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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LUXOTTICA OF AMERICA INC.,

Petitioner,

v.

E-VISION OPTICS, LLC,

Patent Owner.

Case No. IPR2024-01069

Patent No. 10,613,355

**PETITIONER'S REPLY IN SUPPORT OF PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 10,613,355**

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LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent 10,613,355
1002	Declaration of John Feland
1003	File History of U.S. Patent 10,613,355
1004	U.S. Patent Pub. 2005/0248719 (Howell-719)
1005	Sikonowiz, Walter, DESIGNING AND CREATING PRINTED CIRCUITS (Hayden Book Co., 1981)
1006	U.S. Patent 6,733,130 (Blum-130)
1007	U.S. Patent Pub. 2006/0023158 (Howell-158)
1008	U.S. Patent 3,612,744 (Thomas)
1009	U.S. Patent 5,606,743 (Vogt)
1010	U.S. Patent 4,290,052 (Eichelberger)
1011	U.S. Patent 2,915,598 (Brunton)
1012	Declaration of Sylvia D. Hall-Ellis
1013	Declaration of Rachel J. Watters
1014	U.S. Patent 4,053,789
1015	U.S. Patent Pub. 2006/0238513
1016	JP S58-113913 (Hattori-913)
1017	U.S. Patent 5,373,109
1018	U.S. Patent 6,857,741

Exhibit No.	Description
1019	Harper, Charles, ed., HANDBOOK OF MATERIALS AND PROCESSES FOR ELECTRONICS (McGraw-Hill, 1970): Chapter 5, Licari, J.J. & Brands, E.R., <i>Coatings for Electronics</i> [Ex. A to Ex. 1013 (Watters Declaration)]
1020	Feland CV
1021	IPC-2221A
1022	U.S. Patent 5,796,183
1023	U.S. Patent Pub. 2003/0076306
1024	U.S. Patent 4,601,206
1025	U.S. Patent 5,916,181
1026	WO 2005/093550
1027	WO 2005/103863
1028	U.S. Patent Pub. 2005/0154330
1029	EP 1575250
1030	McGraw-Hill Concise Encyclopedia of Science & Technology (1994)
1031	Steer, Michael, MICROWAVE AND RF DESIGN: RADIO SYSTEMS, (NC State University)
1032	Patent Owner's May 17, 2024 Infringement Contentions (excerpt)
1033	Federal Court Management Statistics (excerpt), <i>available at</i> https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf
1034	Transcript of June 11, 2025 Deposition of Dr. James Oliver in IPR2024-01069
1035	Transcript of June 11, 2025 Deposition of Dr. James Oliver in IPR2024-01030

I. INTRODUCTION

The claims of the '355 patent are unpatentable under Grounds 1-7. Patent Owner's arguments concerning the independent claims (claims 1, 13, and 14) fail to overcome the compelling evidence in the Petition that these claims are unpatentable. Patent Owner's arguments rely on incorrect legal standards, misinterpret the Petition's combinations, and mischaracterize the prior art. Furthermore, Patent Owner wrongly asserts that prior art pertaining to basic circuit board manufacturing practices and capacitive touch sensors for appliances are drawn from unrelated fields and do not address problems relevant to the '355 patent. Patent Owner also chose not to depose Petitioner's expert, Dr. Feland, whose opinions stand unrebutted.

Patent Owner does not present any additional arguments supporting the patentability of the dependent claims (claims 2-12 and 15-21). Consequently, Patent Owner has waived any further argument for these claims.

Accordingly, the Board should reject Patent Owner's arguments and cancel the challenged claims.

II. INDEPENDENT CLAIM 1 IS UNPATENTABLE

A. Howell-719 And Sikonowiz Render Claim 1 Obvious (Ground 1)

As explained in the Petition, Howell-719 discloses glasses that incorporate a printed circuit board ("PCB") embedded within the temple, along with associated electronics and a capacitive touch switch. Pet., 26. Sikonowiz discloses applying a

conformal coating to a PCB, including to the mounted electronics, and the benefits associated therewith. *Id.*, 23-24.

Patent Owner does not dispute that the combination of Howell-719 and Sikonowiz discloses the elements of claim 1. *See* Paper 18 (“POR”), 30-37. Instead, Patent Owner argues that Sikonowiz is not analogous art and that a person of ordinary skill in the art (“POSITA”) would not have been motivated to combine Howell-719 with Sikonowiz. *Id.* These arguments lack merit.

Prior art is considered analogous art if it is either (1) in the same field of endeavor or (2) reasonably pertinent to a problem addressed by the challenged patent. *Sanofi-Aventis Deutschland GmbH v. Mylan Pharms. Inc.*, 66 F.4th 1373, 1377 (Fed. Cir. 2023). The scope of analogous art is broad. *See Wyers v. Master Lock Co.*, 616 F.3d 1231, 1238 (Fed. Cir. 2010) (“The Supreme Court’s decision in [*KSR*] directs us to construe the scope of analogous art broadly[.]” (citing *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 402 (2007))).

First, the Petition establishes that Sikonowiz is in the same field of endeavor as the ’355 patent. The background of the ’355 patent describes its field:

The present subject matter relates to various types of eyewear including electronic functional members, including, for example, electronic focusing eyeglasses, electro-active eyeglasses, electronic eyewear providing 3D capabilities, etc.

Ex. 1001, 2:18-22. The field of the '355 patent thus encompasses eyewear with electronic functional members and falls within the broader category of consumer electronics intended for use in a variety of environmental conditions. *See* Ex. 1002, ¶¶25, 32-33; Ex. 1034, 11:11-18 (Patent Owner's expert testifying that the invention of the '355 patent is "[m]oisture-resistant electronic eyewear with multiple purposes"); *see also* *Airbus S.A.S. v. Firepass Corp.*, 941 F.3d 1374, 1380 (Fed Cir. 2019) (explaining the field of endeavor may be determined based on an express disclosure in the Background section (citing *In re Wood*, 599 F.2d 1032, 1036 (C.C.P.A. 1979))). As the Federal Circuit has explained, "it is necessary to consider the reality of the circumstances—in other words, *common sense*—in deciding in which fields a person of ordinary skill would reasonably be expected to look...." *In re Bigio*, 381 F.3d 1320, 1326 (Fed. Cir. 2004) (internal quotations omitted; emphasis original). Patent Owner's assertion that Sikonowiz is not in the same field as the '355 patent is inconsistent with "the reality of the circumstances." As Dr. Feland explained, Sikonowiz is a general-purpose textbook regarding the design and manufacturing of PCBs, for any electronics application, including consumer electronics. *See* Ex. 1002, ¶39; Ex. 1005; *see also* Ex. 1034, 48:4-12 (Patent Owner's expert indicating Sikonowiz is an example of a textbook he would have directed a student to in 2006 for questions about conformal coatings). Like the '355 patent, Sikonowiz relates to consumer electronics, including, but not limited to, the

implementation of PCBs in consumer products. Ex. 1002, ¶¶36-38; Ex. 1034, 34:18-35:7 (Patent Owner’s expert testifying that the ’355 patent relates to “the implementation of a PCB.”); Ex. 1035, 39:9-41:8 (Patent Owner’s expert characterizing electronic eyewear as a consumer product). Thus, considering the “reality of the circumstances,” Sikonowiz is in the same field as the ’355 patent.

Second, the Petition establishes that Sikonowiz is reasonably pertinent to the problems addressed by the ’355 patent. The ’355 patent identifies a potential problem with electronics being exposed to moisture:

Unfortunately, it has been found that in some environments, particularly those having high humidity or causing the wearer to sweat, commercially available electronic eyewear and frames may suffer from shorting of electronic connections and thus impede or cause the electronic application used with the eyewear to fail.

Ex. 1001, 2:23-28; *see also* Ex. 1034, 11:11-18 (Patent Owner’s expert testifying that the invention of the ’355 patent is “[m]oisture-resistant electronic eyewear with multiple purposes.”). The ’355 patent’s solution to this environmental moisture problem is that a “conformal layer may be utilized to seal the electronic components ... to protect them from damage, particularly external environmental damage.” Ex. 1001, 26:36-40. This solution was not new. Ex. 1034, 30:1-12 (Patent Owner’s expert testifying that prior to the ’355 patent, the use of a conformal layer was “very common, in particular on printed circuit boards, to protect the electronics”); Ex.

1035, 32:12-33:22 (Patent Owner’s expert testifying that by 2006, “conformal layers [were] a very common way to protect electronics from many different things, and vapor and water is one of those things”).

Sikonowiz describes the same problem disclosed in the ’355 patent: “The purpose of a conformal coating is to cover a printed-circuit assembly and protect it from environmental hazards such as moisture, dirt, and chemicals. Of these, moisture protection is probably of the greatest general significance.” Ex. 1005, 135-136. As the Board acknowledged in the Institution Decision, Sikonowiz’s “goal” is to “protect[] against environmental damage.” Paper 11, 13. Accordingly, Sikonowiz is more than just “reasonably pertinent” to the problem being solved by the ’355 patent. *See Airbus*, 941 F.3d at 1382-83 (“[A] ‘reasonably pertinent’ reference is one that an ordinarily skilled artisan would reasonably have consulted in seeking a solution to the problem that the inventor was attempting to solve.”).

For each of these two independent reasons, Sikonowiz is analogous art to the ’355 patent.

Next, Patent Owner argues that a POSITA would not have been motivated to apply the conformal layer of Sikonowiz to the electronic assembly disclosed in Howell-719. Specifically, Patent Owner argues that applying a conformal coating to Howell-719’s speaker components would impair the speaker’s functionality. POR, 34-35. This argument fails for multiple reasons.

First, PO incorrectly assumes that the speaker components in Howell-719 are necessarily mounted on the PCB (electronic assembly) and therefore coated with the conformal layer. To support this incorrect premise, Patent Owner relies solely on Figure 1 and paragraph 50 of Howell-719. POR, 34-35; *see also* Ex. 2004, ¶¶100-102, 105-106. But neither Figure 1 nor paragraph 50 requires the speaker components to be mounted on the PCB. *See, e.g.*, Ex. 1004, [0050] (“For example, the electronics *can be* on a printed circuit board[.]” (emphasis added)). Nor does the Petition require mounting Howell-719’s speaker to the PCB. Rather, it clarifies that “Howell-719 discloses mounting *the electronics for controlling the speaker* on a printed circuit board[.]” Pet., 23 (emphasis added); *see also id.*, 20 (noting that the electronics assembly comprises “electronic components configured to control the speaker”). Because the speaker need not be on the PCB, it need not be covered in a conformal layer.

Second, even if the prior art required mounting the speaker components to the PCB, Patent Owner’s argument would still fail. As Dr. Feland explains, it would have been immediately apparent to a POSITA that not all areas and components of a PCB require coating. Ex. 1002, ¶135 (citing Ex. 1019, 5-11 (chapter 5, p. 11) (“In the assembly and processing of electronic components, resists or maskants may be needed to ‘stop off’ certain areas from conformal coating or solder. For example, in the conformal coating of printed-circuit boards, the edge connector strip should be

left uncoated to allow electric contact with an edge connector.”)). Patent Owner’s expert, Dr. Feland, confirmed that a POSITA, prior to 2006, would have known that the speaker should not be coated. Ex. 1034, 41:9-18. Patent Owner’s contrary argument improperly treats the POSITA as a mere automaton—incapable of applying Sikonowiz’s disclosure to the specific application at hand. *KSR*, 550 U.S. at 421 (“A person of ordinary skill in the art is also a person of ordinary creativity, not an automaton.”).

Patent Owner then argues that applying a conformal coating to Howell-719’s capacitive touch switch would impair the capacitive touch switch’s functionality. POR, 35-36. But this argument rests on a flawed assumption—that Howell-719 somehow teaches away from applying a conformal coating to a capacitive touch switch—and is inconsistent with established law.

As an initial matter, Patent Owner incorrectly assumes that Howell-719’s capacitive touch switch must be mounted on the PCB and therefore would necessarily be coated with the conformal layer. However, neither Howell-719 nor Ground 1 of the Petition requires mounting the capacitive touch switch to the PCB. Howell-719 merely teaches that its capacitive touch switch “*can be* coupled to a printed circuit board.” Ex. 1004, [0097] (emphasis added). Similarly, Ground 1 simply explains that the capacitive touch switch can be “operably coupled to” the electronics assembly, not necessarily mounted to the PCB. Ex. 1002, ¶70.

Even if the capacitive touch switch were mounted to the PCB, a POSITA would have known that not all areas and components of the PCB require a conformal coating. *Id.*, ¶135 (citing Ex. 1019, 5-11 (chapter 5, p. 11)). For example, a mask “may be needed to ‘stop off’ certain areas from conformal coating or solder.” Ex. 1019, 5-11 (chapter 5, p. 11). Patent Owner’s expert, Dr. Feland, acknowledged that a POSITA would “have known prior to 2006 that a mask could be used to prevent the deposition of a conformal coating over electrical contacts.” Ex. 1034, 58:8-12; *see also id.*, 43:7-44:8 (“The petitioner suggestions putting [the conformal coating] over the whole [capacitive touch switch] that’s what I’m saying a POSITA would not agree to.”). Patent Owner’s argument to the contrary improperly treats the POSITA as a mere automaton. *KSR*, 550 U.S. at 421 (“A person of ordinary skill in the art is also a person of ordinary creativity, not an automaton.”).

Furthermore, even if the capacitive touch switch were coated, Dr. Feland confirms that the conformal coating would protect the switch while still allowing the sensor to function. Ex. 1002, ¶¶95, 114, 138. Claim 19 of the ’355 patent confirms this, reciting that “the conformal coating protects a portion of the capacitive touch switch.” Ex. 1001, claim 19. Dr. Oliver does not dispute that a partially coated capacitive touch switch would still be functional. Ex. 2004, ¶106.

Patent Owner next argues that the Petition does not address the difficulty of applying and removing conformal layers. POR, 35. But claim 1 does not require a removable conformal coating. Ex. 1001, claim 1.

Even if a removable conformal coating were required, Patent Owner’s argument directly contradicts Sikonowiz, which describes the “ease of application” of “[a]crylic conformal coatings” and that “acrylic conformal coatings are easily removed.” Ex. 1005, 136. The ’355 patent even acknowledges that acrylic is a “suitable” conformal coating. Ex. 1001, 27:8-10 (“The coating may comprise any suitable material, such as ... acrylic, urethane, silicone, or epoxy.”).

Finally, even if the conformal layer somehow added “application complexity or removal difficulty,” Patent Owner’s argument would still fail. Mere disadvantages do not constitute teaching away or detract from the advantages of the combination. *Allied Erecting & Dismantling. Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (Although a modification may impede one benefit, “[a] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.” (citing *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (citation omitted))).

B. Blum-130 And Sikonowiz Render Claim 1 Obvious (Ground 6)

As explained in the Petition, Blum-130 discloses glasses, an integrated circuit embedded in the glasses’ temple with electronics to control electro-active lenses,

and a combination of a manual switch and sensors to activate different settings for the lenses. Pet., 57. Blum-130 thus expressly discloses all elements of claim 1 except for those relating to the conformal layer. *Id.* Sikonowiz discloses applying a conformal coating to a PCB, including to the mounted electronics, and the benefits of doing so. *Id.*, 58.

Patent Owner does not dispute that the combination of Blum-130 and Sikonowiz discloses the elements of claim 1. *See* POR, 22-24. Instead, Patent Owner contends that Sikonowiz is not analogous art. POR, 30. This contention is incorrect for the reasons discussed for Ground 1. *See supra* §II.A.

Patent Owner also argues that a POSITA would not have been motivated to combine Blum-130 with Sikonowiz. POR, 37-39. This argument is flawed because it incorrectly assumes that the conformal coating “would prevent an electrical connection to [Blum-130’s] controller necessary to reprogram it.” *Id.*, 38.

As an initial matter, Blum-130 describes an embodiment in which the controller is a “‘read only’ type” that is not reprogrammed, but instead replaced. Ex. 1006, 6:32-47; *see also id.* (“As the patient’s prescription changes, a new controller must be programmed and inserted into the eyewear by the specialist.”). Thus, Patent Owner’s reprogrammability argument is based on a false premise about Blum-130’s disclosure.

Additionally, a POSITA would have known that not all areas and components—such as the electrical connection used in programming—should be coated. *See, e.g.*, Ex. 1002, ¶135 (citing Ex. 1019, 5-11 (chapter 5, p. 11) (“In the assembly and processing of electronic components, resists or maskants may be needed to ‘stop off’ certain areas from conformal coating or solder.”)); Ex. 1034, 51:9-15 (Patent Owner’s expert agreeing that a POSITA would have known prior to 2006 that applying a conformal coating to a connector would impact its functionality). Once again, Patent Owner improperly portrays the POSITA as a mere automaton, who would rigidly apply Sikonowiz’s conformal coating to Blum-130 without thought. *KSR*, 550 U.S. at 421 (“A person of ordinary skill in the art is also a person of ordinary creativity, not an automaton.”).

Patent Owner also contends that conformal coating would result in “added expense.” POR, 38-39. However, increased cost alone does not affect the determination of obviousness. *See Polaris Wireless, Inc. v. Trueposition, Inc.*, IPR2013-00323, Paper 62 (Final Written Decision) at 36 (P.T.A.B. Nov. 3, 2014), *aff’d*, 622 F. App’x 915 (Fed. Cir. 2015) (“[T]he law does not exclude from an obviousness determination solutions which are more complex and/or expensive.”); *see also Orthopedic Equip. Co. v. United States*, 702 F.2d 1005, 1013 (Fed. Cir. 1983) (holding that references “would not be combined by businessmen for economic reasons” is not relevant to obviousness analysis).

Patent Owner’s contention that the conformal coating would create “added work” likewise fails. POR, 38-39. This contention is inconsistent with Sikonowiz’s disclosure, which describes the “ease of application” of “[a]crylic conformal coatings” and that “acrylic conformal coatings are easily removed.” Ex. 1005, 136; *see also id.* (“[C]omponents on the circuit board remain accessible for adjustment or repair.”); Ex. 1001, 27:8-10 (the ’960 patent explaining that its “coating may comprise any suitable material, such as ... acrylic, urethane, silicone, or epoxy”). Further, even if adding a conformal coating created additional work, “the law does not exclude from an obviousness determination solutions which are more complex[.]” *Polaris*, IPR2013-00323, Paper 62 at 36.

III. INDEPENDENT CLAIM 13 IS UNPATENTABLE

For Grounds 1, 3, and 6-7, Patent Owner argues that “Petitioner fails to address” the preamble of claim 13, which recites “[a] method of manufacturing an eyewear system.”¹ POR, 39-41. Contrary to Patent Owner’s argument, the Petition expressly addressed how the prior art satisfies this preamble. Pet., 32, 38, 60, 66.

Howell-719 and Blum-130 each discloses methods. For example, Howell-719 describes that its “invention can be implemented in numerous ways including,

¹ Patent Owner does not dispute that Grounds 1, 3, and 6-7 establish that the prior art discloses the limitations in the body of claim 13. *See* POR, 29-41.

a ***method***[.]” Ex. 1004, [0018] (emphasis added). Howell-719 also notes that “***well-known methods, procedures***, components, and circuitry have not been described in detail to avoid unnecessarily obscuring aspects of the present invention.” *Id.*, [0111] (emphasis added). Similarly, Blum-130’s title is “[***m***]***ethod*** for refracting and dispensing electro-active spectacles,” and the disclosure describes method steps such as attachment methods. Ex. 1006, Title (emphasis added), 3:45-46.

Further, Dr. Feland confirms that Howell-719 and Blum-130 each “disclose[] an eyewear system ***and its construction***.” Ex. 1002, ¶¶91, 104, 161 (emphasis added); *see also id.*, ¶173. Dr. Feland also explains that every limitation of claim 13, including the preamble, is taught or suggested by the references, as shown in Grounds 1, 3, and 6-7. *Id.*, ¶¶91-96, 102-115, 161-164, 173-181. This analysis of the preamble of claim 13 stands unrebutted.

Patent Owner next argues that “[b]ecause Howell-719 does not even disclose a conformal layer,” the step of depositing a conformal layer would not have been obvious. POR, 40-41. This argument ignores the Petition’s showing that a POSITA would have been motivated to apply a conformal layer to Howell-719’s PCB in view of Sikonowiz. Pet., 23-26. As Dr. Feland explains, and Patent Owner does not dispute, “Sikonowiz motivates depositing a conformal coating over Howell-719’s PCB....” Ex. 1002, ¶¶95, 114, 163, 180.

IV. INDEPENDENT CLAIM 14 IS UNPATENTABLE

A. Howell-719, Sikonowiz, And Howell-158 Render Claim 14 Obvious (Ground 4)

Under Ground 4, the Petition establishes that Howell-719 discloses all recited electronic components of claim 14 apart from “an accelerometer or a gyroscope,” which is disclosed in Howell-158. Pet., 43-44. Patent Owner does not dispute that the prior art together discloses the elements of claim 14. POR, 18-22. Instead, Patent Owner argues that there would have been no motivation to combine Howell-719 and Howell-158 because “there is no need for a capacitive touch switch” in Howell-719. *Id.*, 20. Patent Owner also contends that the “proposed modifications eliminate the required capacitive touch switch.” *Id.*, 22; *see also id.*, 17-18, 21. Each of these arguments is inconsistent with the combination, which substitutes one automatic detector for another, without affecting other components such as the manual capacitive touch switch. Pet., 44-45.

Patent Owner argues that “[b]ecause [Howell-158’s] accelerometer-based motion detector allows for head movement to activate switch to control functionality, there is no need for a capacitive touch switch.” POR, 20. But this argument rests on a flawed assumption that Howell-158 somehow teaches away from including a capacitive touch switch—it does not. This argument further ignores that Howell-719 discloses both a “ready to be worn” detector and a separate capacitive touch switch. Ex. 1004, [0081]-[0082]. These components serve

different and complementary functions. The “ready to be worn” sensor automatically detects when the glasses are “ready to be worn” and activates audio. *Id.*, [0081]; Pet., 44-45. In contrast, the capacitive touch switch is used to manually turn the speaker on and off or perform other functions. Ex. 1004, [0074]; Pet., 20-21, 43-45.

Further, even if both the “ready to be worn” detector and the capacitive touch switch control the speaker’s on-off functionality, Patent Owner’s argument still fails. Howell-719 expressly contemplates the use of multiple switches for this functionality. *See* Ex. 1004, [0074] (“there can be two switches, one on each temple to control the corresponding speaker”), [0087], [0093].

The Petition’s combination simply substitutes Howell-158’s automatic “being worn” detector for Howell-719’s automatic “ready to be worn” detector. *See* Ex. 1002, ¶¶123-125. As Dr. Feland explains, a POSITA would have been motivated to make this substitution. *Id.*

Patent Owner’s separate contention that the Petition’s combination eliminates Howell-719’s capacitive touch switch is incorrect. The combination replaces one automatic detector (Howell-719’s “ready to be worn” detector) with another (Howell-158’s “being worn” detector) and does not alter other components, including Howell-719’s manual capacitive touch switch. Pet., 44-45.

B. Howell-719, Sikonowiz, And Blum-130 Render Claim 14 Obvious (Ground 5)

Under Ground 5, the Petition establishes that Howell-719 discloses all recited electronic components of claim 14 apart from “an accelerometer or a gyroscope,” which is disclosed in Blum-130. Pet., 46-47. Patent Owner does not dispute that the prior art together discloses the elements of claim 14. POR, 18-22. Instead, Patent Owner argues that by including Blum-130’s accelerometer- or gyroscope-based switch, the combination eliminates the required capacitive touch switch disclosed in Howell-719. *Id.*, 19-20. It does not.

The Petition describes incorporating Blum-130’s accelerometer- or gyroscope-based switch into Howell-719’s eyewear in place of at least one “*physical* switch,” not in place of Howell-719’s capacitive touch switch. Pet., 47 (emphasis added). Consistent with Howell-719’s disclosure, a physical switch is operated by the user “pushing a switch.” Ex. 1004, [0069]; *see also* Ex. 1002, ¶148 (Dr. Feland explaining “[m]anual switches relying on mechanical movement to close a circuit are susceptible to wear, fatigue, and loosening, which, over the course of repeated switching operations, can lead to eventual failure”). The Petition explains that this “physical switch” would be replaced with the accelerometer- or gyroscope-based switch. Pet., 47. As Dr. Feland describes, Howell-719’s capacitive touch switch is not a physical switch because it operates “[b]y changing the capacitance,” such as ‘by *placing one’s finger over* a metallic pad,’ [which] turns the switch on and off.”

Ex. 1002, ¶69 (emphasis added); *see also id.*, ¶148 (“Capacitive touch switches do not rely on mechanical movement, eliminating this source of failure.”).

As discussed above, Howell-719 discloses and encourages the use of multiple switches. *See supra* §IV.A. The Petition’s combination replaces a physical switch in Howell-719’s eyewear with Blum-130’s accelerometer- or gyroscope-based switch without affecting other forms of switching, such as Howell-719’s non-physical capacitive touch switch.

C. Blum-130, Sikonowiz, And Howell-719 Render Claim 14 Obvious (Ground 6)

Patent Owner does not dispute that Blum-130, Sikonowiz, and Howell-719 disclose each limitation of claim 14. POR, 22-24. Instead, Patent Owner argues that a POSITA would not be motivated to combine these references. *Id.* Patent Owner’s argument lacks merit.

Patent Owner first argues that Dr. Feland’s testimony regarding the advantages of capacitive touch switches is conclusory and unsupported. POR, 22-23. But Dr. Feland explains that capacitive touch switches reduce failure risks because they do not rely on mechanical movement—unlike mechanical switches, which are susceptible to wear, fatigue, and loosening that may lead to failure. Ex. 1002, ¶148. Dr. Feland also notes that “using a capacitive touch switch permits the glasses to have a switch without a protruding button.” *Id.* Additionally, Dr. Feland explains that the use of a capacitive touch switch would “avoid[] Blum-130’s

inconvenient alternative of needing to carry a second device that remotely controls the lenses.” *Id.* (citing Ex. 1006, 29:49-51).

Next, Patent Owner contends that “a POSITA would not have found Howell-719’s disclosures suitable for Blum-130’s electro-active eyewear” because Howell-719 is directed to eyewear with a speaker, whereas Blum-130 discloses electroactive eyewear. POR, 23. Patent Owner’s argument lacks specificity and is ambiguous as to whether it asserts that Blum-130 teaches away from the use of a capacitive touch switch, or that Blum-130 and Howell-179 are not analogous to each other. To the extent that Patent Owner is asserting a teaching away theory, there is nothing in the POR suggesting that Blum-130 teaches away from using a capacitive touch switch, nor that Howell-179 teaches away from using a capacitive touch switch in electroactive eyewear as described in Blum-130. If, instead, Patent Owner is arguing that the references are not analogous to each other, Patent Owner misunderstands the law. When more than one reference is used as the basis of an obviousness rejection, it is not required that the references be analogous art to each other. *Sanofi-Aventis*, 66 F.4th at 1380. Instead, the references must be analogous to the claimed invention. *Bigio*, 381 F.3d at 1325.

Patent Owner also relies on Dr. Oliver’s speculation that the combination’s functionality would require multiple capacitive switches or a complex touch slider—rendering it cost-prohibitive. Ex. 2004, ¶74. Dr. Oliver’s testimony is unsupported

and contradicts Blum-130, which describes that in its “simplest embodiment,” continuous variance is unnecessary because “the electro-active lenses are either on or off.” Ex. 1006, 28:40-41 (“At least two switch positions are provided, however, more are provided if needed.”); *see also Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1378 (Fed. Cir. 2017) (The court “must disregard the testimony of an expert that is plainly inconsistent with the record.”). Regardless, the number, complexity, and cost of switches does not affect the obviousness analysis. *See Polaris*, IPR2013-00323, Paper 62 at 36 (“[T]he law does not exclude from an obviousness determination solutions which are more complex and/or expensive.”); *see also Orthopedic Equip.*, 702 F.2d at 1013 (holding that references “would not be combined by businessmen for economic reasons” is not relevant to obviousness analysis).

Patent Owner then argues that a POSITA would not have been motivated to use a capacitive touch switch with Blum-130 because Blum-130 “discloses specific alternative[s] to the manual switch, i.e., an eye tracker, for the same purpose Petitioner proposes for the capacitive touch switch.” POR, 23-24. But it is established precedent that the “mere disclosure of alternative designs does not teach away.” *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004); *see also In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012) (“[J]ust because better alternatives exist in the

prior art does not mean that an inferior combination is inapt for obviousness purposes.” (citing *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994))).

D. Blum-130, Sikonowiz, And Eichelberger Render Claim 14 Obvious (Ground 7)

Patent Owner does not dispute that the combination discloses all the elements of claim 14. POR, 24-29. Instead, Patent Owner asserts that Eichelberger is not analogous art and that a POSITA would not have been motivated to combine Blum-130 with Eichelberger. *Id.* Patent Owner’s arguments lack merit.

Prior art is considered analogous art if it is either (1) in the same field of endeavor or (2) reasonably pertinent to a problem addressed by the challenged patent. *Sanofi-Aventis*, 66 F.4th at 1377. The scope of analogous art is broad. *See Wyers*, 616 F.3d at 1238.

First, the Petition establishes that Eichelberger is in the same field of endeavor as the ’355 patent. The background of the ’355 patent describes its field:

The present subject matter relates to various types of eyewear including electronic functional members, including, for example, electronic focusing eyeglasses, electro-active eyeglasses, electronic eyewear providing 3D capabilities, etc.

Ex. 1001, 2:18-22. The field of the ’355 patent is not limited to eyewear; it encompasses eyewear with electronic functional members and thus falls within the broader category of consumer electronics intended for use in a variety of

environmental conditions. *See* Ex. 1002, ¶¶25, 32-33; Ex. 1034, 11:11-18 (Patent Owner’s expert testifying that the invention of the ’355 patent is “[m]oisture-resistant electronic eyewear with multiple purposes.”); *see also Airbus*, 941 F.3d at 1380. Patent Owner’s expert admits that Eichelberger discloses a capacitive touch sensor for appliances. Ex. 2004, ¶80; *see also* Ex. 1010, 7:29-64 (describing capacitive touch switches in “appliances”). “[H]ome appliances” are exemplary “consumer electronics featur[ing] capacitive touch switches.” Ex. 1002, ¶45; Ex. 1035, 41:6-8 (Patent Owner’s expert testifying that appliances are consumer products). Eichelberger also discusses a “capacitive touch entry panel” offering a “high degree of user safety” (Ex. 1010, 1:56-60), demonstrating a focus on improving consumer electronics. Accordingly, Eichelberger is analogous art.

Second, Eichelberger is reasonably pertinent to a problem addressed by the ’355 patent. Specifically, Eichelberger explains that its design addresses the problem of maintaining the sensor reliability in the presence of moisture, such as water exposure. *Id.*, 7:19-64; *see also id.*, 1:56-60. Similarly, the ’355 patent identifies sensor reliability challenges posed by moisture from sources such as “perspiration from the wearer, environmental moisture (e.g. humidity, precipitation), moisture from the wearer’s finger, etc.” Ex. 1001, 26:12-18. Patent Owner acknowledges that the ’355 patent addresses moisture-proofing, though it attempts to limit the problem to “moisture-proof eyewear.” POR, 28. Patent Owner’s

framing of the “problem” is overly narrow and improperly conflates the alleged “field” with the problem the ’355 patent seeks to solve. *See Donner Tech., LLC v. Pro Stage Gear, LLC*, 979 F.3d 1353, 1360-61 (Fed. Cir. 2020) (“[T]he Board’s articulation of the purpose or problem to be solved ... is so intertwined with the patent’s field of endeavor that it would effectively exclude consideration of any reference outside that field.”). Eichelberger is therefore analogous art.

Patent Owner then argues that even if Eichelberger were considered analogous art, there would still have been no motivation to combine it with Blum-130. POR, 29. But Patent Owner does not dispute that the Petition establishes that a POSITA would have been motivated to combine Blum-130 with Eichelberger, due to the efficient use of space afforded by Eichelberger’s design. Pet., 66-67 (citing Ex. 1002, ¶176). Nor does Patent Owner dispute that incorporating Eichelberger’s capacitive touch switch would represent a “simple substitution or addition of a specific known type of switch ... for or to a genus of switches disclosed in Blum-130.” *Id.* (citing Ex. 1002, ¶¶176-177).

Instead, Patent Owner argues that a POSITA would have lacked the motivation to combine the references because Blum-130’s switch “must ‘provide continuous variance of the focal length of the lens by adjusting a knob or a lever’” and because “a POSITA would have found Blum-130’s teachings more suitable than those of Eichelberger.” POR, 29. However, Blum-130’s disclosure contradicts

Patent Owner’s first assertion, as it describes a “simplest embodiment” where “the electro-active lenses are either on or off.” Ex. 1006, 28:40-41. The second assertion also fails, as the Petition’s combination need not “be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention.” *Fulton*, 391 F.3d at 1200.

V. DEPENDENT CLAIMS 2-12 AND 15-21 ARE UNPATENTABLE

Patent Owner provides no additional arguments regarding claims 2-12 and 15-21, instead relying on its arguments for independent claims 1 and 14. POR, 41-42. These arguments fail for the reasons described above. *See supra* §§II, IV. Patent Owner has waived all other challenges to this ground. *See Parus Holdings, Inc. v. Google LLC*, 70 F.4th 1365, 1373 (Fed. Cir. 2023) (arguments not raised in POR are deemed waived).

Respectfully submitted,

Dated: June 23, 2025

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that this **PETITIONER’S REPLY IN SUPPORT OF PETITION FOR INTER PARTES REVIEW** contains 5,093 words according to the word-processing program used to prepare this paper. The foregoing word count complies with the 5,600-word type-volume limit specified by 37 C.F.R. § 42.24(c)(1).

Dated: June 23, 2025

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e)(4), I certify that on June 23, 2025, I caused to be served via email a true and correct copy of **PETITIONER’S REPLY IN SUPPORT OF PETITION FOR INTER PARTES REVIEW** on Patent Owner’s counsel of record:

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