on which Petitioners rely does *not* operate at very low ambient light levels “when the ambient light decreases to approximately zero.”

The expression (F/A) for contrast grows without limit as A approaches zero. Further *for very low ambient light levels, a night mode should be used in place of auto mode.*

Ex. 1012, 3:65-68. Therefore, Ottenstein cannot disclose a “dark level bias” because the automatic brightness control system of Fig. 1 on which Petitioners rely is **not** operable “when the ambient light level decreases to approximately zero.” In other words, there cannot be a “dark level bias” in Ottenstein that adjusts the combined signal to generate a brightness control signal “such that the brightness control signal is maintained above a predetermined level when the ambient light level decreases to approximately zero,” because the disclosure relied upon by Petitioners is inoperable at low ambient light level when the ambient light is approximately zero.

Rather, Ottenstein's solution is to have a “night mode” *instead of* ambient brightness control at low ambient light levels. Ex. 1012, 3:65-68, 4:19-31. Night mode is an inversion of the color scheme (as shown below) to allow easier visibility at night.

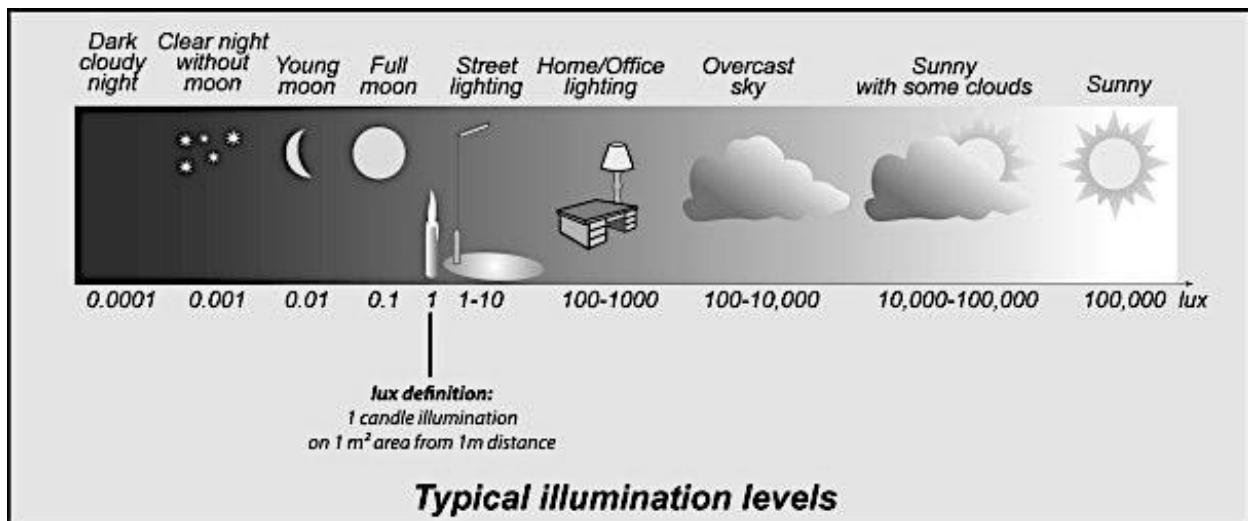


Ex. 2007, 4 (left); Ex. 2005, 6 (right); Ex. 2008 (declaration regarding Exs. 2005, 2007). As the Federal Aviation Administration and Department of Transportation explain below, night mode, which uses a black rather than a white background, is commonly used to reduce brightness in cockpit displays.

Some flight deck equipment may have a dedicated “night mode” for use during night flight. ***In night mode, the background of the display is typically dark*** to minimize the amount of brightness being produced by the display, such as ***white runways on a black background instead of black runways on a white background***. Since the background typically encompasses the majority of the display, having a black background helps to reduce the brightness of the display and thus the overall brightness in the flight deck.

Ex. 2009, 19; *see also* Ex. 2010, 61 (“Night mode is white text on a black background.”); Ex. 2011 ¶30 (“While the displays are shown as white characters on a black background, in night mode they would typically be represented as green characters on a black background and in daylight mode they could be represented as black characters on a white background.”).

Further, Ottenstein explains that the automatic brightness control relied on by Petitioners does *not* operate below 500 foot-Lamberts, which is the brightness of an overcast daytime afternoon. Ex. 1012, 4:19-31 (“The full range of **ambient brightness is supported, from 500 to 4000 Foot-lamberts.**”)



Ex. 2004, 2. An overcast day is nowhere close to an ambient light level of “approximately zero,” which the Petitioners’ construe as “zero or a level close enough to zero that a light sensor would measure zero or a corresponding sensing signal would round to zero.” Pet., 18; Ex. 2004, 2.

Because the automatic brightness system that Petitioners rely on does not operate below 500 foot-Lamberts, it never operates “when the ambient light decreases to approximately zero.” Therefore, because the automatic brightness control system of Ottenstein does not operate when the ambient light level is “approximately zero,” Ottenstein cannot and does not disclose “a *dark level bias* configured to adjust the combined signal to generate a brightness control signal that is used to control a brightness level of a visible display such that the brightness control signal is maintained above a predetermined level *when the ambient light level decreases to approximately zero*” in claim 1 or “adjusting the combined signal with a *dark level bias* to generate a brightness control signal for controlling brightness of a visible display such that the brightness control signal is maintained above a predetermined level *when the ambient light level decreases to approximately zero*” in claim 15.

2. Petitioners' Arguments Regarding “Dark Level Bias” Lack Merit.

Petitioners make several arguments. **First**, Petitioners argue that “Ottenstein discloses the brightness control signal is maintained above a predetermined level when the ambient light level decreases to approximately zero by maintaining the sensing signal at least ‘10% of full scale.’” Pet., 63. This is false. Ottenstein states:

Further ***for very low ambient light levels, a night mode should be used in place of auto mode.*** Thus the ***automatic brightness control need not and should not operate at low ambient light levels, say less than 10% of maximum.*** The sensed ambient brightness level should be limited so that it is always at least 10% of full scale.... The full range of ***ambient brightness is supported, from 500 to 4000 Foot-lamberts.***

Ex. 1012, 3:66-4:4, 4:29-31. Contrary to Petitioners' allegations, Ottenstein says nothing about maintaining the sensing signal above a certain level. Rather, "10%" refers to the bottom 10% of the ambient light range when night mode should be used instead of the automatic brightness control. *Id.*

Ottenstein is clear that there is no automatic brightness control below 500 Foot-Lamberts (*i.e.*, overcast daytime) or at low ambient light levels when ambient light level is "approximately zero." *Id.* A "night mode" is used rather than automatic brightness control at low ambient light levels. Ex. 1012, 3:66-4:4, 4:29-31. There is thus no "dark level bias" because Ottenstein's system is in night mode rather than automatic brightness control when the ambient light level is "approximately zero." *Id.*

With no citations to Ottenstein, Petitioners make up a modified equation with "dark level biases" of "at least 10% full scale" and "A + 10% of full scale" that are not disclosed in Ottenstein. Pet., 63. The equation that actually is in

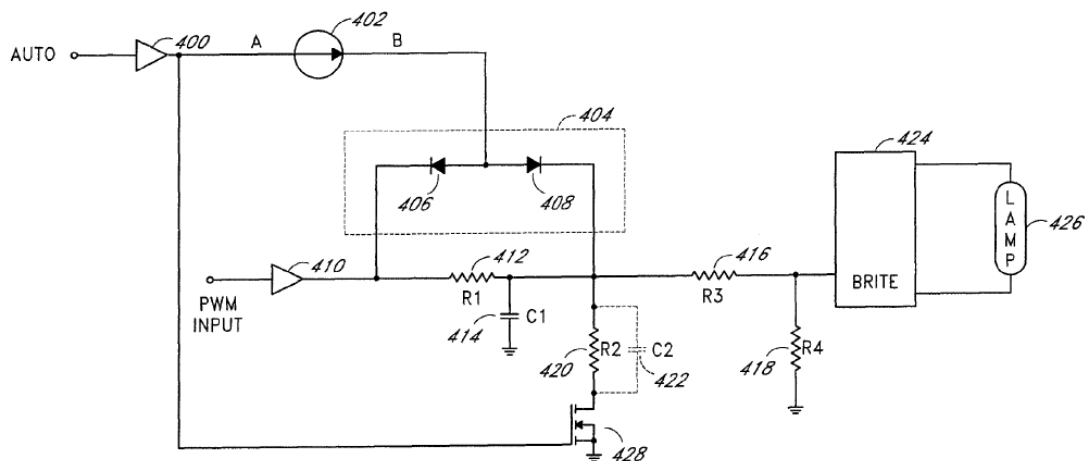
Ottenstein is **not** used when the ambient light level is “approximately zero” and thus cannot include a “dark level bias.” Ex. 1012, 3:66-4:4, 4:29-31. Petitioners implicitly acknowledge the lack of disclosure in Ottenstein (and their improper use of hindsight) as the argument centers around what a POSA would understand and **not** what is actually disclosed in Ottenstein.

Second, Petitioners alternatively argue that “harmonization gain pot 17” is a “dark level bias.” Ottenstein relates to cockpit displays. *Id.*, Title, 1:5-11. The “harmonization gain pot 17” is described as “a potentiometer used to calibrate the cathode voltage *at the manufacturing site.*” *Id.*, 2:46-48. As was well-known to a POSA, the purpose of the “harmonization gain pot 17” was to make all displays in the cockpit of a similar brightness under similar conditions as such cockpits have numerous displays. For example, Exhibit 2008, which was cited in the prosecution of Ottenstein, explains that, in airplane cockpits, “[l]ight harmonization, which provides appropriate light brightness and color conditions among multiple illuminated panels in relation to the ambient lighting condition, is therefore desirable.” Ex. 2006, 1; *see also id.*, Fig. 5, ¶¶4, 30. The “harmonization gain pot 17” thus allows the CRT display to be harmonized with other displays in the same cockpit. Regardless, the “harmonization gain pot 17” is part of automatic brightness control as shown in Fig. 1, which is not used at low ambient light conditions below 500 foot-Lamberts (*i.e.*, overcast daytime) when night mode is

used. Ex. 1012, 3:66-4:4, 4:29-31. As such, “harmonization gain pot 17” is never used when the ambient light level is “approximately zero” and thus cannot be a “dark level bias” under the plain language of the claims.

Petitioners’ comparison of VCC in the ’117 patent to “harmonization gain pot 17” is unavailing. VCC is used at all ambient light levels, and is, by itself, not a “dark level bias” in any of the embodiments as shown below.

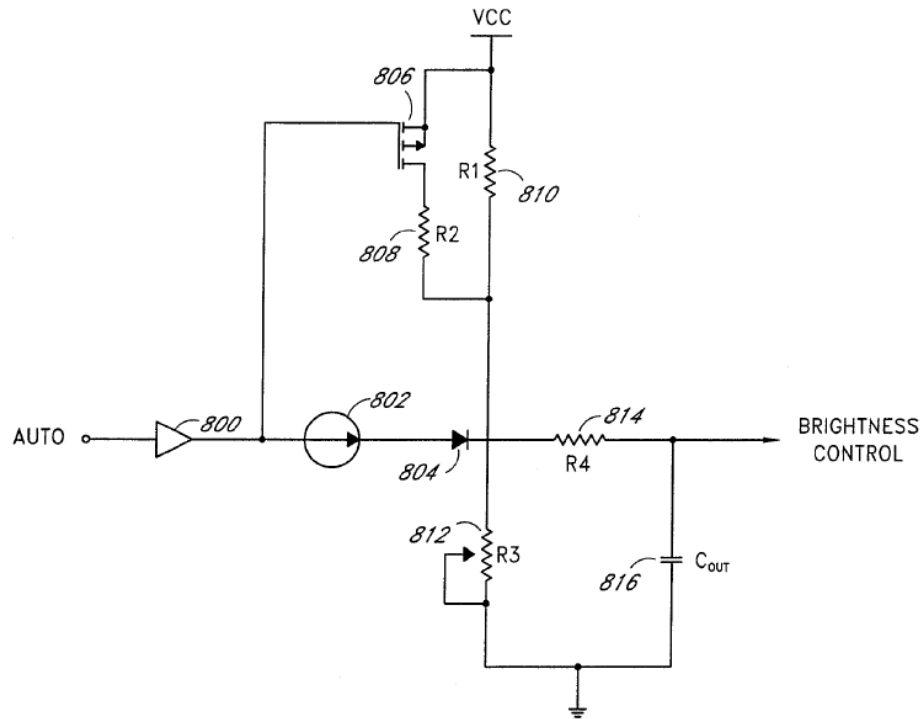
FIG. 4



$$BCS1 = \text{User Signal } \boxed{\text{duty cycle}} \times \left[\left(\frac{VCC \times R2 \times R4}{[(R1 + R2) \times (R3 + R4)] + (R1 \times R2)} \right) + \right. \\ \left. \text{Sensing Signal } \left(\frac{\boxed{ISRC} \times R1 \times R2 \times R4}{[(R1 + R2) \times (R3 + R4)] + (R1 \times R2)} \right) \right]$$

Ex. 1001, Fig. 4, 7:17-32 (annotations added).

FIG. 8

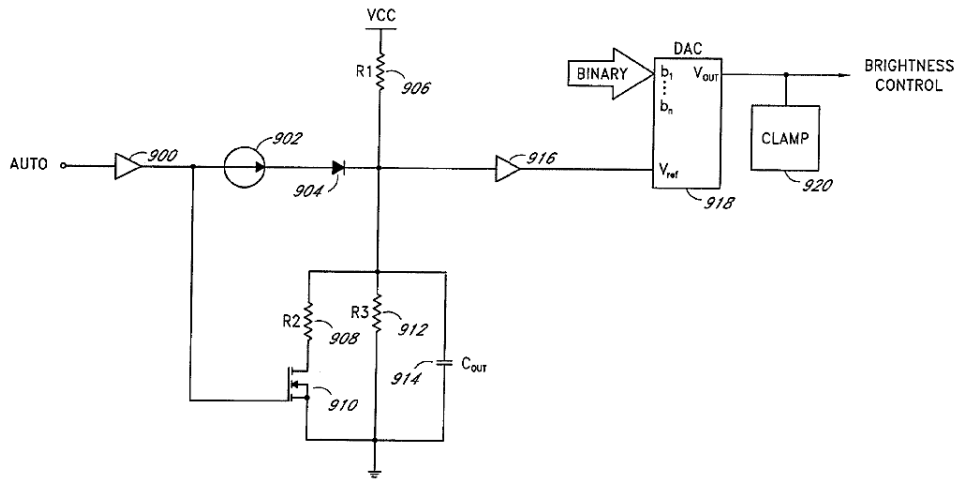


$$BCS3 = \left[VCC \times \frac{R3}{(R1 + R3)} \right] + \left[ISRC \times \frac{(R1 \times R3)}{(R1 + R3)} \right]$$

Dark Level Bias Sensing Signal User Signal

Ex. 1001, Fig. 8, 10:9-12 (annotations added).

FIG. 9



$$BCS5 = \text{User Signal} \times \left[\left(\frac{VCC \times (R2 \times R3) + [ISRC] \times R1 \times R2 \times R3}{(R1 \times R2) + (R1 \times R3) + (R2 \times R3)} \right) \right]$$

User Signal Dark Level Bias Sensing Signal

Ex. 1001, Fig. 9, 11:10-15 (annotations added). Therefore, the alleged comparison between VCC and harmonization gain pot 17 is meritless.

3. Ottenstein and Fujimaki Fail to Satisfy “Dark Level Bias” Limitation And Lack a Rationale to Combine.

Petitioners argue that it would have been obvious to add a “minimum luminance value” such as Lmin in Fujimaki to Ottenstein (without adding Fujimaki’s entire algorithm). Pet., 64-65. But the Board in the -1262 IPR held that the “dark level bias” term “recites more than merely maintaining screen brightness above a minimum level; it recites maintaining the screen brightness above a minimum level *in a particular way*.” Ex. 1033, 14. The claims require the “dark level bias” to adjust the combined signal and not just provide a predetermined level

of brightness. Therefore, a hard minimum like L_{min} alone is not a “dark level bias” and would not satisfy the claims. The combination of Ottenstein and Fujimaki thus fails to disclose the “dark level bias” limitations.

Petitioners' only rationale for combining Fujimaki and Ottenstein is a conclusory statement that Fujimaki would allow “for changes to the brightness of a display ‘that are aligned with a user’s overall preference.’” Pet., 65. This rationale is meritless. *Id.* Ottenstein already allows changes to the brightness based on user preferences using DPU Brightness, DPU Raster, and DPU Stroke, so there would be no rationale to add redundant user controls from Fujimaki to Ottenstein. Ex. 1012, Fig. 1, 2:24-45. Petitioners provide no evidence-based explanation of *why* or *how* a POSA would modify Ottenstein in light of the existing user controls in Ottenstein.

Petitioners provide no explanation about how or why a POSA would combine Ottenstein and Fujimaki, given their fundamentally different systems. Whereas Fujimaki relates to a LCD with a backlight, Ottenstein relates to a CRT raster and stroke display without a backlight. Ex. 1012, Fig. 1, 1:49-50; Ex. 1009, Fig. 1, [Solution], ¶¶4-5, 18-21. Ottenstein's alleged brightness signal could not be used in Fujimaki's system and vice versa because, in Ottenstein, the video and brightness signals are combined as shown in Fig. 1 whereas, in Fujimaki, the brightness signal is separate from the video signal. Ex. 1012, Fig. 1; Ex. 1009, Fig.

1, [Solution], ¶¶4-5, 18-21. Given the incompatibilities of Ottenstein and Fujimaki, Petitioners' failure to explain how to combine these references is fatal to obviousness.

The combination would defeat the purpose of Ottenstein. Ottenstein's goal is to provide a constant contrast ratio, whereas Fujimaki's stairstep approach does not provide a constant contrast ratio. Ex. 1012, 1:29-32, 3:15-21, 4:10-13; Ex. 1009, Fig. 2. A POSA would thus not have combined Ottenstein and Fujimaki. *Plas-Pak Indus., Inc. v Sulzer Mixpac AG*, 600 F. App'x. 755, 758 (Fed. Cir. 2015) ("[C]ombinations that change the 'basic principles under which the [prior art] was designed to operate,' *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959), or that render the prior art 'inoperable for its intended purpose,' *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984), may fail to support a conclusion of obviousness.").

Petitioners' alleged combination of Ottenstein and Fujimaki thus fails.

X. CONCLUSION

Petitioners have not demonstrated a reasonable likelihood of prevailing as to any challenged claim requiring denial of institution.

Respectfully submitted,

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WORD COUNT CERTIFICATION PURSUANT TO 37 C.F.R. §42.24(d)

Pursuant to 37 C.F.R. §42.24(d), counsel for Patent Owner certifies that this document contains approximately 13,987 words, which complies with the type-volume limitation of 37 C.F.R. §42.24(b). In preparing this certification, Patent Owner relied on the word count of Microsoft Word, the word-processing system used to prepare the paper.

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Dated: December 17, 2020

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to 37 C.F.R. §42.6(e) and with the agreement of counsel for Petitioner, a true and correct copy of **PATENT OWNER'S PRELIMINARY RESPONSE** and **EXHIBITS 2001-2011** are being served electronically on the date below, to the names and email addresses below:

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