

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

OURARING, INC.,
Patent Owner.

IPR2024-01077
Patent 10,139,859 B2

Before LINDA E. HORNER, NEIL T. POWELL, and
MICHAEL A. VALEK, *Administrative Patent Judges*.

VALEK, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)
Granting Parties' Motions to Seal
37 C.F.R. §§ 41.14, 42.54

I. INTRODUCTION

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively “Petitioner”) filed a Petition (Paper 1, “Pet.”), seeking *inter partes* review of claims 1, 11, and 13–20 of U.S. Patent No. 10,139,859 B2 (Ex. 1001, “the ’859 patent”). We instituted review. Paper 8 (“Dec.”).

Ouraring, Inc. (“Patent Owner”) filed a Response to the Petition (Papers 18 and 19, “Resp.”),¹ Petitioner filed a Reply (Papers 22 and 23, “Reply”) and Patent Owner filed a Sur-reply (Papers 36 and 37, “Sur-reply.”). We heard argument on October 29, 2025, and a transcript is of record. Paper 46 (“Tr.”); Paper 45 (confidential transcript).

After considering the parties’ arguments and evidence, we find that Petitioner has not shown by a preponderance of the evidence that any of the challenged claims are unpatentable. Our reasoning is explained below.

II. BACKGROUND

A. *Real Parties in Interest*

Petitioner identifies itself as real parties in interest. Pet. 1. Patent Owner identifies itself and Oura Health Oy as real parties in interest. Paper 5, 1.

B. *Related Matters*

According to the parties, the ’859 patent “is currently not asserted in any judicial or administrative matters.” Paper 5, 1; *see* Pet. 1 (“PO has not asserted the ’859 Patent.”).

¹ The parties file confidential and public versions of the Response, Reply, Sur-reply and move to seal designated information in the confidential versions and certain accompanying exhibits. *See* Papers 17, 24, 38, 43 (collectively the “Motions to Seal”).

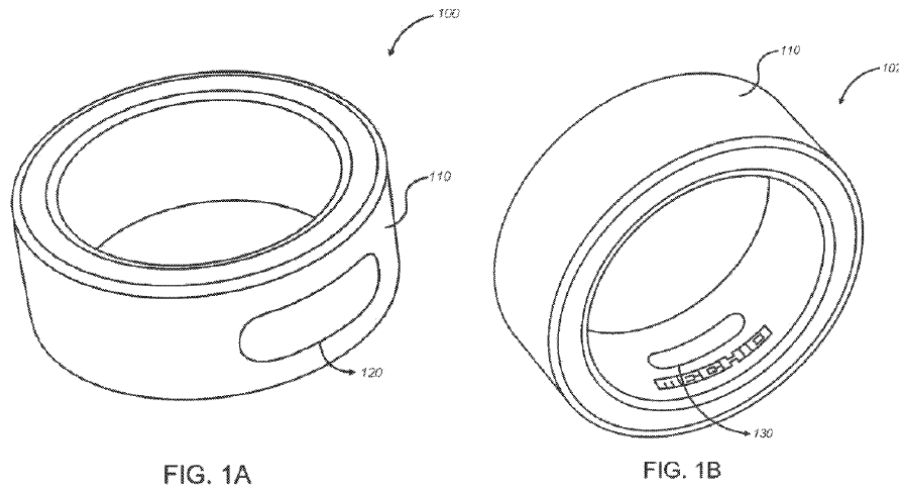
The parties collectively identify the following matters involving patents related to '859 patent or involving related subject matter: U.S. Patent Nos. 11,868,178 (PGR2024-00030), 11,868,179 (PGR2024-00031), 9,582,034 (IPR2024-00928), 10,893,833 (IPR2024-00929), 11,599,147 (IPR2024-00930), 11,874,701 (PGR2024-00038), 11,847,702 (PGR2024-00039), 10,281,953 (IPR2024-01078), 10,281,953 (IPR2024-01079), and 10,842,429 (IPR2024-01080). Pet. 1; Paper 5, 1–2. Moreover, although not identified by the parties here, IPR2025-00147 also involves a patent (11,188,124) from the same family as the '859 patent.²

C. The '859 Patent

The '859 patent is titled “Wearable Computing Device” and was issued November 27, 2018, based on an application filed February 27, 2017, that asserts the benefit of provisional and nonprovisional applications, the earliest of which was filed November 29, 2013. Ex. 1001, codes (22), (45), (54), (60). The '859 Patent discloses a wearable computing device (“WCD”) in the shape of a ring that can be worn on the finger of a user for extended periods of time, take measurements, and perform various functions. Ex. 1001, 1:35–40.

Figures 1A and 1B of the '859 patent are reproduced below.

² The Board denied institution in IPR2024-00929, IPR2024-00930, IPR2024-01079, IPR2024-01080, PGR2024-00031, and PGR2024-00038 in view of Patent Owner’s statutory disclaimer of all of the challenged claims. The Board instituted review in IPR2024-00928, IPR2024-01077, IPR2024-01078, IPR2025-00147, PGR2024-00030, and PGR2024-00039.



Figures 1A and 1B are perspective views of WCD 110. Ex. 1001, 4:57–61, 9:11–14. “[T]he WCD 110 can include the exterior window 120 on its exterior wall for input/output data transmission and reception, battery recharge, or status indication. The WCD 110 can also include the interior window 130 on its interior wall for various monitoring or sensing activities.” *Id.* at 9:44–49.

Figure 4 of the ’859 patent is reproduced below.

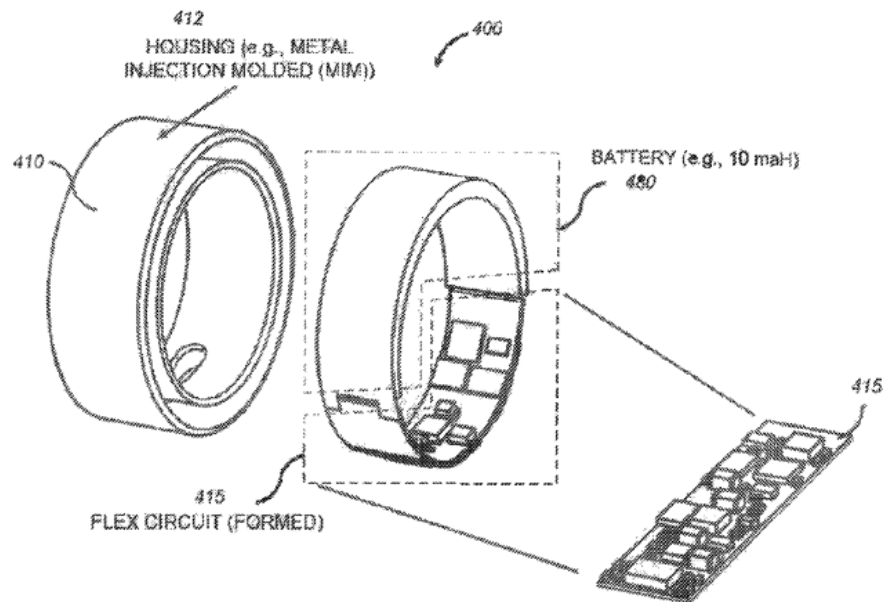


FIG. 4

Figure 4 is an exploded view of WCD 410 illustrating battery 480 and flexible printed circuit board (“PCB”) 415, which are configured to fit inside the U-shape of ring housing 412 of the WCD. Ex. 1001, 5:10–12, 15:50–53, 16:8–10.

Figures 7 and 8 of the ’859 patent are reproduced below.

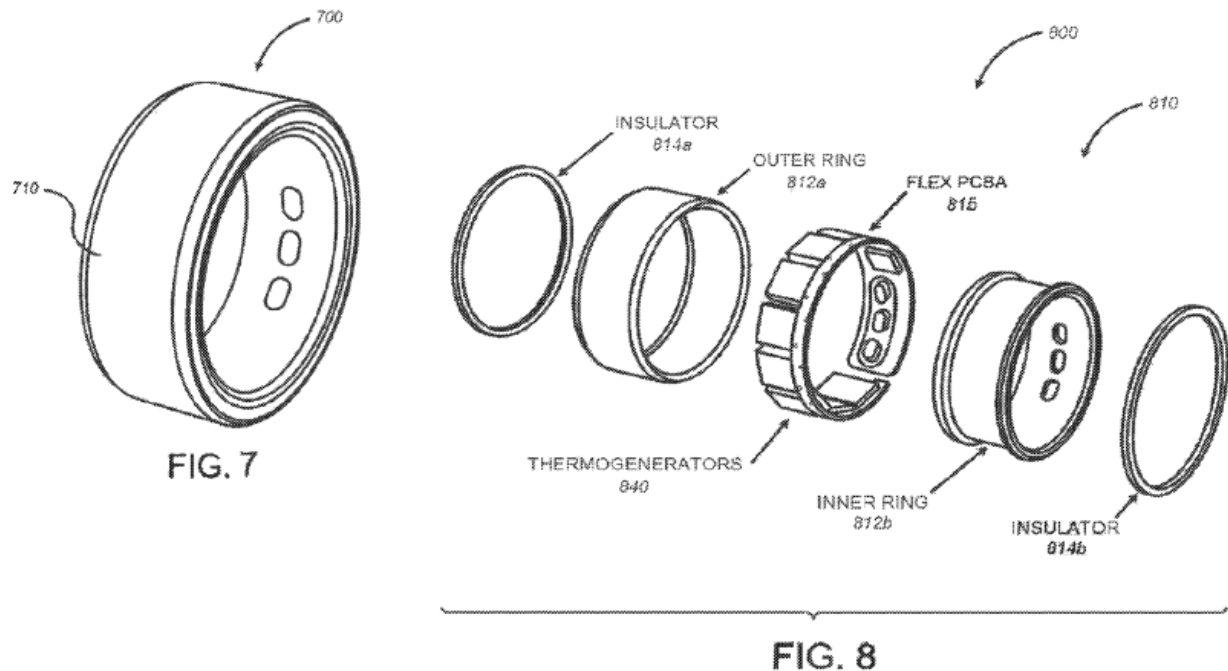


Figure 7 is a perspective view of a WCD, and Figure 8 is an exploded view of the WCD of Figure 7. Ex. 1001, 5:19–23, 14:51–53. Figures 7 and 8 illustrate a design of the housing for the WCD, where the ring includes outer ring 812a, inner ring 812b, and insulators 814a and 814b. *Id.* at 14:53–56. Also shown in Figure 8 are flexible PCBA 815 and thermogenerators 840. *Id.* at Fig. 8. According to the ’859 Patent, a thermoelectric generator charges a battery of the WCD by the difference between a wearer’s body temperature and the ambient temperature. *Id.* at 14:47–51, 14:57–64.

D. Challenged Claims

The Petition challenges claims 1, 11, and 13–20, of which claims 1, 11, and 14 are independent. Claim 1 is illustrative and reproduced below with the same bracketed annotations the parties use to identify particular limitations.

1[pre] A system comprising:

[A(i)] a wearable ring computing device, [A(ii)] the ring computing device including a housing, the housing having an interior bounding member and an exterior bounding member, [A(iii)] the interior bounding member and the exterior bounding member being configured for being coupled together to form a waterproof cavity there between;

[B] a curved battery positioned within the cavity, the curved battery having an arc approximating a corresponding arc of the ring housing;

[C(i)] a sensor module, the sensor module positioned within the cavity and proximate the battery, [C(ii)] the sensor module comprising one or more sensors, [C(iii)] the one or more sensors comprising one or more of a pedometer, an accelerometer, a gyroscope, a heart rate sensor, a pulse oximeter, a sleep monitor, an internal measurement unit, a thermometer, a Galvanic skin response sensor, and an electrocardiogram, [C(iv)] the one or more sensors being configured to sense a change in a condition of a wearer of the ring;

[D] a flexible printed circuit board positioned within the cavity proximate one or both of the curved battery and the sensor module, the flexible printed circuit board portion comprising:

[E] a processor, the processor configured for determining one or more of a number of steps taken, a quality of sleep, a heart rate, blood pressure, and body temperature of a user of the ring computing device; and

[F] a memory, associated with the processor for storing data; and

[G] a semiconducting light element disposed at least partially within the housing.

Ex. 1001, 44:31–62; *see* Ex. 1020, 1–2 (labeling limitations). As will be relevant to the discussion below, independent claims 11 and 14 similarly recite interior and exterior bounding members configured to form a waterproof cavity (limitations 11[B(ii)] and 14[H]) and a curved battery (limitations 11[C] and 14[B]). Ex. 1020, 1.

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1, 11, 13–20	103	Yuen, ³ Mestas, ⁴
1, 11, 13–20	103	Schröder, ⁵ Mestas

Pet. 4. In addition to these and other references, Petitioner relies on the declarations of Dr. Brian W. Anthony submitted with the Petition (Ex. 1002) and Reply (Ex. 1079), and Michael A. M. Davies submitted with the Reply (Ex. 1080). Patent Owner relies on the declarations of Dr. Patrick Mercier (Ex. 2018) and Andrew T. Clarke (Ex. 2019).

III. ANALYSIS OF THE ASSERTED GROUNDS

A. Legal Standards

A claim is unpatentable for obviousness if, to one of ordinary skill in the pertinent art, “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person

³ US 8,954,135 B2, issued Feb. 10, 2015. (Ex. 1006) (“Yuen”).

⁴ US 2014/0244009 A1, published Aug. 28, 2014 (Ex. 1010) (“Mestas”).

⁵ US 10,303,867 B2, issued May 28, 2019 (Ex. 1007) (“Schröder”).

having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103; *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2016) (requiring “articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”)). Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements,” but “must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

B. Level of Ordinary Skill in the Art

Petitioner contends a person of ordinary skill in the art (“POSITA”) at the relevant time would have had:

at least a four-year degree in electrical engineering, mechanical engineering, biomedical engineering, optical engineering, or related field of study, or equivalent experience, and at least two years’ experience in academia or industry studying or developing physiological monitoring devices such as non-invasive biosensors.

Pet. 7–8 (citing Ex. 1002 ¶¶ 26–30). Petitioner also contends that a person of ordinary skill would have been “familiar with, for example, sensor system design and signal processing” and that “[a] higher level of education or skill might make up for less experience, and vice versa.” *Id.* at 7–8.

Patent Owner agrees with Petitioner’s proposed definition of a person of ordinary skill in the art. Resp. 19; *see also* Ex. 2018 ¶ 27 (agreeing with definition).

We adopt this uncontested definition of the level of ordinary skill in the art. This definition is supported by the record and consistent with the disclosure in the ’859 patent and the references cited in the Petition.

C. Claim Construction

In an *inter partes* review, claim terms “shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b).

Petitioner “does not believe that any term requires express construction.” Pet. 8. Patent Owner asks us to construe the term “ring” in each of the independent claims to mean “a device specifically configured to be worn on a user’s finger.” Resp. 19. If adopted, Patent Owner’s construction would likely dispose of Petitioner’s Ground 1, which is premised on the combination of Yuen and Mestas in a “toe band” that “encircles a person’s toe.” *See* Pet. 18; *see also* Resp. 38–41 (urging that Ground 1 fails for this reason).

Patent Owner asserts that its construction limiting the term “ring” to one that is worn on a finger, as opposed to a toe, is supported by the intrinsic record. Resp. 19. According to Patent Owner, “[t]he illustrative embodiments throughout the ’859 Patent consistently depict and describe a device worn on the finger.” *Id.* at 20–22 (reproducing figures from the Specification). Patent Owner further contends that the prosecution history of both the ’859 patent and a related patent, U.S. Patent No. 10,768,666, supports limiting the claimed “ring” to a finger-worn device. *Id.* at 23–26 (citing Ex. 1004, 472–473, 478; Ex. 2008, 4; Ex. 2010, 3; Ex. 2011).

Petitioner disputes Patent Owner’s construction, urging that the recited “wearable ring computing device” need not be “finger-worn.” Reply 1–4. Petitioner points out that unlike the claims in certain related patents that expressly recite a “finger-worn wearable ring” or “a ring for being worn around the finger of a user,” the claim language in the ’859 patent does not recite where the claimed “ring” is worn. Reply 1–2 (quoting claim 1 of Exhibits 1362–1364). Petitioner also points to statements in the Specification of the ’859 patent, supporting its view that the claimed “ring” need not be one that is worn on the finger. *Id.* at 2 (citing Ex. 1001, 8:50–8:58). Petitioner also argues that the prosecution history of the ’859 patent distinguishing the claimed wearable ring over a wrist-worn device does not limit the claims to finger-rings, and the ’666 patent, which was filed after the ’859 patent, is irrelevant to the ’859 claims’ scope. *Id.* at 3. According to Petitioner, the intrinsic record is therefore consistent with the plain meaning of a ring as a “small, circular band, . . . one of metal, worn on the finger, in the ear, nose, or *elsewhere*; . . . *an encircling band.*” *Id.* at 3–4 (quoting Ex. 1365, 3).

We agree with Petitioner that the term “ring” is not limited to a finger-worn ring. All of the challenged independent recite a “wearable ring computing device” (claims 1 and 11) or “ring computing device” (claim 14). Nothing in the claim language itself refers to where that device is worn. Moreover, the fact that Patent Owner has in several related patents added claim language to expressly recite a ring that is “finger-worn” or “worn around the finger” evidences that the plain meaning of the term “ring” by itself does not require such. Ex. 1362, 44:45–46:61 (claims 1–18); Ex. 1363, 44:64–46:56 (claims 1–17); Ex. 1364, 48:22–23 (claim 1); *see Nystrom v. TREX Co., Inc.*, 424 F.3d 1135, 1143 (Fed. Cir. 2005) (explaining that the fact that another claim recites a “wood decking board” suggests the term “board” is not itself limited to one made from wood or cut from a log because “[w]hen different words or phrases are used in separate claims, a difference in meaning is presumed”).

This understanding is further supported by the Specification of the ’859 patent. It is true, as Patent Owner asserts, that the Specification describes a preferred embodiment that is a finger-worn ring. *See, e.g.*, Ex. 1001, Figs. 22A–B, 23A (depicting a finger-worn ring). But precedent cautions against importing limitations from the preferred embodiment into claims. *See, e.g., Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2004) (en banc) (“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”). Indeed, the Specification here anticipates such arguments and makes clear that the applicants’ wearable computing device (WCD) is not limited to a ring worn on the finger:

The WCD can be in the form of a ring that can be worn on the finger of a human (or animal) user. Although the WCD of the present disclosure is depicted as a ring that can be worn on the finger of a user, other shapes, designs, and form factors can be utilized for the WCD. For example, the WCD can be in the form of a wrist band, bracelet, necklace, earring, or any other type of wearable accessory. In this regard, references to the finger of a user in the present application can be considered to apply to other portions of a human body depending on the form of the WCD, such as wrist, neck, ear, etc.

Ex. 1001, 8:51–61.

Patent Owner suggests this Specification passage simply distinguishes between different WCD embodiments, e.g., a finger-worn “ring” embodiment and wrist-worn embodiments. *See* Resp. 23 (noting that “the patent acknowledges broader WCD concepts,” but urging that the claims are still limited to a finger-worn ring); Ex. 2018 ¶ 61. We disagree for two reasons. First, the Specification specifically states that its references to “the finger of a user” also apply to other parts of the body where a device with a similar form factor can be worn, e.g., a hoop “earring” on the “ear.” Ex. 1001, 8:56–61. Second, the repeated use of permissive language to describe that the ring “*can* be worn on the finger” further indicates that the plain meaning of “ring” does not require that it be worn on the finger. *Id.* at 8:51–54 (emphasis added).

Patent Owner’s arguments based on the prosecution history are similarly unavailing. The passages Patent Owner cites from the prosecution history of the ’859 patent and the related ’666 patent do not refer to where the recited “ring” is worn. *See id.* at 22–26 (citing Ex. 1004, 472–473, 478; Ex. 2008, 4; Ex. 2010, 3). At best, the prosecution arguments Patent Owner cites suggest that the applicants attempted to distinguish the prior art based

on the relative size of the claimed “ring” compared to a larger device such as a bracelet. *Id.* We see no clear and unmistakable disclaimer of a similarly-sized ring worn on a body part other than the finger.

For these reasons, the intrinsic record is consistent with the extrinsic dictionary definition of “ring” as a “small, circular band” that Petitioner cites. Ex. 1365, 3. Accordingly, both the intrinsic and extrinsic evidence makes clear that a “ring” can be worn on the finger, but it may also be worn elsewhere, e.g., on the ear or a similarly-sized body part such as a toe. *See* Ex. 1001, 8:51–61 (stating that a ring can be worn “other portions of a human body”), Ex. 1365, 3 (“ring” may be worn on the finger “ear, nose, or elsewhere”); Ex. 1002 ¶¶ 161–162 (observing similarities in the anatomy of fingers and toes). We therefore do not adopt Patent Owner’s proposed construction.⁶

No further express construction of this or any other term is necessary to resolve the issues in this proceeding. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Matal*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms that are in controversy, and only to the extent necessary to resolve the controversy.”) (internal quotation omitted).

⁶ Although not addressed by the parties, the term “ring” appears only in the preamble of independent claims 11 and 14. Patent Owner’s attempt to limit where that “ring” is worn is not a structural limitation, but rather an intended use of that ring. Accordingly, even if that intended use were expressly recited in the preamble of claims 11 and 14, it is unlikely that it would limit the otherwise structurally complete invention recited in the claim body. *See, e.g., Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997) (“[W]here a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation.”).

D. References Relied Upon

i. Yuen

Yuen discloses a portable biometric monitoring device having a physical size and shape adapted to couple to the user's body. Ex. 1006, codes (54), (57). The device includes a housing, a band to secure the monitoring device to the user's body, and a physiological sensor within the housing. *Id.* at code (57). The sensor generates data representative of a physiological condition, such as the user's heart rate. *Id.*

Figure 3 is reproduced below.

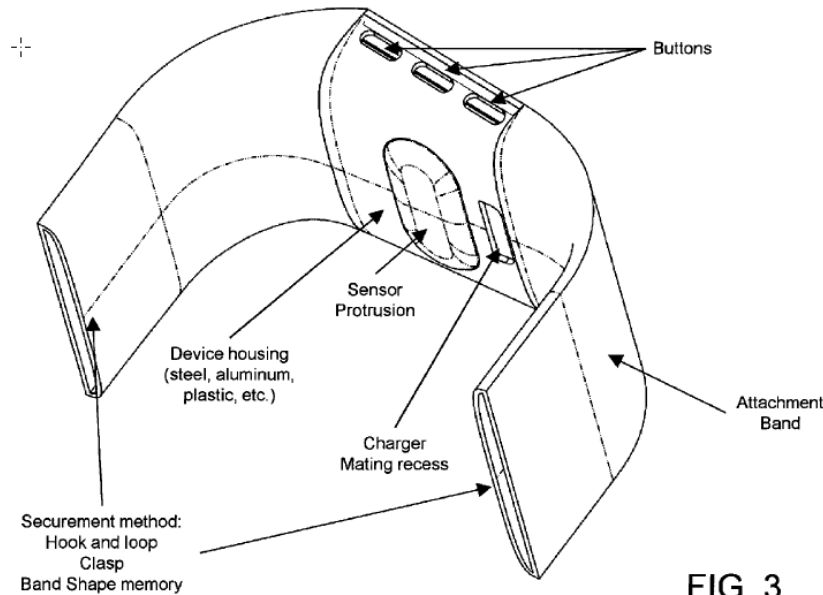


Figure 3 shows a portable biometric monitoring device, including an attachment band, a device housing, a sensor protrusion, and a recess for mating a charger and/or data transmission cable. Ex. 1006, 2:18–22, Fig. 3. According to Yuen, the protrusion firmly maintains the sensor in contact with the skin of the user. *Id.* at 2:22–25.

Figure 4 is reproduced below.

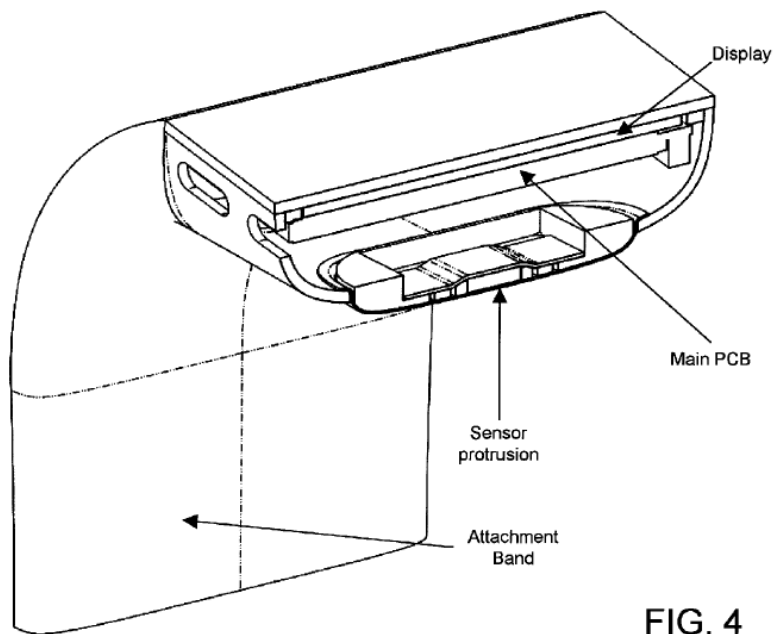


Figure 4 shows a cross section through the electronics package of the portable biometric monitoring device. Ex. 1006, 2:26–28. Figure 4 depicts the “Main PCB” directly below a “Display” near the top of the cross section and a “Sensor protrusion” at the bottom of the cross section.

Figure 5 is reproduced below.

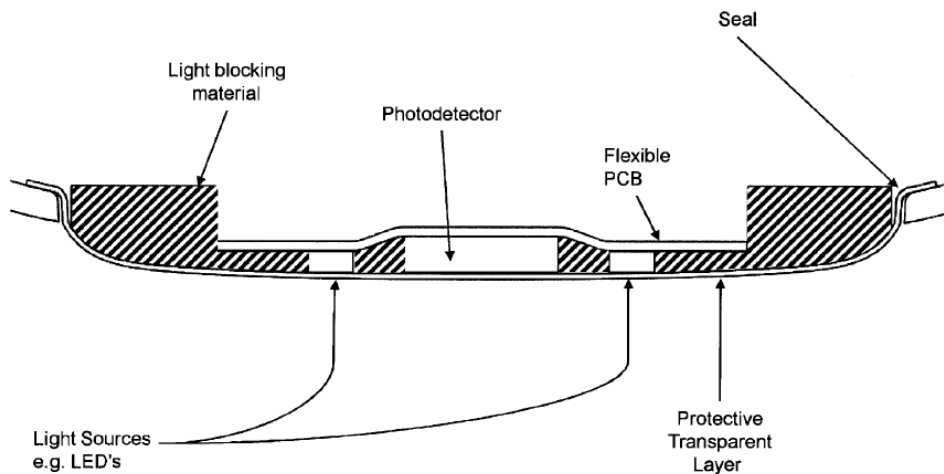


Figure 5 shows a cross section of the sensor protrusion portion of the portable biometric monitoring device, including light sources and a

photodetector mounted on a flexible PCB. Ex. 1006, 2:29–39. “[A] flexible transparent layer may be placed on the lower surface of the sensor protrusion to form a seal wherein the transparent layer may provide other functions such as preventing liquid from entering the device where the light sources or photodetectors are disposed or placed.” *Id.* at 2:39–44; *see also id.* at 14:59–15:4 (explaining that “one or more components of the optical sensor” may be secured “via a liquid-tight seal” or protected by a device back “accommodating a watertight seal for the sensor package”).

Yuen discloses that a user may wear the biometric monitoring device “on their wrist or ankle (or arm or leg)” and further discloses that “[t]he biometric monitoring device . . . may also be integrated and worn in a necklace, chest band, bra, patch, glasses, earring, or toe band.” Ex. 1006, 24:4–6, 24:35–37.

ii. Mestas

Mestas discloses a physical activity monitoring method and system. Ex. 1010, code (57).

Figure 1 is reproduced below.

FIG. 1



Figure 1 shows a person utilizing an athletic performance monitoring and feedback system 1. Ex. 1010 ¶¶ 9, 148. System 1 includes wearable device 10 for monitoring the user's activity. Device 10 includes a sensor such as an accelerometer. *Id.* ¶ 148.

Figure 6 is reproduced below.

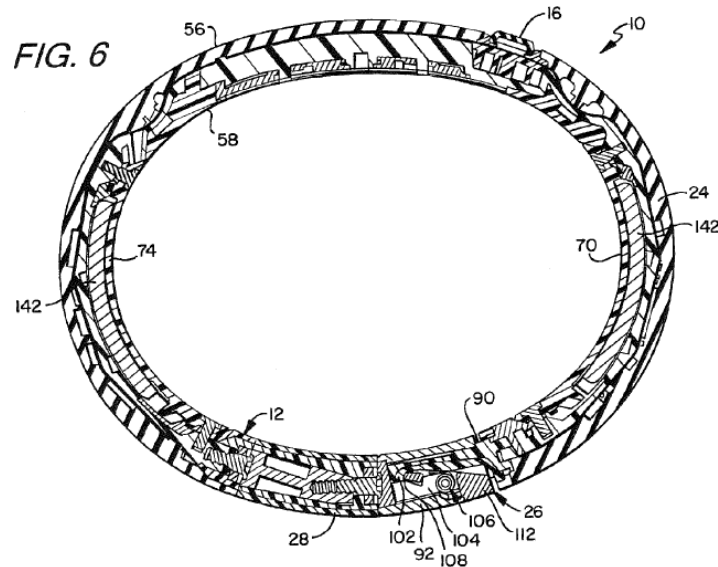
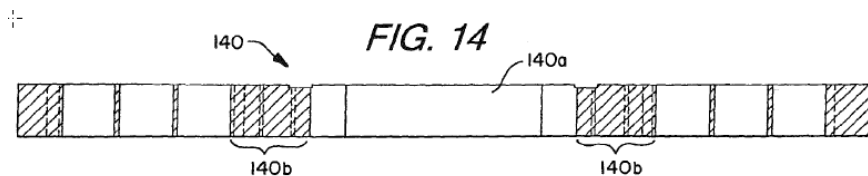


Figure 6 is a cross-section of wearable device 10 including housing 12 in the form of a wearable band such as a wristband. Ex. 1010 ¶¶ 15, 150–151. Device 10 includes a controller, input button 16, a display, and an indicator system. *Id.* ¶ 150. Housing 12 includes an inner spine member having compartments for power supplies, outer encasement member 24, and fastening mechanism 26. *Id.* ¶ 151. The controller includes batteries 142, which “have a curvilinear or curved configuration.” *Id.* ¶¶ 163, 168.

Figures 14, 15, and 16 are reproduced below.



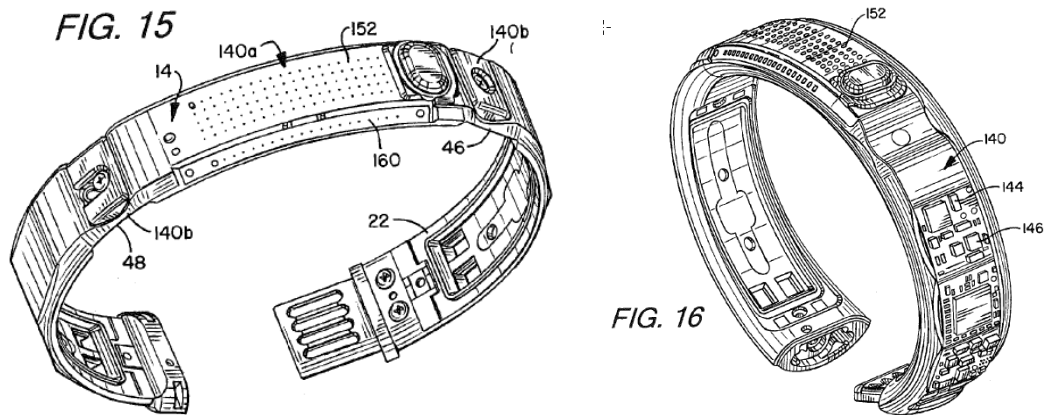


Figure 14 shows flexible PCB member 140, and Figures 15 and 16 show PCB member 140 wrapped around and mounted to spine member 22.

Ex. 1010 ¶¶ 25–26, 164. PCB member 140 is part of controller 14 and supports various components of the controller, including antenna assembly 144, sensor assembly 146, processing units, data storage memory components, and connectors. *Id.* ¶¶ 163, 165.

iii. *Schröder*

Schröder discloses an external secure unit comprising a memory, a processor, and an interface for sending and receiving data to and from a communication device, such as a smartphone. Ex. 1007, code (57), 1:5–11, 1:42–47, 1:64–67. The external secure unit stores security-relevant data necessary for executing an application program in the communication device. *Id.* at code (57), 1:56–61. A “finger-ring” can be employed as an external secure unit. *Id.* at 1:61–64.

Schröder's Figures 1 and 2 are reproduced below.

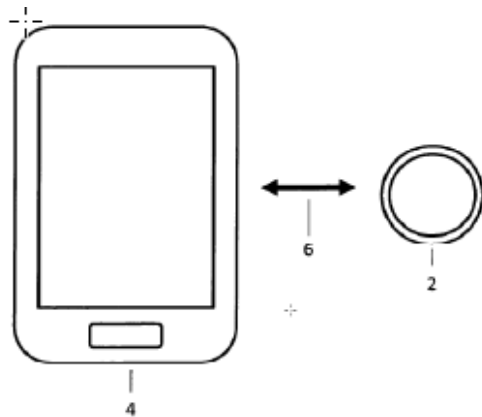


Fig. 1

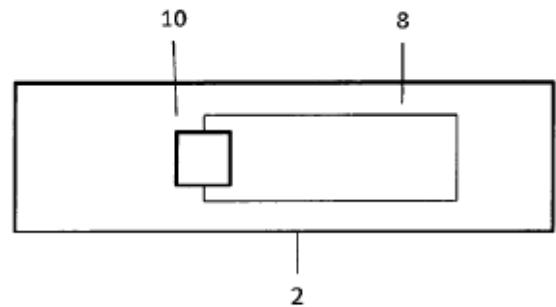


Fig. 2

Figure 1 shows finger-ring 2 as an exemplary external secure unit and smartphone 4 as a communication device, and Figure 2 shows a cross section through finger-ring 2. Ex. 1007, 3:39–44, 3:57–59, 4:58–60.

Schröder discloses a method for authentication by means of finger-ring 2 and smartphone 4. Ex. 1007, 3:59–61. According to Schröder, “[f]inger-ring 2 is worn by a user e.g. permanently on the finger,” which is advantageous as an external secure unit because the ring “cannot be taken away or employed without authorization or get lost.” *Id.* at 3:61–62, 4:16–18. Finger-ring 2 and smartphone 4 are interconnected via contactless communication connection 6, e.g., an NFC (near field communication) connection. *Id.* at 3:64–66, 4:18–22. All security-relevant data necessary for executing applications on smartphone 4, such as email, Facebook, and banking, are stored only on finger-ring 2, not on the smartphone. *Id.* at 4:3–5, 4:10–15.

Schröder's Figure 2, reproduced above, shows a cross section through finger-ring 2 as an example of an external secure unit. Ex. 1007, 4:58–60. “In the finger-ring 2 are located an antenna coil 8 and a chip or a chip

module 10, which are schematically indicated” and used to communicate with an NFC reader, such as an RFID (radio frequency identification) reader. *Id.* at 4:60–62, 5:12–18, 5:49–53.

Schröder’s Figure 3 is reproduced below.

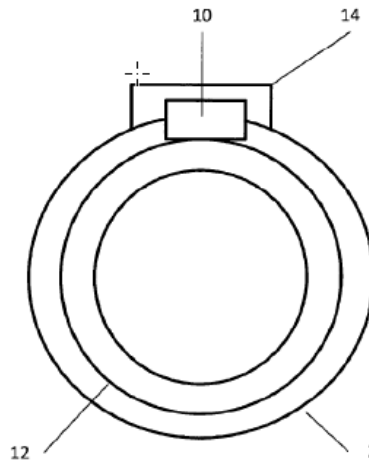


Fig. 3

Figure 3 shows a cross section through an external secure unit in the form of finger-ring 2 with a replaceable chip module 10. Ex. 1007, 3:45–46, 8:54–56. Inlay 12 is inside finger-ring 2 and serves as a carrier for antenna coil 8. *Id.* at 8:56–58. As shown in Figure 3, chip module 10 is inserted into a recess of finger-ring 2. *Id.* at 8:58–59. Chip module 10 is protected by cover 14, which has a hinged or threaded connection to the finger-ring 2. *Id.* at 8:60–63. Chip module 10 is electroconductively connected to antenna coil 8 on inlay 12. *Id.* at 8:63–66. “Advantageously, the chip module 10 is located in a module holder, in order that the contacts of the chip module 10 are properly interconnected to the contacts of a corresponding antenna coil 8.” *Id.* at 9:4–7. According to Schröder, the chip module 10 in Figure 3 is “arranged in particular replaceably,” but “[a]lternatively, the chip module 10 can . . . be firmly connected to the finger-ring 2.” *Id.* at 9:1–4; *see*

also id. at 9:13–15 (“Alternatively, it is possible to connect the chip module 10 permanently to the contacts of the inlay 12, e.g. by soldering, crimping, gluing, etc.”).

In a “further embodiment example,” Schröder describes external secure unit 2 as having “an energy storage device, e.g., an accumulator or a battery” that is “connected to the chip module 10.” Ex. 1007, 11:46–67.

Schröder also discloses “possible construction variants” of a finger-ring 2 in Figures 4 to 10. Ex. 1007, 12:1–3. Schröder’s Figures 4 and 5 are reproduced below.

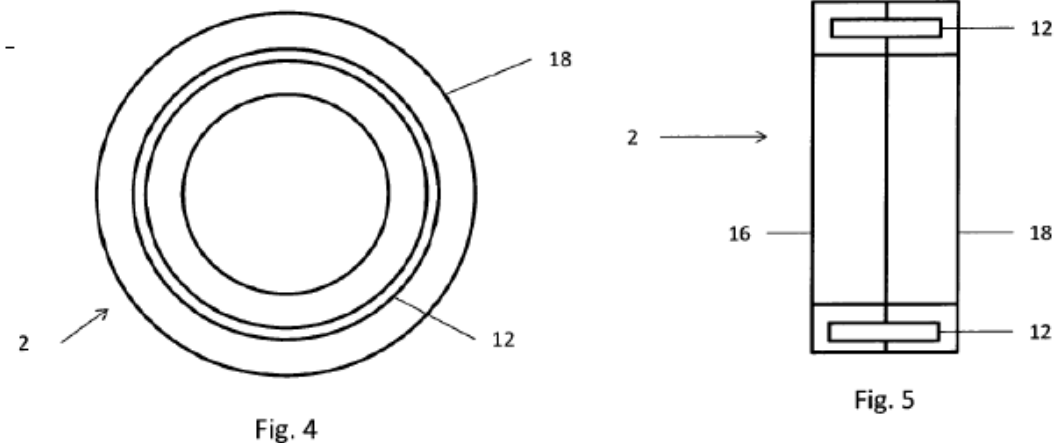
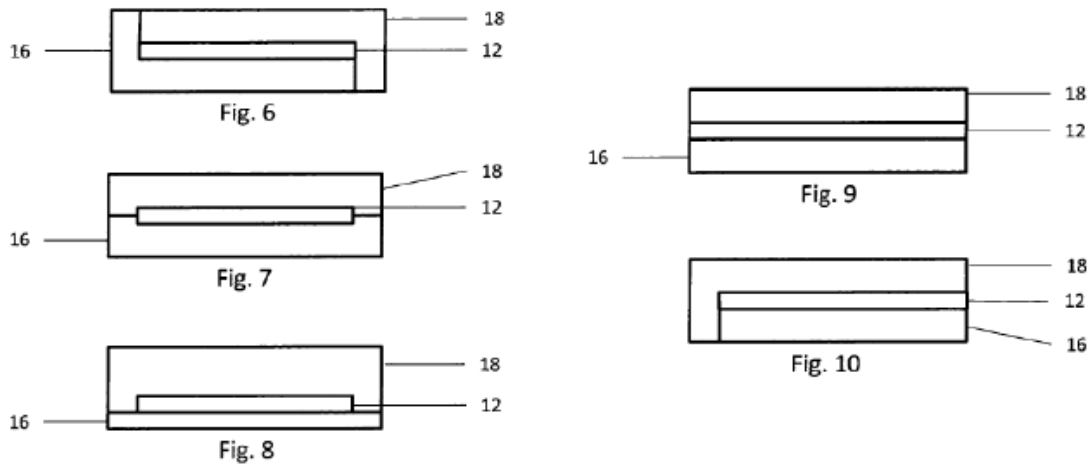


Figure 4 shows a longitudinal cross-section through finger-ring 2 as an exemplary external unit, and Figure 5 shows a cross-section of the finger-ring of Figure 4. Ex. 1007, 3:47–50, 12:4–7. Figure 4 shows one half 18 of finger-ring 2, and Figure 5 shows two ring halves 16 and 18. *Id.* at 12:5–8. As shown in Figures 4 and 5, ring halves 16 and 18 have a recess into which inlay 12 is inserted. *Id.* at 12:8–9. Components 16 and 18 of finger-ring 2 are interconnected in such a way that the connection can be undone in order to insert or exchange inlay 12. *Id.* at 12:20–26. Inlay 12

consists of a flexible carrier material, with antenna coil 8 and chip module 10 connected to each other on the inlay. *Id.* at 12:28–32.

Schröder’s Figures 6 to 10 are reproduced below.



Figures 6 to 10 show different cross sections through a finger-ring, which along with Figures 4 and 5, show “possible construction variants of external secure unit 2 in the form of finger-ring 2.” Ex. 1007, 12:1–3; *see also id.* at 3:51–52; 12:43–45 (describing Figures 6–10). In Figures 6 to 10, finger-ring 2 has ring-shaped components 16 and 18, with inlay 12 arranged between the components. *Id.* at 12:43–55.

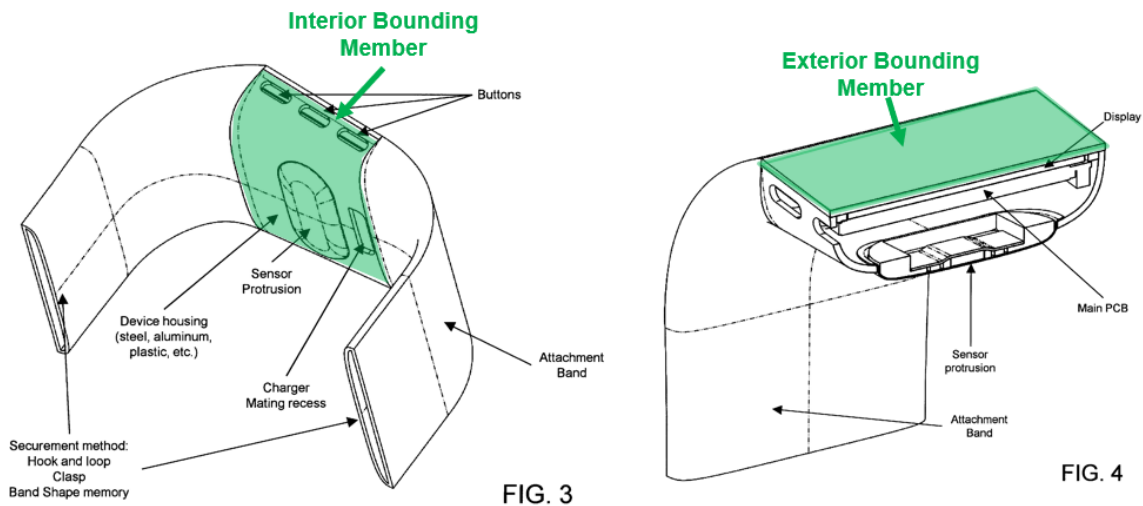
According to Schröder, “inlay 12 can have at least one chip module 10 with at least one antenna coil 8, with at least one further electronic device, e.g. a display, optionally being arranged on the inlay 12.” Ex. 1007, 12:61–65.

E. Ground I: Obviousness over Yuen and Mestas

Petitioner contends claims 1, 11, and 13–20 would have been obvious over Yuen and Mestas. *See* Pet. 14–49. As explained below, Petitioner has not shown by a preponderance of the evidence that these claims would have been obvious over the asserted references.

i. Claim 1

Petitioner asserts that Yuen teaches a wearable ring computing device, i.e., a “toe band” that “encircles a person’s toe.” Pet. 18. According to Petitioner, Yuen teaches that its device comprises a housing having interior and exterior bounding members as recited in claim 1. *Id.* at 19. Petitioner offers the annotated versions of Yuen’s Figures 3 and 4 below to illustrate its position.



Pet. 20. In these figures, Petitioner labels the portion of Yuen’s device housing with the sensor protrusion (i.e., the “skin side”) the interior bounding member and the portion of the housing above the display (i.e., the “environmental side”) the exterior bounding member. *See id.* at 19–20 (internal quotations omitted).

Petitioner offers additional annotated versions of Yuen’s Figures 4 and 5, reproduced below, to illustrate its position that these bounding

members form a waterproof cavity.

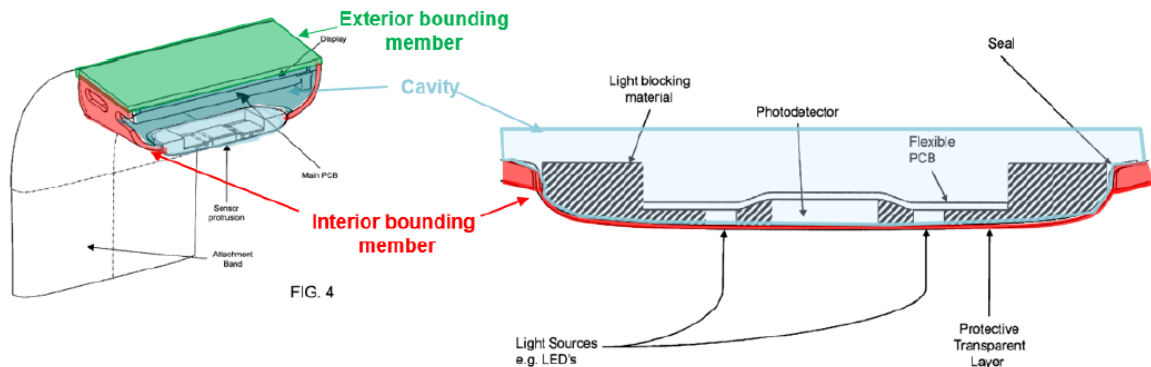


FIG. 5

Pet. 21. In these figures, Petitioner identifies the entirety of the space between the alleged interior and exterior bound members (highlighted in two shades of blue) as the cavity. According to Petitioner, an ordinarily-skilled artisan would have understood that these members “form a watertight cavity because they would be attached to each other with a watertight seal in order to protect the electrical components mounted inside the cavity.” *Id.* (citing Ex. 1002 ¶ 164). Petitioner further contends that an ordinarily-skilled artisan would have been motivated to make “Yuen’s cavity (the space between the interior and exterior bounding members) a ‘waterproof cavity’” because Mestas teaches a housing for its device that is water-resistant. *Id.* (citing Ex. 1002 ¶ 165).

Patent Owner disputes Petitioner’s rationale for combining Yuen and Mestas, asserting that, with the exception of Yuen’s single mention of a possible “toe band” embodiment, both references teach larger wrist-worn or arm-mounted devices. *See* Resp. 29–37. According to Patent Owner, Petitioner’s “cherry-picking of features from Yuen (a wrist/arm device with a speculative ‘toe band’) and Mestas (a wrist-worn athletic monitor) in an attempt” to arrive at the device recited in claim 1 constitutes “impermissible

hindsight.” *Id.* at 37. Focusing on limitation 1[A], Patent Owner distinguishes the recited bounding members from the structures Petitioner identifies in Yuen, explaining that “Yuen’s structure . . . resembles an open shell, potentially with exposed sensor protrusions, rather than the fully sealed internal cavity formed between distinct bounding members.” Resp. 42 (citing Ex. 2018 ¶¶ 136–139). Patent Owner further asserts that “Petitioner’s reliance on Mestas’s generic teaching of a ‘water-resistant’ housing” is unavailing because it “provides no disclosure that would have motivated a POSITA to fundamentally re-engineer Yuen’s disparate housing structure into the specific coupled interior and exterior bounding member construction” with the “claimed internal waterproof cavity.” *Id.* at 43.

We agree with Patent Owner that Petitioner has not shown that the asserted combination of Yuen and Mestas teaches or suggests limitation 1[A]. The portions of Yuen’s device housing that Petitioner maps to the recited interior and exterior bounding members are open at their ends, i.e., the sides abutting the “attachment band” shown in Yuen’s Figures 3 and 4. *See also* Ex. 2018 ¶¶ 136–137. That attachment band is not part of Yuen’s device housing, nor does Petitioner allege that it constitutes a bounding member as recited in the challenged claims. *See* Pet. 19–21. Because the interior space Petitioner identifies as the cavity is at most only partially enclosed by the identified bounding members, Petitioner has not demonstrated that Yuen’s alleged bounding members are “coupled together to form a waterproof cavity there between” as recited in limitation 1[A].⁷

⁷ At oral argument, Petitioner’s counsel asserted that Yuen’s device housing is, in fact, closed at its ends. *See* Tr. 11:15–12:4 (asserting that Yuen’s

The text Petitioner cites in Yuen does not help its position. *See* Pet. 20–21 (citing Ex. 1006, 14:66–15:4, 15:10–14). The first passage describes a “watertight seal” to protect the components in Yuen’s sensor protrusion/package. Ex. 1006, 14:66–15:4. The second refers to using watertight glues and other mechanisms to “secure or attach the optical sensor package/module and the device body.” *Id.* at 15:10–14. But as shown in Petitioner’s annotated version of Figure 4 above, Yuen’s sensor protrusion (lighter blue highlighting) occupies only part of the space Petitioner identifies as the alleged cavity (darker blue highlighting). Thus, while Yuen does teach ways to prevent liquid ingress from the skin-facing side of the sensor protrusion to protect components within that protrusion, e.g., by providing a “seal” between the device housing and protective transparent layer as shown in Figure 5, it does not teach or suggest that the entire space Petitioner identifies as the alleged cavity is waterproof.

Petitioner’s attempt to fill this gap by pointing to Mestas is unpersuasive. *See* Pet. 21. The only evidence that Petitioner and Dr. Anthony cite in Mestas is a statement that Mestas’s device “is water-resistant as well as impact resistant.” Ex. 1010 ¶ 141. Neither Petitioner, nor Dr. Anthony, articulate how that statement would have motivated an

Figure 4 is “a cross section of a closed compartment”). That argument is unpersuasive for multiple reasons. First, Petitioner concedes that Yuen’s figures do not depict it being closed at the ends. *Id.* at 12:5–13:9. Second, the only structures identified in the Petition, and the related testimony of Dr. Anthony, as the alleged bounding members are the highlighted portions of Yuen’s Figures 3–5. *See* Pet. 19–21; Ex. 1002 ¶¶ 163–165; Ex. 1079 ¶ 27. To the extent, Petitioner now seeks to rely on additional, unseen features in Yuen as allegedly disclosing this limitation that is a new argument that has been waived.

ordinarily-skilled artisan to modify Yuen’s device to form the waterproof cavity recited in claim 1, much less explain the particular modifications Petitioner contends that artisan would have made to Yuen’s device housing to achieve such. This is particularly problematic given that the figures Petitioner relies upon in Yuen and Mestas uniformly depict larger, wrist/arm-band type devices. *See* Ex. 1006, Figs. 2–13, 12:52–55 (depicting a “wrist-worn or arm-mounted accessory such as a watch or bracelet”); Ex. 1010, Figs. 1–6, ¶ 151 (same). Thus, Petitioner’s obviousness theory requires multiple modifications to Yuen’s depicted structure: (1) modifying the identified portions of Yuen’s device housing so that they form a waterproof cavity therebetween; and (2) shrinking that device and its components down to a ring designed to fit around a single toe. We credit Dr. Mercier’s testimony that such modifications would require a “complex” re-engineering of Yuen’s existing structure that Petitioner and Dr. Anthony do not sufficiently explain. *See* Ex. 2018 ¶¶ 108–109, 129–130, 137–138.

The testimony in Dr. Anthony’s supplemental declaration does not provide the missing explanation. Dr. Anthony continues to assert that Yuen’s sensor protrusion is sealed in the space between the alleged bounding members, relying on the same annotated versions of Figures 4 and 5, without addressing the fact that according to Petitioner’s own annotations those bounding members only form a shell that is open to the attachment band at either end. *See* Ex. 1079 ¶¶ 26–28. Indeed, Dr. Anthony appears to acknowledge that Yuen only teaches attaching the sensor module portion of the alleged cavity with watertight glue, but asserts that “it would not make sense to have a device that is waterproof in some areas and not others.” *Id.* ¶ 29. That assertion, however, is not supported by anything beyond Dr.

Anthony's say-so and ignores that Yuen's teachings regarding a watertight seal/glue refer only to the sensor package portion of the alleged cavity. *See* Ex. 1006, 14:66–15:4, 15:10–14. Dr. Anthony's assertion that Mestas teaches additional "waterproofing techniques" that could be applied to Yuen's housing is similarly cursory. *See* Ex. 1079 ¶ 30. He does not identify what those techniques are or how a POSITA would use them to modify Yuen. *Id.* Accordingly, we do not credit this testimony.

In addition to the deficiencies in its showing for limitation 1[A], Petitioner has not met its burden with respect to the "curved battery" recited in limitation 1[B]. For this limitation, Petitioner asserts that Yuen teaches a battery positioned within the wearable computing device's cavity. Pet. 22. Relying again on Yuen's reference to a "toe band," Petitioner argues it would have been obvious that "[i]n order to shrink the device to the smaller package size, and also conform to the more pronounced curvature of a toe, Yuen's electronics package (including its battery) would have been curved to follow the shape of the device that conforms to the body part underneath it." *Id.* at 22–23 (citing Ex. 1002 ¶ 167). According to Petitioner, the use of a curved battery in that redesigned package would have been obvious because Mestas teaches the use of a curved battery in a circular, wrist-worn device. *See id.* at 23–24 (citing Ex. 1002 ¶¶ 168–169; 1010, Fig. 6).

The problem with Petitioner's arguments is that they are premised on a number of significant departures from the depicted design of Yuen's device that find little or no support in the cited references. As Patent Owner points out, Yuen does not explain what it means by a "toe band." *See* Resp. 32 ("The word 'toe' is mentioned exactly once in Yuen."). Dr. Mercier interprets this "toe band" to be a device similar to that shown in Yuen's

figures with a mostly flat device housing and attachment band that stretches around “the entire toe area of the foot” as opposed to the “rigid circumferential ring” worn around a single toe that Petitioner and Dr. Anthony envision. Ex. 2018 ¶¶ 100–101, 126–127. Dr. Mercier’s interpretation is reasonable considering Yuen’s disclosure as a whole and the fact that Yuen refers to a “toe band” rather than a toe *ring*. *See, e.g.*, Ex. 1006, Figs. 2–13, 2:7–17; 12:50–55, 24:14–34 (depicting and describing a device that “may be a wrist-worn or arm-mounted accessory” with an electronics package and separate “attachment band . . . employed to secure the portable biometric monitoring device to the user”); 24:35–37 (noting the device “may also be integrated and worn in a necklace, chest band, bra, patch, glasses, earring, or toe band.”). But even accepting Petitioner’s interpretation of “toe band” as a ring worn around a single toe for sake of argument, it is undisputed that Yuen does not explicitly disclose the layout and internal structure of such a toe band design. Ex. 2022, 50:1–51:7 (Dr. Anthony conceding such is “not explicitly shown in Yuen”); Ex. 2018 ¶ 108 (similar).

This lack of disclosure is important because Petitioner’s assumptions about what would have been obvious for its interpretation of a toe band embodiment, particularly with respect to the “curved battery” limitation, are a significant departure from Yuen’s express teachings. The device housing with the electronics depicted in Yuen’s figures is largely flat. Ex. 1006, Figs. 2–6 (“Electronics Package”); Ex. 2018 ¶ 142 (Yuen’s “electronics package is flat”); *see also* Ex. 1002 ¶ 167 (observing that the device in Yuen’s Figure 4 has “a generally flat back”). It uses a distinct “attachment band,” rather than the shape of the device housing itself, for attachment to the user. Ex.

1006, Figs. 2–4, 2:11–17. Presumably, Yuen’s battery would be located within its relatively flat electronics package.⁸ Ex. 1002 ¶ 166 (“A POSITA would have understood that Yuen’s battery is positioned within the wearable device’s cavity.”). But Petitioner’s arguments, and Dr. Anthony’s related testimony, assume that an ordinarily-skilled artisan seeking to implement a toe band design would modify Yuen’s flat electronics package to conform to the curvature of the toe and also adopt a curved battery without considering other possible designs. *See* Ex. 1002 ¶ 167 (“In Yuen’s toe-band configuration, the device would be circled around a human toe” and “Yuen’s electronics packaging (and the battery) would have been curved.”).⁹ This suggests improper hindsight, which we do not credit.

Petitioner’s best argument for incorporating a curved battery into Yuen is that Mestas discloses a curved battery inside the curved internal cavity of a larger, wrist-worn device. *See* Pet. 23–24 (citing Ex. 1002 ¶¶ 168–169). But that argument is also unpersuasive because Petitioner again fails to account for the significant redesign that would have been required to try to incorporate Mestas’s much larger, curved battery into a ring sized to be worn around a single toe. The record supports Patent Owner’s position

⁸ Yuen refers to an “internal rechargeable battery” (Ex. 1006, 28:41–43), but does not further describe that battery’s location or shape.

⁹ Dr. Anthony asserts this curved implementation would be done “[i]n order to shrink the device to the smaller package size.” Ex. 1002 ¶ 167. But the record supports there are other ways to size the electronics package for a finger-sized ring that do not involve a curved electronics package, including stacking the electronics into a protrusion on the top of the ring. *See, e.g.*, Ex. 1005 (Niwa), Figs. 22, 28; Ex. 2025 (Asada ’701 patent), Fig. 4; Ex. 1035 (Rhee), Figs. 7-1, 8-1, 8-2; Ex. 1037 (Asada article), Fig. 9; Ex. 1034 (Asada ’199 patent), Fig. 2; Ex. 1028 (Kimura), Fig. 24; Ex. 2018 ¶¶ 74–84.

that Mestas’s batteries are much too large to fit within a ring form factor, and that “Mestas’s batteries, layout, and other components would have to be scaled down ‘5 to 10’ times to be appropriately sized for a finger worn ring.” Resp. 32 (quoting Dr. Anthony’s cross-examination testimony at Ex. 2021, 313:12); *see also* Ex. 2018 ¶ 110 (Dr. Mercier agreeing).

Dr. Anthony’s testimony that it would have been “trivial” to implement Mestas’s teaching of a curved battery in the much smaller form factor of a finger or toe-sized ring is not credible. *See* Ex. 1002 ¶ 215; Ex. 2021, 309:17–311:5, 321:11–323:2, 453:20–454:21. Dr. Anthony admitted on cross-examination that it would not have been within the level of skill of a person having ordinary skill in the art to themselves design a smaller version of Mestas’s battery, and that such a person would instead need to procure a battery of the appropriate size and specifications for implementation in a finger-ring from a battery manufacturer. Ex. 2021, 315:9–318:9. Yet Dr. Anthony failed to ascertain, for purposes of his testimony, whether there were appropriately-sized curved batteries available in 2013. *Id.* at 321:5–10.

Further, we credit Dr. Mercier’s testimony that “Mestas’s curved battery is . . . dimensionally incompatible” with a finger or toe-sized ring. Ex. 2018 ¶ 145. Although larger curved batteries suitable for use in a wrist band such as that shown in Mestas were known, the record supports Patent Owner’s position that finger wearable devices “up to the effective filing date of the ’859 Patent had used [flat] ‘coin’ type batteries.” Resp. 36; Ex. 2018 ¶¶ 183–184. We also credit Dr. Mercier’s testimony that a person having ordinary skill in the art would look to a coin type battery, which were known for their compact size and reliability. Ex. 2018 ¶ 183 (citing Ex. 2026). This

testimony is supported by the art of record, which consistently shows the use of flat batteries in finger-ring devices, often stacked above and protruding from the general ring shape of the device. *See, e.g.*, Ex. 1005 (Niwa), Figs. 22, 28; Ex. 2025 (Asada '701 patent), Fig. 4; Ex. 1035 (Rhee), Figs. 7-1, 8-1, 8-2; Ex. 1037 (Asada article), Fig. 9; Ex. 1034 (Asada '199 patent), Fig. 2; Ex. 1028 (Kimura), Fig. 24; Ex. 2018 ¶¶ 74–84. In fact, Patent Owner's first-generation ring design, released in 2015, used a Superbowl ring-type design, with the battery and other components mounted on top of the ring. Ex. 2034; Ex. 2018 ¶ 86. This configuration with a flat, coin type battery resulted in a housing having a protrusion at the top of the ring, as opposed to the device of claim 1, which recites a curved battery with an arc corresponding to the arc of the ring housing. These facts suggest that appropriately-sized curved batteries were not well-known in the art, further undermining Petitioner's argument that an ordinarily skilled artisan would have been both motivated to and had a reasonable expectation of successfully implementing Mestas's curved battery within a toe-sized ring embodiment of Yuen's device.

For these reasons, Petitioner's showing for both limitation 1[A] and limitation 1[B] is deficient.

ii. Objective indicia of non-obviousness

Having considered Petitioner's evidence of obviousness, we now consider and weigh Patent Owner's evidence regarding alleged objective indicia of non-obviousness, i.e., commercial success and long-felt need.¹⁰ As

¹⁰ While Patent Owner also refers to “[e]vidence of copying of Oura Ring by the [i]ndustry” in its Sur-reply, it did not clearly allege that such copying was itself an objective indicia of non-obviousness in its Response. *Compare* Sur-reply 26–27 *with* Resp. 98 (passingly referring to “copying” in a single

explained below, Patent Owner has provided persuasive evidence of commercial success and demonstrated a nexus between this evidence and claim 1 of the '859 patent.

1. Nexus

“[A] patentee is entitled to a rebuttable presumption of nexus between the asserted evidence of secondary considerations and a patent claim if the patentee shows that the asserted evidence is tied to a specific product and that the product ‘is the invention disclosed and claimed.’” *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019) (quoting *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1392 (Fed. Cir. 1988) (emphasis added)). “That is, presuming nexus is appropriate when the patentee shows that the asserted objective evidence is tied to a specific product and that product embodies the claimed features, and is coextensive with them.” *Id.* (internal quotation marks omitted). If, on the other hand, “the thing that is commercially successful is not coextensive with the patented invention—for example, if the patented invention is only a component of a commercially successful machine or process, the patentee is not entitled to a presumption of nexus.” *Id.* (internal quotation marks omitted).

“[T]he degree of correspondence between a product and a patent claim falls along a spectrum. At one end of the spectrum lies ‘perfect or near perfect correspondence,’ and at the other end lies ‘no or very little correspondence.’” *Teva Pharms. Int’l GmbH v. Eli Lilly and Company*, 8 F.4th 1349, 1361 (Fed. Cir. 2021) (quoting *Fox Factory*, 944 F.3d at

sentence of its long felt need argument). Accordingly, reliance on copying as an additional objective indicia of non-obviousness has been waived in this proceeding.

1374). “Bound up with the coextensiveness requirement is the issue of ‘unclaimed features’ in a commercial product.” *Id.* “[L]ike the coextensiveness requirement itself, the concept of unclaimed features is best viewed as part of a spectrum.” *Id.* On one end of the spectrum, the unclaimed features “amount to nothing more than additional insignificant features,” and on the other end, the unclaimed features are “critical,” “claimed by a different patent,” and “materially impact[] the product’s functionality.” *Id.* (quoting *Fox Factory*, 944 F.3d at 1375). This analysis “requires the fact finder to consider the unclaimed features of the stated products to determine their level of significance and their impact on the correspondence between the claim and the products.” *Id.*

Patent Owner argues its evidence shows that Ouraring’s commercial rings, Ring Gen. 3 Horizon¹¹ and Ring Gen. 4 “are coextensive commercial embodiments of the ’178 patent” such that it is entitled to a rebuttable presumption of nexus between the alleged objective indicia and claim 1. Resp. 78–90.

Petitioner does not dispute that the Oura Ring Gen. 3 Horizon and Gen. 4 products practice these claims, but argues that the Oura Ring Gen. 3

¹¹ There are two versions of the Oura Ring Gen. 3 product—the Horizon and the Heritage models. Exs. 2056 (Oura Ring Gen. 3 Heritage), 2057 (Oura Ring Gen. 3 Horizon). Although Patent Owner does not distinguish between the two in its arguments, the pictures of the Oura Ring Gen. 3 product in the Response and Dr. Mercier’s Declaration appear to be of the Horizon model. See Resp. 80–83, 88–89; Ex. 2018 ¶¶ 218–243; Ex. 2029 (Oura Ring Gen. 3 tear down images). Accordingly, Patent Owner’s nexus evidence appears to be limited to the Oura Ring Gen. 3 Horizon product. See Reply 26 (noting that “the Heritage model features a ‘plateau’ design and PO does not explain how that design is coextensive with the claims of the ’859 Patent”).

and Gen. 4 products “include significant unclaimed features that materially impact the product’s functionality” such that they are not entitled to a presumption of nexus. Reply 23–24. Petitioner argues the Oura Ring Application is an essential feature of the products that is not claimed in the ’859 patent, but is covered in another of Patent Owner’s patents—U.S. Patent No. 10,842,429. *Id.* at 23. Petitioner further identifies the Oura Membership that was released with the Oura Ring Gen. 3 product as another unclaimed, but essential feature. *Id.* at 24. Petitioner also contends that the sleek and comfortable design and materials of the Oura Ring Gen. 3 and Ring Gen. 4 products are not claimed in the ’702 patent, but in another of Patent Owner’s patents—U.S. Patent No. 11,599,147 (“the ’147 patent”). *Id.* Finally, Petitioner contends that because Patent Owner points to the same products for objective indicia across multiple patents challenged in related proceedings whose “claims do not cover the same alleged invention,” nexus cannot be presumed. *Id.* (citing *Fox Factory*, 944 F.3d at 1377).

We find that the evidence presented by Patent Owner is sufficient to establish that the Oura Ring Gen. 3 Horizon and Gen. 4 products are commercial embodiments of claim 1 of the ’859 patent and that claim 1 is coextensive in that it encompasses the entire structural apparatus of these products. *See* Resp. 78–89; Ex. 2018 ¶¶ 216–244 (comparing these products to claim 1); Ex. 2029; Ex. 2030; Ex. 2118; Ex. 2119.¹² Indeed, Petitioner does not challenge any aspect of Dr. Mercier’s limitation-by-limitation analysis showing that these products practice claim 1. But more than just

¹² Patent Owner and Dr. Mercier only compare these products to claim 1. Patent Owner has not demonstrated a nexus to independent claims 11 and 14.

practicing the claimed invention, Patent Owner’s evidence supports that claim 1 recites the overall structure that provides for the particular form factor of the Oura Ring Gen. 3 Horizon and Gen. 4 products, i.e., a finger-ring “wedding band” design that allows for the electronic components to be entirely contained within the ring housing with a curved external surface having no protrusions or bulges. Ex. 2018 ¶¶ 257–258; *see also id.* ¶¶ 216–244 (pictures depicting wedding band design of the Oura Ring Gen. 3 Horizon and Gen. 4 products); Ex. 2019 ¶¶ 47–49 (“[Patent Owner’s] decision to highlight the ring form factor indicates this feature’s importance to the marketplace success of the Oura Ring.”).

We disagree with Petitioner’s assertion that the Oura Ring Application and/or Oura Membership are essential, unclaimed features such that a presumption of nexus is not appropriate. The Oura Application functions in conjunction with the Oura Ring to form a “complete solution” that allows the user to access data tracked by the Oura Ring. Ex. 2019 ¶¶ 20–21. The Oura Application cannot receive or display any information absent the Oura Ring’s ability to collect the information from the user. *Id.* Even though the Oura Application may provide additional unclaimed functionality, such as displaying activity, sleep, and readiness scores based on the data collected by the Oura Ring that allow “a user to take advantage of the ring’s offerings,” this functionality is secondary to the ring’s ability to collect that data, without which, the Oura Application would serve no purpose. *See* Ex. 2019 ¶ 21; Ex. 2024, 93:22–95:22.

As the Federal Circuit has explained, “there is rarely a *perfect correspondence* between the claimed invention and the product.” *Fox Factory*, 944 F.3d at 1374. Here, we find that on the spectrum of “unclaimed

features,” the Oura Ring Application is closer to the “insignificant features” end because, while it allows the user to access and interpret data tracked by their Oura Ring, it does not materially impact the functionality of the Oura Ring or its structure.¹³ *See Teva*, 8 F.4th at 1361 (explaining that “like the coextensiveness requirement itself, the concept of unclaimed features is best viewed as part of a spectrum”).

Similarly, the Oura Membership, which provides add-on features such as additional personalized data and insights, is dependent on ring sales and does not materially impact the Oura Ring’s functionality in that such membership is optional, and the ring is fully functional without it. Ex. 1083, 192:10–17; Ex. 2019 ¶ 21; Ex. 2024, 95:11–13. Thus, we likewise find that on the spectrum of “unclaimed features,” the Oura Ring Membership is closer to the insignificant feature end than the critical feature end. *See Teva*, 8 F.4th at 1361.

We are likewise unpersuaded by Petitioner’s arguments that the sleek and comfortable design and materials are essential, unclaimed features. Reply 24. The specific structure claimed in claim 1 of a finger-ring comprised of interior and exterior bounding members that form a waterproof cavity that holds the recited curved battery proximate to a sensor module and flexible PCB serves to create the sleek and comfortable “wedding band” form factor. Ex. 2018 ¶ 258. Thus, the sleek and comfortable design of the Gen. 3 Horizon and Gen. 4 rings is not an added feature, but rather a result

¹³ The ALJ in the parallel ITC Investigation, presented with similar arguments for the related ’178 patent, rejected the theory that the existence of the Oura Application countered a presumption of nexus. Ex. 2122, 109–110. The ALJ’s reasoning is consistent with our findings here.

of the structure and configuration recited in claim 1. Further, we disagree with Petitioner that the use of “comfortable materials,” which Patent Owner has apparently separately patented, to make its ring constitute an essential, unclaimed feature that would substantially detract from the coextensiveness of these products and claim 1 of the ’859 patent. The ’859 patent describes a variety of materials from which its ring can be made. *See* Ex. 1001, 17:13–26. Petitioner offers no explanation why the “comfortable materials” it refers to are any different than the materials described in the ’859 patent,¹⁴ much less show that they are a critical feature that would shift the balance of the coextensiveness analysis in this proceeding. *See* Reply 24.

Finally, Petitioner’s argument that there is no nexus because Patent Owner asserts the same objective indicia evidence in multiple proceedings involving different patents is unavailing. The patents challenged in these proceedings, i.e., Patent Nos. 11,874,702; 10,139,859; 10,281,953; and 11,868,178, are all part of the same patent family. They claim the benefit of the same priority applications, presumably have the same expiration date, and, while there are some differences, many of their claims recite substantially overlapping subject matter, namely the structure of a finger-worn wearable ring device. That claim 1 of the ’859 patent recites some limitations that may not be found in some of the claims of these other

¹⁴ Petitioner cites evidence that the Oura Ring Gen. 3 Horizon and Gen. 4 products are made of titanium. Reply 24 (citing Ex. 2059, 2; Ex. 2098, 2; Ex. 2102). The ’859 patent teaches that its device housing may be made from titanium. Ex. 1001, 17:13–26. Petitioner’s bare citation to the ’147 patent does not identify any allegedly critical feature missing from the ’859 patent, nor show that these products embody that feature, and the testimony it cites is inapposite. *See* Reply 24 (citing Ex. 1082, 216:4–10, 18:24; Ex. 1087).

patents, e.g., that the flexible PCB is proximate to the curved battery and sensor module inside a waterproof cavity, does not show that the patents are related to different inventions. In fact, the claims of all four patents recite the essential components of the ring device, including internal and external housing components or enclosures or bounding members that when joined, define a circumferential cavity therebetween, and electronic components such as printed circuit boards, sensors, and batteries configured to fit within and/or conform to the cavity. Thus, we find that the identified claims of these patents all cover substantially overlapping subject matter and are entitled to a presumption of nexus for essentially the same reasons. *See WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1324–25, n.3 (Fed. Cir. 2016) (presuming nexus between a product and the asserted claims of two related patents where the patents cover essentially the same or similar inventions); *Fox Factory*, 944 F.3d at 1377 (explaining that “a presumption of nexus can be appropriate” for multiple patents where the claims of those patents “generally cover the same invention”).

For these reasons, we find that Patent Owner has successfully shown that the Oura Ring Gen. 3 Horizon and Gen. 4 products are coextensive with claim 1 of the ’859 patent and is thus entitled to a presumption of nexus between its objective indicia evidence and that claim.

2. Commercial Success

For the reasons that follow, we find that Patent Owner’s evidence of commercial success is probative of non-obviousness. The Oura Ring is Patent Owner’s only product offering. Ex. 2019 ¶ 13. Patent Owner introduced a first generation of the Oura Ring (Gen. 1) in March 2015, a second generation (Gen. 2) in 2018, two versions of a third generation (Gen.

3) in 2021, and a fourth generation (Gen. 4) in 2024. *Id.* ¶¶ 15–18. Patent Owner presents evidence of the purported commercial success of the Gen. 3 and Gen. 4 products based on absolute sales (both revenue and unit sales) and sales growth, the Oura Ring’s contribution to Ouraring as a company, and its marketplace performance relative to competing products. Resp. 89–96; Ex. 2019 ¶¶ 32–45.

Patent Owner’s evidence shows considerable sales growth since the introduction of the Oura Ring Gen. 3. Mr. Clarke testified that Patent Owner experienced “substantial sales and sales growth, especially since the introduction of the Oura Ring Gen. 3 in October 2021.” Ex. 2019 ¶ 33 (citing Appendices 6, 7). Gross unit sales increased at a substantial rate after the introduction of the Oura Ring Gen. 3. *Id.* Patent Owner also produced evidence of substantial growth in Oura Membership subscribers, revenue attributable to the Oura Ring, and total revenues in the years following the release of Oura Ring Gen. 3. *Id.* ¶¶ 34–36 (citing Appendices 8, 9).

Mr. Clarke testified that the Oura Ring is critical to Patent Owner’s existence as a company. Ex. 2019 ¶ 37. He testified that after the launch of Oura Ring Gen. 3, Patent Owner’s valuation increased by more than 200% in one year (April, 2021 – April, 2022). *Id.* ¶ 38 (citing Ex. 2084; Ex. 2085; Ex. 2086). And he testified about partnerships that Patent Owner has entered into with partner companies, which Patent Owner relies upon as additional evidence of “Oura’s marketplace success.” Resp. 93 (citing Ex. 2019 ¶¶ 39–40).

Not only has Patent Owner demonstrated revenue and unit sales growth, but it also has shown continued strong market share even in view of growing competition in the market. We credit Mr. Clarke’s testimony that

the Oura Ring created a new market segment within the wearables marketplace and that Patent Owner has been credited as “one of the market pioneers” for the smart ring marketplace segment among other accolades. Ex. 2019 ¶ 41 (citing Exs. 2036, 2048, 2058, 2089, 2090, 2091). We also credit Patent Owner’s assertion “as of December 2024 that the market share of the Oura Ring within the smart ring marketplace segment was 49 percent, despite the growing competition within the segment.” Resp. 95 (citing Ex. 2050).

Patent Owner’s commercial success arguments are also supported by evidence demonstrating its clear leadership position within the smart ring marketplace segment and its ability to secure corporate partnerships. Ex. 2019 ¶¶ 39–42 (citing Ex. 2036 (describing Patent Owner as “one of the market pioneers”); Ex. 2048 (describing Patent Owner as “the smart ring market leader”); Ex. 2050 (demonstrating an industry forecast of Patent Owner’s market share to be 49 percent by the end of 2024 after the debut of the Oura Ring Gen. 4 product); Ex. 2058 (describing Oura Ring as retaining its spot as “the best smart ring around” despite other competition); Ex. 2087–2088 (describing Oura Ring partnerships); Ex. 2089 (describing Patent Owner as “synonymous with ‘smart ring’”); Ex. 2092 (stating the Oura Ring Gen. 4 product “continues to define the category” even amid a much more competitive field).

Petitioner offers a number of arguments against Patent Owner’s commercial success showing. *See* Reply 25–29. Petitioner asserts that earlier generations of the Oura Ring with the same features did not succeed and that the sales increases following the release of the Oura Ring Gen. 3 are due to unclaimed features, marketing, and the Oura Membership. *Id.* at 25–27.

Petitioner also disputes Patent Owner’s argument that the revenues it relies upon are attributable to the Oura Ring, urging that they also arise from membership services and other sources. *Id.* at 25. Petitioner further asserts that Patent Owner did not create a new market segment and the market growth followed expected trends, not Patent Owner’s contribution. *Id.* at 25, 29. As explained below, these arguments are largely unavailing.

As an initial matter, Petitioner’s contention that Oura Ring’s increased sales were due to marketing is not persuasive. Even though Patent Owner increased its marketing expenditure from FY 2021 onward (Ex. 2107, 5; Ex. 2108, 5; Ex. 2109, 6; Ex. 2110, 6), its cost of sales, which includes marketing expenses, as a percentage of revenue decreased over that same time period. Ex. 1083, 183:23–185:11; Ex. 2019 (Appx. 4).

We also are not persuaded by Petitioner’s argument that sales of Oura memberships detract from the overall substantial increases in sales and revenue after the launch of the Oura Ring Gen. 3. More than 80 percent of Oura’s revenue is directly attributable to ring sales. Ex. 2019 (Appx. 4). Almost all of Patent Owner’s other revenue comes from Oura Membership subscriptions (*see id.*), which is a service that allows the user to receive “detailed performance metrics tracked by the Oura Ring.” Ex. 2019 ¶¶ 20–21. Accordingly, we find Mr. Clarke’s testimony that 100 percent of Patent Owner’s overall revenue is attributable to the Oura Ring product to be credible. Ex. 2019 ¶ 37.

We also disagree with Petitioner that the relevant market for assessing commercial success is overall wearables market as opposed to the smart ring segment. Mr. Davies bases his opinions regarding an alleged lack of commercial success on the fact that the smart ring product category is a

relatively small component of the much broader wearables market, which includes unrelated devices such as smart watches, for example. *See* Ex. 2135, 32:5–35:1. But the evidence of record shows that the industry recognizes smart rings as a distinct submarket of the broader wearables market. For instance, CNBC recognized the smart ring market as a separate market from other wearables and characterized Samsung’s debut of its smart ring as Samsung’s entry into the smart ring market, despite Samsung also selling smartwatches. Ex. 2036, 3–4. Similarly, Zdnet identified a separate smart ring market, describing Oura as “the smart ring market leader.” Ex. 2048, 2; *see also* Ex. 2089, 3 (“The smart ring market size could surpass \$1 billion by the 2030s.”); Ex. 2091, 2 (discussing smart rings as distinct from smartwatches and fitness bands). While the smart ring market is smaller than the smart watch market, the record supports Patent Owner’s showing that it is a distinct market segment, and the appropriate one to consider in determining Patent Owner’s market share for purposes of commercial success. *See* Ex. 2019 ¶¶ 23–26.

It is undisputed that Patent Owner is a market leader and holds a substantial share of the smart market segment that it helped to establish. Ex. 2135, 23:18–22 (Mr. Davies acknowledging that Patent Owner has a “significant share within [the smart ring category of the market]”); Ex. 2019 ¶¶ 26, 42; Ex. 2036, 4 (describing Patent Owner as “one of the market pioneers”). We are not persuaded that Patent Owner’s success in the smart ring market is simply due to serendipitous timing, as asserted by Petitioner. Reply 20–21 (citing Ex. 1080 ¶¶ 222–254). Indeed, as Patent Owner points out, Petitioner does not explain in its Reply what exactly it considers serendipitous about the timing of these products entry into the market or

seriously dispute the evidence showing substantially increased sales and revenues since their launch. *See* Sur-reply 20–21, 24 (bullet-pointing un rebutted aspects of its showing and noting that Petitioner’s “serendipitous timing” argument is premised on incorporating lengthy expert testimony with little explanation).

We also disagree with Petitioner’s argument that there is “little difference from Gens. 1–2 to Gens. 3–4” of the Oura Ring, yet the former “were not as commercially successful.” Reply 25–26 (citing Ex. 1079 ¶¶ 99–104; Ex. 1080 ¶¶ 175–182, 261–311).¹⁵ The evidence Petitioner cites does not show that the Gen. 1 and 2 rings actually practice claim 1, or any other claim, of the ’859 patent. *See* Ex. 1079 ¶¶ 101–103; Ex. 1080 ¶ 175. For example, Petitioner’s evidence does not show these products had a “curved battery” with an arc corresponding to that of the ring housing. *See* Ex. 1079 ¶ 103 (stating only that Gen. 1 and 2 had a “battery”). Moreover, one readily discernable difference between the earlier Gen. 1 and Gen. 2 products and the later Gen. 3 Horizon and Gen. 4 products is that the later products embody a wedding ring outer housing, likely made possible by the use of a curved battery positioned and configured as recited in claim 1, while the earlier products have a flat surface on the top of the ring (a “plateau

¹⁵ Petitioner cites more than 50 pages of testimony in support of a single eight-word sentence in the Reply, much of it referring to products other than the Oura Ring that are not mentioned in the Reply itself. *See* Ex. 1080 ¶¶ 266–311. To the extent Petitioner is attempting to incorporate arguments regarding these other products from Mr. Davies’s declaration that is an improper incorporation by reference in violation of our rules. 37 C.F.R. § 42.6(a)(3); *see also Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12, 10 (PTAB Aug. 29, 2014) (informative). We consider only the arguments in Petitioner’s briefing.

design”). *Compare* Ex. 2034 (Gen. 1), Ex. 1355, 1 (Gen. 2), *with* Ex. 2029 (Gen. 3), Ex. 2030 (Gen. 4)¹⁵, *see also* Ex. 1079 ¶ 103 (showing a diagram of the Gen. 1 product with a flat battery protruding from the top of the device); Ex. 2098, 1 (“plateau design”). This suggests that there are, in fact, significant differences between the earlier Gen. 1 and Gen. 2 products and the Gen. 3 Horizon and Gen. 4 products. Petitioner never addresses these differences head-on, which undermines the premise for its arguments concerning the Gen. 1 and Gen. 2 products.

Petitioner’s reference to other allegedly, unclaimed features (i.e., “expanded sensors and improved battery life”) in the Gen. 3 and Gen. 4 products is likewise unpersuasive because it does not rebut the presumption of nexus. Reply 26 (citing Ex. 2043, 1; Ex. 1079 ¶¶ 106–108). As noted above, the existence of unclaimed features standing alone does not defeat the presumption of nexus. *See Fox Factory*, 944 F.3d at 1374 (“We have never held that the existence of one or more unclaimed features, standing alone, means nexus may not be presumed. Indeed, there is rarely a *perfect correspondence* between the claimed invention and the product.”); *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.2d 1264, 1273 (Fed. Cir. 1991) (“It is not necessary . . . that the patented invention be solely responsible for the commercial success, in order for this factor to be given weight appropriate to the evidence, along with other pertinent factors”). And Petitioner does not persuasively show that the features it refers to are critical such that they would overcome Patent Owner’s nexus showing.

In contrast, there is merit to Petitioner’s argument that “Mr. Clarke did not separate sales for Heritage and Horizon models” of Gen. 3 of the Oura Ring. Reply 26. That is, Mr. Clarke apparently relies on *all* Gen. 3

product sales for commercial success, lumping sales for the Gen. 3 Heritage and Gen. 3 Horizon products together in his analysis. Ex. 2019 (Appendix 7); *see also* Ex. 1080 ¶¶ 314–320 (Mr. Davies distinguishing between these models). Yet, the evidence Patent Owner offers to show nexus is limited to the Gen. 3 Horizon product. Ex. 2018 ¶¶ 216–244; *see also* Ex. 2056 (depicting Gen. 3 Heritage product); Ex. 2057 (depicting Gen. 3 Horizon product); Ex. 2099, 3 (describing the Gen. 3 Heritage as having “a flat top that houses the battery” while the Gen. 3 Horizon has a “fully round” design with a “flexible battery to accommodate the shape”).¹⁶ Based on the record before us, we discern no way to clearly distinguish sales for only the Gen. 3 Horizon product from the general Gen. 3 sales figures Patent Owner relies upon. This issue does not arise for the Gen 4 product, which apparently is not offered in a Heritage product design. For this reason, we discount the weight of Patent Owner’s commercial success evidence, particularly as it relates to the Gen. 3 product, while the overall showing remains probative of non-obviousness.

On balance, we find Patent Owner’s commercial success showing to be moderately probative of non-obviousness.

¹⁶ The ITC determined that Patent Owner had presented a sufficient nexus showing for both the Gen. 3 Horizon and Gen. 3 Heritage products. Ex. 2122, 69–80 (reviewing both the Gen. 3 Horizon product and the Gen. 3 Heritage product to determine whether they practice the claimed invention of the related ’178 patent), 108 (referring to the technical domestic industry analysis in the determination of nexus). Here, however, claim 1 recites a “curved battery” and the record is more limited with Patent Owner offering a technical analysis of only the Gen. 3 Horizon product.

3. Long-felt need

Patent Owner asserts that its evidence that the '859 patent fulfilled a long felt need for a comfortable and compact smart ring that a user would want to wear around the clock weighs in favor of non-obviousness of the claimed ring. Resp. 96–98. Specifically, Patent Owner asserts that prior efforts to develop a smart ring by others such as the “researcher Asada” were too large to be used and put the components and battery atop the ring. *Id.* at 96–97; *see id.* at 7–13 (reproducing pictures of devices from various exhibits). Patent Owner notes that even its own first-generation product had a “Superbowl ring-type design.” *Id.* at 97 (citing Ex. 2034).

Petitioner argues that Patent Owner’s reliance on earlier unsuccessful attempts to commercialize a wearable ring with a curved battery is not sufficient to show that a person having ordinary skill in the art recognized a need that was long felt or that others had tried and failed to solve the problems. Reply 29–30.

Establishing long-felt but unsolved need requires objective evidence that an art-recognized problem existed in the art for a long period of time without solution, *Newell Cos., Inc. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988), and that the claimed invention satisfies the long-felt need, *Sjolund v. Musland*, 847 F.2d 1573, 1582 (Fed. Cir. 1988). Moreover, the alleged long-felt need must not have been satisfied by another before the claimed invention. *See Newell*, 864 F.2d at 768 (“[O]nce another supplied the key element, there was no long-felt need or, indeed, a problem to be solved . . .”). Consideration of objective indicia also includes “the failure of others to produce alternatives to the patented invention.” *In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995). As with other objective indicia, this

evidence must demonstrate that any “inability or unwillingness of competitors” to develop alternative products “is rooted in the subject matter” of the challenged claims. *See id.*

On the record before us, we agree with Petitioner that Patent Owner has not established a compelling case of a long-felt need in the industry or that others had tried and failed to solve the problems. Patent Owner’s evidence that Dr. Asada recognized advantages of a wearable ring over other wearables (Ex. 1025, 1:56–58) and recognized that comfort and compactness were key in a wearable ring (Ex. 1035, 9–10; Ex. 1037, 3) is not adequate to establish a long-felt need in the art. This anecdotal evidence of a few researchers is not sufficient to establish a long-felt need in the art.

Also, the fact that Dr. Asada found his initial prototype to be “too large to be of use in real life” (Ex. 1035, 74) does not demonstrate failure of others. It is not clear that this prototype was designed for other than a testing environment, and it appears that this initial prototype was only his first attempt to construct such a ring. Ex. 1035, 10 (describing that a goal of the thesis was to develop “technology for obtaining reliable measurements of vital signs for long-term use” and addressing issues including motion artifact minimization and power consumption requirements), *id.* at 74 (noting that “to be practical, [the ring sensor] had to be reduced to a size no larger than a college ring”).

Further, Dr. Mercier’s testimony regarding his own efforts in developing a smart ring as part of the Center of Wearable Sensors at UCSD is not persuasive of failure of others because the evidence does not reflect that Dr. Mercier was working on a commercial design, as opposed to a ring used for academic research, in which case the packaging and overall

structure of the ring may not have been a paramount concern. Ex. 2018 ¶ 261. In other words, it is not clear from Dr. Mercier’s testimony whether he and his colleagues chose to design a ring similar to Dr. Asada’s prototype because that was the most expedient route or because they were unable to design a more compact ring.

The anecdotal evidence that Dr. Asada and Dr. Mercier did not commercialize a wearable ring with a curved battery is not sufficient to establish long-felt need in the industry. Likewise, the assertion that Patent Owner used a “Superbowl ring-type design” in its initial product offering is insufficient evidence, standing alone, to show that the industry was unable to design a different ring design.¹⁷ Accordingly, we give little weight to Patent Owner’s showing of long-felt need.

4. Conclusion as to Claim 1

As explained above, even before considering the objective indicia evidence, Petitioner’s showing for limitations 1[A] and 1[B] is deficient. Patent Owner’s commercial success showing further evinces the non-obviousness of claim 1. Weighing that evidence in view of the totality of the record, we conclude that even if Petitioner’s affirmative showing was not already deficient, there is likely sufficient objective indicia of non-obviousness to overcome that showing. Accordingly, Petitioner has not shown by a preponderance of the evidence that claim 1 would have been obvious over Yuen and Mestas.

¹⁷ The judge in the parallel ITC proceeding found evidence of long-felt weighing in favor of non-obviousness for the claims of a different, but related patent. Ex. 2112, 116. That finding, however, appears to be premised on evidence that is not before us here. *See id.* (citing evidence).

iii. Claims 11 and 14

Independent claim 11 recites “waterproof cavity” and “curved battery” limitations similar to those for which we have found Petitioner’s showing deficient in our analysis of claim 1. *See* Ex. 1020, 1 (Petitioner mapping limitations 1[A] and 1[B] to limitations 11[B] and 11[C] in claim 11). Indeed, Petitioner argues claims 1 and 11 together in the Petition, relying on the same showing for both claims. Pet. 18–36. Accordingly, for the same reasons explained above for limitations 1[A] and 1[B], Petitioner’s showing for limitations 11[B] and 11[C] is also deficient.

Independent claim 14 similarly recites exterior and interior bounding members that are coupled to produce a “waterproof cavity” and a “curved rechargeable battery.” Ex. 1001, 46:17, 35–37. Petitioner labels these recitations respectively as limitations 14[H] and 14[B] and maps them to limitations 1[A] and 1[B] in claim 1. Ex. 1020, 1. Petitioner also relies on the same showing for these limitations that it offers for the other independent claims. Pet. 39, 45 (stating that Yuen-Mestas teaches these limitations 14[H] and 14[B] “for the same reasons” discussed for claims 1 and 11). Accordingly, for the same reasons explained above for limitations 1[A] and 1[B], Petitioner’s showing for limitations 14[H] and 14[B] is also deficient.

For these reasons, Petitioner has not shown by a preponderance of the evidence that claims 11 and 14 would have been obvious over Yuen and Mestas.

iv. Claims 13 and 15–20

Each of claims 13 and 15–20 depend, directly or indirectly, from either claim 11 or 14. Because Petitioner has not met its burden to show that

the base claims would have been obvious over these references, its showing for the dependent claims is likewise deficient. According, Petitioner has not shown by a preponderance of the evidence that claims 13 and 15–20 would have been obvious over Yuen and Mestas.

F. Ground II: Obviousness over Schröder and Mestas

Petitioner contends claims 1, 11, and 13–20 would have been obvious over Schröder and Mestas. *See* Pet. 49–77. As explained below, Petitioner has not shown by a preponderance of the evidence that these claims would have been obvious over the asserted references.

i. Claim 1

Petitioner asserts that Schröder’s finger-ring teaches or suggests most of the limitations of claim 1. *See* Pet. 52–66, In particular, Petitioner illustrates its position with annotated versions of Schröder’s Figure 7 and Figure 8, reproduced below.



Fig. 7



Fig. 8

In the figures above, Petitioner identifies ring half 16 as the interior bounding member and ring half 18 as the exterior bounding member. *Id.* at 53–55. Petitioner contends that inlay 12 (red), also referred to as the carrier foil, between the ring halves (green) is a flexible PCB and that Schröder teaches components such as a battery can be located on that carrier. *Id.* at 60–61. Petitioner further contends that a POSITA would have been motivated to incorporate Mestas’s flexible PCB into Schröder’s ring. *See id.* at 50–51, 61. Regarding the curved battery in limitation 1[B], Petitioner asserts that it would have been obvious to incorporate Mestas’s teaching of a curved battery and position that battery in the cavity occupied by inlay 12 “because a curved battery allows a larger battery to conform to a ring’s circular shape without stressing the battery or ring housing.” *Id.* at 51, 56–57 (referring to Mestas’s Fig. 6).

Patent Owner disputes Petitioner’s assertions. Resp. 57–76. Patent Owner asserts that “Schröder’s inlay is not the claimed ‘flexible printed circuit board’ that supports the full array of claimed components and is positioned within the cavity proximate to the curved battery and sensor module as required by” claim 1. *Id.* at 67; *see also* Sur-reply 16 (citing evidence that “Schröder’s inlay is not a PCB”). Patent Owner further asserts that “Petitioner’s suggestion to import Mestas’s curved battery and PCB into Schröder’s ring . . . ignores the vast dimensional mismatch” because “Mestas’s components are designed for a device ‘5 to 10 times’ larger than a finger ring.” *Id.* at 59. According to Patent Owner, incorporating Mestas’s curved battery would not be “a ‘trivial’ modification as Petitioner cavalierly suggests,” but rather would “require a non-obvious, substantial redesign and miniaturization effort.” *Id.* at 59, 63 (citing Ex. 2018 ¶¶ 165–170).

We find that Patent Owner has the better position and that Petitioner has not shown that a wearable ring device having a “curved battery,” as recited in limitation 1[B], would have been obvious over Schröder and Mestas.¹⁸

We begin by discussing what Schröder does and does not disclose with respect to this limitation. It is undisputed that Schröder teaches that its finger-ring may include a battery and that this battery may be connected to a chip module 10. Ex. 1007, 11:46–50. But none of Schröder’s figures depict the location of that battery. And the embodiment in Schröder’s Figure 3 depicts chip module 10 extending above the inlay and through the upper ring half resulting in a protrusion at the top of the ring. *Id.* at Fig. 3. This suggests that a battery located proximate to that chip module would also protrude from the top of the ring similar to the “Superbowl ring-type design” exhibited in other prior art devices (*see* Ex. 2018 ¶¶ 74–86) and undermining Petitioner’s alleged reasoning for incorporating a curved battery, i.e., “to conform to a ring’s circular shape without stressing the battery or ring housing” (*see* Pet. 51, 56–57).

¹⁸ For sake of argument here, we accept Petitioner’s position that it would have been obvious to incorporate Mestas’s teaching of a flexible PCB into Schröder’s finger-ring and focus on Patent Owner’s arguments regarding the deficiencies in Petitioner’s showing for limitation 1[B]. We disagree, however, with Petitioner’s assertion that an ordinarily-skilled artisan would have understood Schröder’s inlay 12 itself to be a PCB. We have extensively addressed this issue in final decisions in related proceedings, explaining why Petitioner’s arguments and evidence on this point are not persuasive. *See, e.g.*, PGR2024-00030, Paper 57, 30–35; IPR2024-00928, Paper 36, 21–25.

Petitioner seeks to avoid the import of Figure 3 by arguing that the Petition relies on other disclosures in Schröder. *See* Reply 14, 17. In particular, Petitioner points to the embodiments in Figures 4, 7 and 8 (which depict inlay 12 between ring halves 16 and 18) and Schröder’s teaching that the chip module and other components can be located on the carrier foil. *See* Pet. 53–55, 60–61 (annotating figures). But even those figures depict inlay 12 as occupying only a relatively small space between the ring halves, and Schröder acknowledges that if electronic devices are added to its inlay, they may not fit. Ex. 1007, 13:31–35 (stating that devices “should not protrude beyond the carrier foil *if possible*”) (emphasis added), 14:9–13 (suggesting the use of paste to compensate for steps or shoulders that may arise through chip module 10). Accordingly, while Schröder does teach that components can be arranged on inlay 12 and that inlay 12 is positioned between the two ring halves, it does not identify the battery specifically as one of those components nor does it suggest that larger components can be accommodated within that space. *See* Ex. 1007, 12:40–42, 12:61–65, 13:23–35.

These limits in Schröder’s disclosure serve to highlight what seems to be improper hindsight in Petitioner’s position. Petitioner and Dr. Anthony assume that a POSITA would position the battery between Schröder’s ring halves and implement Mestas’s curved battery because it “allows a larger battery to conform to a ring’s circular shape without stressing the battery or ring housing.” Pet. 51, 56; Ex. 1002 ¶¶ 212, 222. That position, however, ignores alternative designs that are at least equally supported by Schröder’s disclosure (*see* Ex. 1007, Fig. 3), but would *not* result in a ring configured as recited in the challenged claims.

Petitioner attempts to downplay this concern by characterizing the modification of Schröder’s ring to include Mestas’s curved battery as an obvious “matter of choice” in design. *See* Reply 17–18 (citing Ex. 1079 ¶¶ 74–76). We disagree. As explained above, the record supports Patent Owner’s argument that Mestas’s batteries are much too large to fit within a ring form factor because they are “designed for a device ‘5 to 10 times’ larger than a finger ring.” Resp. 59 (quoting Ex. 2021, 313:12); *see supra* § III.E.i. Petitioner argues that it “does not bodily incorporate Mestas’s battery” into Schröder, which on the surface is correct. *See* Reply 15. But this does not help Petitioner meet its burden because it’s actual obviousness theory that “a POSITA would have found it trivial to implement Mestas’s teaching into a ring like Schröder’s ‘finger-ring’” is not persuasive. *See* Pet. 52 (citing Ex. 1002 ¶ 215).

For the same reasons explained above in our analysis of Ground 1, Dr. Anthony’s testimony that it would have been “trivial” to implement Mestas’s teaching of a curved battery (Ex. 1002 ¶ 215) in the much smaller form factor of Schröder’s ring is not credible. *See* Ex. 2021, 315:9–318:9 (acknowledging it would have been beyond the level of ordinary skill to miniaturize Mestas’s battery, but that a POSITA could try to procure one); 321:5–10 (conceding that he did not try to ascertain whether such a battery was available in the relevant time frame). Instead, we credit Dr. Mercier’s testimony that a “non-obvious structural overhaul” beyond the level of ordinary skill in the art would have been required. Ex. 2018 ¶¶ 170–171, 174–182 (describing various aspects of battery design that Dr. Anthony did not consider). As before, Dr. Mercier’s testimony is further supported by evidence showing a consistent pattern of flat battery use in prior art finger-

ring devices. *See, e.g.*, Ex. 1005 (Niwa), Figs. 22, 28; Ex. 2025 (Asada '701 patent), Fig. 4; Ex. 1035 (Rhee), Figs. 7-1, 8-1, 8-2; Ex. 1037 (Asada article), Fig. 9; Ex. 1034 (Asada '199 patent), Fig. 2; Ex. 1028 (Kimura), Fig. 24; Ex. 2018 ¶¶ 74–86.

In sum, Petitioner's showing for limitation 1[B] is deficient in multiple respects. First, Petitioner assumes that an ordinarily-skilled artisan would have been motivated to implement Mestas's curved battery in the much smaller interior space occupied by Schröder's inlay 12 without sufficiently considering the feasibility of that modification or alternative designs suggested by Schröder. Second, even if we accept Petitioner's purported rationale for the combination (which we do not because we find it that it is predicated on improper hindsight), Petitioner has not shown that an ordinarily-skilled artisan would have had a reasonable expectation of successfully implementing the proposed modification.

ii. Objective indicia of non-obviousness

As explained above, Patent Owner has provided persuasive evidence of commercial success and demonstrated a nexus between this evidence and claim 1 of the '859 patent. *See supra* § III.E.ii.

1. Conclusion as to Claim 1

As explained above, even before considering the objective indicia evidence, Petitioner's showing for limitation 1[B] is deficient. Patent Owner's commercial success showing further evinces the non-obviousness of claim 1. Weighing that evidence in view of the totality of the record, we conclude that even if Petitioner's affirmative showing was not already deficient, there is likely sufficient objective indicia of non-obviousness to overcome that showing. Accordingly, Petitioner has not shown by a

preponderance of the evidence that claim 1 would have been obvious over Schröder and Mestas.

iii. Claims 11 and 14

Independent claim 11 recites a “curved battery” limitation similar to that in claim 1. *See* Ex. 1020, 1 (Petitioner mapping limitation 1[B] to limitations 11[C] in claim 11). Indeed, Petitioner argues claims 1 and 11 together in the Petition, relying on the same showing for both claims. Pet. 52–66. Accordingly, for the same reasons explained above for limitation 1[B], Petitioner’s showing for limitation 11[C] is also deficient.

Independent claim 14 similarly recites a “curved rechargeable battery.” Ex. 1001, 46: 35–37. Petitioner identifies this recitation as limitation 14[B] and maps it to limitation 1[B] in claim 1. Ex. 1020, 1. Petitioner also relies on the same showing for these limitations that it offers for the other independent claims. Pet. 68 (stating that Yuen-Mestas teaches a curved battery “for the same reasons” explained for claims 1 and 11). Accordingly, for the same reasons explained above for limitation 1[B], Petitioner’s showing for limitation 14[B] is also deficient.

For these reasons, Petitioner has not shown by a preponderance of the evidence that claims 11 and 14 would have been obvious over Schröder and Mestas.

iv. Claims 13 and 15–20

Each of claims 13 and 15–20 depend, directly or indirectly, from either claim 11 or 14. Because Petitioner has not met its burden to show that the base claims would have been obvious over these references, its showing for the dependent claims is likewise deficient. According, Petitioner has not

shown by a preponderance of the evidence that claims 13 and 15–20 would have been obvious over Schröder and Mestas.

IV. MOTIONS TO SEAL

The Board previously granted Patent Owner’s motion for entry of a Stipulated Protective Order. Papers 14, 16. Pursuant to this protective order, Patent Owner requests to seal designated information in the confidential version of its Response (Paper 18) and certain confidential versions of exhibits to the same (Exs. 2019, 2024, 2034, 2063, 2107, 2108, 2109, 2110, 2111, and 2112), designated information in the confidential version of its Sur-reply (Paper 37) and the confidential version of Exhibit 2135, and the confidential version of its demonstratives (Exhibit 2137). Papers 17, 38, 43. Petitioner likewise requests to seal designated information in its Reply (Paper 23) and certain confidential versions of exhibits to the same (Exs. 1079, 1080, 1081, and 1083). Paper 24.

These papers and exhibits contain information designated by Patent Owner under the Stipulated Protective Order as containing “Outside Attorney’s Eyes Only—Protective Order Material.” Specifically, Patent Owner and Petitioner submit that the designated material includes Patent Owner’s sensitive and confidential business information, including Patent Owner’s financial information. Paper 17, 3–5; Paper 24, 3–4; Paper 38, 2; Paper 43, 2.

A party may move to seal confidential information including, e.g., trade secret or other confidential research, development, or commercial information. 37 C.F.R. § 42.54(a)(7). It is the movant’s burden to show good cause for sealing such information, and we balance the party’s asserted need for confidentiality with the strong public interest in open proceedings.

Argentum Pharms. LLC v. Alcon Research, Ltd., IPR2017-01053, Paper 27 at 4 (PTAB Jan. 19, 2018) (informative). The parties provide a sufficient explanation and have shown good cause for sealing the designated portions of Exhibits 1079, 1080, 1081, 1083, 2019, 2024, 2034, 2063, 2107, 2108, 2109, 2110, 2111, 2112, 2135, 2137, and the related portions of the Response, Reply, and Sur-Reply. Moreover, the parties provide a public version of each Paper (Papers 19, 22, and 36) and of each Exhibit with redactions limited to Patent Owner’s business confidential information so the record may remain clear and reasonably open. Accordingly, the confidential versions of Exhibits 1079, 1080, 1081, 1083, 2019, 2024, 2034, 2063, 2107, 2108, 2109, 2110, 2111, 2112, 2135, and 2137, Patent Owner’s Response (Paper 18), Petitioner’s Reply (Paper 23), and Patent Owner’s Sur-reply (Paper 37) are sealed. We likewise seal the confidential version of Petitioner’s demonstratives, which were filed as Exhibit 1370 and contain information from the sealed materials discussed above.

V. CONCLUSION

Petitioner has not shown by a preponderance of the evidence that claims 1, 11, and 13–20 of the ’859 patent are unpatentable.

Ground	Claims	35 U.S.C. §	References/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1	1, 11, 13–20	103	Yuen, Mestas		1, 11, 13–20
2	1, 11, 13–20	103	Schröder, Mestas		1, 11, 13–20
Overall Outcome					1, 11, 13–20

VI. ORDER

It is hereby:

ORDERED that claims 1, 11, and 13–20 of the '859 patent have not been shown to be unpatentable;

FURTHER ORDERED that the confidential versions of Papers 18, 23, and 37 and Exhibits 1079, 1080, 1081, 1083, 1370, 2019, 2024, 2034, 2063, 2107, 2108, 2109, 2110, 2111, 2112, 2118, 2119, 2135, and 2137 are sealed; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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