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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. IPR2024-01071

Patent No. 8,905,541

**PETITIONER'S REPLY IN SUPPORT OF PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 8,905,541**

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LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent 8,905,541
1002	Declaration of John Feland in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 8,905,541
1003	File History of U.S. Patent 8,905,541
1004	U.S. Patent Pub. 2005/0230596 (Howell-596)
1005	U.S. Provisional Patent Application 60/583,169
1006	U.S. Patent Pub. 2006/0023158 (Howell-158)
1007	JP S58-113913 (Hattori-913)
1008	U.S. Patent Pub. 2008/0273166 (Kokonaski-166)
1009	WO 2010/080999 (Kokonaski-999)
1010	U.S. Patent 2,915,598 (Brunton)
1011	Generic Standard on Printed Board Design IPC-2221A, IPC Association Connecting Electronics Industries (May 2003)
1012	EP 1785763 (Dudli)
1013	IT UD20010094 (Della)
1014	CV of John Feland
1015	Sandra Corns Pickel, <i>The Evolution of the Modern Spectacle Frame</i> , 136 Review of Optometry 9 (June 15, 1999) (Pickel)
1016	Federal Court Management Statistics (excerpt), available at https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf
1017	Case No. 8:23-cv-02013 (C.D. Cal.), Dkt. 115, Stipulated Interim Order Regarding Case Schedule

IPR2024-01071 - Patent No. 8,905,541
Luxottica of America Inc. v. e-Vision Optics, LLC

Exhibit No.	Description
1018	Transcript of June 13, 2025 Deposition of Dr. James Oliver in IPR2024-01071
1019	Transcript of June 11, 2025 Deposition of Dr. James Oliver in IPR2024-01030

I. INTRODUCTION

The claims of the '541 patent are unpatentable under Grounds 1-6. Patent Owner, e-Vision Optics, LLC, does not make any arguments to support the patentability of independent claim 19 and has, thus, waived any arguments for that claim. With respect to claims 1-18, Patent Owner largely recycles the same arguments that were rejected in the Institution Decision. These arguments either ignore the disclosure of the prior art or attempt to limit the prior art to a specific embodiment—neither approach is supported by the law.

As explained in the Petition, the claims of the '541 patent recite arranging generic, well-known components and materials—such as an “electronics module” and an “insulating layer”—in predictable locations within eyewear. The use of an “insulating layer” was a well-known means for preventing circuits embedded in eyewear from leaking or shorting, particularly in known metal frames. Patent Owner does not dispute this.

As the Petition and Dr. Feland explain, the use of an “insulating layer” in conjunction with an “electronics module” is expressly disclosed in Howell-158 and both Kokonaski references. This combination would have been obvious because a POSITA would have been motivated to employ these well-known elements according to their established functions to achieve a predictable result. This is exemplified by Howell-158’s disclosure of placing an insulating layer between the

metal frame and the electronic components within the frame. Patent Owner does not dispute this disclosure, nor that every component claimed in the '541 patent was already known in the prior art. Moreover, Patent Owner chose not to depose Dr. Feland, whose opinions stand unrebutted.

Patent Owner argues that, due to the risk of short circuits, a person of ordinary skill in the art ("POSITA") would have avoided using a metal frame altogether. However, this argument contradicts Howell-158 and both Kokonaski references, which describe metal frames incorporating electronic components and detail the advantages of such configurations. Indeed, the claims of the '541 patent are not limited to any type of frame material and encompass all types of frames, including metal frames.

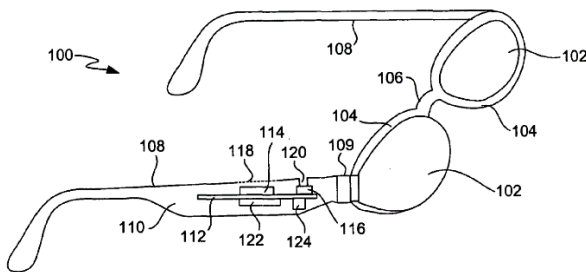
Accordingly, the Board should reject Patent Owner's arguments and cancel the challenged claims.

II. GROUND 1

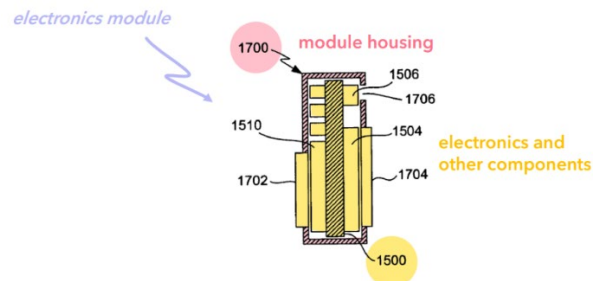
A. Independent Claim 1 Is Unpatentable Over Howell-596 And Howell-158

Patent Owner's sole challenge to the combination of Howell-596 and Howell-158 is that a POSITA would not have been motivated to implement the insulating layer disclosed in Howell-158 into Howell-596's electronic eyewear. Paper 20 ("POR"), 15-23. But a POSITA would have been motivated to combine the references, as set forth in the Petition. Pet., 22-24 (citing Ex.1002, ¶¶66-69).

Howell-158 incorporates by reference the disclosure of Howell-596, which describes eyeglasses with embedded electrical components, as shown in Figures 1 and 17A. Pet., 17-19; Ex.1004, [0184], [0194]-[0195].



Howell-596 Fig. 1



Howell-596 Fig. 17A (annotated)

Ex.1004, Fig. 1; Pet., 20 (annotating Ex.1004, Fig. 17A). As Patent Owner acknowledges, Howell-158 discloses an insulating layer. POR, 11. A POSITA would have been motivated to apply Howell-158’s insulating layer to the electronics and other components within Howell-596’s electronics module for several reasons, including preventing short circuits and reducing leakage currents in eyeglasses with metallic frames. Pet., 22-24.

Patent Owner first argues that the Petition does not explain how the insulating layer disclosed in Howell-158 would be applied to Howell-596’s eyewear. POR, 16-17. However, Patent Owner’s argument lacks merit. As an initial matter, Patent Owner admits that Howell-158 teaches positioning “‘an insulating layer’ between the metal frames and [its] electrical components.” *Id.*, 11. The Petition explains that “[a] POSITA would have been motivated to apply Howell-158’s insulating layer

between the electronics and other components located within Howell-596's electronics module and its frame.” Pet., 22-24 (emphasis added). The Board also agreed in the Institution Decision, stating: “one of ordinary skill in the art would have been motivated to apply Howell-158's insulating layer *between electronic components located within Howell-596's electronics module and its frame.*” Paper 13 (“ID”), 23 (emphasis added).

A POSITA is not an automaton and would have known how to apply an insulating layer. As Dr. Feland explains, “[s]ince long before the priority date, it had been standard practice to insulate electric components.” Ex.1002, ¶66. Dr. Feland cites multiple examples, including a “generic standard on printed board design.” *Id.* Moreover, Howell-158 identifies multiple ways for incorporating “such well-known insulating layers.” *Id.*, ¶67. Patent Owner's argument improperly treats the POSITA as a mere automaton, incapable of applying the disclosure of Howell-596 and Howell-158 to the specific application at hand. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“A person of ordinary skill in the art is also a person of ordinary creativity, not an automaton.”).

Patent Owner next questions why the Petition did not cite an embodiment from either Howell-596 or Howell-158 “that teaches and describes Petitioner's combination.” POR, 18. This questioning reflects a misunderstanding of the law. Ground 1 does not allege that claim 1 is anticipated; it explains that claim 1 would

have been obvious over the combination of Howell-596 and Howell-158 and expressly provides the motivation to combine these references. It is well-established that obviousness does not “require[] all elements of a claim to be disclosed within a single reference.” *Cohesive Techs., Inc., v. Waters Corp.*, 543 F.3d 1351, 1364 (Fed. Cir. 2008).

Patent Owner also contends that “a POSITA would not have been motivated to implement Howell-596’s eyewear in metal frames,” arguing that doing so would unnecessarily “increase[] the risk of short circuits and leakage current.” POR, 19. As an initial matter, Howell-158 expressly incorporates Howell-596’s disclosure by reference (Ex. 1006, [0003] (incorporating U.S. Pat. App. No. 11/078,857)), and the combined references therefore disclose metal frames in a single source—namely, Howell-158.

Further, claim 1 is not limited to metal frames and Patent Owner does not—and cannot—dispute that Howell-158 identifies metal frames as a known option for implementing eyewear containing electronics. Ex.1006, [0052]-[0053]. Nor does Patent Owner dispute that “selecting metallic frames ... would have been obvious,” given that they were one of “a limited number of identified materials.” *See* Pet., 23-24; Ex.1002, ¶68; *see also* POR, 19 (“Howell-158 discloses three materials (metal, plastic, and rubber) for making its eyeglass frames.”); Ex.1019, 43:16-45:10 (Patent Owner’s expert acknowledging that metal was one of the frame materials a POSITA

would have considered prior to 2006). Patent Owner also does not dispute that a POSITA would have recognized that “metallic frames have several advantageous properties, including desirable malleability, strength, ductility, light weight, plateability, and corrosion resistance.” Pet., 23 (citing Ex.1002, ¶68); Ex.1018, 17:17-18:14 (Patent Owner’s expert explaining that the use of metal on the frames was simply a “design consideration that a POSITA would be looking at to determine if it’s beneficial or not”). For these reasons alone, Patent Owner’s argument against the use of metal frames fails.

Patent Owner also argues that a POSITA would not have selected metal frames at all due to certain disadvantages. POR, 19. Patent Owner’s argument falls well short of establishing that the prior art teaches away from using metallic frames—let alone from using an insulating layer. As the Federal Circuit has consistently held, the mere presence of disadvantages does not constitute teaching away or negate the motivation to combine. *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)).

Further, a particular 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.” *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004). Here, Patent Owner acknowledges that the Petition relies on Howell-158’s insulating layer to address the alleged disadvantages. POR, 19. Patent Owner does not dispute that incorporating this insulating layer amounts to nothing more than the addition of one known element to another known element to obtain predictable results. *KSR*, 550 U.S. at 421.

Regardless, Howell-158 teaches that the risk of short circuits or leakage current in metallic frames can be mitigated by adding an insulating layer. Ex.1006, [0053]. As explained by Dr. Feland, a POSITA would have evaluated and selected a metallic frame in light of its advantages—along with the known availability of an insulating layer. Ex.1002, ¶68.

Patent Owner then contends that Howell-158’s insulating layer is incompatible with Howell-596’s eyewear because the UV detection sensor “needs maximum exposure to its surroundings.” POR, 20-21. This argument fails for several independent reasons.

First, claim 1 requires merely that the insulating layer be “disposed between *one or more*” electronic components. Ex.1001, 89:1-6. There is no requirement that an insulating layer must be applied to and cover *all* electronic components.

Second, there is no requirement that the dielectric tape disclosed in Howell-158 be bodily incorporated into Howell-596's electronics module, nor does the Petition assert that it must be. "The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference." *Allied*, 825 F.3d at 1381; *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012) ("It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements."). As the Board correctly observed in the Institution Decision, "Howell-158 expressly discloses an insulating layer generally, and provides tape as '[o]ne example' of an insulating layer, undermining Patent Owner's attempt to limit Howell-158 to a specific application of an insulating of double-sided dielectric tape that must be applied to Howell-596 in the exact same manner as in Howell-158." ID, 14. A POSITA would have been motivated to use an insulating layer—as disclosed in Howell-158—as part of Howell-596's electronics module and would have understood how to implement it. Pet., 22-24. After all, a POSITA is not a mere automaton, but rather a skilled artisan capable of applying Howell-596 and Howell-158 to the problem at hand. *See KSR*, 550 U.S. at 421.

Patent Owner next argues that the Petition's combination is incompatible with Howell-596 because it would increase the device's weight and negatively impact its design and aesthetics. POR, 21 (citing Ex.2014, ¶¶54-55). But Howell-158

expressly states that “metallic frames” can be made of “a relatively light metal.” Ex.1006, [0052]. Patent Owner’s contrary argument is merely unsupported conjecture. *See Ericsson Inc. v. Intell. Ventures I LLC*, 890 F.3d 1336, 1346 (Fed. Cir. 2018) (“To contradict a reference, an unsupported opinion is not substantial evidence.”). Likewise, Patent Owner’s expert merely speculates that the Petition’s combination would be “*potentially* less aesthetically pleasing.” Ex.2014, ¶55 (emphasis added); *see also* 37 C.F.R. §42.65(a).

Lastly, Patent Owner argues that Howell-596 eliminates the need for an insulating layer because its electrical components can be placed in “fixed positions.” POR, 22. But a 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. Moreover, Patent Owner’s expert explains that this embodiment would merely “minimiz[e] the risk of” short circuits, rather than eliminate it. Ex.2014, ¶56; Ex.1018, 19:3-20:20. In any case, Howell-596 discloses its electrical components can be held in “fixed positions” using an insulating layer. *See, e.g.*, Ex.1004, [0196], [0190] (disclosing that the module housing 1700 can be “held in position with respect to the eyewear housing 1720 by an adhesive,” such as “double-stick tape” or “silicone rubber”); *see also* Ex.1006, [0053] (Howell-158 describing insulating layer comprising “double-sided sticky

tape”); Ex.1002, ¶162 (Dr. Feland explaining that “silicone is an insulative material”).¹

B. Dependent Claim 12 Is Unpatentable Over Howell-596 And Howell-158

As explained in the Petition, Howell-158’s insulating layer not only satisfies the “insulating layer” limitation of claim 12, but also meets the “electronics module” limitation because it “encapsulate[s] the electrical components” and provides “mechanical stiffness.” Pet., 34 (citing Ex.1006, [0053]). Patent Owner argues that a single structure cannot satisfy both limitations, asserting that “different claim terms are presumed to have different meanings.” POR, 27-28 (citations omitted).² But Patent Owner misunderstands the law. The Federal Circuit has made clear that a claim does not necessarily require distinct physical structures to satisfy separate limitations. For example, in *Powell*, the court rejected the argument that “cutting box interior” and “dust collection structure” must refer to separate components, specifically holding that the specification “does not suggest that the claim terms

¹ Patent Owner further argues that Howell-596’s disclosure of “one or more vents or holes so that air can circulate through the module housing” “negates the need” for an insulating layer. POR, 21-22. But Howell-596 teaches an embodiment in which “the module housing 1700 does not include vents or holes.” Ex.1004, [0194]. The disclosure of alternative designs does not undermine motivation to combine. *Mouttet*, 686 F.3d at 1334.

² The *Wanker* case cited by Patent Owner is neither binding nor applicable. *Wanker* recognizes the general claim construction principle that “different claim terms are presumed to have different meanings.” *Wanker v. U.S.*, 152 Fed. Cl. 219 (2021). However, that principle has no bearing here, as no claim construction is at issue.

require separate structures.” *Powell v. Home Depot U.S.A., Inc.*, 663 F.3d 1221, 1231-32 (Fed. Cir. 2011). Here, as in *Powell*, nothing in the ’541 patent supports the conclusion that Howell-158’s insulating layer cannot simultaneously satisfy both the claimed insulating layer and electronics module. *See also Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1303 (Fed. Cir. 2011) (“The claims and the specifications indicate that the ‘needle holder’ and ‘retainer member’ need not be separately molded pieces.”); *Chem. Separation Tech., Inc. v. United States*, 51 Fed. Cl. 771, 789 (2002).

Indeed, the ’541 patent expressly discloses that its “insulating layer may comprise the exterior wall of the electronics module.” Ex.1001, 59:18-19; *see also id.*, 58:50-55 (“[W]here an electronics module comprises an exterior wall ... that is made of ... an insulating material, the exterior wall may be considered as the insulating layer disposed between the electronic components (that are disposed within the electronics module) and the frame.”), 2:20-21 (“the insulating layer may comprise a portion of the electronics module”), 7:45-51 (“electronics module” broadly refers to any “housing or container that comprises a plurality of electrical components.”). Patent Owner acknowledges this disclosure, confirming that the ’541 patent describes an embodiment in which “the housing of an electronics module may constitute the insulating layer.” POR, 35. Patent Owner’s expert also

acknowledges that claim 1, from which claim 12 depends, encompasses this embodiment. Ex.1018, 27:7-22.

However, in addressing Ground 3, Patent Owner asserts that it “disclaimed this embodiment during prosecution.” POR, 35. Patent Owner’s assertion falls well short of reaching the high bar required for disclaimer.

First, the statements in the file history addressed a prior art reference, not the claims themselves. Applicant merely described one reference’s frame, stating:

[T]here are other ways in which Kokonaski could prevent a short circuit. For example, if the frame is not electrically conductive, the components of the electronics module could contact the frame without creating a short circuit. Thus, Kokonaski does not require the claimed elements.

Ex.1003, 66. “[D]escriptions of the *asserted references*, as opposed to a description of the [claim]” typically do not constitute a disclaimer. *Northern Telecom Ltd. v. Samsung Elecs. Co.*, 215 F.3d 1281, 1294 (Fed. Cir. 2000).

Second, the prosecution history involved an inherent anticipation rejection in which the Examiner relied on prior art disclosures of short circuits to support the inherent presence of an “insulating layer.” Ex.1003, 66, 76-77. In response, Applicant simply argued that the Examiner failed to satisfy the “necessarily present” standard for inherent anticipation, stating that “there are other ways in which Kokonaski could prevent a short circuit.” *Id.*, 66. This does not amount to a disclaimer of any embodiment in the ’541 patent.

Third, Applicant’s use of permissive and illustrative language—such as “could,” “[f]or example,” and “other ways”—fails to clearly and unmistakably disclaim the embodiment in which the electronics module serves as the insulating layer. *See In re Lockwood*, 679 F. App’x 1021, 1027 (Fed. Cir. 2017) (use of “may” and “for example” does not rise to the level of disclaimer or disavowal) (non-precedential); *see also Profectus Tech. LLC v. Huawei Techs. Co.*, No. 6:11-CV-474, 2014 WL 1575719, at *6 (E.D. Tex. Apr. 17, 2014), *aff’d*, 823 F.3d 1375 (Fed. Cir. 2016) (“[P]ermissive language does not limit the scope of the claim term.”). Patent Owner did not “prov[e] the existence of a ‘clear and unmistakable’ disclaimer that would have been evident to one skilled in the art.” *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1063-64 (Fed. Cir. 2016) (citing *Elbex Video, Ltd. v. Sensormatic Elecs. Corp.*, 508 F.3d 1366, 1371 (Fed. Cir. 2007)).

Howell-158 confirms that its insulating layer can function as a housing or container by providing encapsulation, insulation, and mechanical stiffness. Ex.1006, [0053]. Thus, it satisfies both the claimed “insulating layer” and “electronics module.” *See Pet.*, 33-34.

Patent Owner also misrepresents the Petition’s combination by claiming the Petition “does not address what constitutes the ‘insulating layer.’” POR, 27. But the Petition states that the insulating layer of dependent claim 12 is mapped the same way as for independent claim 1. *Pet.*, 33. Specifically, the Petition explains that “all

limitations are mapped as in § VII.A [claim 1 in Ground 1],” except for the “housing module,” “structural member,” and “electronics module.” *Id.* As Patent Owner’s own table acknowledges, the Petition maps the “insulating layer” in claim 1 to Howell-158’s insulating layer. *See* POR, 27. That mapping remains unchanged for claim 12. Pet., 33.

Relying on the incorrect assumption that the electronics module and insulating layer must be separate components, Patent Owner again argues that Howell-158 requires the use of double-sided electrical tape. POR, 28-29. But as explained above, this argument rests on an overly narrow interpretation of Howell-158, which is not limited to using double-sided electrical tape and allows for other types of insulating layers. *See supra* §II.A.

As with claim 1, Patent Owner contends that the Petition’s combination would unnecessarily “encapsulate” Howell-596’s UV sensor, impairing its functionality. POR, 28-29. This contention is incorrect for the reasons explained above. *See supra* §II.A. Moreover, the Petition’s rationale for combining the references does not depend on Howell-158’s insulating layer encapsulating the sensor. Pet., 23, 34; *see also* Ex.1002, ¶66.

C. Dependent Claim 18 Is Unpatentable Over Howell-596 And Howell-158

The thickness recited in claim 18 would have been the result of routine optimization, not invention. A POSITA would have found it obvious, through

routine experimentation, to select a housing module with a thickness less than or equal to approximately 0.7 mm. Pet., 41-42 (citing *In re Aller*, 220 F.2d 454, 456 (C.C.P.A. 1955) (noting that “it is not inventive to discover the optimal or workable ranges by routine experimentation”); *see also In re Applied Materials, Inc.*, 692 F.3d 1289, 1295 (Fed. Cir. 2012) (citing *In re Boesch*, 617 F.2d 272, 276 (CCPA 1980)) (“[D]iscovery of an optimum value of a result effective variable ... is ordinarily within the skill of the art.”)). Patent Owner does not dispute that the claimed thickness is merely the product of routine optimization. On this un rebutted basis alone, the Board should find claim 18 obvious.

Instead, Patent Owner contends that “Petitioner does not argue that Howell-596 or Howell-158 discloses the claimed range,” and further asserts that the prior art disclosing the claimed range “disclose[s] spectacles having no electrical components whatsoever.” POR, 32-34. Patent Owner’s argument reflects a misunderstanding of the law. Neither Howell-596 nor Howell-158 is required to disclose the precise claimed range for the Petition to establish obviousness. *See, e.g., Aller*, 220 F.2d at 456 (“[I]t is not inventive to discover the optimal or workable ranges by routine experimentation.”).

The Petition identifies prior art describing spectacles with temples having “a thickness of 0.2 to 0.5 mm” or “around 0.7 mm.” Pet., 42 (citing Ex.1012, claim 2; Ex.1013, 9). Patent Owner does not dispute Dr. Feland’s explanation that thickness

is a result-effective variable and that optimizing it would have been within a POSITA's capabilities. Ex.1002, ¶¶124-125.³

Patent Owner also argues that the examples of traditional eyewear dimensions cited by Dr. Feland (Dudli and Della) “appear to be completely irrelevant to the subject matter of claim 18, especially given that Petitioner provides no evidence (or argument) that a POSITA would have been motivated to use either of these two references to modify the [Petition's] combination.” POR, 33. This argument reflects a misunderstanding of how Dr. Feland relied on Dudli and Della. Dr. Feland explains that a POSITA would have been motivated to, among other things, “maintain[] the proportions of the components of the electronic eyewear similar to those of traditional eyewear.” *Id.*, ¶¶123-124; *see also id.*, ¶¶122, 125. Dudli and Della demonstrate what a POSITA would have understood before the priority date—knowledge that informs the motivation to optimize Howell-596 or Howell-158 to the claimed thickness. *See id.*

D. Dependent Claims 2-11 And 13-17 Are Unpatentable Over Howell-596 And Howell-158

³ Patent Owner also cites *ModernaTx, Inc. v. Arbutus Biopharma Corp.*, 18 F.4th 1364 (Fed. Cir. 2021), in support of its position. *See* POR, 32. That reliance is misplaced. *ModernaTx* concerns the “presumption of obviousness,” which “typically exists ‘when the ranges of a claimed composition overlap the ranges *disclosed* in the prior art.’” 18 F.4th at 1373. However, the Petition does not invoke or rely on this presumption. *See* Pet., 41-43.

Patent Owner provides no additional arguments regarding claims 2-11 and 13-17, instead relying on its arguments for independent claim 1. POR, 23-26, 30-31. These arguments fail for the reasons described. *See supra* §II.A. Patent Owner has waived all other challenges. *See Parus Holdings, Inc. v. Google LLC*, 70 F.4th 1365, 1373 (Fed. Cir. 2023) (arguments not raised in POR are deemed waived).

E. Independent Claim 19 Is Unpatentable Over Howell-596 And Howell-158

Patent Owner provides no arguments regarding independent claim 19 and has waived all challenges to this claim under this ground. *See Parus*, 70 F.4th at 1373.

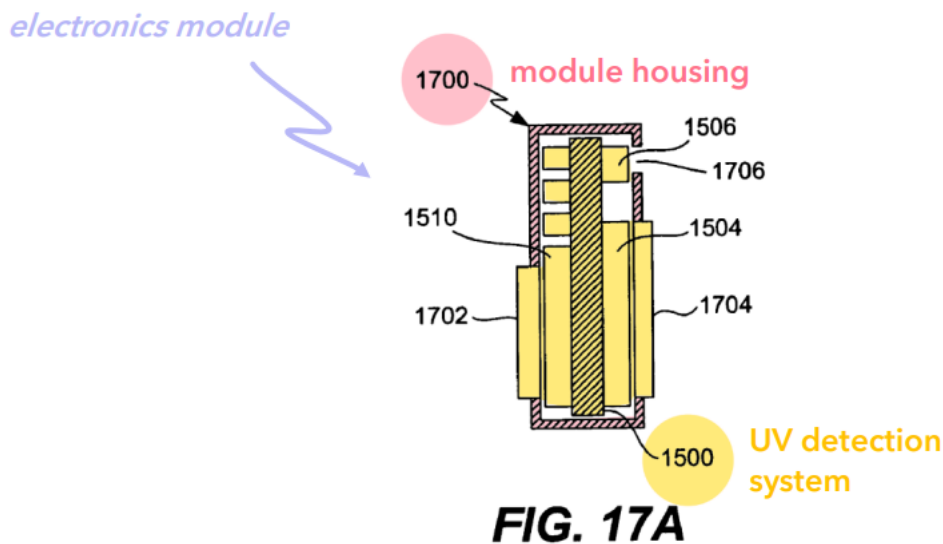
III. GROUND 2

Patent Owner provides no additional arguments regarding claims 16-17 in Ground 2, instead relying on its arguments for Ground 1. POR, 34. These arguments fail for the reasons described. *See supra* §II.A. Patent Owner has waived all other challenges to this ground. *See Parus*, 70 F.4th at 1373.

IV. GROUND 3

A. Howell-596 Renders Independent Claim 1 Unpatentable

The Petition establishes that claim 1 would have been obvious over Howell-596 in view of the knowledge of a POSITA. As set forth in the Petition, Howell-596 discloses the claimed insulating layer. *See, e.g., Pet.*, 47-48 (citing Ex.1004, Fig. 17A, showing module housing 1700, which houses Howell-596's UV detection system 1500, an insulating layer).



Ex.1004, Fig. 17A (annotated).

The '541 patent expressly describes an embodiment in which the housing of an electronics module serves as an insulating layer. Pet., 47-48. *See* Ex.1001, 58:50-55 (“where an electronics module comprises an exterior wall ... that is made of ... an insulating material, the exterior wall may be considered as the insulating layer disposed between the electronic components (that are disposed within the electronics module) and the frame”). Howell-596’s module housing 1700 performs this same function, serving as the exterior wall for the UV detection system 1500. Ex.1004, [0194]-[0195]. Dr. Feland explains that a POSITA would have selected this wall to be made of an insulating material. Ex.1002, ¶¶143-144.

Patent Owner does not dispute that the '541 patent’s specification “states that the housing of an electronics module may constitute the insulating layer.” POR, 35. Instead, Patent Owner argues that the claimed electronics module and insulating

layer cannot be “one and the same” because “Patent Owner disclaimed that embodiment during prosecution.” *Id.* As explained under Ground 1, Applicant’s prosecution statements fall far short of the clear and unmistakable disclaimer required to exclude the embodiment from the scope of claim 1. *See supra* §II.B.

Patent Owner next asserts—without support—that the Petition did “not explain why a POSITA would have been motivated to specifically use plastic for module housing 1700, as opposed to some other material or some other component.” POR, 36-37. But Dr. Feland explains that a POSITA would have chosen plastic as an insulating material for module housing 1700, consistent with PCB design standards, which advise that “insulators should be incorporated where adequate clearance from circuitry cannot be provided,” and identify plastic as a desirable insulator. Ex.1002, ¶¶143-144 (citing Ex.1011).

Further, Patent Owner mischaracterizes the Petition’s Ground 3 arguments by suggesting that they depend on “implement[ing] the teachings of Howell-158.” POR, 37. The Petition makes clear that Ground 3 is based on obviousness over Howell-596. Pet., 47-49.

B. Dependent Claims 2-11 And 13-18 Are Unpatentable Over Howell-596

Patent Owner provides no additional arguments regarding claims 2-11 and 13-18, instead relying on its arguments for independent claim 1. POR, 37. These

arguments fail for the reasons described. *See supra* §IV.A. Patent Owner has waived all other challenges. *See Parus*, 70 F.4th at 1373.

C. Independent Claim 19 Is Unpatentable Over Howell-596

Patent Owner provides no arguments regarding independent claim 19, other than erroneously asserting that it “depend[s] from independent claim 1” and is therefore patentable by virtue of that dependency. POR, 37. Patent Owner has waived all challenges to this claim under this ground. *See Parus*, 70 F.4th at 1373.

V. GROUND 4

Patent Owner provides no additional arguments regarding claims 16-17 in Ground 4, instead relying on its arguments for Ground 3. POR, 38. These arguments fail for the reasons described. *See supra* §IV.A. Patent Owner has waived all other challenges to this ground. *See Parus*, 70 F.4th at 1373.

VI. GROUND 5

A. Independent Claim 1 Is Unpatentable Over Kokonaski-166 And Howell-158

The Petition explains that it would have been obvious to apply Kokonaski-166’s silicone seal to the electronics module disclosed in Kokonaski-166, thereby disposing an insulating silicone layer between the module’s electronic components and the frame. Pet., 56-57 (citing Ex.1002, ¶¶161-162). In response, Patent Owner argues that “Petitioner provides no evidence that silicone constitutes an insulating layer[.]” POR, 39. However, the Petition relies on Dr. Feland’s undisputed

testimony that “a POSITA would have known that silicone is an insulative material.”
Ex.1002, ¶162.

Patent Owner next presents arguments that improperly apply the anticipation standard in place of the proper obviousness standard. For example, Patent Owner argues that the Board should adopt arguments previously made during prosecution. POR, 38-39. But as explained above, those prior arguments concerned inherent anticipation—not obviousness. *See supra* §IV.A. Whether an insulating layer is “necessarily present” in Kokonaski-166 is irrelevant to the Petition’s obviousness analysis.

Patent Owner further argues that there is no evidence that Kokonaski-166’s silicone “is **actually** a layer disposed between” electrical components, and asserts that Kokonaski-166 “**does not disclose** the silicone seals as being placed between the electronics module and housing module.” POR, 39-40 (emphasis added). This argument, again, misapplies the relevant standard. The Petition explains that “[i]t would have been obvious to a POSITA to apply that insulation to electronic module 101.” Pet., 57. Accordingly, Patent Owner’s arguments do not rebut—and indeed fail to meaningfully address—the arguments set forth in the Petition.

In opposing Ground 5’s motivations to combine Kokonaski-166 with Howell-158, Patent Owner reiterates its arguments against Ground 1’s motivations to combine Howell-596 and Howell-158—for example, the argument that short circuits

could be avoided by not using a metal frame, and that incorporating an insulating layer would detract from aesthetics. POR, 40-42. These arguments lack merit for the reasons already addressed. *See supra* §II.A. First, Patent Owner does not—and cannot—provide any evidence showing that adding an insulating layer would detract from aesthetics. *See* POR 41. Second, Patent Owner fails to rebut the Petition’s position that silicone is an insulative material. Pet., 57 (noting that silicone “is insulative”) (citing Ex.1002, ¶¶161-162); *see also* POR, 38-43 (failing to rebut contention that silicone is insulative). Third, Patent Owner’s own arguments actually support the conclusion that a POSITA would have been motivated to include an insulating layer. Specifically, Patent Owner acknowledges that Kokonaski-166 describes frames “made of [] metal” (POR, 41), and Patent Owner’s own expert admits that a POSITA would have been motivated to “ensur[e] that any portion of the housing module that comes into contact with the electronics module is not made of metal.” Ex.2014, ¶82. Fourth, as the Federal Circuit has made clear, a particular 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.

Patent Owner also contends that introducing the insulating layer described in Howell-158 into Kokonaski-166’s electronics module would “nullify one of Kokonaski-166’s key advantages”—namely, the ability to access and/or remove the

electronic components. POR, 41-42. Specifically, Patent Owner asserts that applying Howell-158's double-sided sticky tape between Kokonaski-166's module 101 and housing 104 would render "the module ... no longer being easily removed and 'replaced without having to repurchase a complete pair of new electronic eyewear' or frames." *Id.*, 41 (quoting Ex.1008, [0098]). As an initial matter, however, this purported advantage is not a limitation of claim 1. Moreover, this argument improperly seeks to limit Howell-158 to a single embodiment involving double-sided tape—a position the Board has already rejected. ID, 14 (rejecting "Patent Owner's attempt to limit Howell-158 to a specific application of double-sided dielectric tape"). It also ignores that Howell-158 expressly identifies double-sided tape as merely "one example" of an insulating layer (Ex.1006, [0053]), and that Ground 5 of the Petition does not rely on double-sided tape (*see* Pet., 56-57). In addition, Howell-158 explains that using adhesives does not hinder component replacement. *See* Ex.1006, [0171] (describing replaceable components held in place with adhesives).

Patent Owner's argument that double-sided tape would impede replacing or accessing Kokonaski-166's electronics module further lacks merit in light of Kokonaski-166's disclosure of more robust mechanisms for module access and replacement. *See, e.g.*, Ex.1008, [0074] (describing use of a screwdriver to remove lower module receptable cover 107); *see also id.*, [0087] ("[T]he module may be

hermetically sealed while still allowing the battery to be recharged without breaking a moisture resistant seal.”).

B. Dependent Claims 2-9, 11, And 13-18 Are Unpatentable Over Kokonaski-166 And Howell-158

Patent Owner provides no additional arguments regarding claims 2-9, 11, and 13-18, instead relying on its arguments for independent claim 1. POR, 43. These arguments fail for the reasons described. *See supra* §VI.A. Patent Owner has waived all other challenges. *See Parus*, 70 F.4th at 1373.

C. Independent Claim 19 Is Unpatentable Over Kokonaski-166 And Howell-158

Patent Owner provides no arguments regarding independent claim 19 and has waived all challenges to this claim under this ground. *See Parus*, 70 F.4th at 1373.

VII. GROUND 6

A. Independent Claim 1 Is Unpatentable Over Kokonaski-999 And Howell-158

Patent Owner argues that Kokonaski-999 teaches away from “combining the eyeglasses disclosed in [Kokonaski-999] with Howell-158’s insulating layer, because Kokonaski-999 specifically uses the conductive portions of the frame to create conductive pathways that facilitate communication between electronic components.” POR, 44. Patent Owner’s argument is based on a misunderstanding of the law.

Kokonaski-999 describes a configuration in which a first electro-active lens 104 is controlled by a first electronic module, and a second electro-active lens 106 is controlled by a second electronic module. Ex.1009, [0032]. In this configuration, “the first and second electronic modules can communicate using ***one or more conductive wires... or*** one or more conductive portions of the frame 102 (e.g., conductive metal layers or conductive cores encapsulated by non-conductive material)” or one of multiple other options. *Id.* (emphasis added). Patent Owner isolates the phrase “one or more conductive portions of the frame” to argue that combining Kokonaski-999 with Howell-158 would “destroy[]” communication between components, as Kokonaski-999 “rel[ies] on the conductivity of the frame for functionality.” POR, 44. But this overlooks the broader disclosure, including the same sentence in Kokonaski-999 that explains “the first and second electronic modules can communicate using one or more conductive wires” or via other options. Ex.1009, [0032]; *see also id.*, [0079] (describing “using conductive wires positioned within the grooves [of] an electro-active lens”).

Contrary to Patent Owner’s argument, Kokonaski-999 does not “rely on the conductivity of the frame for functionality.” POR, 44. Indeed, as Patent Owner concedes, Kokonaski-999 merely “teaches an alternative.” *Id.*, 41. But the mere disclosure of an alternative does not constitute a teaching away. *Fulton*, 391 F.3d at 1201; *see also Mouttet*, 686 F.3d at 1334 (“[J]ust because better alternatives exist in

the prior art does not mean that an inferior combination is inapt for obviousness purposes.”) (internal citation omitted); *Huawei Techs. Co. v. Iancu*, 813 F. App’x 588, 591-92 (Fed. Cir. 2020) (“A reference does not teach away ‘if it merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into the invention claimed.’” (internal citation omitted)).

B. Dependent Claims 2-9, 11, And 13-18 Are Unpatentable Over Kokonaski-999 And Howell-158

Patent Owner provides no additional arguments regarding claims 2-9, 11, and 13-18, instead relying on its arguments for independent claim 1. POR, 46-47. These arguments fail for the reasons described. *See supra* §VII.A. Patent Owner has waived all other challenges. *See Parus*, 70 F.4th at 1373.

C. Independent Claim 19 Is Unpatentable Over Kokonaski-999 And Howell-158

Patent Owner provides no arguments regarding independent claim 19 and has waived all challenges to this claim under this ground. *See Parus*, 70 F.4th at 1373.

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 5,599 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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