

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

OURARING INC.
Patent Owner.

Case No. IPR2024-01077
U.S. Patent No. 10,139,859

**PETITIONER'S REPLY IN SUPPORT OF
INTER PARTES REVIEW
OF U.S. PATENT NO. 10,139,859**

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Ex-1002	Declaration of Dr. Brian W. Anthony
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Ex-1004	Prosecution History of the ’859 Patent (Application No. 15/444,208)
Ex-1005	U.S. Patent Publication No. 20120016245 to Niwa (“Niwa”)
Ex-1006	U.S. Patent No. 8,954,135 to Yuen (“Yuen”)
Ex-1007	U.S. Patent No. 10,303,867 to Schröder (“Schröder”)
Ex-1008	Certified Translation of DE 102013012339.9 to Schröder
Ex-1009	Original DE 102013012339.9 to Schröder
Ex-1010	U.S. Patent Publication No. 20140244009 to Mestas (“Mestas”)
Ex-1011	U.S. Provisional Patent Application No. 61/768,279 to Mestas
Ex-1012	U.S. Patent No. 8,700,111 to LeBoeuf (“LeBoeuf”)
Ex-1013	U.S. Patent Publication No. 20120218184 to Wissmar (“Wissmar”)
Ex-1014	INTENTIONALLY LEFT BLANK
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¹ Four-digit pin citations that begin with 0 are to the branded numbers added by Samsung in the bottom right corner of the exhibits. All other pin citations are to original page, column, paragraph, or line numbers.

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Ex-1020	Claim Mapping Table
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Ex-1022	Parallel Citations (Schröder '867 to Certified Translation of DE 102013012339.9)
Ex-1023	Dynamic Drinkware-type analysis for Mestas
Ex-1024	U.S. Patent No. 4,830,014 to Goodman ("Goodman")
Ex-1025	U.S. Patent No. 6,745,061 to Hicks ("Hicks")
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Ex-1041	<i>Guidelines To Enhancing The Heart-Rate Monitoring Performance Of Biosensing Wearables</i> (2014)
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Ex-1080	Mr. Michael Davies Declaration
Ex-1081	Patrick P. Mercier, Ph.D. Deposition Transcript Volume 1, dated June 24, 2025
Ex-1082	Patrick P. Mercier, Ph.D. Deposition Transcript Volume 2, dated June 25, 2025
Ex-1083	Mr. Andrew T. Clarke's Deposition Transcript, dated June 18 2025
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Ex. No.	Description
Ex-1355	Screenshot from the Internet Archive of Ouraring.com, "The Smart Ring That Helps You Get More Restorative Sleep," available at https://web.archive.org/web/20171205082910/https://ouraring.com/
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Ex-1359	Screenshot from the Internet Archive of Ouraring.com, "Oura," available at https://web.archive.org/web/20150413072529/http://ouraring.com/
Ex-1360	Screenshot from the Internet Archive of Ouraring.com, "Frequently Asked Questions," available at https://web.archive.org/web/20150405131142/http://ouraring.com:80/frequently-asked-questions/
Ex-1361	U.S. Patent No. 9,582,034 ("the '034 Patent")
Ex-1362	U.S. Patent No. 11,868,178 ("the '178 Patent")
Ex-1363	U.S. Patent No. 11,874,702 ("the '702 Patent")
Ex-1364	U.S. Patent No. 10,281,953 ("the '953 Patent")
Ex-1365	Ring, <i>The Chambers Dictionary</i> , 12th ed. (2011)
Ex-1366	Ring, <i>Wiley Electrical and Electronics Engineering Dictionary</i> (2004)

Ex. No.	Description
Ex-1367	Ring, <i>Dictionary of Science and Technology</i> , 2nd edition (2007)

I. INTRODUCTION

Oura's (PO's) Response ("POR") fails to distinguish the challenged claims. Instead, PO improperly imposes unclaimed requirements. PO's secondary consideration evidence lacks nexus and suffers from defects that cannot overcome the Petition's obviousness grounds. The challenged claims should be cancelled.

II. PO'S ARGUMENTS AGAINST GROUND 1 FAIL

A. 1[pre]-1[a(i)]/11[pre]/14[pre]: Wearable ring computing device

1. PO's indefensible construction

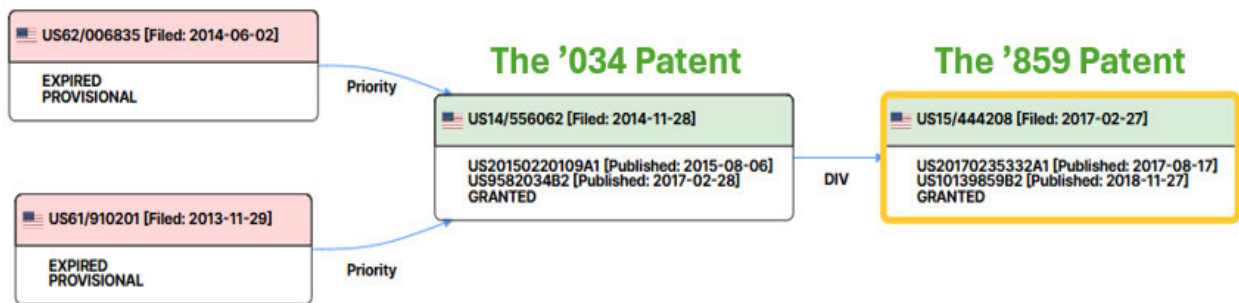
PO's narrow construction, requiring the recited "wearable ring computing device" to be finger-worn conflicts with intrinsic and extrinsic evidence.

a. The intrinsic evidence conflicts with PO's construction

Claims: The claims recite a "wearable ring computing device." When PO claimed a finger-ring in other patents, PO explicitly used the term "finger," as shown below. Ex-1085, 20:13-22:15 (agreeing); Ex-1079 ¶¶7-12. The '859 does not require this.

'178, Ex-1362	'702, Ex-1363	'953, Ex-1364
1[Pre]. A <i>finger-worn</i> wearable ring device...	1[Pre]. A <i>finger-worn</i> wearable ring device...	1[Pre]. A wearable computing device, <i>configured as a ring for being worn around the finger of a user,</i>

Moreover, the '859 is a divisional of the '034 Patent, which claims a “wearable computing device” (WCD). Ex-1361. Only one independent claim recites that the WCD is “*disposed near a finger of a user.*” Thus, a finger-worn ring is a subset of “wearable ring computing devices.”



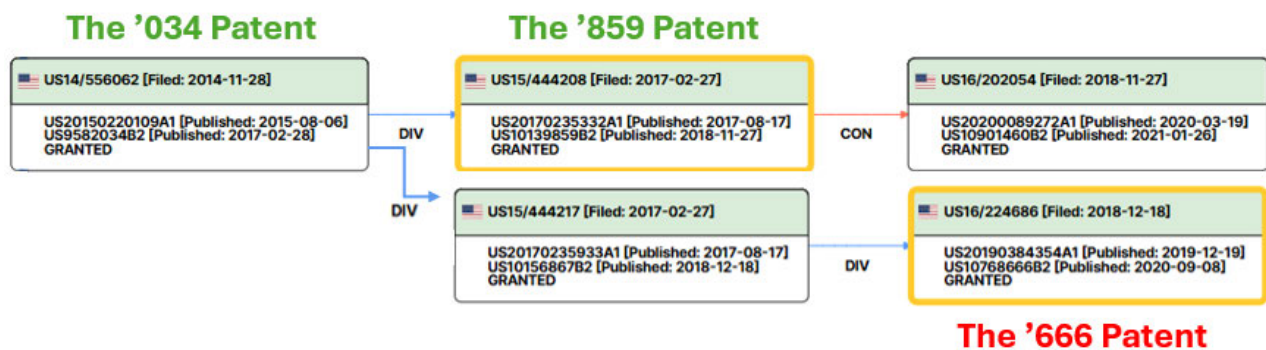
Specification: PO argues that the specification details “a finger-centric design,” but the specification explicitly states that “*other shapes, designs, and form factors can be utilized*” such as “*in the form of a wrist band, bracelet, necklace, earring, or any other type of wearable accessory.*” Ex-1001, 8:50-58; Ex-1079 ¶13. Moreover, “references to the finger...can be considered to apply ...[to a] wrist, neck, ear, etc.” Ex-1001, 8:58-61.

The DI stated that the specification shows “a ring and a wrist-worn [timepiece] device [as] distinct embodiments” (DI, 24), but the specification states that the *timepiece* is distinct from the WCD. Ex-1001, 38:53-63, 43:40-45. Within the WCDs, the “functions and structure of the **device** lend themselves to both a ring version and a wrist-worn version.” Ex-1001, 43:47-48. There are “*other shapes,*

designs, and form factors” of the WCD. Ex-1085, 30:8-31:14; Ex-1079 ¶14.

Prosecution: PO argues that because the claims were allowed over wrist-worn prior art during prosecution, the claims are limited to a finger-ring. POR, 23-24. This does not support disclaimer. For example, PO did not distinguish the prior art based on the recited WCD requiring a finger-worn device. Ex-1085, 38:9-40:9; *Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) (disavowal must be clear). While PO’s expert asserts that claim amendments limited the claims to a finger-ring (Ex-1085, 45:4-49:13), it only added a “ring” to “wearable computing device.” Ex-1004, 478; Ex-1079 ¶¶15-17.

PO argues that the U.S. Patent No. 10,768,666’s file history confirms that the ’859 claimed a finger-ring. POR, 25-26. But the ’666 filed *after* the ’859 is irrelevant to the ’859 claims’ scope.



b. Extrinsic evidence does not help PO

PO argues that its finger-ring distinction aligns “with the common understanding...in the art.” POR, 27-28. But ring’s plain meaning” is a “small,

circular band, ...one of metal, worn on the finger, in the ear, nose, or *elsewhere*; ... *an encircling band*.” Ex-1365, 3; Ex-1366; Ex-1367. Indeed, *rings*, which circle a neck, toe, or wrist, fall under “ring’s” plain meaning. Ex-1079 ¶¶18-19.

2. Yuen-Mestas teaches a wearable ring computing device

Based on its improper construction, PO argues that Yuen-Mestas does not teach a “wearable ring computing device.” POR, 38-41. But Yuen teaches a biometric device worn on a user as a chest band, necklace, earring, or “toe band.” Ex-1006, 2:7-9, Fig. 2; Ex-1079 ¶20.

Yuen’s “toe band” is a ring because it encircles a person’s toe. Fingers and toes are comparable. Ex-1002 ¶161. While PO argues that Yuen’s toe band is not a “ring” and is further distinguished because it is allegedly “used around the entire toe area of the foot,” POR, 39-40, PO’s expert testified that “ring” and “band” are synonymous. Ex-1081, 161:12-19. PO’s arguments that Yuen’s band is U-shaped and the toe band encircles the person’s entire foot (POR, 38-40) are unsupported by Yuen, which emphasizes the need to have a wearable device that fits tightly around the user’s appendage to allow for accurate readings, even without the removable sensor package. Ex-1079 ¶¶20-22.

PO further argues that Yuen’s device has a “flat back” for its “sensing electronics and housing,” which is distinct from a ring’s curved structure. POR, 40-

41. But a POSITA reading Yuen “would understand the various design trade-offs in...how to accomplish a toe band.” Ex-2021, 391:12-392:2; Ex-1079 ¶23. Those trade-offs include the size and proportionality changes of Yuen’s sensing electronics and housing that would have been obvious. Ex-2022, 51:8-56:6 (scaling components); Ex-1002 ¶167; *Campbell Soup Co. v. Gamon Plus*, 787 F. App’x 731, 739 (Fed. Cir. 2019) (changing size is obvious).

PO argues that Mestas does not disclose a finger-ring (POR, 38), but Mestas teaches a wearable ring computing device worn “around a user’s wrist,... arm, on a user’s head,... ankle or thigh” (Ex-1010 ¶143) and “varied in circumferential size” to have a minimal cross section (*id.* ¶¶157, 162). A POSITA would have understood that Mestas’s arm or wrist-worn device that can be scaled down is a wearable ring computing device. Ex-1079 ¶24.

B. 1[a(ii)]-1[a(iii)]/11[a]-11[b]/14[a], 14[h]: Coupled members/waterproof cavity

PO argues that Yuen fails to teach coupled members forming an internal waterproof cavity because Yuen is an open shell with exposed sensor protrusions. POR, 41-43. PO’s implied construction “coupled” requires an assembly of separate structural pieces is unsupported by the intrinsic record. Ex-1079 ¶¶25-26. PO’s expert admitted that the claim does not require Yuen’s bounding members to be separate structural pieces later brought together. Ex-1085, 105:17-106:11. Instead,

he pointed to an embodiment in the specification (*id.*), but “it is improper to read a limitation from the specification into the claims.” *Liebel-Flarsheim Co. v. Medrad*, 358 F.3d 898, 904 (Fed. Cir. 2004).

Regardless, PO ignores Yuen's teachings. Specifically, a biometric monitoring device with a “bounding member” that “contacts, touches and/or faces the [user's] skin” (red) and another bounding member that is exposed to the environment (green). Pet., 19-21. Yuen's “environmental side” faces the environment and has a display, as it is the portion that does not contact the user's skin. *Id.*, Fig. 4. That side is not open to the environment. Ex-1006, 19:52-53; Ex-1079 ¶27.

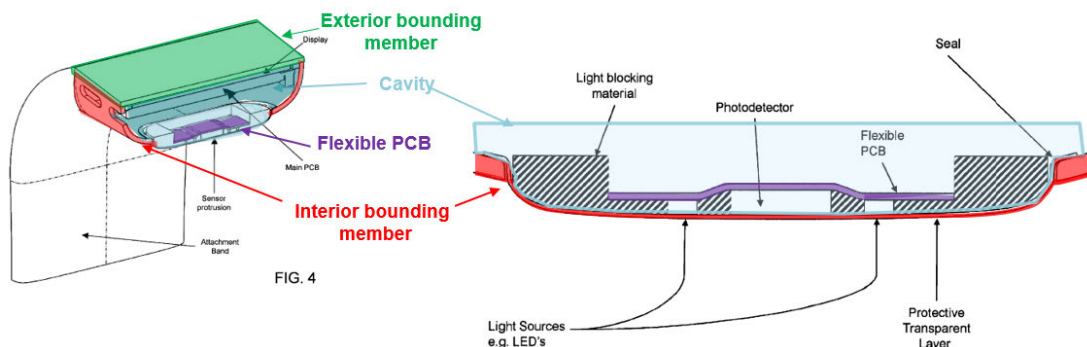


FIG. 5

Yuen's sensor module is sealed within the cavity (blue) formed between the interior and exterior bounding members and covered with a “protective transparent layer,” which completes the internal bounding member (red). Ex-1079 ¶28; Ex-1006, Figs. 4, 5, Fig. 7 (no “protrusion”).

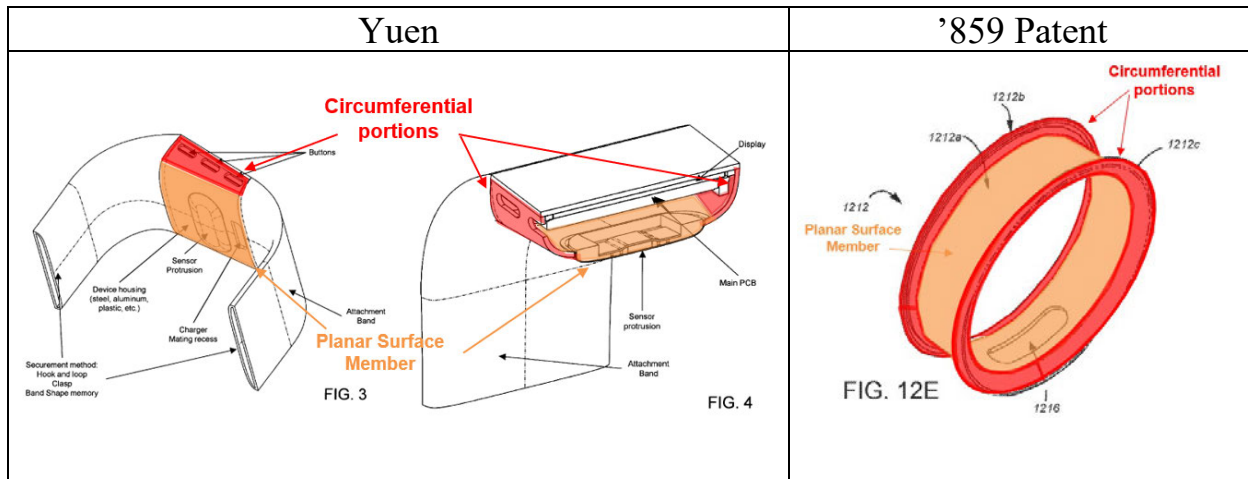
Yuen uses “a watertight seal,” such as “watertight glues [and/or] hydrophobic membranes” to prevent liquid into the device’s body. Ex-1006, 14:59-15:4, 15:10-14. While Yuen teaches using a watertight glue to attach the sensor module, a POSITA would have considered techniques to protect all internal components in the cavity because it would not make sense to have a device that is waterproof in some areas and not others. Ex-1002 ¶164; Ex-1079 ¶29.

PO argues a POSITA would not apply Mestas’s “water resistant” housing teaching to Yuen because doing so requires re-engineering Yuen’s housing. POR, 42. But there would be no need to re-engineer Yuen’s housing—Yuen teaches “a watertight seal.” Ex-1006, 14:59-15:4, 15:10-14; Ex-1079 ¶¶30-31. Mestas provides additional teachings related to well-known techniques to provide a water-tight seal for all internal components of a device, such as Yuen’s. Ex-1010 ¶141. A POSITA would have been motivated to apply Mestas’s waterproofing teaching to Yuen’s housing to prevent liquid into the entire biometric monitoring device, which increases durability and prevents damage. Ex-1002 ¶165.

PO argues via attorney argument that Yuen does not teach claim 14’s “intricate internal geometry.” POR, 43-44.² But Yuen’s interior bounding member’s

² PO cites to Ex-2018 ¶¶136-139 but Dr. Mercier does not address the “specific...geometry.”

planar surface touches the skin (orange) and “opposing circumferential portions that extend from the flat” portion, the same as the circumferential portions (red) of the '859 Patent are described and claimed. Pet., 37-38; Ex-1079 ¶31.



C. 1[b]/11[c]/14[b]: Curved battery

PO argues that Yuen does not disclose a curved battery and Yuen's toe band “battery, is depicted as flat.” POR, 45.³ Yuen's “rechargeable energy source” is within the internal cavity of its device. Ex-1006, 14:43-46; Ex-1002 ¶¶166-169. PO's expert admitted that making a curved battery out of a flat one was within a POSITA's skill set. Ex-1085, 131:8-17. A POSITA would have understood that Yuen's toe band battery would be curved to encircle the user's toe and changing the proportions were obvious changes. Ex-1079 ¶¶32-37; Ex-2021, 390:2-392:2; Ex-2022, 51:8-56:6.

³ PO does not dispute wirelessly recharging. Pet., 39-40.

PO argues that forcing Mestas's battery into Yuen would require discarding Yuen's electronics design for Mestas's larger batteries (POR, 46-47), but Petitioner did not bodily incorporate Mestas's battery into Yuen's ring. Ex-1079 ¶¶38-42. Instead, a POSITA would be motivated to use Mestas's curved battery, properly sized, in Yuen to avoid extra thickness or strain. Pet., 53-54; Ex-2022, 26:1-29:13; *Intel Corp. v. PACT XPP Schweiz*, 61 F.4th 1373, 1381 (“suitable option”). PO's expert admitted electronic components were getting smaller, further providing motivation for smaller curved batteries. Ex-1081, 148:24-149:11; *Janssen Pharms. v. Teva Pharms. USA*, 97 F.4th 915, 928 (Fed. Cir. 2024) (“employing ordinary creativity”).

D. 1[c]/11[d]/14[c]: Sensor module

PO only disputes Yuen-Mestas's sensor module position. First, PO argues that Yuen-Mestas's sensor module is not in a waterproof cavity. POR, 48-50. As explained in §II.B (1[a]/11[a]/14[a]), the sensor module is fully sealed in the bounding members' cavity. Ex-1079 ¶¶43-45.

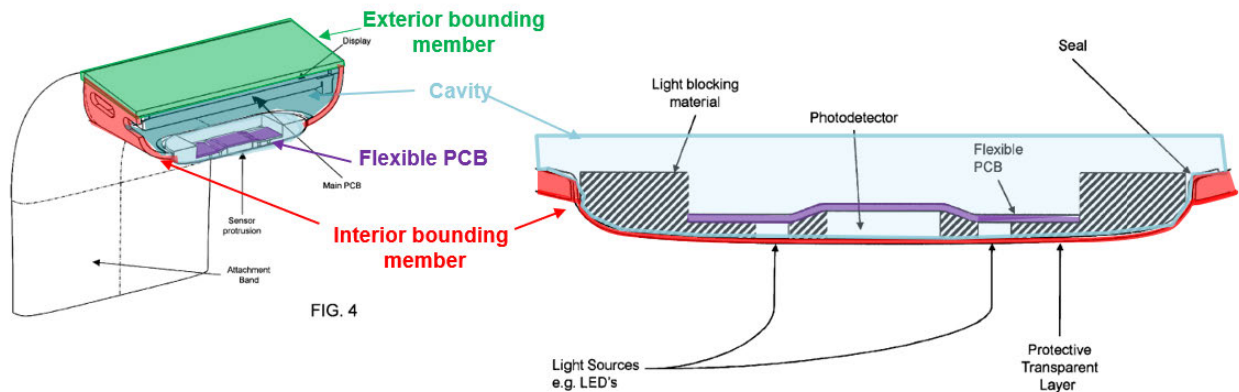


FIG. 5

Second, PO argues that the sensor assembly is not proximate to the battery because it is not within the housing. POR, 50. Yuen's sensor module is located proximate to the battery to receive power, as shown by Yuen placing its electronic components, such as its heart rate sensor, in a low power mode when the user is not wearing the device. Pet., 25-26; Ex-1006, 9:15-35; Ex-1079 ¶46.

PO does not rebut Mestas's sensor assembly placement nor that the motivation to implement Mestas's placement teaching to Yuen is to simplify the manufacturing assembly by reducing wires or long electrical traces and reduce thickness for comfort. Pet., 26-27; Ex-1079 ¶47.

E. 1[d]/11[e]/14[d]: Flexible PCB

PO argues that Yuen/Yuen-Mestas does not teach the flexible PCB positioned within the cavity of a "finger ring" because (1) Yuen's flexible PCB is outside of the housing and (2) Yuen's main PCB is flat and cannot be curved for a finger-ring's cavity. POR, 52-53. Yuen explicitly teaches "a flexible printed circuit board" (Ex-

1006, 2:35-39, 12:35-42; purple below) with attached photodetector and light emitters sealed within the cavity (blue) between the bounding members (*see* §II.B). Ex-2021, 354:22-356:11. Petitioner does not rely on Yuen's "main PCB." Pet., 29-30; Ex-1079 ¶¶48-50.

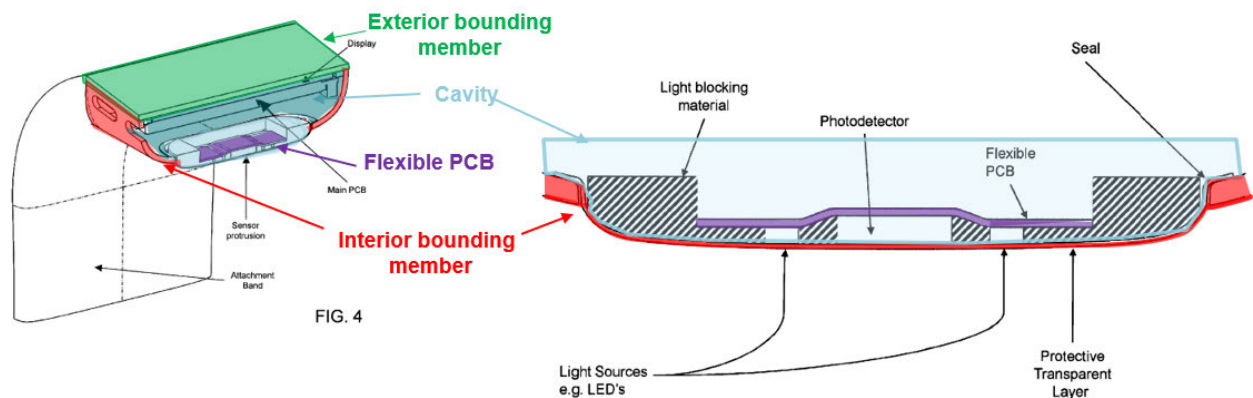


FIG. 5

While PO does not address Mestas's teachings, PO argues that modifying Yuen's PCB to be proximate the battery and sensor requires a redesign. POR, 53. But there is no need to redesign Yuen's PCB because the PCB is proximate to the sensor module and battery in order provide the connection to power the light sources. Ex-1002 ¶¶176-178. Mestas further teaches that its sensor assembly is proximate to the battery by contacting and engaging with the flexible PCB. Ex-1010 ¶¶151 (spine member), 164 (flexible PCB wraps spine member), 168, 177 (batteries contact and engage flexible PCB); Ex-1079 ¶51. A POSITA would have made Yuen's flexible PCB "proximate" the sensor module and battery, as taught in Mestas, to reduce risk

of electrical components losing mechanical or electrical connection and reduce thickness thereby increasing comfort. Ex-1002 ¶179; Ex-2022, 30:3-40:1.

F. Motivation/enablement

PO argues there is no motivation to apply Mestas's teachings to Yuen because of "differences in the disclosed form factors, intended applications, and structural complexities when compared to claimed finger ring computing device." POR, 29-32. But the claims do not recite a finger-ring and Yuen-Mestas teaches the claimed wearable computing device.

PO argues that attempting to combine Yuen's and Mestas's teachings would require undue experimentation and that Yuen's toe band is not enabled. POR, 32-33, 54-56. The prior art is presumed enabled. The '859 Patent, as well as the prior art, all assume readily available or configurable components sizeable to satisfy the claimed configuration. Ex-1085, 118:20-125:14; Ex-1079 ¶¶52-53.

PO argues miniaturization and integration of Mestas's components would be non-trivial. POR, 63-64. But PO's expert acknowledged components were trending smaller (Ex-1081, 147:20-149:11); thus, a POSITA would have been motivated to implement smaller components. Ex-1079 ¶¶54-55.

Additionally, PO isolates Dr. Anthony's quotes and alleges that "coin type batteries" would be used by a POSITA. POR, 32-37. But Dr. Anthony testified there

was no need for a POSITA to design the battery to fit into a ring because there were vendors that sell appropriately sized curved batteries. Ex-2021, 315:9-316:19-21, 454:2-455:11. And the inventor merely believed a curved battery a less readily-available option. Ex-2024, 182:13-183:7. But curved batteries and miniaturized components were available at the time. Ex-1081, 148:24-149:11; Ex-1079 ¶¶56-62. PO's expert admits the patent is about packaging already available miniaturized components. Ex-1085, 122:17-125:14. PO's expert also admitted that a POSITA could make a curved battery out of a flat one. Ex-1085, 131:8-17; Ex-1081, 148:24-149:11. While PO's expert argues scaling "5 or 10X is not reasonable," he admitted that a POSITA "would consider shrinking functionality." Ex-1085, 49:17-50:7.

Raytheon is distinguishable. There, *no known material in existence* could have supported the claimed power density so nothing in the reference "enable[d] a skilled artisan to make the claimed invention." *Id.*, 1378-80. Here, the claims-at-issue do not require a nonexistent material and components appropriately-sized to fit within the device were available. Ex-1079 ¶63.

III. PO'S ARGUMENTS AGAINST GROUND 2 FAIL⁴

A. Motivation/enableness

PO argues that Schröder and Mestas “posses incompatible design philosophies” because Schröder is an RFID/NFC security ring and Mestas is a health monitoring system. POR, 57-58, 75-76.

First, Schröder need not be directed to sensing physiological parameters for a POSITA to have considered its application to Mestas. *See Honeywell Int’l Inc. v. 3G Licensing, S.A.*, 124 F.4th 1345, 1353-54 (Fed. Cir. 2025) (“any need or problem known in the field”); Ex-1081, 143:14-144:6; Ex-1079 ¶¶64-65.

Second, PO’s argument about incompatibility is based on Schröder’s external chip module in Figure 3. POR, 58-59, 76. But the Petition does not rely on Schröder’s Figure 3, but it expressly teaches how inlay 12, chip module 10, and other components are arranged inside the ring. Ex-1007, 14:14-20. A POSITA would thus have been motivated to apply Mestas’s “internal integration,” such as its curved battery, flexible PCB, sensor module placement, and waterproofing teachings to Schröder’s ring to reduce the risk of components losing mechanical or electrical connection to each other, allow other parts of the ring to be thinner, and protect from

⁴ PO does not provide any separate argument for dependent claims 13 and 15-20. POR, 77.

water. Ex-1079 ¶¶66-67; Ex-1002 ¶¶158-159.

Third, PO argues that Mestas's curved battery and PCB would not fit into the Schröder's ring and would "introduce unnecessary complexity, cost, and power drain." POR, 59-60. Petitioner does not bodily incorporate Mestas's battery. Ex-2021, 307:7-17; Ex-1079 ¶¶68. A POSITA would have been motivated to implement Mestas's *teaching* of a curved battery, appropriately sized, into Schröder to avoid increasing the ring's thickness or straining the battery and the housing. Pet., 53-54; Ex-1002 ¶¶214-220. While PO argues Mestas's alleged different power requirements (POR, 50-51), the motivation is Mestas's curved teachings offer better use of space and increased power within Schröder's housing. Ex-2021, 307:3-17, 310:9-19, 327:6-15.

Fourth, PO argues Dr. Anthony admitted battery miniaturization was beyond the skill of a POSITA, POR, 60, but this argument improperly requires a POSITA to design a battery from scratch. Ex-2019 ¶¶184. The '859 Patent itself assumes the existence of appropriately sized curved batteries. *See* Ex-1082, 17:24-18:16; Ex-1079 ¶¶69-70. Dr. Anthony testified there was no need for a POSITA to design the battery to fit into a ring because there were vendors that sell curved batteries. Ex-2021, 315:9-316:19-21; 454:2-455:11; Ex-1079 ¶¶56-57, 70. Moreover, PO's expert acknowledged electronic components were trending smaller (Ex-1081, 147:20-

149:11); thus, a POSITA would have been motivated to make curved batteries smaller.

The fact that Mestas's curved batteries are used in larger wearable devices than the claimed ring is not a patentable distinction. *See Pearce v. Mulford*, 102 U.S. 112, 116 (1880); Ex-1079 ¶70.

B. 1[b]/11[c]/14[b]: Curved battery

PO argues that Schröder does not depict a battery, describe the shape, size or specific internal positions for its optional battery, nor provide any enabling disclosure. POR, 61-62. But Schröder's "battery" (Ex-1007, 11:46-55) is "connected directly to the antenna coil 8 via a rectifier circuit" for charging and thus is also in the ring's cavity with inlay 12. Ex-1007, 11:61:67. While Schröder does not describe its battery's size, a POSITA would have understood how to determine battery specifications to fit inside Schröder's cavity and source such a battery. Ex-1079 ¶71.

Moreover, Schröder expressly teaches how inlay 12, chip module 10, and other components are arranged inside the ring. PO's argument assumes bodily incorporation of Schröder's Figure 3 chip module 10 into Schröder's other figures where a chip module is not illustrated. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981); *Qualcomm Inc. v. Intel Corp.*, 2024 WL 4258364, at *4 (Fed. Cir. Sept. 23, 2024). Nothing in Schröder requires chip module 10 be external. Ex-1079 ¶¶72-73; Ex-

1081, 124:3-7. And PO ignores the Schröder embodiments on which the Petition relies.⁵ When viewing Schröder's ring halves 16 and 18 in Figure 7's arrangement, as shown in Figure 5' below, Schröder's PCB (inlay 12, purple) is between the interior bounding member (16, red) and exterior bounding member (18, green). Ex-1002 ¶¶216-222; Ex-1007, 12:62-65; Ex-1079 ¶¶73-74. PO's expert agreed that "inlay 12, with chip module 10 and various other components on it, is...between ring halves 16 and 18." Ex-1081, 82:10-13, 101:12-16. In Figure 7, inlay 12 and its components (e.g., battery) conform to the arc of the cavity between the bounding members (16,18) because these components curve around the user's finger circumference. Ex-1079 ¶74.

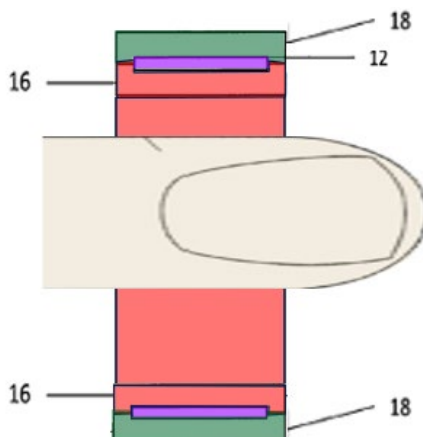


Fig. 5'

⁵ The Board preliminarily found that Schröder's inlay 12, chip module 10, and electronic components are housed "in a recess" between ring components 16 and 18. IPR2024-01078, Paper 9 at 34.

This configuration is an obvious “matter of choice.” Ex-1079 ¶¶74-76. Both experts agree there are teachings on how to configure Schröder's components. *See* Ex-2020, 212:6-214:13; Ex-1081, 130:18-131:14. Schröder need not “disclose what is well known in the art.” *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1261 (Fed. Cir. 2017).

PO argues Mestas's curved battery is too large for the claimed ring housing. POR, 62-63. But Petitioner does not bodily incorporate Mestas's battery. Ex-1079 ¶77. Schröder teaches an internal battery—Mestas further teaches a curved internal battery. A POSITA would have been motivated to implement Mestas's curved battery *teaching*, appropriately sized, into Schröder to avoid increasing the ring's thickness or straining the battery or housing. Pet., 53-54. PO's expert acknowledged electronic components were trending smaller, and thus a POSITA would have been motivated to make curved batteries smaller. Ex-1081, 147:20-149:11. PO's expert also admitted that making a curved battery out of a flat one was within the skill set of a POSITA at the time. Ex-1085, 131:8-17.

C. 1[c]/11[d]/14[c]: Sensor module

PO only disputes Schröder-Mestas's sensor module location because Schröder's replaceable chip module that includes a battery and sensor is “not within an internal cavity.” POR, 64-66. PO again assumes bodily incorporation but nothing

in Schröder requires chip module 10 be external. Ex-1079 ¶¶78-79; Ex-1081, 124:3-7.

Schröder expressly teaches that inlay 12, chip module 10, and other components are arranged inside the ring. Ex-1079 ¶¶79-80. First, Schröder teaches that inlay 12, a carrier foil, is flat and then rolled into a ring shape. Ex-1007, 14:14-20. Then “chip module 10 and antenna coil 8 and the possibly further electronic devices are arranged [into] a carrier,” which is “preferably inserted into a recess in the second component.” Ex-1007, 15:19-22; Ex-2020, 167:17-170:5.

Second, while PO's expert argues that Schröder's inlay is a “simple carrier” (POR, 67), he agreed that Schröder's carrier foil has depressions for inserting electronic devices. Ex-1081, 105:9-108:9; Ex-1007, 13:30-35. A POSITA would have understood that a substrate that carries electronic components and connecting circuitry is a PCB. Ex-1079 ¶¶79-80. PO's expert cannot dispute this fact (Ex-1081, 118:19-121:6) and agreed that “inlay 12, with chip module 10 and various other components on it, is inserted into a recess between ring halves 16 and 18.” Ex-1081, 82:10-13, 101:12-16. PO's expert further agreed Schröder suggests minimizing space in the recess. Ex-1081, 112:4-9.

Moreover, PO's external chip module argument also does not make sense because Schröder's biometric sensors (i.e., the sensor module) must face the skin to capture a vein image. Ex-1079 ¶81.

PO then argues that Mestas would not lead a POSITA to place the claimed curved battery, sensor module, and flexible PCB within a cavity because Mestas has different internal architecture and component scales. POR, 66-67. But Petitioner does not bodily incorporate Mestas. *See* §III.A (motivation). The fact that Mestas's components are used in larger wearable devices than the claimed ring is not a patentable distinction. Ex-1079 ¶82.

PO concludes that Schröder does not explicitly state that its cavity is waterproof and Mestas provides no enabling disclosure nor motivation to modify Schröder. POR, 67. Yet PO ignores the combined teachings. Schröder's components are sealed between the bounding members and Mestas explicitly teaches the waterproofing seal so that Schröder-Mestas's housing is "water-resistant." Ex-1010 ¶141; Ex-1079 ¶82.

D. 1[d]/11[e]/14[d]: Flexible PCB

PO repeats that Schröder-Mestas does not teach a flexible PCB with mounted components inside of the housing. POR, 70. But Schröder expressly teaches that inlay 12, chip module 10 (including its processor and memory), and other

components are arranged inside the ring. Ex-1007, 14:14-20, 15:19-22; Ex-1081, 82:10-13, 101:12-16.

PO argues that Schröder's Figure 7 is not provided with any dimensions to teach element 14[a]'s PCB positioned between raised circumferential portions. POR, 70-73. However, the claims are not limited to sizing of the interior bounding member's raised circumferential portions and planar surface. Ex-1081, 15:25-19:9, 135:4-17. The claims assume the existence of appropriately-sized flanges to provide a cavity for the PCB and components. Schröder's PCB (inlay 12) is positioned on the interior bounding member's planar surface between raised circumferential portions by sitting between Schröder's component 16's U-shape. Pet., 69-71. PO's expert acknowledged a POSITA would have known how to determine the specifications for a ring's components to allow them to fit within the ring. Ex-1081, 130:18-131:14, 112:4-9; Ex-1079 ¶¶83-85.

PO argues there is no motivation to implement Mestas's flexible PCB (and the PCB-mounted components) positioned within Schröder's interior bounding member. POR, 72-73. But a POSITA would have been motivated to apply the Mestas teaching of how its sensor module and battery are positioned proximate to a flexible PCB to Schröder. *See* §§III.A, C; Ex-1079 ¶86.

E. 1[e]/11[g]/14[e]: Processor

PO concedes that Schröder's processor in chip module 10 is used for user authentication based on biometric data but argues that Schröder's processor is "fundamentally different [than]... the '859 Patent." POR, 73-74. The claims simply recite that the processor analyzes sensed biometric data. Schröder has a "processor for processing...data" for user authentication using vein imaging. Ex-1007, 10:60-67, 27:49-50; Ex-1079 ¶¶87-88.

PO ignores that Mestas's processor analyzes "sensor, algorithm, and sensed data" (Ex-1010 ¶201) to determine a change in "different parameters, metrics or physiological characteristics including...steps taken, and...heart rate." Ex-1010 ¶148. PO only argues that there is no motivation to combine Mestas with Schröder. POR, 74-75. While PO argues that Mestas's processor cannot do "the full breadth of the claimed functionalities" (POR, 74), this requires more than the challenged patent discloses. A POSITA would have been motivated to implement Mestas's processing teachings to improve Schröder's processor, which already processes biometric data. Ex-1079 ¶¶89-90.

IV. PO'S OBJECTIVE INDICIA ARGUMENTS FAIL

PO's evidence is insufficient to overcome the obviousness grounds. *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 33 at 33 (PTAB Jan. 24,

2020); *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1373 (Fed. Cir. 2019).

A. ITC's findings are not binding

The Board is not bound by an ALJ's decision. PO has also not shown that coextensiveness with the '178 claims means coextensiveness with the different claims of the '859 Patent. Ex-1079 ¶91.

B. No presumption of nexus

PO argues "Gen. 3 and Gen. 4 are coextensive commercial embodiments of the '859 Patent," specifically independent claim 1. POR, 78-89. But a presumption of nexus is improper unless PO shows that the specific "product 'embodies the claimed features, and is coextensive with them.'" *Fox Factory*, 944 F.3d at 1373. Here, because Gens. 3-4 include significant unclaimed features that materially impact the product's functionality, they are not entitled to a nexus presumption. *Id.* at 1376.

First, the Oura Ring Application, which is essential to Gens. 3-4, according to PO's expert (Ex-2019 ¶21), is not claimed in the '859 Patent but is covered by PO's Patent No. 10,842,429. Ex-1086, 24:65-25:16. The '429 claims cover the calculation and display of sleep, readiness, and activity scores on a user interface, which shows how these aspects of the commercial product amount to significant features not claimed by the '859 Patent. *Fox Factory*, 944 F.3d at 1375; Ex-1079 ¶¶92-93.

Second, the Oura Membership⁶ released with Gen. 3, and not claimed here, works “hand-in-hand” with the Oura Ring and provides “nuanced insights” to the user based on collected data. Ex-2019 ¶21; Ex-1079 ¶94.

Third, Gens. 3-4's sleek and comfortable materials and design are not claimed in the '859 Patent, but in Patent No. 11,599,147. Ex-2100, 11; Ex-2102; Ex-2059, 2; Ex-2098; Ex-1082, 216:4-10, 18:24; Ex-1087. The fact that PO obtained the '147 Patent covering materials shows how that these features are significant and not claimed by the '859 Patent. *Fox Factory*, 944 F.3d at 1375; Ex-1079 ¶95.

Finally, PO points to the same products for objective indicia across four patents ('178, '702, '953, '859), but the claims do not cover the same alleged invention, so nexus cannot be presumed. *Fox Factory*, 944 F.3d at 1377. For example, PO argues a significant feature of the '859 is the flexible PCB proximate to the curved battery and sensor module and coupled to a processor and memory inside a waterproof cavity, which is not recited in the other three patents. Ex-1079 ¶96. PO does not provide any analysis of what evidence asserted across the four patents is attributable to this claimed feature and which is not.

⁶ The Oura Membership is a paid subscription that allows users to access more detailed performance metrics. Ex-2019 ¶¶20-21.

C. PO has not and cannot prove actual nexus due to significant unclaimed features⁷

1. Commercial success

PO's sales are not tied to the '859 claimed features. Earlier generations with the same features had [REDACTED] and [REDACTED] that PO now touts for later versions are due to unclaimed features and marketing. Ex-1079 ¶¶97-98; Ex-1083, 192:19-193:2; *See generally* Ex-1080. PO derives revenue not solely from ring sales but also from memberships and other sources. Ex-2019 ¶36 n.8; Ex-1083, 194:17-195:23. PO did not create a new market segment—wearable health monitoring products existed before Gen. 3 and market growth followed expected trends. Ex-2089; Ex-1081, 15:11-14; Ex-1080 (§§III.H, III.E.4-6, III.E.8). Therefore, PO has not shown how Gens. 3-4's "success" or sales are a result of the '859 claimed subject matter.

a. Sales are based on unclaimed features

PO argues that Oura's success is evidenced by substantial sales and growth since the Gen. 3 introduction and continued increase with Gen. 4. POR, 79. But those sales are not due to the claimed subject matter.

There is little difference from Gens. 1-2 to Gens. 3-4. Yet Gens. 1-2 were not

⁷ While the POR does not argue copying, Dr. Anthony addresses PO's expert copying testimony. Ex-1079 ¶¶114-115; Ex-2019 ¶¶247-254.

as commercially successful. Ex-1079 ¶¶99-104; Ex-1080 ¶¶175-182, 261-311; Ex-2019, 54, 59. If commercial success resulted from the unique characteristics of the '859 claimed subject matter, then Gens. 1- 2 would have also been successful. Sales data shows otherwise. *Id.* PO contends that monthly unit sales since the launch of Gen. 3 [REDACTED] earlier averages, but PO did not distinguish between Gen. 2-3 sales after Gen. 3's launch, so the reported Gen. 3 sales figures also include Gen. 2 sales. POR, 90; Ex-1079 ¶105. PO also failed to distinguish sales between the Gen. 3's Heritage and Horizon, even though the Heritage model features a "plateau" design and PO does not explain how that design is coextensive with the claims of the '859 Patent. Ex-2098; Ex-2056; Ex-2099. Mr. Clarke did not separate sales for Heritage and Horizon models to support commercial success for the product coextensive with the claims. Ex-1080 ¶¶312-334 (§III.E.5).

PO contends that Gen. 3 sales [REDACTED] over time, but the only enhanced capabilities of Gen. 3 were expanded sensors and improved battery life. Ex-2043, 1; Ex-1079 ¶¶106-108. These features are not recited in the '859 claims and do not make Gen. 3 structurally different from Gens. 1 and 2, so any commercial success is attributable to unclaimed features or "serendipitous timing"—not the '859 subject matter. Ex-1080 ¶¶261-304.

PO further argues that growth in Oura Ring unit sales is consistent with

growth in Oura Membership subscribers. POR, 91. But as explained above, the '859 claims do not recite a membership or providing health insights. Ex-2019 ¶21; Ex-1082, 222:16-224:13; Ex-1079 ¶109.

PO also asserts Gen. 4's sales in the first quarter of FY2025 [REDACTED] Oura's full year FY2024 sales. POR, 92. But Gen. 4 includes the same unclaimed features as Gen. 3. While PO attributes success to the ring, Dr. Anthony testified that "having good marketing" leads to sales. Ex-2020, 68:16-60:22. Mr. Clarke downplays PO's marketing efforts (Ex-1083, 179:13-186:2), but PO's marketing expenses [REDACTED] from [REDACTED] in FY2021 to [REDACTED] in FY2022 to [REDACTED] in FY2023. Ex-2107, 5; Ex-2108, 5; Ex-2109, 6; Ex-2110, 6 ([REDACTED] from October 2024 to Q1 2025); Ex-1079 ¶110. [REDACTED] and the addition of experienced professionals in marketing naturally led to increased sales. Ex-2047, 5; *Cardiovascular Sys., Inc., v. Shockwave Med., Inc.*, IPR2019-00405, Paper 99 at 62 (PTAB Feb. 2, 2023). The aspects PO markets are not the features of the '859 claims, but rather the "insights shared through corresponding software." Ex-1080 ¶¶236-243 (§III.D).

b. Contribution from Generations 3-4 to PO's company doesn't show success

PO's argument that all revenue is attributable to the Oura Ring is false. POR, 92. Evidence shows that [REDACTED]

Ex-2019 ¶36 n.8; Ex-1079 ¶111.

The Oura ring is not PO's only product offering—users separately pay for the

. Ex-1083, 194:17-195:23.

Nor does Oura's "network of partnerships" support marketplace success. These partnerships span "a range of areas such as women's health, metabolic health, behavioral health,...fitness and lifestyle," and "glucose biosensing." POR, 93. The '859 Patent does not claim a mobile application or use of sensors to provide health and wellness insights for women's health, metabolic health, behavioral health, fitness and lifestyle, or glucose sensing. Ex-1079 ¶112; *Arthrex, Inc. v. Gelfand, M.D.*, IPR2023-00014, Paper 45 at 53-54 (PTAB Mar. 11, 2024) (failure to identify value attributable to each patent). Further, it is unclear which generation is attributable to "over 600 partnerships."

c. PO did not create a new wearables market segment

PO did not create a new market segment—similar products and designs existed before Gen. 3. Ex-2089; Ex-1081, 15:11-14; Ex-1080 ¶¶236-352. PO's evidence actually discusses the unclaimed features of health tracking (Ex-2089), battery life, and application support (Exs-2026, 2060). Ex-1079 ¶113. Mr. Clarke

acknowledged there were others in the market earlier or around the same time as PO. Ex-1083, 205:13-209:3. By the time Oura introduced Gen. 3 in 2022, it was not novel enough to garner any praise. Ex-1080 ¶¶363-368 (§III.H). For example, the wedding ring design had already been in the market in 2016 by the Touch with its HB Ring. *Id.* Between 2016-2018, four out of six smart rings had the wedding ring form factor before Ring Gen. 3 appeared. *Id.*

The wedding ring form factor was established before Gen. 3, and market growth followed general adoption trends—not Oura's innovation. Ex-1080 ¶¶335-347. In fact, the smart ring market is predicted to taper off in the near future reflecting the normal pattern of adoption and diffusion of innovations rather than the novelty of PO's patent. *Id.* Therefore, Samsung's entry to the market, is not due to Oura's leadership or innovation. It is tied to a company providing "its customers one more reason to prefer its ecosystem over Apple's as Apple does not have a smart ring." Ex-1080 ¶¶348-352 (§III.E.8).

2. No long-felt need

PO's evidence does not show a long-felt need or that others tried and failed. POR, 96-98. Comfortable, compact rings with curved batteries and PCBs were well known in the art. Ex-1002 ¶44; Ex-1079 ¶¶116-119; Ex-1080 ¶¶353-362; *In re Huai-Hung Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) (no nexus where the secondary

consideration “results from something other than what is...novel in the claim”); *Samsung Elecs. Co., Ltd. v. Dodots Licensing Sols.*, IPR2023-00701, Paper 50 at 36 (PTAB Oct. 22, 2024).

PO's reliance on Asada and Dr. Mercier's inability to successfully commercialize a wearable ring with a curved battery does not show that a POSITA recognized a need that was long felt or that others had tried and failed to solve the problems. POR, 97; *Lifecore Fitness LLC v. Woodway, LLC*, IPR2023-00836, Paper 44 at 56-57 (PTAB Oct. 22, 2024) (rejecting previous lack of commercialization as long-felt need evidence).

V. CONCLUSION

The challenged claims should be cancelled.

Respectfully Submitted,

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Petitioner certifies that this Reply includes 5,994 words, as measured by Microsoft Word, exclusive of the table of contents, certificates of service, word count, and exhibits.

CERTIFICATE OF SERVICE

I hereby certify that on September 2, 2025, I caused a true and correct copy of the foregoing REPLY IN SUPPORT OF PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. 10,139,859 to be served electronically on counsel for Patent Owner at the following addresses:

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