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

REPLY DECLARATION OF DR. BRIAN W. ANTHONY IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 10,139,859

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LIST OF EXHIBITS[1]

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Ex-1001	U.S. Patent No. 10,139,859 ("the '859 Patent")
Ex-1002	Declaration of Dr. Brian W. Anthony
Ex-1003	Curriculum Vitae of Dr. Brian W. Anthony
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-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")
Ex-1026	U.S. Patent No. 7,190,986 to Hannula ("Hannula")
Ex-1027	Volker Konig et al., *Reflectance Pulse Oximetry – Principles and Obstetric Application in the Zurich System*, 14 Journal of Clinical Monitoring (Aug. 1998) ("Konig")
Ex-1028	U.S. Patent No. 6,608,562 to Kimura ("Kimura")
Ex-1029	Kevin K. Tremper et al., *Pulse Oximetry*, 70 Journal of American Society of Anesthesiologists, Inc. (Jan. 1989) ("Tremper")
Ex-1030	Y. Mendelson et al., *A Wearable Reflectance Pulse Oximeter for Remote Physiological Monitoring*, Proceedings of 28th IEEE EMBS Annual International Conference (Aug. 30-Sept. 3, 2006) ("Mendelson 2006")
Ex-1031	Sokwoo Rhee et al., *Artifact-Resistant, Power-Efficient Design of Finger-Ring Plethysmographic Sensors Part I: Design and Analysis*, IEEE (2000) ("Rhee 2000 Part I")

Petitioner Samsung Ex-1079, 0005

Ex. No.	Description
Ex-1032	Sokwoo Rhee et al., *Artifact-Resistant, Power-Efficient Design of Finger-Ring Plethysmographic Sensors Part II: Prototyping and Benchmarking*, IEEE Proceedings of 22nd Annual EMBS Int'l Conference (July 23-28, 2000) ("Rhee 2000 Part II")
Ex-1033	Sokwoo Rhee et al., *Artifact-Resistant Power-Efficient Design of Finger-Ring Plethysmographic Sensors*, 48 IEEE Transactions of Biomedical Engineering (July 2001) ("Rhee 2001")
Ex-1034	U.S. Patent No. 6,699,199 to Asada ("Asada '199")
Ex-1035	Sokwoo Rhee, *Design and Analysis of Artifact-Resistive Finger Photoplethysmographic Sensors for Vital Sign Monitoring*, MIT (June 2000) ("Rhee Thesis 2000")
Ex-1036	C.T. Olofson et al., *Machining of Titanium Alloys* (1965) ("Olofson")
Ex-1037	H. Harry Asada et al., *Mobile Monitoring with Wearable Photoplethysmographic Biosensors*, IEEE Engineering in Medicine & Biology Magazine 28 (May-June 2003) ("Asada 2003")
Ex-1038	Denisse Castaneda et al., *A review on wearable photoplethysmography sensors and their potential future applications in health care*, Int J Biosens Bioelectron (2018)
Ex-1039	U.S. Patent No. 7,468,036 to Rulkov et al. ("Rulkov")
Ex-1040	U.S. Patent Publication No. 2006/0211924 to Dalke et al. ("Dalke")
Ex-1041	*Guidelines To Enhancing The Heart-Rate Monitoring Performance Of Biosensing Wearables* (2014)
Ex-1042	U.S. Patent No. 4,880,304 to Jaeb et al. ("Jaeb")
Ex-1043	Tom Lister et al., *Optical Properties of human skin*, Journal of Biomedical Optics (2012)

Petitioner Samsung Ex-1079, 0006

Ex. No.	Description
Ex-1044	John G. Webster, *Design of Pulse Oximeters*, CRC Press (1997)
Ex-1045	U.S. Patent Publication No. 20130211291 to Tran ("Tran")
Ex-1046	WO 2001/017421A1 to Lindberg ("Lindberg")
Ex-1047	WO 2011/132009 to Nyiradi ("Nyiradi")
Ex-1048	U.S. Patent Application Publication No. 2014/0361945 to Misra et al. ("Misra")
Ex-1049	U.S. Patent Application Publication No. 2014/0361934 to Ely et al. ("Ely")
Ex-1050	European Patent No. 2281205 (Chen)
Ex-1051	Lawrence K. Au et al., *Episodic Sampling: Towards Energy-Efficient Patient Monitoring with Wearable Sensors*, Annual International Conference of the IEEE Engineering in Medicine and Biology Society (2009)
Ex-1052	Anastasios Petropoulos et al., *Flexible PCB-MEMS flow sensor*, Procedia Engineering 47 236-239 (2012) ("Petropoulos")
Ex-1053	Tianjia Sun et al., *Wireless Power Transfer for Medical Microsystems*, Springer (2013) ("Sun")
Ex-1054	U.S. Patent Pub. No. 2014/0187160 to Prencipe ("Prencipe")
Ex-1055	H. Ardebili and Michael G. Pecht, *Encapsulation Technologies for Electronic Applications*, William Andrew (2009) ("Ardebili")
Ex-1056	Ciprian Ciofu et al., *Injection and Micro Injection of Polymeric Plastics Materials: A Review*, Int'l J. Modern Mfg. Techs. 49 (2013)

Petitioner Samsung Ex-1079, 0007

Ex. No.	Description
Ex-1057	Richard J. Ross, *LCP Injection Molded Packages—Keys to JEDEC 1 Performance*, IEEE, 2004 Electronic Components and Technology Conference 1807 (2004)
Ex-1058	Tadamoto Sakai, *Encapsulation Process for Electronic Devices Using Injection Molding Method*, 12 Advances in Polymer Technology 61 (1993)
Ex-1059	N.J. Teh et al., *Embedding of Electronics within Thermoplastic Polymers using Injection Moulding Technique*, IEEE, 2000 Int'l Electronics Manufacturing Technology Symposium 10 (2000)
Ex-1060	U.S. Patent No. 6,201,698 to Hunter ("Hunter")
Ex-1061	U.S. Patent No. 4,012,629 to Simms ("Simms")
Ex-1062	Certified Translation of Japanese Published Application No. JP2008-79676 ("Imai")
Ex-1063	Japanese Published Application No. JP2008-79676
Ex-1064	Alexander Silverman, *Fifty Years of Glass-Making*, 18 Indus. & Eng'g Chem. 896-899 (1926)
Ex-1065	B. A. J. Clark, *Color in Sunglass Lenses*, 46 Optometry & Vision Sci. 825-840 (1969)
Ex-1066	Frank Kaltenbach ed., *Translucent Materials*, Institut für Internationale Architektur-Dokumentation GmbH & Co.KG (2004)
Ex-1067	INTENTIONALLY LEFT BLANK
Ex-1068	INTENTIONALLY LEFT BLANK
Ex-1069	INTENTIONALLY LEFT BLANK
Ex-1070	INTENTIONALLY LEFT BLANK

Petitioner Samsung Ex-1079, 0008

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Ex-1075	INTENTIONALLY LEFT BLANK
Ex-1076	INTENTIONALLY LEFT BLANK
Ex-1077	INTENTIONALLY LEFT BLANK
Ex-1078	Takashi Uchino et al., *Prediction of optical properties of commercial soda-lime-silicate glasses containing iron*, 261 Journal of Non-Crystalline Solids 72-78, 1-3 (2000)
Ex-1079	Dr. Anthony's Supplemental Declaration
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
Ex-1084	Francine Gemperle et al., *Design for Wearability*, in Digest of Papers Second Int'l Symposium on Wearable Computers 116 (1998)
Ex-1085	Patrick P. Mercier, Ph.D. Deposition Transcript Volume 3, dated August 22, 2025
Ex-1086	U.S. Patent No. 10,842,429

Petitioner Samsung Ex-1079, 0009

Ex. No.	Description
Ex-1087	U.S. Patent No. 11,599,147
Ex-1088	U.S. Patent Publication No. 20070059595 ("Endo")
Ex-1089	U.S. Patent No. 9,385,396 ("Goh")
Ex-1090	Xie, Wen. "When Commercial Success Can Prove Non-Obviousness." IP WatchDog. February 10, 2022. https://ipwatchdog.com/2022/02/10/commercial-success-can-prove-non-obviousness/id=145576/
Ex-1091	INTENTIONALLY LEFT BLANK
Ex-1092	INTENTIONALLY LEFT BLANK
Ex-1093	INTENTIONALLY LEFT BLANK
Ex-1094	INTENTIONALLY LEFT BLANK
Ex-1095	INTENTIONALLY LEFT BLANK
Ex-1096	INTENTIONALLY LEFT BLANK
Ex-1097	Takahashi, Dean. "Precise heart-rate monitor wristwatch Mio Alpha debuts today." VentureBeat. December 3, 2012. https://venturebeat.com/business/precise-heart-rate-monitor-wristwatch-mio-alpha-debuts-today/
Ex-1098	Dickinson, Liz. "ALPHA - the Holy Grail of Heart Rate (Look Ma, no hands!)." Kickstarter. June 25, 2012. https://www.kickstarter.com/projects/alphaheartrate/alpha-the-holy-grail-of-heart-rate-look-ma-no-hand/description
Ex-1099	Wearables. "Mio Alpha." Wearables.com. July 1, 2025. https://wearables.com/products/mio-alpha

Petitioner Samsung Ex-1079, 0010

Ex. No.	Description
Ex-1100	Mio. "ALPHA: Complete User Guide." Physical Enterprises Inc. December 3, 2012. https://www.swimmershop.it/upload/MIO_Alpha_UserGuide_Eng.pdf
Ex-1101	D'Orazio, Dante. "Mio Alpha is a less cumbersome heart rate watch for athletes." The Verge. January 10, 2013. https://www.theverge.com/2013/1/10/3863712/mio-alpha-heart-rate-watch-reads-pulse-with-a-green-light
Ex-1102	Bolestsis, Costas, Simon Mccallum, & Brynjar F. Landmark . "The Use of Smartwatches for Health Monitoring in Home-Based Dementia Care." Lecture Notes in Computer Science. July 1, 2015. https://www.researchgate.net/publication/280946621_The_Use_of_Smartwatches_for_Health_Monitoring_in_Home-Based_Dementia_Care
Ex-1103	Biggs, John. "The Basis B1 Fitness Band Is Amazing But Still Needs Polish." TechCrunch. March 18, 2013. https://techcrunch.com/2013/03/18/the-basis-b1-fitness-band-is-amazing-but-still-needs-polish/
Ex-1104	Weiss, C. C. "Scosche RHYTHM simplifies fitness monitoring." New Atlas. October 16, 2012. https://newatlas.com/scosche-rhythm-fitness-monitor/24569/
Ex-1105	Scosche. "User Guide." RHYTHM: WIRELESS PULSE MONITOR. October 18, 2012. https://www.scosche.com/media/wysiwyg/PDFs/RTHM_web_ENGLISH.pdf
Ex-1106	INTENTIONALLY LEFT BLANK
Ex-1107	INTENTIONALLY LEFT BLANK
Ex-1108	INTENTIONALLY LEFT BLANK

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Ex-1109	INTENTIONALLY LEFT BLANK
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Ex-1113	INTENTIONALLY LEFT BLANK
Ex-1114	INTENTIONALLY LEFT BLANK
Ex-1115	INTENTIONALLY LEFT BLANK
Ex-1116	INTENTIONALLY LEFT BLANK
Ex-1117	Botha, Roelof. "Jawbone: The Rise and Fall of the First Wearable Technology Company." Crucible Moments. December 2, 2023. https://www.sequoiacap.com/podcast/crucible-moments-jawbone/
Ex-1118	INTENTIONALLY LEFT BLANK
Ex-1119	INTENTIONALLY LEFT BLANK
Ex-1120	Jauch. "White Paper: Introduction to Lithium Polymer Battery Technology." Jauch. November 1, 2018. https://www.jauch.com/downloadfile/5c5050fa5b6510e9a8ad76299baae4e53/white_paper_introduction_to_lipo_battery_technology_11-2018_en.pdf
Ex-1121	Goh, Eun-Young, Byungjin Choi, Hyang Mok Lee, Hyun-Chul Jung. "US Patent Application Publication No. US2011/0097615 A1 'Battery Cell of Curved Shape and Battery Pack Employed with the Same'." United States Patent and Trademark Office. Filed March 10, 2009. https://ppubs.uspto.gov/pubwebapp/authorize.html?redirect=print/pdfRedirectDownload/20110097615

Petitioner Samsung Ex-1079, 0012

Ex. No.	Description
Ex-1122	Cohen, Nancy. "LG Chem turns to stepped, curve and cable batteries." Phys.Org. October 9, 2013. https://phys.org/news/2013-10-lg-chem-cable-batteries.html
Ex-1123	LG Electronics. "Press Release: LG Unveils World's First "Real" Curved Smartphone." LG. October 30, 2013. https://www.lg.com/levant_en/about-lg/press-and-media/lg-unveils-worlds-first-real-curved-smartphone
Ex-1124	Pierce, David. "LG G Flex Review." The Verge via WayBack Machine. December 6, 2013. https://web.archive.org/web/20250114175821/https://www.theverge.com/2013/12/6/5181536/lg-g-flex-review
Ex-1125	Sridhar, Srivatsan. "Samsung SDI introduces curved battery for wearable devices." fonearena. April 15, 2014. https://www.fonearena.com/blog/101236/samsung-sdi-introduces-curved-battery-for-wearable-devices.html
Ex-1126	Sheetal. "Samsung SDI tends to invest more in batteries for wearable devices." SammyFans. April 22, 2022. https://www.sammyfans.com/2022/04/22/samsung-sdi-to-invest-more-in-batteries-for-wearable/
Ex-1127	Samsung. "[Battery101] Innovation Creates Batteries for Wearables." Samsung SDI Newsroom. August 09, 2024. https://news.samsungsdi.com/global/articleView?seq=166
Ex-1128	Kyung-Don, Joo. "Samsung SDI curved battery is tops." Korea JoongAng Daily. April 15, 2014. https://koreajoongangdaily.joins.com/2014/04/15/industry/Samsung-SDI-curved-battery-is-tops/2987967.html
Ex-1129	Samsung. "Samsung Gear Fit Awarded "The Best Mobile Device" at the MWC 2014." Samsung Newsroom. February 28, 2014. https://news.samsung.com/global/samsung-gear-fit-awarded-the-best-mobile-device-at-the-mwc-2014

Petitioner Samsung Ex-1079, 0013

Ex. No.	Description
Ex-1130	INTENTIONALLY LEFT BLANK
Ex-1131	Harden, Dan. "The Making of the Nike Fuelband." Whipsaw. June 6, 2015. https://www.whipsaw.com/latest/the-making-of-the-nike-fuelband
Ex-1132	Nike. "Nike+ Fuelband." FCC ID Database. January 5, 2012. https://fccid.io/QYUM411/User-Manual/user-manual-1630150.pdf
Ex-1133	mikeselectricstuff. "Nike+ Fuelband teardown." YouTube. May 31, 2012. https://www.youtube.com/watch?v=7xdajSS_cOU
Ex-1134	"M411 Nike+ FuelBand Teardown Internal Photos Nike." FCC ID Database. January 24, 2012. https://fccid.io/QYUM411/Internal-Photos/internal-photos-1630135
Ex-1135	アーロン ビー ウィースト, アーロン ビー ウィースト, ジャミアン アール コベット, & ジャミアン アール コベット. "Japan Patent No. 6,071,890 B2, 'Wearable device assembly with athletic function'." Japan Patent Office. Filed November 1, 2011. https://patents.google.com/patent/JP6071890B2/en
Ex-1136	OURA. "Previous Oura Ring Generations." OURA. July 1, 2025. https://support.ouraring.com/hc/en-us/articles/360025570153-Previous-Oura-Ring-Generations#h_01H55VMQGE9BGRY7K7W22RG5B6
Ex-1137	Swappa. "Sell Oura Ring Gen 2." Swappa. July 1, 2025. https://swappa.com/sell/product/oura-ring-gen-2
Ex-1138	OURA . "Product: Oura Gen 3 Heritage Black." OURA. July 1, 2025. https://ouraring.com/product/rings/oura-gen3/heritage/black
Ex-1139	OURA. "OURA ring. Improve sleep. Perform better." Kickstarter. August 15, 2015. https://www.kickstarter.com/projects/oura/oura-ring-improve-sleep-perform-better

Petitioner Samsung Ex-1079, 0014

Ex. No.	Description
Ex-1140	McLear, John. "NFC Ring - One Smart Ring, Unlimited Possibilities." Kickstarter. July 20, 2013. https://www.kickstarter.com/projects/mclear/nfc-ring
Ex-1141	Museum of Failure. "Logbar Ring." Museum of Failure. March 16, 2024. https://museumoffailure.com/exhibition/logbar-ring
Ex-1142	TheTouch X s.r.o. "HB Ring." TheTouch via Wayback Machine. Accessed on May 6, 2025. https://web.archive.org/web/20250506183725/https://my.thetouchx.com/
Ex-1143	Urbanowicz Jewelers. "Latest in Wearable Tech: This Ring Lets You See and Feel Your Lover's Heartbeat in Real Time." Urbanowicz Jewelers Blog. September 6, 2016. https://www.pittsburghdiamonds.com/urbanowicz-jewelers-blog/2016/Sep/06/latest-wearable-tech-ring-lets-you-see-and-feel-yo/
Ex-1144	IPS Team. "HB Ring Review – Innovative Wedding Band To Feel Heartbeat Of Your Loved One?" Infinite Power Solutions. October 1, 2020. https://www.infinitepowersolutions.com/hb-ring/
Ex-1145	INTENTIONALLY LEFT BLANK
Ex-1146	INTENTIONALLY LEFT BLANK
Ex-1147	INTENTIONALLY LEFT BLANK
Ex-1148	INTENTIONALLY LEFT BLANK
Ex-1149	Huffington, Arianna. "My Q and A With Petteri Lahtela, Whose OURA Ring Will Track Your Sleep." Huffpost. August 19, 2015. https://www.huffpost.com/entry/my-q-and-a-with-petteri-l_b_8010488

Petitioner Samsung Ex-1079, 0015

Ex. No.	Description
Ex-1150	Ben Greenfield. "11 Crucial Health Questions & Mighty Self-Quantification Ring To Rule Them All: The Official Oura Ring Q&A." BenGreenfieldLife. July 18, 2016. https://bengreenfieldlife.com/article/self-quantification-articles/how-does-the-oura-ring-work/
Ex-1151	Ben Greenfield. "The New Oura Ring: Track Naps, Advanced HRV Tracking, Personalized Sleep Typing, Client Dashboard Feature & Much More!" BenGreenfieldLife. November 30, 2017. https://bengreenfieldlife.com/article/self-quantification-articles/the-new-oura-ring/
Ex-1152	OURA. "Why Oura." OURA. July 1, 2025. https://ouraring.com/why-oura
Ex-1153	OURA. "Rings." OURA. July 1, 2025. https://ouraring.com/product/rings
Ex-1154	de Zambotti, Massimiliano, Leonardo Rosas, Ian M. Colrain, & Fiona C. Baker. "The Sleep of the Ring: Comparison of the ŌURA Sleep Tracker Against Polysomnography." National Library of Medicine. March 1, 2019. https://pubmed.ncbi.nlm.nih.gov/28323455/
Ex-1155	Pearson, Anthony. "The Oura Ring For Personal Sleep Analysis: Lots of Hype and Data, Little Science, Utility or Accuracy." The Skeptical Cardiologist. Accessed on July 6, 2025. https://theskepticalcardiologist.com/2019/02/09/the-oura-ring-for-personal-sleep-analysis-lots-of-hype-and-data-little-science-utility-or-accuracy/
Ex-1156	Robbins, Rebecca, Matthew D. Weaver, Jason P. Sullivan, Stuart F. Quan, Katherine Gilmore, Samantha Shaw, Abigail Benz, Salim Qadri, Laure K. Barger, Charles A. Czeisler, & Jeanne F. Duffy. "Accuracy of Three Commercial Wearable Devices for Sleep Tracking in Healthy Adults." Sensors. August 7, 2024. https://www.mdpi.com/1424-8220/24/20/6532

Petitioner Samsung Ex-1079, 0016

Ex. No.	Description
Ex-1157	Ferguson, Abby. "As an athlete, I'm not a fan of smart rings. Here's why." Pocketlint. September 20, 2024. https://www.pocket-lint.com/smart-rings-arent-for-athletes/
Ex-1158	Seitz, Patrick. "Health Tracking Is Moving To Smart Rings From Watches. Oura Leads Market." Investor's Business Daily. January 9, 2025. https://www.investors.com/news/technology/smart-rings-proliferate-at-ces-2025
Ex-1159	Shirer, Michael, Jitesh Ubrani, & Lujyne Amro. "IDC Forecasts Continued Growth for Wearables But Growth Will Be Uneven Across Product Categories." International Data Corporation. September 26, 2024. https://my.idc.com/getdoc.jsp?containerId=prUS52615024
Ex-1160	Nalbach, Tyler. "Apple Watch Sales Over the Years: How Many Have Been Sold Since 2015." Longvadon. March 28, 2025. https://longvadon.com/blogs/blog/apple-watch-sales
Ex-1161	Oura Team. "Meet Oura: Discover the Brand-New Oura Ring 4." The Pulse Blog. October 3, 2024. https://ouraring.com/blog/oura-ring-4/
Ex-1162	Apple. "Why Apple Watch." Apple. July 1, 2025. https://www.apple.com/watch/why-apple-watch/
Ex-1163	Apple. "Compare Apple Watch models." Apple. July 1, 2025. https://www.apple.com/watch/compare/
Ex-1164	Oura Team. "Meet Oura: Technology in Oura Ring Gen3." The Pulse Blog. February 7, 2024. https://ouraring.com/blog/ring-technology/
Ex-1165	Carroll, Rory. "Pebble rocks CES 2013 with launch of its wireless watch." The Guardian. January 9, 2013. https://www.theguardian.com/technology/2013/jan/09/ces-2013-pebble-wireless-watch

Petitioner Samsung Ex-1079, 0017

Ex. No.	Description
Ex-1166	Samsung. "[Galaxy History ③] Evolution of the Galaxy Watch Series: Reimagining the Watch." Samsung Newsroom. July 8, 2024. https://news.samsung.com/global/galaxy-history-%E2%91%A2-evolution-of-the-galaxy-watch-series-reimagining-the-watch
Ex-1167	Golder, Peter N. & Gerard J. Tellis. "Pioneer Advantage: Marketing Logic or Marketing Legend?" Journal of Marketing Research. May 1993. https://www.jstor.org/stable/3172825
Ex-1168	Bennett, Brian. "Jawbone Up24 review: A great fitness tracker with style and comfort." CNet. November 13, 2013. https://www.cnet.com/reviews/jawbone-up24-review/
Ex-1169	Ricker, Thomas. "Jawbone Up fitness band review." The Verge via Wayback Machine. November 6, 2011. https://web.archive.org/web/20250527221407/https://www.theverge.com/2011/11/6/2541783/jawbone-up-review
Ex-1170	Seifert, Dan. "Fitbit Force review." The Verge via Wayback Machine. October 18, 2013. https://web.archive.org/web/20250524010659/https://www.theverge.com/2013/10/18/4848424/fitbit-force-review
Ex-1171	Lawrence, Erin. "Misfit Shine Fitness and Activity Monitor – Review." TechGadgets Canada. May 29, 2019. https://www.techgadgetscanada.com/misfit-shine-fitness-activity-monitor-review/
Ex-1172	INTENTIONALLY LEFT BLANK
Ex-1173	Stein, Scott. "Samsung Gear Fit review: Curved-screen fitness smartwatch one step short." CNet. April 7, 2014. https://www.cnet.com/reviews/samsung-gear-fit-review/

Petitioner Samsung Ex-1079, 0018

Ex. No.	Description
Ex-1174	Maker, Ray. "Mio Alpha Optical Heart Rate Monitor In-Depth Review (Bluetooth Smart/ANT+)." DC Rainmaker. February 12, 2013. https://www.dcrainmaker.com/2013/02/monitor-bluetooth-smartant.html
Ex-1175	Maker, Ray. "Basis B1 Watch In-Depth Review." DC Rainmaker. July 25, 2013. https://www.dcrainmaker.com/2013/07/basis-b1-review.html
Ex-1176	Bonnington, Christina. "Review: Garmin Vivofit." Wired. March 7, 2014. https://www.wired.com/2014/03/garmin-vivofit/
Ex-1177	"Lifeband Touch¹ Activity Tracker - Medium." LG. Accessed on July 11, 2025. https://www.lg.com/us/mobile-accessories/lg-FB84-BM-activity-tracker
Ex-1178	"Polar Loop User Manual: Important Information." Polar. Accessed on July 11, 2025. https://support.polar.com/e_manuals/Loop/Polar_Loop_user_manual_English/ch07.html
Ex-1179	Healey, Nic. "Sony SmartBand SWR10 review: Sony SmartBand tries to be too smart for its own good." CNet. June 13, 2014. https://www.cnet.com/reviews/sony-smartband-swr10-review/
Ex-1180	Porter, Jediah. "Jawbone Up Move Review." GearLab. April 11, 2018. https://www.outdoorgearlab.com/reviews/fitness/pedometer/jawbone-up-move
Ex-1181	Welch, Chris. "Jawbone UP3." The Verge via Wayback Machine. April 23, 2015. https://web.archive.org/web/20241117073856/https://www.theverge.com/2015/4/23/8469123/jawbone-up-3-review-fitness-tracker

Petitioner Samsung Ex-1079, 0019

Ex. No.	Description
Ex-1182	clay. "How Much Did Fitbit Raise? Funding & Key Investors." clay Dossier. March 31, 2025. https://www.clay.com/dossier/fitbit-funding
Ex-1183	Osterloh, Rick. "Google completes Fitbit acquisition." Google Blog. January 14, 2021. https://blog.google/products/platforms-devices/fitbit-acquisition/
Ex-1184	Tracxn Technologies Limited. "Misfit Wearables - Company Profile." Tracxn. June 20, 2025. https://tracxn.com/d/companies/misfit-wearables/__gG8yNvcKEPPBr9mV9PD_Gg3pOm462qPzhY9vWkA7NTU#about-the-company
Ex-1185	Singleton, Micah. "Fossil acquires wearable maker Misfit for $260 million." The Verge. November 15, 2015. https://www.theverge.com/2015/11/12/9725478/fossil-group-acquires-wearable-maker-misfit-260-million
Ex-1186	Dane, Sonali. "Jawbone: The Biggest Unicorn Death of 2017." Wharton PEVC. March 2, 2018. https://www.whartonugpevc.com/articles/2018/3/23/jawbone-the-biggest-unicorn-death-of-2017
Ex-1187	CBInsights. "Jawbone's Valuation History Gave Early Hints As To Its Eventual End." CBInsights: Research. July 7, 2017. https://www.cbinsights.com/research/jawbone-valuation-history/
Ex-1188	Somerville, Heather. "Jawbone's demise a case of 'death by overfunding' in Silicon Valley." Reuters. July 10, 2017. https://www.reuters.com/article/technology/jawbones-demise-a-case-of-death-by-overfunding-in-silicon-valley-idUSKBN19V0BS/
Ex-1189	FinSMEs. "Jawbone Raises $49M from Andreessen Horowitz." FinSMEs. March 17, 2011. https://www.finsmes.com/2011/03/jawbone-raises-49m-from-andreessen-horowitz.html

Petitioner Samsung Ex-1079, 0020

Ex. No.	Description
Ex-1190	Jill Duffy. "Fitbit Force Review." PC Mag. March 24, 2014. https://www.pcmag.com/reviews/fitbit-force
Ex-1191	Curry, David. "Fitbit Revenue and Usage Statistics (2025)." Business of Apps. January 22, 2025. https://www.businessofapps.com/data/fitbit-statistics/
Ex-1192	Dolan, Brian. "Misfit's Shine raised $846K on Indiegogo; new product expected this fall." MobiHealth News via Wayback Machine. January 24, 2013. https://web.archive.org/web/20160219184005/http://mobihealthnews.com/20024/misfits-shine-raised-846k-on-indiegogo-new-product-expected-this-fall/
Ex-1193	Duffy, Jill. "Jawbone UP Review." PC Mag. March 20, 2013. https://www.pcmag.com/reviews/jawbone-up
Ex-1194	Apple. "Apple Watch Series 1 - Technical Specifications." Apple: Documentation. July 1, 2025. https://support.apple.com/en-us/111985
Ex-1195	Smith, Chris. "Sony SmartWatch 2 official: specs, features, release date and pricing." Android Authority. June 25, 2013. https://www.androidauthority.com/sony-smartwatch-2-official-specs-features-release-date-pricing-234796
Ex-1196	"Samsung Galaxy Gear." GSM Arena. Accessed on July 10, 2025. https://www.gsmarena.com/samsung_galaxy_gear-7716.php
Ex-1197	"What are the key features of Samsung Galaxy Gear(SM-V700)?" Samsung. October 13, 2020. https://www.samsung.com/in/support/mobile-devices/what-are-the-key-features-of-samsung-galaxy-gear/
Ex-1198	"Sony SmartWatch 2 SW2." GSM Arena. Accessed on July 10, 2025. https://www.gsmarena.com/sony_smartwatch_2_sw2-7719.php

Petitioner Samsung Ex-1079, 0021

Ex. No.	Description
Ex-1199	"Sony SmartWatch 3 SWR50." GSM Arena. Accessed on July 10, 2025. https://www.gsmarena.com/sony_smartwatch_3_swr50-7691.php
Ex-1200	Bhartiya, Swapnil. "Review: LG Watch Urbane Has Great Design, Missing Features." LiNUX.com. May 19, 2015. https://www.linux.com/news/review-lg-watch-urbane-has-great-design-missing-features/
Ex-1201	Maker, Ray. "Fitbit Surge In-Depth Review." DC Rainmaker. January 20, 2015. https://www.dcrainmaker.com/2015/01/fitbit-surge-review.html
Ex-1202	Pebble Technology. "Pebble: E-Paper Watch for iPhone and Android." Kickstarter. April 11, 2012. https://www.kickstarter.com/projects/getpebble/pebble-e-paper-watch-for-iphone-and-android
Ex-1203	Heater, Brian. "Smartwatch pioneer and Kickstarter darling Pebble is returning in a new form." TechCrunch. January 27, 2025. https://techcrunch.com/2025/01/27/smartwatch-pioneer-and-kickstarter-darling-pebble-is-returning-in-a-new-form/
Ex-1204	Arthur, Charles. "Review: Pebble's smart watch doesn't try too hard - but does what you need." The Guardian. May 21, 2013. https://www.theguardian.com/technology/blog/2013/may/21/pebble-smart-watch-kickstarter
Ex-1205	Ulanoff, Lance. "Pebble was one of the best smartwatches ever and now it's a miracle if you can get one to work." techradar. July 1, 2024. https://www.techradar.com/health-fitness/smartwatches/pebble-was-one-of-the-best-smartwatches-ever-and-now-its-a-miracle-if-you-can-get-one-to-work
Ex-1206	Mlot, Stephanie. "CES 2013: Pebble Smartwatch to Ship Jan. 23." PC Mag. January 9, 2013. https://www.pcmag.com/news/ces-2013-pebble-smartwatch-to-ship-jan-23

Petitioner Samsung Ex-1079, 0022

Ex. No.	Description
Ex-1207	Patel, Nilay. "Pebble smartwatch review." The Verge via Wayback Machine. January 28, 2013. https://web.archive.org/web/20250321010452/https://www.theverge.com/2013/1/28/3924904/pebble-smartwatch-review
Ex-1208	France-Presse, Agence. "Time is ripe for smart watches, say analysts." Gadgets360. April 1, 2013. https://www.gadgets360.com/others/news/time-is-ripe-for-smart-watches-say-analysts-348697
Ex-1209	Buckley, Sean. "Samsung's Galaxy Gear ads play on your nostalgia, invoke Dick Tracy." Engadget. October 6, 2013. https://www.engadget.com/2013-10-06-samsungs-galaxy-gear-ads-play-on-your-nostalgia.html
Ex-1210	Zeis, Adam. "The best smartwatches from CES 2014." smartwatchfans via Wayback Machine. January 13, 2014. https://web.archive.org/web/20140330184434/http://www.smartwatchfans.com/best-smartwatches-ces-2014
Ex-1211	Arthur, Charles & Samuel Gibbs. "Apple makes move into wearables with smartwatch and new iPhones." The Guardian. September 9, 2014. https://www.theguardian.com/technology/2014/sep/09/apple-watch-cupertino-investors
Ex-1212	Musil, Steven. "Apple still dominates growing global smartwatch sector." CNET. May 6, 2020. https://www.cnet.com/tech/mobile/apple-still-dominates-growing-global-smartwatch-sector/
Ex-1213	McLear Limited. "New wearable device makes payments simple." McLEAR. December 4, 2018. https://mclear.co/news/new-wearable-device-makes-payments-simple/

Petitioner Samsung Ex-1079, 0023

Ex. No.	Description
Ex-1214	Hakikat, Atal. "The World's First Smart Ring You'll Actually Wear." The Zine. November 26, 2016. https://www.thezine.com.au/the-worlds-first-smart-ring-youll-actually-wear/
Ex-1215	Ringly. "2018 Update: A New Chapter." The Buzz: By Ringly. January 22, 2018. https://ringly.com/blogs/news/why-is-everything-sold-out-on-ringly-com
Ex-1216	Ayres, Carly. "In the Details: Making a Smart Ring That Women Would Actually Want to Wear." Core77. July 3, 2014. https://www.core77.com/posts/27250/in-the-details-making-a-smart-ring-that-women-would-actually-want-to-wear-27250
Ex-1217	Mamiit, Aaron. "CES 2015: The 'Ring' to Control Them All? How Logbar Gesture Control Ring Works." TechTimes. January 7, 2015. https://www.techtimes.com/articles/25084/20150107/ces-2015-the-ring-to-control-them-all-how-logbar-gesture-control-ring-works.htm
Ex-1218	Venho, Niina. "Moodmetric Ring: Smart Jewelry To Manage Stress." Indiegogo. September 2015. https://www.indiegogo.com/projects/moodmetric-ring-smart-jewelry-to-manage-stress#/
Ex-1219	Mufson, Beckett. "Finally, a Mood Ring for the 21st Century." VICE. November 24, 2016. https://www.vice.com/en/article/finally-a-wearable-tech-mood-ring-for-the-21st-century/
Ex-1220	Gorton, Thomas. "The humble mood ring gets a wearable tech update." DAZED. November 26, 2014. https://www.dazeddigital.com/artsandculture/article/22694/1/the-humble-mood-ring-gets-a-wearable-tech-update
Ex-1221	Nuanic. "What We Do." Nuanic. December 7, 2024. https://nuanic.com/about-us

Petitioner Samsung Ex-1079, 0024

Ex. No.	Description
Ex-1222	Nuanic. "Product: The 2nd Generation Ring is Here." Nuanic. July 1, 2025. https://nuanic.com/product
Ex-1223	K Wearables. "K Home." K Ring. July 1, 2025. https://mykring.com/
Ex-1224	Johns, Steven. "The gesture Ring by Logbar has been reviewed as "the worst product ever made"." Neowin. November 20, 2014. https://www.neowin.net/news/the-gesture-ring-by-logbar-has-been-reviewed-as-the-worst-product-ever-made/
Ex-1225	Logbar Inc. "Ring by logbar - Shortcut Everything." Kickstarter. February 27, 2014. https://www.kickstarter.com/projects/1761670738/ring-shortcut-everything
Ex-1226	Perez, Sarah. "Ringly Raises $5.1 Million Led By Andreessen Horowitz To Expand Its Smart Jewelry Collection Beyond Rings." TechCrunch. January 21, 2015. https://techcrunch.com/2015/01/21/ringly-raises-5-1-million-from-andreessen-horowitz-to-expand-its-smart-jewelry-collection-beyond-rings/
Ex-1227	McLear, John. "One Smart Ring. Unlimited Possibilities." Kickstarter. October 1, 2015. https://www.kickstarter.com/projects/mclear/nfc-ring-2016-range-one-smart-ring-unlimited-possi
Ex-1228	Campbell, Philip. "Kerv Wearables launches contactless payment ring at Wearable Technology Show 2017." The Payments Association. March 8, 2017. https://thepaymentsassociation.org/article/kerv-wearables-launches-contactless-payment-ring-at-wearable-technology-show-2017/

Petitioner Samsung Ex-1079, 0025

Ex. No.	Description
Ex-1229	Chang, Lulu. "Armed with NFC, the Kerv smart ring works like a contactless credit card." digitaltrends. March 8, 2017. https://www.digitaltrends.com/mobile/kerv-smart-ring-works-like-contactless-credit-card-2/
Ex-1230	Fintech News Hong Kong. "ORII – The World's First Voice-Powered Smart Ring Launched." Fintech News. August 23, 2017. https://fintechnews.hk/1862/iot/orii-the-worlds-first-voice-powered-smart-ring-launched-2/
Ex-1231	Stein, Scott. "Token Ring aims to wrap security around your finger." CNET. June 27, 2017. https://www.cnet.com/reviews/token-ring-preview/
Ex-1232	Draper, Sam. "GO2SLEEP Wearable Smart Ring Detects Sleep Apnea and More." Wearable Technologies. August 22, 2018. https://wt-obk.wearable-technologies.com/2018/08/go2sleep-wearable-smart-ring-sleep-detects-sleep-apnea-and-more/
Ex-1233	Wolfe, Daniel. "7 setbacks for wearable payments." American Banker. March 16, 2018. https://www.americanbanker.com/payments/slideshow/7-setbacks-for-wearable-payments
Ex-1234	Origami Labs. "ORII Kickstarter | The Voice Powered Ring." Kickstarter. July 18, 2017. https://www.kickstarter.com/projects/187732114/orii-your-voice-powered-smart-ring/
Ex-1235	Colt, Anna. "ORII - Fastest Way to Send Texts Without a Screen." Indiegogo. September 13, 2017. https://www.indiegogo.com/projects/orii-fastest-way-to-send-texts-without-a-screen/#/

Petitioner Samsung Ex-1079, 0026

Ex. No.	Description
Ex-1236	Jennings, Ralph. "This Hong Kong 'Smart Ring' Startup Raised $2.5M To Crack The Wearables Market." Forbes. June 7, 2018. https://www.forbes.com/sites/ralphjennings/2018/06/07/why-10000-people-are-buying-finger-rings-to-answer-their-smartphones/
Ex-1237	Token. "Token Begins Production of its Next-Generation Multifactor Authentication Smart Ring." BusinessWire. August 3, 2023. https://www.businesswire.com/news/home/20230803058819/en/Token-Begins-Production-of-its-Next-Generation-Multifactor-Authentication-Smart-Ring
Ex-1238	Exchange Rates. "British Pound (GBP) To US Dollar (USD) Exchange Rate History for September 11, 2016." Exchange Rates. July 6, 2025. https://www.exchange-rates.org/exchange-rate-history/gbp-usd-2016-09-11
Ex-1239	sleepon INC. "GO2SLEEP: AI-powered device for restful sleep." Indiegogo. November 22, 2017. https://www.indiegogo.com/projects/go2sleep-ai-powered-device-for-restful-sleep#/
Ex-1240	Cassidy, Anne. "The wedding tech now at the heart of couples' nuptials." BBC. April 23, 2023. https://www.bbc.com/news/business-65322101
Ex-1241	SLEEPON. "SLEEPON Go2sleep Review." SLEEPON Blog. April 12, 2024. https://www.sleepon.us/sleepon-go2sleep-review/
Ex-1242	Hughes, Locke. "Meet Oura: The Origins and Evolution of Oura Ring." The Pulse Blog. February 10, 2025. https://ouraring.com/blog/history-of-oura/
Ex-1243	OURA. "Product: Oura Gen 3 Heritage Stealth." OURA. July 1, 2025. https://ouraring.com/product/rings/oura-gen3/heritage/stealth

Petitioner Samsung Ex-1079, 0027

Ex. No.	Description
Ex-1244	iFixIt. "Oura Ring 2 Teardown." iFixIt. July 9, 2020. https://www.ifixit.com/Teardown/Oura+Ring+2+Teardown/135207
Ex-1245	OURA. "Product: Oura Gen3 Horizon." OURA. July 1, 2025. https://ouraring.com/product/rings/oura-gen3/horizon
Ex-1246	OURA. "Product: Oura Ring 4." OURA. July 1, 2025. https://ouraring.com/product/rings/oura-ring-4/silver
Ex-1247	OURA. "Product: Oura Gen 3 Heritage Silver." OURA. July 1, 2025. https://ouraring.com/product/rings/oura-gen3/heritage/silver
Ex-1248	Gebhart, Andrew. "Echo Loop puts Amazon's Alexa on your finger." CNET. September 25, 2019. https://www.cnet.com/home/smart-home/echo-loop-puts-amazons-alexa-on-your-finger/
Ex-1249	Smith, Dale. "Amazon Echo Loop -- everything we know about Amazon's wacky new smart ring." CNET. October 8, 2019. https://www.cnet.com/tech/mobile/amazon-echo-loop-everything-we-know-about-amazons-wacky-new-smart-ring/
Ex-1250	Koetsier, John. "Amazon's Echo Loop Smart Ring Gives A Whole New Meaning To 'Talk To The Hand'." Forbes. September 26, 2019. https://www.forbes.com/sites/johnkoetsier/2019/09/26/amazons-echo-loop-gives-whole-new-meaning-to-talk-to-the-hand/
Ex-1251	Newbega RFID Technology. "The Best Smart NFC Ring: Oura Ring 3, McLear Ringpay, and More Compared." Newbega. April 24, 2024. https://www.newbega.com/news/nfc-ring.html
Ex-1252	Team XYZ. "Health-tracking smart ring from Circular.xyz aims to improve your sleep, energy, and activity." XYZ Blog. August 10, 2022. https://gen.xyz/blog/circularxyz

Petitioner Samsung Ex-1079, 0028

Ex. No.	Description
Ex-1253	Fedow, Lenore. "Ultrahuman Unveils Luxury Smart Ring." Technology. January 13, 2025. https://nationaljeweler.com/articles/13558-ultrahuman-unveils-luxury-smart-ring
Ex-1254	Hill, Simon. "Review: Ultrahuman Ring Air." Wired. October 22, 2023. https://www.wired.com/review/ultrahuman-ring-air/
Ex-1255	Luna. "Unlocking Human Potential." Luna Zone. July 1, 2025. https://www.lunazone.com/
Ex-1256	Noise. "Global Smart Wearable Leader, Noise, Launches Its First Smart Ring, Luna Ring; Consolidates Its Leadership With a New Form Factor." Business Wire. July 25, 2023. https://www.businesswire.com/news/home/20230725952026/en/Global-Smart-Wearable-Leader-Noise-Launches-Its-First-Smart-Ring-Luna-Ring-Consolidates-Its-Leadership-With-a-New-Form-Factor
Ex-1257	Movano. "Movano Health to Launch the Evie Ring on November 20." Movano Health. October 30, 2023. https://ir.movano.com/news-detail/movano-health-to-launch-the-evie-ring-on-november-20/61b61e38-ed7b-4abe-833d-40a2f43ab99b
Ex-1258	Leabman, Michael. "Enhanced Heart Rate in Motion Accuracy with the Evie Ring Using Advanced Deep Learning Algorithms." Evie Blog. June 1, 2024. https://eviering.com/blogs/news/enhanced-heart-rate-in-motion-accuracy-with-the-evie-ring-using-advanced-deep-learning-algorithms
Ex-1259	Lida. "CES 2024: The Evie Ring is The First Wearable Smart Ring Designed for Women." The Sypnotix. January 8, 2024. https://www.sypnotix.com/reviews/ces-2024-evie-ring

Petitioner Samsung Ex-1079, 0029

Ex. No.	Description
Ex-1260	Savvides, Lexy. "Samsung Galaxy Ring Review: My Favorite Smart Ring, Hands Down." CNET. July 17, 2024. https://www.cnet.com/tech/mobile/samsung-galaxy-ring-review-my-favorite-smart-ring-hands-down/
Ex-1261	Cimino, Kaitlyn. "Samsung Galaxy Ring is here: Price, size, release date, and everything else!" Android Authority. July 10, 2024. https://www.androidauthority.com/samsung-galaxy-ring-3340682/
Ex-1262	RingConn. "RingConn Gen 1." RingConn. July 1, 2025. https://ringconn.com/products/ringconn-gen-1?srsltid=AfmBOorH6utnNebg1JBj_xU2IqZRu2nK2l8P4AuRGO5-BQQvzwUcSd9t&variant=47273813672244
Ex-1263	RingConn. "About Us: Why RingConn?" RingConn. July 1, 2025. https://ringconn.com/pages/about-us
Ex-1264	Tang, Angela. "Zepp Health Announces US Launch Date for Amazfit Helio Ring." Zepp. April 30, 2024. https://www.zepp.com/press-release/zepp-health-announces-us-launch-date-for-amazfit-helio-ring
Ex-1265	Leclair, Dave. "The Amazfit Helio Ring launches May 15 for only $299 to take on Samsung Galaxy Ring." Tom's Guide. May 1, 2024. https://www.tomsguide.com/phones/the-amazfit-helio-ring-launches-may-15-for-only-dollar299-to-take-on-samsung-galaxy-ring
Ex-1266	amazfit. "Amazfit Helio Ring." amazfit. July 1, 2025. https://www.amazfit.com/products/amazfit-helio-ring
Ex-1267	Chu, Marian (YoonJee). "Sky Labs seeks global expansion of world's first BP monitor ring." BioWorld. April 22, 2025. https://www.bioworld.com/articles/719393-sky-labs-seeks-global-expansion-of-worlds-first-bp-monitor-ring?v=preview

Petitioner Samsung Ex-1079, 0030

Ex. No.	Description
Ex-1268	Barton, Katerina. "This South Korean startup developed a wearable ring to treat hypertension." Fast Company. March 3, 2024. https://www.fastcompany.com/91033750/sky-labs-most-innovative-companies-2024
Ex-1269	CircularRing. "Circular Ring 2: World's Most Advanced Health Tracking Ring." Kickstarter. March 5, 2025. https://www.kickstarter.com/projects/circular-ring/circular-ring-2-worlds-most-advanced-health-tracking-ring
Ex-1270	Circular. "Shop." Circular. July 1, 2025. https://www.circular.xyz/shop
Ex-1271	Torres, JC. "World's First ECG Smart Ring Raises Nearly $2.5 Million in Funding Just Within A Month." Yanko Design. April 12, 2025. https://www.yankodesign.com/2025/04/12/worlds-first-ecg-smart-ring-raises-nearly-2-5-million-in-funding-just-within-a-month/
Ex-1272	RingConn. "RingConn Gen 2." RingConn. July 1, 2025. https://ringconn.com/products/ringconn-gen-2?variant=48162846769460
Ex-1273	Gebhart, Andrew. "RingConn Gen 2 Air Review." PC Mag. April 4, 2025. https://www.pcmag.com/reviews/ringconn-gen-2-air
Ex-1274	Allison, Conor. "CES 2025: Wareable's Best in Show awards revealed." Wareable. January 13, 2025. https://www.wareable.com/ces/the-best-wearables-at-ces-2025
Ex-1275	Sean. "Noise Luna Ring Gen 2.0 & ColorFit Pro 6 Debuted at CES 2025." GIZMOCHINA. January 9, 2025. https://www.gizmochina.com/2025/01/09/noise-luna-ring-2-colorfit-pro-6-debut-ces-2025/
Ex-1276	Ultrahuman. "World's First Luxury Smart Ring." Ultrahuman. July 1, 2025. https://www.ultrahuman.com/rare/

Ex. No.	Description
Ex-1277	Song, Victoria. "Ultrahuman thinks its 18-karat gold smart ring is worth $1,900." The Verge. January 7, 2025. https://www.theverge.com/2025/1/7/24337049/ultrahuman-rare-ces-2025-smart-ring-wearables
Ex-1278	Kollat, Matt. "Circular's next-gen smart ring lands with wireless charging and digital sizing – pre-orders now open." yahoo!tech. March 5, 2025. https://tech.yahoo.com/wearables/articles/circular-next-gen-smart-ring-080000928.html?guccounter
Ex-1279	Samsung. "How to charge the Galaxy Ring." Samsung. July 1, 2025. https://www.samsung.com/us/support/answer/ANS10003281/
Ex-1280	amazfit. "Helio Ring." amazfit US. July 1, 2025. https://us.amazfit.com/products/amazfit-helio-ring
Ex-1281	CircularRing. "Circular Smart Ring: Sleep, Energy, Performance." Indiegogo. August 1, 2025. https://www.indiegogo.com/projects/circular-smart-ring-sleep-energy-performance#/
Ex-1282	Ultrahuman. "Ultrahuman Ring - Decode Your Metabolism." Indiegogo. July 1, 2022. https://www.indiegogo.com/projects/ultrahuman-ring-decode-your-metabolism--3#/
Ex-1283	Ultrahuman. "Ultrahuman Ring AIR." Kickstarter. May 15, 2024. https://www.kickstarter.com/projects/ultrahuman/ultrahuman-ring-air
Ex-1284	Exchange Rates UK. "British Pound to US Dollar History: 2023." Exchange Rates. July 1, 2025. https://www.exchangerates.org.uk/GBP-USD-spot-exchange-rates-history-2023.html

Petitioner Samsung Ex-1079, 0032

Ex. No.	Description
Ex-1285	Movano. "Movano Health Reports 2023 Financial Results and Provides Business Update." Movano Health. April 4, 2024. https://ir.movano.com/news-detail/movano-health-reports-2023-financial-results-and-provides-business-update/f99b07bf-7165-4ec3-8042-2b4cd67de674
Ex-1286	RingConn. "RingConn Smart Ring: Smartest Wearable for You." Indiegogo. November 1, 2025. https://www.indiegogo.com/projects/ringconn-smart-ring-smartest-wearable-for-you--2#/
Ex-1287	RingConn. "RingConn Gen 2: Ultimate Lightness, 12 Days Battery." Kickstarter. December 23, 2024. https://www.kickstarter.com/projects/2059923007/ringconn-gen-2-ultimate-lightness-12-days-battery
Ex-1288	Noise. "LUNA Ring: 70 health metrics. 1 Smart Ring." Indiegogo. March 1, 2024. https://www.indiegogo.com/projects/luna-ring-70-health-metrics-1-smart-ring#/
Ex-1289	CircularRing. "Shop: Circular Ring Slim." Circular. July 1, 2025. https://shop.circular.xyz/pages/circular-ring-slim
Ex-1290	Chesnokova, Sofia. "Meet Circular Ring 2: French wearable taking on Oura with cutting-edge features." TFN. January 7, 2025. https://techfundingnews.com/meet-circular-ring-2-french-wearable-taking-on-oura-with-cutting-edge-features/
Ex-1291	Ultrahuman. "Shop: Ring AIR." Ultrahuman. July 1, 2025. https://www.ultrahuman.com/ring/buy/us/
Ex-1292	Lomas, Natasha. "Ultrahuman stakes a claim to luxury smart rings with trio of 18K gold and pt950 platinum bands." Tech Crunch. January 7, 2025. https://techcrunch.com/2025/01/07/ultrahuman-stakes-a-claim-to-luxury-smart-rings-with-trio-of-18k-gold-and-pt950-platinum-bands/

Petitioner Samsung Ex-1079, 0033

Ex. No.	Description
Ex-1293	RingConn. "RingConn Gen 1: Midnight Black." RingConn. July 1, 2025. https://ringconn.com/products/ringconn-gen-1
Ex-1294	RingConn. "RingConn Gen 2 Air Review." RingConn. July 1, 2025. https://ringconn.com/products/ringconn-gen-2-air
Ex-1295	RingConn. "RingConn Gen 2: The World's First Ultra-Thin Smart Ring With Sleep Apnea Monitoring." RingConn. July 1, 2025. https://ringconn.com/pages/ringconn-gen-2?gad_source
Ex-1296	INTENTIONALLY LEFT BLANK
Ex-1297	ID Tech Editorial Team. "Pentagon Cancels $96M Biometric Ring Contract Amid Privacy Concerns." IDTechWire. March 7, 2025. https://idtechwire.com/pentagon-cancels-96m-biometric-ring-contract-amid-privacy-concerns/
Ex-1298	Welch, Carley. "Pentagon's $96M wearable contract sparks protest, accusations of vendor preference." Breaking Defense. February 19, 2025. https://breakingdefense.com/2025/02/pentagons-96m-wearable-contract-sparks-protest-accusations-of-vendor-preference/
Ex-1299	Latto, Joel. "Oura Ring Gen3 Upgrade Offer FAQ (and Launch PR Fail)." Joel Latto. October 27, 2021. https://joellatto.com/2021/10/27/oura-gen3-ring-upgrade-offer-faq-and-launch-pr-fail/
Ex-1300	Gelbart, Bryn. "The Oura Ring Is Even More on Sale Now." Esquire. December 2, 2024. https://www.esquire.com/lifestyle/tech/a63033170/black-friday-oura-ring-deals-2024/
Ex-1301	buyFSA Experts. "Is an Oura Ring FSA/HSA Eligible?" buyFSA. December 5, 2024. https://buyfsa.com/blogs/fsa-hsa-eligibility-list/is-an-oura-ring-fsa-hsa-eligible

Petitioner Samsung Ex-1079, 0034

Ex. No.	Description
Ex-1302	Welch, Carley. "'This acquisition is no longer required:' Defense Health Agency cancels $96M wearable solicitation." Breaking Defense. March 5, 2025. https://breakingdefense.com/2025/03/this-acquisition-is-no-longer-required-defense-health-agency-cancels-96m-wearable-solicitation/
Ex-1303	Allison, Conor. "Oura Ring 4 vs. Ring 3: What we recommend after six months." Wareable. April 13, 2025. https://www.wareable.com/wearable-tech/oura-ring-4-vs-ring-3-key-differences-compared
Ex-1304	Lee, Derrek. "Oura Ring 4 vs. Oura Ring Gen 3: Should you upgrade?" AndroidCentral. February 18, 2025. https://www.androidcentral.com/wearables/oura-ring-4-vs-oura-ring-gen-3
Ex-1305	Pangarkar, Tajammul. "Fitness Tracker Statistics 2025 By Health, Activities." Market.Us News. January 13, 2025. https://www.news.market.us/fitness-tracker-statistics/
Ex-1306	Google Scholar. "Search: "diffusion of innovations"." Google Scholar. July 7, 2025. https://scholar.google.com.au/scholar?rlz=1C1GGLS_enAU291AU303&q=diffusion%20of%20innovations&um=1&ie=UTF-8&hl=en&sa=N&tab=ps
Ex-1307	Matthews, Tim. "Chap 1 Fig 2 Everett Rogers Diffusion Innovation Model." Matthews on Marketing. November 15, 2012. https://matthewsonmarketing.com/chap-1-fig-2-everett-rogers-diffusion-innovation-model-2/
Ex-1308	Halton, Clay. "Diffusion of Innovations Theory: Definition and Examples." Investopedia. May 23, 2025. https://www.investopedia.com/terms/d/diffusion-of-innovations-theory.asp

Petitioner Samsung Ex-1079, 0035

Ex. No.	Description
Ex-1309	Hale, Tom. "The Value of Oura Membership." The Pulse Blog. May 20, 2022. https://ouraring.com/blog/the-value-of-oura-membership/
Ex-1310	OURA. "Oura Membership." OURA. July 1, 2025. https://support.ouraring.com/hc/en-us/articles/4409086524819-Oura-Membership
Ex-1311	Neely, Amber. "Oura Ring review: love the feature changes, hate the new subscription." Apple Insider. March 19, 2023. https://appleinsider.com/articles/23/03/19/oura-ring-review-love-the-features-changes-hate-the-new-subscription
Ex-1312	Oh, Hannah. "I Tested the Oura Ring Gen3 for 10 Months—Here's My Honest, Unfiltered Review." Cosmopolitan. July 17, 2024. https://www.cosmopolitan.com/health-fitness/a45931388/oura-ring-3-review/
Ex-1313	Shares, Shervin. "6 Months with the Oura Ring 4. The Truth No One Tells You." YouTube. March 15, 2025. https://www.youtube.com/watch?v=v6YkMjIltuo
Ex-1314	PYMNTS Team. "Samsung Enters Smart Ring Market, Expanding Wearable Tech Portfolio." PYMNTS. July 10, 2024. https://www.pymnts.com/news/wearables/2024/samsung-enters-smart-ring-market-expanding-wearable-tech-portfolio/
Ex-1315	Comstock, Jonah. "Ouraring gets $5.3M for sleep-tracking ring." MobiHealth News via Wayback Machine. November 30, 2016. https://web.archive.org/web/20241226062503/http://www.mobihealthnews.com/content/ouraring-gets-53m-sleep-tracking-ring
Ex-1316	Rabinowitz, Harry. "I tested the latest Oura Ring 4 for months — is it worth the upgrade?" NBC News. April 2, 2025. https://www.nbcnews.com/select/shopping/oura-ring-4-review-rcna196889

Petitioner Samsung Ex-1079, 0036

Ex. No.	Description
Ex-1317	Oura Team. "Meet Oura: Your Oura Readiness Score." The Pulse Blog. February 7, 2024. https://ouraring.com/blog/readiness-score/
Ex-1318	OURA. "Oura Ring 4." OURA. July 1, 2025. https://support.ouraring.com/hc/en-us/articles/33045011508115-Oura-Ring-4
Ex-1319	OURA. "Oura Advisor." OURA. July 1, 2025. https://support.ouraring.com/hc/en-us/articles/39512345699219-Oura-Advisor
Ex-1320	"Oura Ring 4, powered by smart sensing, is here." Yole Group. October 3, 2024. https://www.yolegroup.com/industry-news/oura-ring-4-powered-by-smart-sensing-is-here/
Ex-1321	Kharpal, Arjun. "Smart ring leader Oura plans international push as CEO touts new features and thinking on hardware." CNBC. November 14, 2024. https://www.cnbc.com/2024/11/14/oura-plans-international-expansion-tests-nutrition-and-ai-features.html
Ex-1322	McLEAR. "About Us." McLEAR. July 1, 2025. https://mclear.co/about/
Ex-1323	NFC RING. "Gallery." NFC RING. July 1, 2025. https://nfcring.com/gallery/
Ex-1324	INTENTIONALLY LEFT BLANK
Ex-1325	INTENTIONALLY LEFT BLANK
Ex-1326	Bhavsar, Sagar Naresh. "Samsung's next wave of wearables could include smart earrings and AI necklaces." Neowin. July 11, 2025. https://www.neowin.net/news/samsungs-next-wave-of-wearables-could-include-smart-earrings-and-ai-necklaces/

Petitioner Samsung Ex-1079, 0037

Ex. No.	Description
Ex-1327	Weast, et al. "US Patent Application Publication No. 2012/0253485 A1 'Wearable Device Having Athletic Functionality'." United States Patent and Trademark Office. Filed November 1, 2011. https://patentimages.storage.googleapis.com/ee/e7/fc/3bc746f8f4a601/US20120253485A1.pdf
Ex-1328	INTENTIONALLY LEFT BLANK
Ex-1329	INTENTIONALLY LEFT BLANK
Ex-1330	Davies, Chris. "Nike+ Fuelband Ice Makes Fitness Transparent." SlashGear. July 1, 2012. https://www.slashgear.com/nike-fuelband-ice-makes-fitness-transparent-01236621/
Ex-1331	Gibbs, Samuel. "Nike+ FuelBand SE review - the active person's fitness tracker." The Guardian. November 12, 2013. https://www.theguardian.com/technology/2013/nov/12/nike-fuelband-se-review-fitness-tracker
Ex-1332	INTENTIONALLY LEFT BLANK
Ex-1333	"Heartbeat 2 Image." The Jeweler Blog. Accessed on August 7, 2025. https://thejewelerblog.wordpress.com/wp-content/uploads/2016/09/heartbeat2.jpg
Ex-1334	INTENTIONALLY LEFT BLANK
Ex-1335	"What is a pulse sensor?" Rohm. August 1, 2025. https://www.rohm.com/electronics-basics/sensors/sensor_what3
Ex-1336	INTENTIONALLY LEFT BLANK
Ex-1337	INTENTIONALLY LEFT BLANK
Ex-1338	INTENTIONALLY LEFT BLANK
Ex-1339	INTENTIONALLY LEFT BLANK

Petitioner Samsung Ex-1079, 0038

Ex. No.	Description
Ex-1340	Pahlavan, Kourosh. "US Patent Application Publication No. US2003/0142065 A1 'Ring Pointer Device with Inertial Sensors'." United States Patent and Trademark Office. Filed January 18, 2002. https://patentimages.storage.googleapis.com/65/ee/45/9bb0ab50d35dbb/US20030142065A1.pdf
Ex-1341	Bhargava, Kunal, Fady Mishriki. "International Application Published Under the Patent Cooperation Treaty (PCT), Intl Publication No. WO 2012/005603 A1 'An ICPT System. Components and Design Method'." World Intellectual Property Organization International Bureau. Filed June 15, 2011. https://patentimages.storage.googleapis.com/98/1d/ac/b158d8e3750c49/WO2012005603A1.pdf
Ex-1342	Kim, Joongheon. "US Patent No. US8,053,104 B2 'Pouch Type Battery and Method of Making the Same'." United States Patent and Trademark Office. Filed December 28, 2006. https://patentimages.storage.googleapis.com/98/fc/db/12e60f22add32/US8053104.pdf
Ex-1343	INTENTIONALLY LEFT BLANK
Ex-1344	Go, Eunyoung, Beyyeongjin Choi, Lee Hyang-gok, Jeong Hyeon-cheol. "Korea Patent No. KR101,049,841 B1 'Battery Cell of Curved Shape and Battery Pack Employed with the Same'." Korean Intellectual Property Office . Filed March 12, 2008. https://patents.google.com/patent/KR101049841B1/en?oq=KR101049841
Ex-1345	"Polymer Light-Emitting Diode." ScienceDirect. Accessed on August 11, 2025. https://www.sciencedirect.com/topics/engineering/polymer-light-emitting-diode

Petitioner Samsung Ex-1079, 0039

Ex. No.	Description
Ex-1346	Nanotec Museum. "What is a Microprocessor?" Nanotec Museum. May 27, 2018. https://www.tel.com/museum/exhibition/principle/microprocessor.html
Ex-1347	INTENTIONALLY LEFT BLANK
Ex-1348	Garmin. "Optical Heart Rate Sensor vs. Heart Rate Chest Strap." Garmin Support Center. May 17, 2021. https://support.garmin.com/en-US/?faq=2yWINctFF76LmTZ3aw2Wt9
Ex-1349	Sibert, John L., Mehmet Gokturk. "US Patent No. US6,184,863 B1 'Direct Pointing Apparatus and Method Therefor'." United States Patent and Trademark Office. Filed October 13, 1998. https://patentimages.storage.googleapis.com/73/23/e1/0ca65964cdeda9/US6184863.pdf
Ex-1350	AlSalhi, Mohamad S., Javed Alam, Lawrence A. Dass, Mohan Raja. "Recent Advances in Conjugated Polymers for Light Emitting Devices." International Journal of Molecular Sciences. March 21, 2011. https://pmc.ncbi.nlm.nih.gov/articles/PMC3111649/pdf/ijms-12-02036.pdf
Ex-1351	David C. Bock et al., Batteries Used to Power Implantable Biomedical Devices, 84 Electrochimica Acta 155 (2012
Ex-1352	B. Scrosati, Lithium Batteries: From Early Stages to the Future, in Lithium Batteries 13 (B. Scrosati, K.M. Abraham, W. Van Schalkwijk & J. Hassoun eds., 2013
Ex-1353	U.S. Patent No. 7,968,226
Ex-1354	U.S. Patent No. 6,881,516

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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/
Ex-1356	Screenshot from the Internet Archive of Ouraring.com, "What has Changed? The New Oura Ring," available at, available at https://web.archive.org/web/20191206191935/https:/ouraring.com/difference-between-first-and-new-oura-ring/
Ex-1357	iFixit, Oura Ring 2 Teardown, iFixit (July 9, 2020), https://www.ifixit.com/Teardown/Oura+Ring+2+Teardown/135207
Ex-1358	Screenshots of "What's inside the Oura Ring? (Gen 3 and 2)," available at https://www.youtube.com/watch?v=z7zuWbFNTL8&t=529s
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, *The Chambers Dictionary*, 12th ed. (2011)
Ex-1366	Ring, *Wiley Electrical and Electronics Engineering Dictionary* (2004)

Ex. No.	Description
Ex-1367	Ring, *Dictionary of Science and Technology*, 2nd edition (2007)

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I. INTRODUCTION

1. I am the same Dr. Brian W. Anthony that submitted a Declaration in this proceeding (Ex-1002). I submit this Reply Declaration on behalf of Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, "Samsung" or "Petitioner"), in response to portions of the Declaration of Mr. Patrick Mercier (Ex-2018) ("Mercier Decl.") on behalf of Patent Owner Ouraring, Inc. ("Oura," "Patent Owner," or "PO").

2. In preparation for this Reply Declaration, I have considered the materials discussed in my Declaration (Ex-1002) and this Reply Declaration, including, for example, U.S. Patent No. 10,139,859 ("the '859 Patent") (Ex-1001), the references cited by the '859 Patent, the prosecution history of the '859 Patent, various background articles and materials referenced in my Declaration (Ex-1002) and in this Reply Declaration, the prior art references identified in my Declaration (Ex-1002) and in this Reply Declaration, the Patent Owner's Response ("POR"), the Declaration of Mr. Patrick Mercier (Ex-2018) including certain references cited therein, the transcript of my deposition in this proceeding (Ex-2020, Ex-2021, Ex-2022), and the transcript of the Deposition of Mr. Patrick Mercier (Ex-1081, Ex-1082, Ex-1085). In addition, my opinions are further based on my education, training, experience, and knowledge in the relevant field.

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3. I am being compensated at my usual and customary rate of $500 per hour. No part of my compensation depends on the outcome of this proceeding, and I have no other interest in this proceeding. My compensation is in no way contingent on the nature of my findings, the presentation of my findings in testimony, or the outcome of this or any other proceeding. I have no other financial interest in this proceeding.

4. I reiterate the Background and Qualifications, Relevant Legal Standards, Level of Ordinary Skill in the Art, and Technology Background sections of my Declaration (Ex-1002), as if fully set forth herein. Ex-1002 ¶¶4-33, 34-151.

5. For the following reasons, it remains my opinion that: (1) Claims 1, 11, and 13-20 are obvious over Yuen in view of Mestas, and (2) Claims 1, 11, and 13-20 are obvious over Schröder in view of Mestas.

II. DR. MERCIER'S ARGUMENTS AGAINST GROUND 1 FAIL

6. Dr. Mercier only argues that independent claims 1, 11, and 14 are not obvious and focuses on elements 1[pre]-1[a(i)]/11[pre]/14[pre], 1[a]/11[a]-11[b]/14[a], 14[h], 1[b]/11[c]/14[b], 1[c]/11[d]/14[c], and 1[d]/11[e]/14[d]. Dr. Mercier does not argue the other elements in independent claims 1, 11, and 14 nor provide any separate argument for dependent claims 13 and 15-20. Ex-2018 ¶163.

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A. Yuen-Mestas teach elements 1[pre]-1[a(i)]/11[pre]/14[pre]

1. Dr. Mercier's proposed construction is unsupported

7. Dr. Mercier proposes that the claimed "wearable ring computing device" means a finger-worn ring. Ex-2018 ¶¶53-56. While Dr. Mercier argues that the claims, "prosecution history of the '859 Patent, and prosecution history of related applications, confirms this," the '859 claims, specification, file history, and extrinsic evidence do not support Dr. Mercier's narrow construction. *Id*., ¶56.

a. The claims conflict with Dr. Mercier's construction

8. As reproduced below, the '859 claims recite a "wearable ring computing device:"

1[pre]. A system, comprising:	11[pre]. A ***wearable ring computing device,***	14[pre]. ***A ring computing device***, comprising:
1[a(i)] ***a wearable ring computing device***, [2]		

9. Unlike the other patents that I have analyzed, the '859 claims do not explicitly recite that the ring computing device is worn on a finger. Ex-2022, 39:9-40:1 ("Q. And your testimony is that that could be a wrist-worn ring? A. Well, what's described there is a ring. ***It doesn't say that it's a finger ring. It says it's a ring***… It's a ring that can be applied to other body parts as well."), 40:2-21, 85:22-86:11 ("That is not constraining itself to being a finger."). Dr. Mercier agreed that when

[2] Emphasis added unless otherwise noted.

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PO claimed a finger-ring, PO explicitly used the term "finger," as shown below in PO's other patents. Ex-1085, 20:13-22:15. There is no such requirement recited in the '859 claims.

U.S. Patent No. 11,868,178 (Ex-1362)	U.S. Patent No. 11,874,702 (Ex-1363)	U.S. Patent No. 10,281,953 (Ex-1364)
1[Pre]. A ***finger-worn*** wearable ring device, comprising:	1[Pre]. A ***finger-worn*** wearable ring device, comprising:	1[Pre]. A wearable computing device, ***configured as a ring for being worn around the finger of a user***,

10. I understand that the '859 Patent stems from and incorporates by reference U.S. Patent No. 9,582,034 ("the '034 patent"), which claims a "wearable computing device." Ex-1361, 35:38-37:5.



11. The independent claims of the '034 patent are reproduced below:

1[pre]. A wearable computing device, comprising:	11[pre]. A wearable computing device, comprising:	16[pre]. A wearable computing device, comprising:
1[A] an interior wall defining a first enclosing structure;	11[A(i)]an internal housing portion defining a first enclosing structure,	16[D(i)] an internal housing portion defining a second enclosing structure,

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	11[A(ii)] ***the internal housing portion configured to be disposed near a finger of a user;***	
1[B] an exterior wall defining a second enclosing structure;		16[A] an external housing portion defining a first enclosing structure;
1[C] a flexible printed circuit board disposed between the interior wall and the exterior wall;	11[B] a flexible printed circuit board arranged around a portion of a circumference of an interior surface of the internal housing;	16[B] a flexible printed circuit board arranged around a portion of a circumference of an interior surface of the external housing;
1[D] at least one component disposed on the flexible printed circuit board; and	11[C] at least one component disposed on the flexible printed circuit board; and	16[C] at least one component disposed on the flexible printed circuit board; and
1[E] wherein at least one of the interior wall and the exterior wall defines a window that facilitates at least one of data acquisition, data transmission, and battery recharge.		
	11[D] the external housing portion configured to seal the at least one component and the printed circuit board in an internal space defined by the interior surface of the internal housing.	16[D(ii)] the internal housing portion configured to seal the at least one component and the printed circuit board in an internal space defined by the interior surface of the external housing.

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12. As shown, only independent claim 11 (element 11[A(ii)] further recites that the wearable computing device has "internal housing portion configured to be ***disposed near a finger of a user***." The '034 claims thus show how a finger-worn ring is a subset of "wearable ring computing devices."

b. The specification conflicts with Dr. Mercier's construction

13. Dr. Mercier argues that the "understanding" of ring being limited to a finger ring "is firmly rooted in the '859 Patent's own disclosure." Ex-2018 ¶¶57-61. While Dr. Mercier relies on the Abstract, summary of the invention, and "finger-centric design" shown in the figures, the specification clearly states:

> 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, 8:53-61. The specification is clear that the wearable computing device can be worn on other parts of the human body, even when it is shown and explained as a finger-ring. Although the WCD "can be in the form of a ring that can be worn on the finger of a human (or animal) user," (Ex-1001, 8:511-52), nothing requires the WCD to be a finger-ring. Ex-2022, 90:1-14. As I said in my deposition, "in the context of the patent, I think its clear that a ring is a ring that ***could be*** a finger ring

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or it could be something larger." Ex-2022, 41:14-18. There is nothing in the specification that requires the recited ring to be a finger-worn ring.

14. I understand that the Board preliminary stated that the specification shows "a ring and a wrist-worn device [as] distinct embodiments" (Paper 8, 24), but the specification actually states that the timepiece computing device is distinct from the WCD. *See, e.g.*, Ex-1001, 38:53-63, 43:40-45. For example, the specification explains the timepiece computing device (TCD) can "have one or more structural and/or functional components, and can be similar to the WCD described above with respect to the hardware features, components, sensors, etc." *Id*., 38:60-63. The TCD "can enhance the conventional timepiece with many of the features described above with respect to the WCD such as, heart rate sensing, temperature sensing pedometer, activity sensing, gesture sensing and control, without having to alter the look of the conventional timepiece." *Id*., 39:7-12. The specification also notes that "[f]eatures of each of the various embodiments described above may be combined with features of other described embodiments as appropriate in order to provide a multiplicity of feature combinations in associated new embodiments." *Id*., 43:58-62. But the specification explains that within the category of 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. Thus, the ring version and wrist-worn versions of the WCD are not

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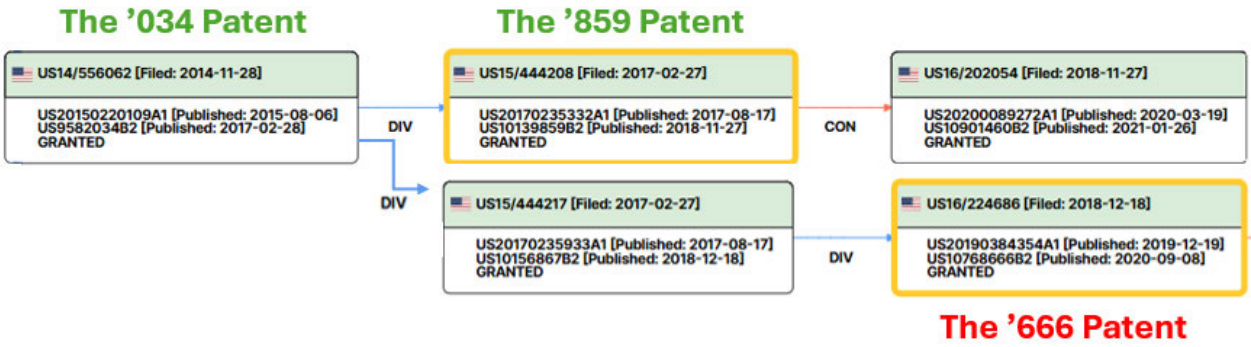
distinct embodiments but "*other shapes, designs, and form factors*" of the WCD. Ex-1085, 30:8-31:14.

c. The file history conflicts with Dr. Mercier's construction

15. Dr. Mercier also argues that PO expressed "this understanding of 'ring' as a finger-worn device when distinguishing the prior art during the prosecution of the '859 Patent." Ex-2018 ¶¶62-64. But there was no finger-ring requirement made during prosecution. Dr. Mercier argues that the Examiner rejected the claims over wrist-worn prior art and then allowed the claims after PO's amendment, somehow means that the claims are limited to finger-rings. For example, PO's statements during prosecution that the asserted reference Raghunath did not "teach, nor suggest a single, ring that includes the recited components that is capable of generating one or more sensed conditions, which may then be used to identify and authenticate a user of the ring." Ex-1004, 472. PO similarly argued during proseuction that the applied Ahagbe reference was "certainly not directed to a wearable computing device that is configured as a ring" because "Ahagbe is directed to a bracelet that serves as an energy store, such as for charging a cell phone." Ex-1004, 473. It is clear that PO did not argue that the Examiner's references did not teach the recited WCD because the references did not teach a finger-sized ring to clearly limit the claims to a finger-worn device. While Dr. Mercier attempts to argue that the PO

amended the claims to distinguish them from other wearable form factors like those disclosed in the wrist-worn prior art (Ex-1085, 45:4-49:13), PO merely amended its claims from "wearable computing device" to "wearable ***ring*** computing device." Ex-1004, 478. PO thus did not amend the claims to recite a finger-worn ring, as it had done in other patents.

16. Dr. Mercier notes an argument made during the prosecution history of U.S. Patent No. 10,768,666 to argue that the '859 claimed a finger-worn ring. Ex-2018 ¶¶65-67. But I understand that the '666 patent was filed after the '859 Patent and does not have any bearing on the Examiner's understanding and ultimate issuance of the '859 Patent claims.



17. Dr. Mercier argues that I failed to account for the prosecution history in my declaration, in order to equate Yuen's toe band with the claimed ring computing device. Ex-2018 ¶¶68-69. But Dr. Mercier is wrong. As I noted in my declaration, I reviewed the prosecution history. Ex-1002 ¶¶40-41. I continued to

apply Yuen's wearable computing device to the claims because the "wearable ring computing device" is not limited to a finger-worn ring.

d. Extrinsic evidence conflicts with Dr. Mercier's construction

18. Dr. Mercier argues that that the "distinction made during prosecution aligns with the common understanding of various terms in the art relating to wearable devices." Ex-2018 ¶¶70-71. But as I discussed in the previous section, there was no distinction made during the prosecution history to limit "wearable ring computing device" to a finger-ring that excludes other ring form factors. The plain meaning of "ring" is a "small, circular band, *esp* one of metal, worn on the finger, in the ear, nose, or ***elsewhere***; … an ***encircling band***." Ex-1365, 3. "Ring" has also been defined as "an object… in the form of a circle whose center is not filled." Ex-1366, 3. Or as "a circle which goes around something." Ex-1367, 3. Indeed, a ring is a circular object, such as circle, band, loop, hoop, crown, or halo. Rings, which circle a neck, toe, or wrist thus fall under the plain meaning of ring. Ex-1085, 30:8-19 (earring).

19. In summary, there is nothing in the claims, specification, prosecution history, or extrinsic evidence to restrict the claimed "wearable ring computing device" to a finger-worn ring.

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2. Yuen-Mestas teach a wearable ring computing device

20. Dr. Mercier argues that Yuen-Mestas does not teach a "wearable ring computing device" because the claimed wearable ring computing device requires a finger-worn ring. Ex-2018 ¶¶123-131. But the claims do not require a finger-worn ring, as I described in the previous section. Yuen teaches a "biometric monitoring device," that can be worn on an appendage of the user's body including a chest band, necklace, earring, or "toe band." Ex-1006, 2:7-9, Fig. 2. A toe band, chest band, and necklace are circular, and an earring is also a "ring" for a user's ear. These are "ring" computing devices. In particular, Yuen's "toe band" is equivalent to a finger-worn ring because it encircles a person's toe. As I described in my declaration, a POSITA would have understood that Yuen's "toe band" is a wearable ring device, such that it encircles a person's toe. Ex-1002 ¶¶161-162. Fingers and toes are comparable—they have the same bone and capillary structure. *Id*. Thus, Dr. Mercier is ignoring how a POSITA would have understood that Yuen's biometric monitoring device can be scaled down to a toe band, which is equivalent to a finger-worn ring.

21. Dr. Mercier 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," Ex-2018 ¶¶126-128. While Dr. Mercier's declaration says that the "toe band" is not what a POSITA would have understood as the claimed ring computing device, Dr. Mercier previously testified that "ring" and "band" are synonymous. Ex-1081,

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161:12-19. Dr. Mercier discusses that Yuen emphasizes a flexible adaptable band and so its "toe band" would not be a rigid, circumferential ring since that would be impractical and uncomfortable for a toe. Ex-2018 ¶127. But a "rigid, circumferential ring" is not claimed in the '859 Patent; the claims only state a "wearable ring computing device." A POSITA reviewing Yuen would have recognized that Yuen consistently stresses the importance of securing the wearable device snugly around a user's appendage to ensure accurate biometric readings. Ex-1002 ¶¶158–165; Ex-2021, 387:20-388:9. This teaching applies equally to a toe as to a finger. Indeed, many people wear toe rings, which demonstrates the practicality of a circumferential device encircling a toe. Moreover, Yuen's disclosure of a "toe band" as a wearable biometric device plainly indicates to a POSITA that Yuen envisioned an encircling structure around the toe, a ring, regardless of whether it is rigid or flexible.

22. Dr. Mercier argues that Yuen's biometric device has a body containing the electronics and a band that facilitates attaching the device to the user, such that the electronics body can be removed from the band, which is not a ring computing device. Ex-2018 ¶128. While Yuen does disclose a removable sensor package, Yuen does not require a removable sensor package, and that teaching is not what I relied upon. Ex-2022, 47:1-51:7, 57:13-65:7 ("But it seems, for example, reading this here today, that removable sensor package could be appropriate, for example, for the bra or the chest band, for example, but would not be appropriate, for example, because

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it would not be a thing that you could attach to your toe. It wouldn't be appropriate, for example, for the toe band.").

23. Dr. Mercier further argues that Yuen's device has a "flat back" for its "sensing electronics and housing," which is distinct from the curved structure of a ring computing device. Ex-2018 ¶¶129-130. A POSITA reading Yuen "would understand the various design trade-offs in order to… accomplish that and how to accomplish a toe band," (Ex-2021, 391:12-392:2) because the mere change in proportional size of PCB would have been an obvious change for a POSITA. Ex-2022, 51:8-56:6 (explaining scaling electronic components); Ex-1085, 122:14-123:5, 125:9-14; Ex-1081, 17:24-18:16; Ex-1002 ¶167.

24. Dr. Mercier argued that the combination of Yuen and Mestas does not disclose a finger-ring (Ex-2018 ¶131), but Mestas teaches a wearable ring computing device. Mestas's "wearable athletic device" may be worn "on a user's body including on a user's chest (e.g., a chest strap), around a user's wrist, around a user's arm, on a user's head, on a user's ankle or thigh, and the like." Ex-1010 ¶143. Mestas's device "may be formed in various other shapes without departing from the invention" (*id*. ¶152) and "may be varied in circumferential size" (*id*. ¶162) so that it can have a minimal cross section (*id*. ¶157). Mestas thus teaches a wearable ring computing device in its arm or wrist-worn device that can be scaled down. Ex-2022,

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38:13-39:8, 43:3-12; Ex-1085, 51:7-60:3 (discussing scaling of Mestas), 122:14-123:5, 125:9-14; Ex-1081, 17:24-18:16.

B. Yuen-Mestas teach elements 1[a(ii)]-1[a(iii)]/11[a]-11[b]/14[a] and 14[h]'s interior bounding member and exterior bounding member, which are coupled together to form a waterproof cavity

25. Dr. Mercier seems to argue Yuen-Mestas's teaching of the coupled bounding members forming a waterproof cavity and notes elements 1[a], 11[a], and claim 14. But the bounding members providing a waterproof cavity are recited in elements 1[a(ii)]-1[a(iii)]/11[a]-11[b]/14[a] and 14[h]:

1[A(ii)] the ring computing device including a housing, the housing having an interior bounding member and an exterior bounding member,	11[A] the ring computing device comprising: 11[B(i)] a housing, the housing having an interior bounding member and an exterior bounding member,	14[A] an interior bounding member, the interior bounding member being defined by a planar surface member having a pair of opposed circumferential portions, the opposed circumferential portions being raised above a first portion of the planar surface member;
1[A(iii)] the interior bounding member and the exterior bounding member being configured for being coupled together to form a waterproof cavity there between;	11[B(ii)] the interior bounding member and the exterior bounding member being configured for being coupled together to form a waterproof cavity there between;	14[H] an exterior bounding member, the exterior bounding member for being coupled to the interior bounding member in a manner to produce a waterproof cavity thereby.

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26. Dr. Mercier argues that Yuen fails to teach coupled members that form an internal waterproof cavity because Yuen's structure resembles an open shell, which Dr. Mercier incorrectly argues has exposed sensor protrusions. Ex-2018 ¶¶134-137. Dr. Mercier explicitly requires the prior art to teach: "distinct, coupled interior and exterior bounding members which are configured as concentric full circles—with the interior member having a smaller circumference than the exterior yet sharing the same centric point—that together form an enclosed waterproof cavity." *Id*. ¶136. But that is not what is recited. There is no requirement for the coupled bounding members to be an assembly of at least two separate structural pieces. This is requirement is also not supported by the intrinsic record. Dr. Mercier admitted that the claims do not require the bounding members to be separate structural pieces later brought together (Ex-1085, 105:24-106:11), while he pointed to an embodiment in the specification (*id*., 98:2-6), I understand that the patent claims should be read in light of the specification but it is improper to read a limitation from the specification into the claims. There is no requirement for there to be two distinct bounding members configured as concentric full circles in the claims. Nevertheless, Dr. Mercier conceded that Yuen does teach two "members." Ex-2018 ¶136.

27. Dr. Mercier states that "Yuen's structure is more similar to a shell with two external members then a structure with inner and outer members." Ex-2018

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¶136. But again, the claims merely state that the interior and exterior bounding members are coupled to form a waterproof cavity. Yuen teaches that. Yuen teaches a biometric monitoring device with a "bounding member" that "contacts, touches and/or faces the skin of the user" (red) and another bounding member that is exposed to the environment (green). Ex-1002 ¶¶163-164. Yuen's "environmental side" faces the environment and has a display, as it is the portion that does not contact the skin of the user. *Id*., Fig. 4. That side is not open to the environment. Ex-1006, 19:52-53.

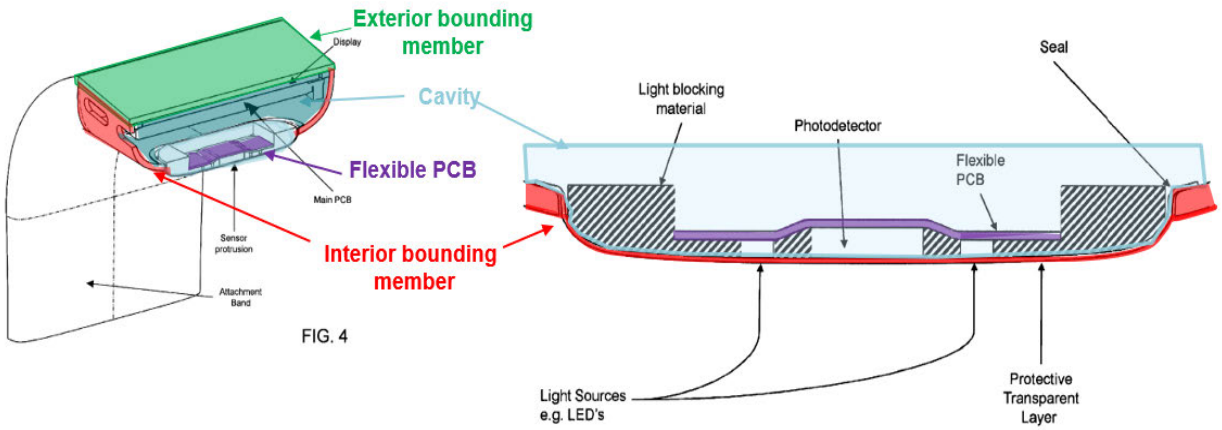


FIG. 4

FIG. 5

28. Yuen's sensor module, which Dr. Mercier incorrectly argues is an "exposed sensor protrusion" (Ex-2018 ¶137), is sealed within the cavity (blue) formed between the interior and exterior bounding members and covered with a "protective transparent layer," which, as shown, completes the internal bounding member (red). Ex-1085, 99:22-102:11; Ex-1006, Figs. 4, 5. Dr. Mercier states that Yuen's sensor module is an external protrusion. But the sensor module is clearly part

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of Yuen's housing, by being included inside of the cavity and is further described to not even have to protrude so that the housing can continue with its original arc and touch the user's skin. Ex-1006, Fig. 7 (no sensor "protrusion"); Ex-1002 ¶¶170-171.

29. Yuen's cavity is waterproof. Yuen teaches using "a watertight seal," such as "watertight glues, hydrophobic membranes such as Gore-Tex, O-rings, sealant, grease, or epoxy," to prevent liquid ingress 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 and methods to protect all of the 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 ¶¶164-165.

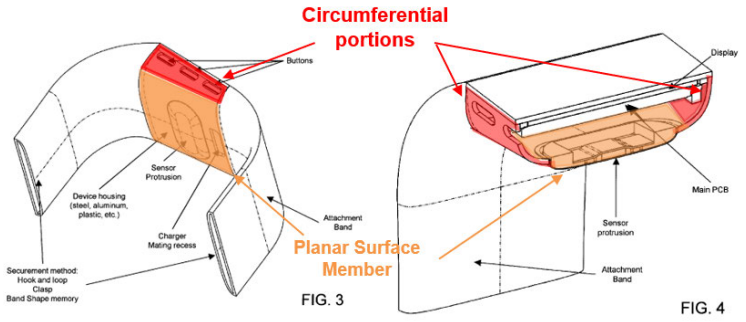
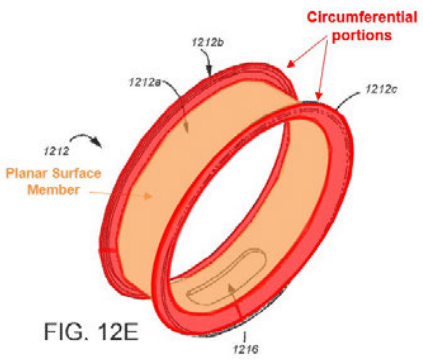
30. One such example, is Mestas. Dr. Mercier ignores that actual Yuen-Mestas combination and argues that Petitioner "does not use Mestas to modify Yuen's shell structure to render it a waterproof cavity formed by coupled interior and exterior bounding members," while including Mestas's Figure 31B without any explanation. Ex-2018 ¶¶138-139. But Yuen's housing isn't a "shell" as I explained in the previous paragraphs so there would be no need to re-engineer Yuen's housing. Yuen further teaches "a watertight seal" using watertight glues. Ex-1006, 14:59-15:4, 15:10-14. Mestas simply provides additional teachings related to well-known techniques to provide a water-tight seal for all the internal components of a wearable device, such as Yuen's. Mestas explicitly teaches using a waterproofing seal such

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that the housing is "water-resistant." Ex-1010 ¶141. The combination is simple: a POSITA would have been motivated to apply Mestas's waterproofing techniques to Yuen's housing to prevent liquid ingress into the entire biometric monitoring device to increase durability and prevent damage to the internal components. Ex-1002 ¶165.

31. I understand that PO separately argues that Yuen does not teach claim 14's "intricate internal geometry" of a planar surface having a pair of opposing circumferential portions because Yuen "does not disclose this specific internal geometry." POR, 43-44. Dr. Mercier did not address this "intricate internal geometry" and PO ignored my declaration. As I explained in my declaration, (Ex-1002 ¶191), Yuen's interior bounding member has a planar surface touching the user's skin and "opposing circumferential portions that extend from the flat" portion, in the same way the circumferential portions (red) of the '859 Patent are described and claimed. Ex-2022, 96:17-100:14. Specifically, the '859 Patent explains that the "internal housing 1212 can have a generally U-shaped internal surface 1212a to accommodate one or more internal components and can define a pair of flanges 1212b and 1212c." Ex-1001, 17:65-18:1. Therefore, the "opposing circumferential portions" are similar to the specifications explanation of "flanges" that surround the planar surface element.

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Yuen	'859 Patent
	

C. Yuen-Mestas teach elements 1[b]/11[c]/14[b] of curved battery corresponding to an arc of the housing

32. Dr. Mercier's section header states "Yuen and Mestas do not disclose or suggest a ring having a "curved battery" as recited in claims 1, 11, and 14." But his argument only focuses on elements 1[b] and 11[b]. Ex-2018 ¶140. He does not address Yuen-Mestas's teaching of claim 14[b], which requires a curved rechargeable battery that is wirelessly charged. Elements 1[b]/11[c]/14[b] recite:

1[B] a curved battery positioned within the cavity, the curved battery having an arc approximating a corresponding arc of the ring housing;	11[C] a curved battery positioned within the cavity;	14[B] a curved rechargeable battery, the rechargeable battery being configured for being wirelessly recharged;

33. Dr. Mercier argues that Yuen does not disclose a curved battery and Yuen's toe band "electronics package is flat." Ex-2018 ¶¶141-143. Yuen's "rechargeable energy source" is within the internal cavity of its device. Ex-1006,

14:43-46; Ex-1002 ¶¶166-169. Although not depicted in Yuen's figures, a POSITA would have understood that Yuen's toe band battery would be curved to encircle the user's toe and merely changing the proportional size of Yuen's battery would have been an obvious change. Ex-2021, 390:2-392:2; Ex-2022, 51:8-56:6. While Dr. Mercier's declaration claims that Yuen's battery is depicted as flat, he 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; Ex-2020, 172:6-173:2; Ex-1081, 148:24-149:1.

34. The '859 Patent itself, as Dr. Mercier agreed, lacks any details on how to manufacture its own battery from scratch. *See e.g.*, Ex-1081, 16:22-19:9, 22:19-24:5, 133:14-135:17, 137:22-138:10, 156:11-18, 159:5-12.[3] This makes sense because there would be no need to manufacture a battery from scratch. I specifically testified that there was no need for a POSITA to design the battery to fit into a ring because there were vendors that sell batteries. *See* Ex-2021, 315:9-316:19-21, 454:2-455:11. Dr. Mercier even testified that curved batteries were available. *See, e.g.*, Ex-1081, 148:24-149:1. To obtain a small, curved battery that appropriately fits within the wearable device is within the skills of a POSITA. As acknowledged by Dr. Mercier, electronic components were trending smaller, and thus a POSITA would

[3] Based on the family tree, I understand that the '859 is a divisional application of the '034 patent. The '178 and '702 patents are also divisional applications from the '034 patent and therefore Dr. Mercier's testimony about the '178 and '702 specification would also apply to the '859.

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have been motivated to make curved batteries smaller. Ex-1081, 147:20-149:11 (Q: "And would you agree that there was a general drive around 2013 towards making batteries smaller?" A: "Yes."). A POSITA would have known to design a ring with a battery that fits within the ring's housing.

35. To the extent that Dr. Mercier relies on the inventor's ITC testimony to argue that a POSITA could not purchase a curved battery to fit within a ring form factor, the inventor merely believed a curved battery a less readily-available option:

> Q. Why didn't you consider curved batteries at this stage?
> A. ***I don't think we really knew of that as an option at that point in time.*** Secondly, I think we wanted to make something very simple… when we first started the company, we said it would take six months max. And it ended up being three years. So we were a little bit off there…
>
> Q. Why didn't you consider a curved battery … at this point?
> A. Yeah. So, mostly, we just didn't know about it, and I think the other -- the other directions we were looking seemed more compelling. Being able to find something off-the-shelf was, you know, definitely the simplest path to getting something out the door.

Ex-2024, 182:13-183:7. That the inventor initially considered flat batteries due to time constraints and simplicity does not mean that curved batteries were unavailable, as Dr. Mercier first argued. In fact, Dr. Mercier has previously agreed that curved batteries were available at the time of the '859 Patent. *See* Ex-2020,172:6-173:2; Ex-1081, 148:24-149:16. For example, U.S. Patent Publication No. 20070059595 to Endo et al. ("Endo," Ex-1088) was published in March 2007 with international

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priority from November 2001. Endo, assigned to Sony Corporation, disclosed how there was a high demand for batteries which supply electric power to portable electronic devices while decreasing, the size, thickness of the battery. Ex-1088 ¶2. Endo discussed that, in order to make various electronic devices more compact, "it has been necessary to efficiently employ the inner spaces of the electronic devices, and it has been especially demanded to use the inner spaces having curved surfaces as spaces for accommodating the batteries serving as the power sources." *Id*. ¶6. Endo thus discloses a "battery in which a possibility of short-circuit is low in the end part… and battery characteristics are good even when the electrode has, for instance, a curved form or a semicircular curved surface so as to be adapted to the form of each of the inner spaces of various kinds of electronic devices." *Id*. ¶11. Endo provides an example curved battery 1, in Figure 5 (annotated in blue below).

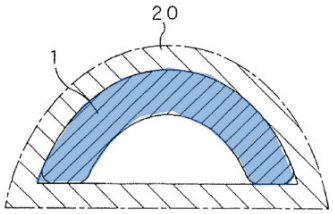


FIG.5

36. Another example is U.S. Patent No. 9,385,396 to Goh et al. ("Goh," Ex-1089), which was filed December 5, 2014, and claims priority to another U.S. Patent filed March 10, 2009. Goh discloses a curved battery allowing for a "tight contact between the battery cell and the electronic device…, thereby maximizing

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space utilization and thus providing high efficiency." Ex-1089, 9:53-60. As shown in Figures 1 and 2 below, Goh describes using an upper and lower jig with a heater to curve the battery with a radius of curvature R. *Id*., 7:49-8:30. "Consequently, the battery cell 102 has an average radius of curvature R. The radius of curvature R2 of the middle part of the battery cell 102 is less than the average radius of curvature R, and the radius of curvature R1 of each end of the battery cell 102 is greater than the average radius of curvature R." *Id*., 8:38-42.

FIG. 1

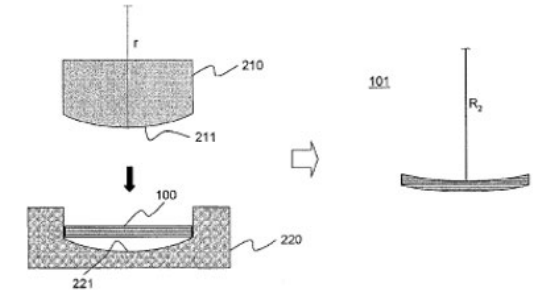
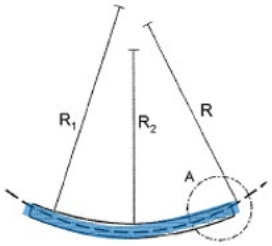


FIG. 2



37. Therefore, a POSITA would have understood in view of Yuen's teachings, that there is a rechargeable battery within Yuen's housing. Additionally, a POSITA would have understood that Yuen's battery would be curved to encircle

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the user's toe and merely changing the proportional size of Yuen's battery would have been an obvious change. Ex-2021, 390:2-392:2; Ex-2022, 51:8-56:6.

38. Dr. Mercier also argues as if a POSITA would be literally shrinking Mestas's components to fit into Yuen's ring. Ex-2018 ¶¶144-147. But I am not bodily incorporating Mestas's battery into Yuen's ring. *See, e.g*., Ex-2022, 30:3-16; Ex-2021, 307:6-22. Mestas teaches having curved batteries in a wearable device. It is that teaching that a POSITA would have considered implementing into Yuen. As I explained in my declaration, a battery having a curved shape like the "curved battery" of Mestas would have been obvious to avoid increasing the ring's thickness or straining the battery or housing. Ex-1002 ¶¶168-169; Ex-2022, 26:1-29:13, 35:19-39:8.

39. If it is Dr. Mercier's contention that small, curved batteries did not exist prior or at the time of the '859 Patent, Dr. Mercier is wrong. For example, major manufacturers, such as Medtronic, patented contoured lithium battery designs to optimize internal space utilization within curved pacemaker and defibrillator housings, demonstrating the practical feasibility of unconventional battery shapes. *See also* Ex-1351, Ex-1352. Specifically, Medtronic patented a rechargeable lithium-ion battery featuring a shallow, curved titanium casing tailored explicitly for defibrillators and neurostimulators, allowing the battery to efficiently conform to the internal contours of implantable medical devices. *See, e.g.*, Ex-1353 (U.S. Patent

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No. 7,968,226); Ex-1354 (U.S. Patent No. 6,881,516). This contoured battery technology successfully achieved commercial implementation.

40. To the extent that Dr. Mercier is arguing that the curved battery needed to fit into a ring is smaller than Mestas's curved batteries in a larger wearable device does not distinguish Mestas's teaching of using a curved battery, regardless of the size. As I explained above, a POSITA would have known how to adapt a curved battery into Yuen's ring form factor. A battery having a curved shape like the "curved battery" of Mestas would have been obvious to try to avoid increasing the ring's thickness or straining the battery or housing. To clarify, my opinion was not based on bodily incorporation of Mestas's battery into Yuen's ring. Rather, implementing a curved battery would have been a design consideration for the ring. *See* Ex-2020, 172:1-5 ("***There's design flexibility in how you would locate any component to accomplish the design trade-offs*** with the amount of battery capacity needed relative to the other components that also need to be assembled on the inlay."). As I explained at my deposition, "a battery could exist in part of the cavity going partially circumferentially around and following the cavity, following the structure. It could exists as a narrow band all the way around." *See* Ex-2020, 171:19-1)

41. Relatedly, a POSITA would have known how to contact vendors for the appropriately sized battery, as I described above. *See also* Ex-1081, 15:11-19:9;

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Ex-1085, 17:24-18:16 (Dr. Mercier agreeing that the patents lack details on how to manufacture its battery from scratch). Moreover, Dr. Mercier acknowledged that electronic components naturally trend smaller:

> Q. And would you agree that around 2013 there was a general drive towards making electronic components smaller?
> **A.** Yes.
> Q. And would you agree that there was a general drive around 2013 towards making batteries smaller?
> **A.** Yes.· And to add a little bit to that, the semiconductor industry has benefited tremendously from Moore's law, which is a scaling law that suggests that the -- you know, the number of transistors you can fit on a chip doubles every roughly 18 months. It's a beautiful exponential law that increases computing and electronic capabilities massively every year, which, you know, is used to improve computing capabilities but can be also potentially used to miniaturize electronics. But, unfortunately, there's no kind of equivalent Moore's law for battery design that I'm aware of.· And my understanding of batteries is that they scale extremely slowly over time.
> Q. Okay.· But you would agree that there was kind of a general pressure in the industry around 2013 to attempt to miniaturize batteries, correct?
> …
> **A.** I do.

Ex-1081, 147:20-148:16. *See also* Ex-1085, 122:14-123:5, 125:9-14;

42. It is therefore my opinion that a POSITA would have been motivated to use smaller curved batteries in view of this trend. A POSITA would have known to design a ring with a curved battery that fits within the ring's housing.

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D. Yuen-Mestas teach elements 1[c]/11[d]/14[c]'s sensor module positioned within the cavity

43. Elements 1[c], 11[c], and 14[c] recite:

1[C(i)] a sensor module, the sensor module positioned within the cavity and proximate the battery, 1[C(ii)] the sensor module comprising one or more sensors, 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, 1[C(iii)] the one or more sensors being configured to sense a change in a condition of a wearer of the ring;	11[D] a sensor module, the sensor module positioned within the cavity, the sensor module comprising one or more sensors, the one or more sensors being configured to sense a change in a condition of a wearer of the ring and for producing sensed data thereby; and	14[C] a sensor module comprising one or more sensors to produce sensed condition data;

44. Dr. Mercier states that "Limitations 1[c], 11[c], and 14[c] require: "a sensor module . . . positioned within the cavity . . . " / "a flexible printed circuit board positioned within the cavity . . . ." Ex-2018 ¶148. But element 14[c] does not recite a flexible PCB, but a sensor module with one or more sensors. Therefore, Dr.

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Mercier only disputes the position of the claimed sensor module in Yuen-Mestas and does not dispute that Yuen-Mestas's sensor module includes specific sensors and are configured to sense a change in a condition of the wearer as recited in claims 1 and 11 (and dependent claims 18 and 19).

45. Dr. Mercier argues that Yuen-Mestas does not teach the sensor module located in a waterproof cavity. Ex-2018 149-151. As I explained in §II.B (1[a]/11[b]/14[a]), the sensor module is fully sealed in the cavity provided by the bounding members. 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, as shown, completes the internal bounding member (red). Ex-1085, 99:22-102:11; Ex-1006, Figs. 4, 5. Dr. Mercier states that Yuen's sensor module is an external protrusion. But the sensor module is clearly part of Yuen's housing, by being included inside of the cavity and is further described to not even have to protrude so that the housing can continue with its original arc and touch the user's skin. Ex-1006, Fig. 7 (no sensor "protrusion"); Ex-1002 ¶¶170-171.

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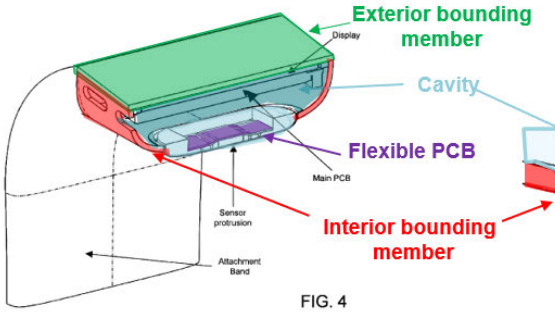


FIG. 4

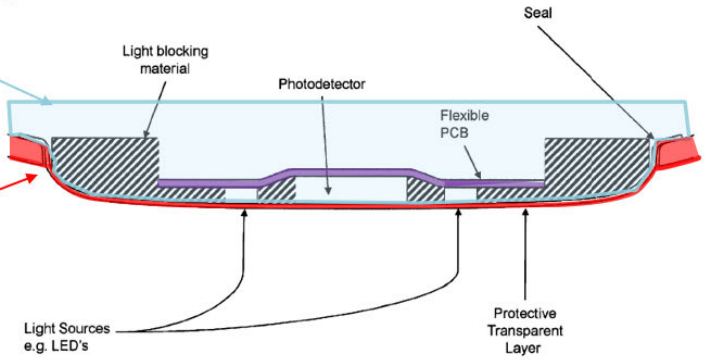


FIG. 5

46. Second, Dr. Mercier argues that "placing Yuen's sensor assembly proximate to a battery as suggested by Petitioner does not solve the fundamental failure to disclose this element in a ring." Ex-2018 ¶150. But as I explained, Yuen's sensor module is located proximate to the battery to be powered. Ex-1002 ¶172. This structure is shown explicitly by Yuen's example of how the electronic components, such as its heart rate sensor, can be placed in a low power mode when the user is not wearing the device. Ex-1006, 9:15-24, 9:25-35.

47. Dr. Mercier completely ignores Mestas's teachings of its battery and sensor assembly "supported" by the flexible PCB. Ex-1002 ¶173. Dr. Mercier also does not rebut that a POSITA would have further been motivated to have Yuen's sensor assembly proximate to the battery, as disclosed in Mestas, to simplify the manufacturing assembly and to reduce the need for wires or long electrical traces, to minimize the risk of the module losing electrical connection, and to allow other parts of the wearable device to be thinner for comfort. Ex-1002 ¶173.

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E. Yuen-Mestas teach elements 1[d]/11[e]/14[d]'s flexible PCB positioned within a cavity

48. While Elements 1[d]/11[e]/14[d] are reproduced below, Dr. Mercier only focuses on the requirement for the flexible PCB to be within the cavity and proximate to a curved battery. Ex-2018 ¶152.

1[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:	11[E] 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:	14[D] a flexible printed circuit board positioned proximate a first portion of the planar surface of the interior bounding member between the raised circumferential portions, the flexible circuit board portion comprising:

49. Dr. Mercier argues that neither Yuen/Yuen-Mestas teach the elements' flexible PCB positioned within the cavity of a "finger ring." Ex-2018 ¶¶153-155. But as I discussed in §§II.A.2 and II.B, the claims do not a require a finger-ring, only a ring, and Yuen-Mestas teaches a wearable ring computing device with a cavity.

50. Dr. Mercier then argues that (1) Yuen's flexible PCB is outside of the housing and (2) Yuen's main PCB is flat and cannot be "adapted for the curved internal cavity of a finger ring." Ex-2018 ¶¶156-158. As shown in figures 4 and 5 below, Yuen explicitly teaches "a flexible printed circuit board" (Ex-1006, 2:35-39, 12:35-42; purple) with attached electronic components like the photodetector and light emitters are sealed within the cavity (blue) between the internal and external

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bounding members (*see* §II.B). Ex-2021, 354:22-356:11. I did not rely on Yuen's "main PCB." Ex-1002 ¶¶176-179.

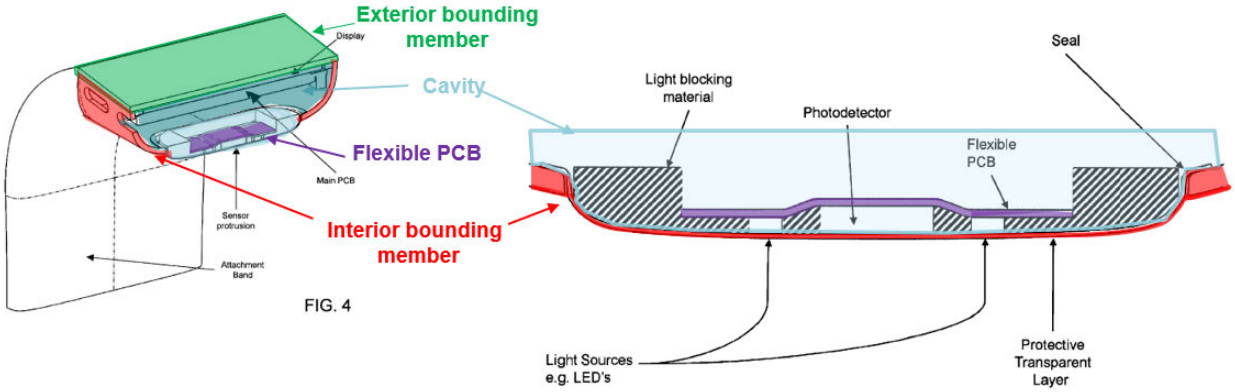


FIG. 4

FIG. 5

51. Dr. Mercier ignores Mestas's explicit teachings and instead argues that modifying Yuen's PCB to be proximate the battery and sensor, in view of Mestas, requires complete redesign of Yuen without motivation. Ex-2018 ¶157. 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 (housing 12 has spine member), 164 (flexible PCB wrapped around spine member), 168, 177 (batteries contact and engage flexible PCB). A POSITA would have been motivated to have Yuen's flexible PCB "proximate" to the sensor module and battery, as taught in Mestas, to reduce the risk of electrical components losing mechanical or electrical

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connection to each other and to allow other ring parts to be thinner for the wearer's comfort. Ex-1002 ¶179; Ex-2022, 30:3-40:1.

F. A POSITA would have been motivated to combine Yuen-Mestas and doing so would enable the alleged invention

52. Dr. Mercier argues that a POSITA would not have been motivated to combine Yuen's and Mestas's teachings because Petitioner "ignores the substantial differences in the disclosed form factors, intended applications, and structural complexities when compared to claimed finger ring computing device." Ex-2018 ¶¶103, 122. Specifically, Dr. Mercier states that Yuen and Mestas "provide no specific guidance for the design and construction of a compact, integrated finger ring computing device." *Id*. ¶¶104-106. But as I discussed in §II.A, the claims do not recite a "finger ring computing device" and Yuen-Mestas teaches the claimed wearable computing device.

53. Dr. Mercier then focuses on Yuen's toe band teaching and argues that Yuen's band is separate from the electronics. Ex-2018 ¶¶107-109. But as I described above, I do not rely on Yuen's removable sensor package. Moreover, Yuen describes that its biometric monitoring device can be in the form of a toe band. While Yuen does not specify all of the details when the device is in the toe band form, a POSITA would have understood that Yuen's teachings would just be applied in the toe band

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form factor, which is equivalent to a finger ring form factor because toes and fingers are equivalent in size, bones, and capillary structure.

54. Dr. Mercier then argues that scaling Mesta's components or Yuen's larger form factors, for integration into a finger ring would be a "significant deterrent" since its components would need to be scaled down 5 or 10 times. Dr. Mercier argues that a POSITA could not use Mestas's batteries in Yuen and that the proposed miniaturization would not be trivial. Ex-2018 ¶¶110-113, 117-118. Dr. Mercier argues I admitted that miniaturization of a battery was beyond the skill of a POSITA and would take years; and that a POSITA would instead contact vendors for the appropriately sized battery. But Dr. Mercier is wrong by improperly requiring a POSITA reviewing Yuen and Mestas to design a battery from scratch. The '859 Patent itself, as Dr. Mercier agreed, lacks any details on how to manufacture its own battery from scratch. *See also* Ex-1081, 15:11-19:9; Ex-1085, 17:24-18:16 (Dr. Mercier agreeing that the patents lack details on how to manufacture its battery from scratch), 122:14-123:5, 125:9-14. This makes sense because there would be no need to manufacture a battery from scratch. Dr. Mercier is mischaracterizing my deposition testimony. I specifically testified that there was no need for a POSITA to design the battery to fit into a ring because there were vendors that sell batteries. *See* Ex-2021, 315:9-316:19-21; 454:2-455:11. While PO takes my quotes in isolation in alleging that "coin type batteries" would be what a POSITA would have used, Dr.

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Mercier even testified that curved batteries were available. *See, e.g.*, Ex-2021, 315:9-22, 454:2-455:11; Ex-1081, 148:24-149:1. To obtain a small, curved battery that appropriately fits within the wearable device is within the skills of a POSITA. As acknowledged by Dr. Mercier, electronic components were trending smaller, and thus a POSITA would have been motivated to use curved batteries smaller. Ex-1081, 147:20-149:11 (Q: "And would you agree that there was a general drive around 2013 towards making batteries smaller?" A: "Yes."). A POSITA would have known to design a ring with a battery that fits within the ring's housing.

55. As I discussed above, while Dr. Mercier relies on the inventor's ITC testimony (Ex-2018 ¶¶114-116), Dr. Mercier mischaracterizes that testimony. Indeed, the inventor merely believed a curved battery a less readily-available option:

> Q. Why didn't you consider curved batteries at this stage?
> A. ***I don't think we really knew of that as an option at that point in time.*** Secondly, I think we wanted to make something very simple… when we first started the company, we said it would take six months max. And it ended up being three years. So we were a little bit off there…
>
> Q. Why didn't you consider a curved battery … at this point?
> A. Yeah. So, mostly, we just didn't know about it, and I think the other -- the other directions we were looking seemed more compelling. Being able to find something off-the-shelf was, you know, definitely the simplest path to getting something out the door.

Ex-2024, 182:13-183:7. That the inventor initially considered flat batteries due to time constraints and simplicity does not mean that curved batteries were unavailable,

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as Dr. Mercier first argued.

56. In fact, Dr. Mercier agrees that curved batteries were available at the time of the challenged patent. *See* Ex-2020, 172:6-173:2; Ex-1081, 148:24-149:16. As I explained above, curved batteries were available. *See also* Ex-2022, 138:10-142:14. For example, U.S. Patent Publication No. 20070059595 to Endo et al. ("Endo," Ex-1088) was published in March 2007 with international priority from November 2001. Endo, assigned to Sony Corporation, disclosed how there was a high demand for batteries which supply electric power to portable electronic devices while decreasing, the size, thickness of the battery. Ex-1088 ¶2. Endo discussed that, in order to make various electronic devices more compact, "it has been necessary to efficiently employ the inner spaces of the electronic devices, and it has been especially demanded to use the inner spaces having curved surfaces as spaces for accommodating the batteries serving as the power sources." *Id*. ¶6. Endo thus discloses a "battery in which a possibility of short-circuit is low in the end part… and battery characteristics are good even when the electrode has, for instance, a curved form or a semicircular curved surface so as to be adapted to the form of each of the inner spaces of various kinds of electronic devices." *Id*. ¶11. Endo provides an example curved battery 1, in Figure 5 (annotated in blue below).

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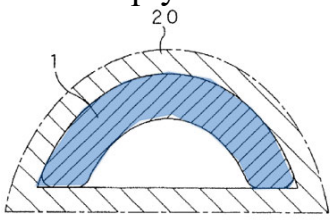


FIG.5

57. Another example is U.S. Patent No. 9,385,396 to Goh et al. ("Goh," Ex-1089), which was filed December 5, 2014, and claims priority to another U.S. Patent filed March 10, 2009. Goh discloses a curved battery allowing for a "tight contact between the battery cell and the electronic device…, thereby maximizing space utilization and thus providing high efficiency." Ex-1089, 9:53-60. As shown in Figures 1 and 2 below, Goh describes using an upper and lower jig with a heater to curve the battery with a radius of curvature R. *Id*., 7:49-8:30. "Consequently, the battery cell 102 has an average radius of curvature R. The radius of curvature R2 of the middle part of the battery cell 102 is less than the average radius of curvature R, and the radius of curvature R1 of each end of the battery cell 102 is greater than the average radius of curvature R." *Id*., 8:38-42.

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FIG. 1

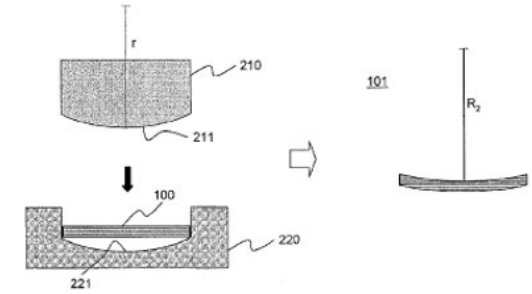
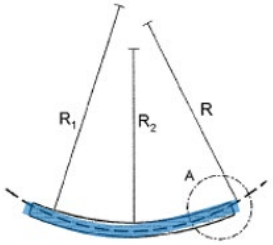


FIG. 2



58. Dr. Mercier then argues that I neglected to address the fact that flexible or curved batteries include flexible packaging materials, and that there "no evidence in the record that such miniaturized batteries with the required power requirements existed." Ex-2018 ¶182. Dr. Mercier is wrong. For example, major manufacturers, such as Medtronic, patented contoured lithium battery designs to optimize internal space utilization within curved pacemaker and defibrillator housings, demonstrating the practical feasibility of unconventional battery shapes. *See also* Ex-1351, 1352. Specifically, Medtronic patented a rechargeable lithium-ion battery featuring a shallow, curved titanium casing tailored explicitly for defibrillators and neurostimulators, allowing the battery to efficiently conform to the internal contours of implantable medical devices. *See, e.g.*, Ex-1353 (U.S. Patent No. 7,968,226); Ex-

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1354 (U.S. Patent No. 6,881,516). This contoured battery technology successfully achieved commercial implementation. Moreover, the inventor's testimony that he eventually had a flat battery made and just bent it, shows also how its possible to make a curved battery out of a flat one. Ex-2018 116. And Dr. Mercier admitted that making a curved battery out of a flat one was within the skill set of a POSITA at the time. Ex-2022, 51:8-56:6.

59. Moreover, Dr. Mercier acknowledged that electronic components naturally trend smaller:

> Q. And would you agree that around 2013 there was a general drive towards making electronic components smaller?
> **A.** Yes.
> Q. And would you agree that there was a general drive around 2013 towards making batteries smaller?
> **A.** Yes.· And to add a little bit to that, the semiconductor industry has benefited tremendously from Moore's law, which is a scaling law that suggests that the -- you know, the number of transistors you can fit on a chip doubles every roughly 18 months. It's a beautiful exponential law that increases computing and electronic capabilities massively every year, which, you know, is used to improve computing capabilities but can be also potentially used to miniaturize electronics. But, unfortunately, there's no kind of equivalent Moore's law for battery design that I'm aware of.· And my understanding of batteries is that they scale extremely slowly over time.
> Q. Okay.· But you would agree that there was kind of a general pressure in the industry around 2013 to attempt to miniaturize batteries, correct?
> …
> **A.** I do.

Ex-1081, 147:20-148:16; *see also* Ex-1085, 122:14-123:5, 125:9-14;

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60. It is therefore my opinion that a POSITA would have been motivated to use smaller curved batteries in view of this trend. A POSITA would have known to design a ring with a curved battery that fits within the ring's housing.

61. Dr. Mercier also argues as if a POSITA would be literally shrinking Mestas's components to fit into Yuen's ring. Ex-2018 ¶¶119. But I am not bodily incorporating Mestas's battery into Yuen's ring. *See* Ex-2022, 26:13-28:2 ("Q. So when you say in Paragraph 157 that you'd have to conform or adapt the shape of the batteries to the wearable device, how would you fit Mestas's batteries in the electronics package of Figure 2? A. ***Well, I'm not proposing a wholesale sort of copy-and-paste, a wholesale embodiment of one into the device but sort of benefiting from the teachings of both***."). Mestas teaches having curved batteries in a wearable device. It is that teaching that a POSITA would have considered implementing into Yuen. As I explained in my declaration, a battery having a curved shape like the "curved battery" of Mestas would have been obvious to avoid increasing the ring's thickness or straining the battery or housing. Ex-1002 ¶¶156-159, 168-169.

62. To the extent that Dr. Mercier is arguing that the curved battery needed to fit into a finger ring is smaller than Mestas's curved batteries in a larger wearable device does not distinguish Mestas's teaching of using a curved battery, regardless of the size. Ex-2018 ¶¶120-121. As I explained above, a POSITA would have known

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how to adapt a curved battery into Yuen's ring. A battery having a curved shape like the "curved battery" of Mestas would have been obvious to try to avoid increasing the ring's thickness or straining the battery or housing. To clarify, my opinion was not based on bodily incorporation of Mestas's battery into Yuen's ring. Rather, implementing a curved battery would have come up in design considerations for the ring. *See* Ex-2020, 172:1-5 ("***There's design flexibility in how you would locate any component to accomplish the design trade-offs*** with the amount of battery capacity needed relative to the other components that also need to be assembled on the inlay."). As I explained at my deposition, "a battery could exist in part of the cavity going partially circumferentially around and following the cavity, following the structure. It could exists as a narrow band all the way around." *See* Ex-2020, 171:19-172:1. I further elaborated that the battery did not necessarily have to be curved: it "could be curved for a small enough battery. It potentially could be a flat structure or a small battery, but presumptively a design trade-off would point to whether you needed a curved battery and/or a flat battery." Ex-2020, 172:6-11.

63. Dr. Mercier repeats the same sizing/scaling argument to argue that Yuen-Mestas are not enabled because a POSITA attempting to combine Yuen's and Mestas's teachings would require undue experimentation. Ex-2018 ¶¶159-162. I understand by counsel that a combination would not have been obvious if a POSITA would have had to undergone "undue experimentation" to reach the claimed subject

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matter. That is not the case here. A POSITA would not have had to perform undue experimentation to make simple modifications to Yuen's ring. Dr. Mercier attempts to overcomplicate the proposed combination or requiring the references to do more than what a POSITA would have been capable of doing. At the time of the '859 Patent, wearable electronics already were designed and available for purchase. *See also* Ex-1085, 122:14-123:5, 125:9-14. A POSITA would have known how to design a wearable electronic device with components small enough to fit within the device.

III. DR. MERCIER'S ARGUMENTS AGAINST GROUND 2 FAIL

64. Dr. Mercier argues that claims 1, 11, and 13-20 are patentable but only argues certain limitations in independent claims 1, 11, and 14. Dr. Mercier does not provide any separate argument for dependent claims 13 and 15-20. Ex-2018 ¶213.

A. A POSITA would have been motivated to combine Schröder-Mestas and doing so would enable the alleged invention

65. Dr. Mercier argues that there is no motivation to combine Mestas's teachings with Schröder because the reference "target fundamentally different applications and possess incompatible design philosophies." Ex-2018 ¶¶165-167. Dr. Mercier categories Schröder as an RFID/NFC security ring and Mestas as a health monitoring wrist-worn monitor geared toward towards continuous physiological sensing (heart rate, steps, etc.), necessitating significant internal power and a robust form factor suited for active use. *Id*. But Schröder need not be directed

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to sensing physiological parameters for a POSITA to have considered its application to Mestas. Ex-1081, 143:14-144:16. Indeed, the '859 Patent itself discloses monitoring physiological parameter but also how the sensor can generate and read a "capillary map to identify [the user] as the authorized user of the WCD," a focus similar to Schröder. For example, the '859 Patent itself, which is understood as a wearable device that can sense physiological parameters, also discloses using LEDs for "capillary mapping for security applications," which exemplifies how a POSITA would have looked to both references because they are in the same field of endeavor. Ex-1001, 24:66-25:37, 40:21-37; Ex-1081, 143:14-144:16.

66. Dr. Mercier's argument about incompatible designs is based on Schröder's external chip module as depicted in Figure 3. Ex-2018 ¶168. But I did not rely on Schröder's Figure 3 teachings. Instead, Schröder 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 in order to reduce the risk of electrical components losing mechanical or electrical connection to each other, to allow other parts of the ring to be thinner for the wearer's comfort, and protect the internal components from water. Ex-1002 ¶¶156-159. Dr. Mercier argues that there is a differing power budget, physical size and operational goals that create a

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"technical chasm, not a synergistic bridge." But I am not bodily incorporating Mestas's battery into Schröder's ring. *See* Ex-2021, 307:7-17 (Q: "Whether we're talking about using one or both of Mestas's batteries, the battery disclosed in Mestas's bracelet is too big to put in a ring like Schröder, correct?" A: "… what's taught is the benefit of a curved battery. And ***I'm not proposing wholesale, just copying and paste that battery into a device of the size of a ring***, but a POSITA would curve the battery to beneficially use the space and size the -- use an appropriate energy density as well as for the power requirements for."). Mestas teaches having curved batteries in a wearable device. It is that teaching that a POSITA would have considered implementing into Schröder. As I explained in my declaration, a battery having a curved shape like the "curved battery" of Mestas would have been obvious to avoid increasing the ring's thickness or straining the battery or housing. Ex-1002 ¶¶212-220. While Dr. Mercier argues that a POSITA would not be motivated to implement Mestas's battery due to allegedly different power requirements, (Ex-2018 ¶¶141-142), a motivation exists because Mestas's teachings offer better use of Schröder's housing, (Ex-2021, 307:3-17, 310:9-19), and teaches increased battery strength (*id.*, 327:6-15). *See also* Ex-2022, 138:7-143:1 (discussing the availability and scalability of curved batteries for use in rings); Ex-1085, 92:22-93:4 ("the analysis to determine power requirements, volume,

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availability of space, et cetera, those were all routine design considerations an engineer would do to implement a system.").

67. Dr. Mercier also argues that a POSITA would not have been motivated to implement Mestas's "water-resistant" housing because there is no specific method to waterproof Schröder's ring structure. Ex-2018 ¶169. But again, Dr. Mercier relies on an external chip module and argues that Schröder's ring halves "can be undone again to exchange an inlay." But I don't rely on the external chip module and just because Schröder teaches its housings "can be undone" doesn't require them to be.

68. Dr. Mercier then repeats the same argument about Mestas's sizing as above in Ground 1. Specifically, Dr. Mercier argues that Mestas's curved battery and PCB would not fit into the Schröder's ring and the "combination would introduce unnecessary, cost, and power drain." Ex-2018 ¶¶170-183. I am not bodily incorporate Mestas's battery into Schröder's ring. Ex-2021, 307:7-17. 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. Ex-1002 ¶¶211-220. While PO argues a POSITA would not have been motivated to implement Mestas's battery due to alleged different power requirements, a motivation exists because Mestas's curved teachings offer better use of space within Schröder's housing, and increased power. Ex-2021, 307:3-17, 310:9-19, 327:6-15

69. Dr. Mercier quotes my deposition testimony, in which I explained that I did not opine on finding a battery in 2013 to fit in Schröder's ring because Schröder undisputedly teaches a battery that is presumed enabled. Ex-2020, 206:14-18, 214:7-17, 321:5-10. But a POSITA of a wearable electronic in 2013 would have designed components to be placed within the wearable electronic. For example, back in 1998, Francine Gemperle authored a study entitled "Design for Wearability," discussing wearable computer technology. The Gemperle study offers "design guidelines" that outline "the considerations and principles necessary for the design of wearable electronics." Ex-1084, 2. One of these guidelines is "containment," which Gemperle describes as considering what goes inside the form factor: "Designing wearable objects generally requires the object to contain materials such as digital technology, water, food, etc. While some of these things are malleable in form, there are many constraints that these 'insides' bring to the outer form." *Id.*, 4. These references illustrate the general requirement that electronic components be housed within the form factor. A POSITA would have known how to determine specifications for a battery to fit inside Schröder's cavity and how to source such a battery from vendors. Ex-2021, 315:9-316:19-21; 454:2-455:11. A POSITA would have been motivated to place the battery within the inlay to allow for wireless charging of the battery. Nothing in Schröder teaches away from placing a battery within a recess in

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Schröder's housing with its inlay. Thus, a POSITA would have understood how to fit the battery into the ring.

70. Fourth, Dr. Mercier argues that I admitted that miniaturization of a battery was beyond the skill of a POSITA and would take years, but this argument improperly requires a POSITA reviewing Schröder and Mestas to design a battery from scratch. Ex-2018 ¶¶184-185. The '859 Patent itself assumes the existence of appropriately sized curved batteries. *See* Ex-1081, 16:22-19:9, 22:19-24:5, 133:14-135:17, 137:22-138:10, 156:11-18, 159:5-12; Ex-1085, 122:17-125:14. As I previously 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: 21; 454:2-455:11. As I explained above, curved batteries were available. Moreover, Dr. Mercier 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. The fact that Mestas's curved batteries are used in larger wearable devices than the claimed ring is not a patentable distinction. Regarding Dr. Mercier's argument of miniaturing Mestas to Schröder and curved battery availability, a POSITA would have been motivated to implement Mestas's teachings to Schröder for the same reasons I explained in Section II.F and additionally explain below.

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B. Schröder-Mestas teach elements 1[b]/11[c]/14[b] of curved battery corresponding to an arc of the housing

71. As above (Section II.C), Dr. Mercier does not dispute Schröder-Mestas's teachings of element 14[b]'s rechargeable battery that is charged wirelessly. Dr. Mercier argues that that Schröder does not depict a battery, describe the shape, size or specific internal positions for its optional battery, nor provide any enabling disclosure. Ex-2018 ¶¶187-189. Schröder's "energy storage devices, e.g., an accumulator or a battery" (Ex-1007, 11:46-55) is "connected directly to the antenna coil 8 via rectifier circuit" for charging and thus is also in the finger 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-2021, 315:9-316:21, 454:2-455:11.

72. Dr. Mercier's declaration consistently includes Schröder's Figure 3 to argue that that the chip module is external. Ex-2018 ¶¶187, 189. But I am not relying on Schröder's figure 3 depiction of chip module 10 protruding out of the housing. Dr. Mercier ignores Schröder's other teachings, without cap 14, as shown in Figure 4, in which the chip module 10 and Schröder's other electronic components are inside of the ring. *See* Ex-1081, 77:12-18, 82:4-13, 124:3-7, 145:24-146:2. Dr. Mercier's theory relies on chip module 10, as depicted in Figure 3, to be bodily

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incorporated in each of Schröder's other configurations. *See, e.g.*, Figures 4-10. Indeed, if Schröder's chip module 10 had to be as depicted in Figure 3, then the indentation or gap to allow chip module 10's placement would have to be shown then also in Figure 4, according to Dr. Mercier's argument. Specifically, Figure 4 and thus Figure 5, would need to show where chip module 10 would protrude, as required by Dr. Mercier. Instead, Schröder does not teach that the chip module 10 must protrude outwards. Ex-1081, 124:3-7 (Q: "focusing on figure 4, you would agree that there's nothing in figure 4 that suggests anything protruding from the otherwise circular shape of the ring in the inlay, correct?" A: "That correct.").

73. While Dr. Mercier states that "Schröder teaches away from an internal curved battery by depicting its chip module and relevant connections as external" and "Schröder does not disclose a battery on the inlay" (Ex-2018 ¶190), Schröder expressly teaches how inlay 12, chip module 10, and other components are arranged inside the ring. First, Schröder teaches that its inlay 12, 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 possibly further electronic devices arranged [into] a carrier, as described above… the carrier is preferably inserted into a recess in the second component." Ex-1007, 15:19-22. Dr. Mercier agrees. When asked whether "it is fair that what Schröder – what Schröder is describing is a carrier that has multiple components on it; it's rolled into a ring shape and then inserted into a recess between the ring

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components," Dr. Mercier stated: "Yes. That is what it says." Ex-1081, 120:4-8. And a POSITA would consider a battery as one of the stated "other components." Ex-2020, 167:17-170:5 ("for example, in column 12, it describes the embodiments where both the chip module and other electronics are embedded on -- contained and embedded on an inlay and inserted into the recess of the ring. So the chip module 10 further electronic components can be located on the carrier which ***a POSITA would understand to also include battery, other antenna coils, display units***").

74. Second, as I explained in my declaration and further explained in my deposition, when viewing Schröder's ring halves 16 and 18 configuration of Figure 7 arrangement in the cross-section arrangement of a consistent yet modified Figure 5, which I have annotated as 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-2020, 44:3-45:2 ("Figure 4 in the patent and Figure 5 in the patent, describe these two rings that go together, and 18 and 16 are two halves of these rings. But in Figure 7, the internal housing component is the inner ring and the external housing component is the outer ring."). Schröder's inlay 12 is in a recess between Schröder's ring housing components 16 and 18. In Figure 7, inlay 12 (and its components, like the battery) conform to the arc of the cavity between bounding members 16 and 18 because these components curve around the user's finger circumference.

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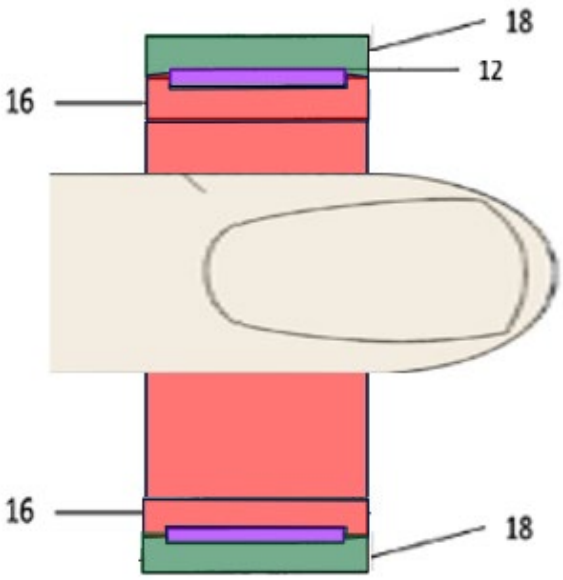


Fig. 5'

Ex-1005, Fig. 5' (modified).

75. Third, And Dr. Mercier 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 in Schröder." Ex-1081, 82:10-13, 101:12-16. Dr. Mercier further agreed that there must be a recess anytime there is an inlay because "how else is it going to get in there? It needs space to exist, right?" *Id*., 101:12-16. While Dr. Mercier states Schröder does not provide the exact details, he confirmed that a POSITA would have understood how the electrical components, including its battery, would fit inside of Schröder's ring, based on Schröder's teachings and the level of a POSITA.

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76. Therefore, Schröder does not need to disclose the details of how its battery would fit into a cavity of its finger ring. Instead, it is well within a level of skill, to understand that in view of Schröder's teachings a finger ring (that is wirelessly charged), Schröder would include these components inside of its ring. As I described in my declaration, including components inside of a ring-form factor was well known. *See, e.g.*, Ex-1002 ¶¶72-86 (explaining the various ways to assemble electronic parts within structural cavities were known), ¶239 (citing Ex-1013 ¶¶28, 73; Ex-1062 ¶¶17, 30); *see also* Ex-1084. For example, Wissmar (Ex-1013), teaches electronic components "located in a cavity within the electronic finger ring." Ex-1013 ¶28. Wissmar's "toroidal shaped finger ring structure 1 is comprised of different electronic components: a battery 2, a RF transceiver 3 and a micro processor 4, a microstrip line 5, an accelerometer 6, an internal antenna 7, a pressure sensor 8; all mounted on a flexible printed circuit board 9." *Id*. ¶73. Similarly, Japanese Published Patent Application No. JP2008-79676 to Imai ("Imai") teaches a wearable blood flow sensor. Ex-1062, Abstract. Imai's blood flow sensor 31 is in the shape of a finger ring with a three-dimensional circuit board 33 that is "circular with a hole 34 in the center allowing finger insertion, similar to a ring." Ex-1062 ¶30. Imai's three-dimensional circuit board "is equipped with a light emitting part 11, a light receiving part 17, battery holders 22, a wireless transmitter 23, an

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ultrasonic sensor for activation 25, and control integrated circuits (ICs) 26 and held in a housing 8." Ex-1062 ¶17.

77. Dr. Mercier argues Mestas's curved battery is designed for a large wristband and is dimensionally unsuitable for the claimed ring housing cavity. Ex-2018 ¶190. But I am not bodily incorporating Mestas's battery into Schröder's ring. *See* Ex-2021, 307:7-17 (Q: "Whether we're talking about using one or both of Mestas's batteries, the battery disclosed in Mestas's bracelet is too big to put in a ring like Schröder, correct?" A: "… what's taught is the benefit of a curved battery. And ***I'm not proposing wholesale, just copying and paste that battery into a device of the size of a ring***, but a POSITA would curve the battery to beneficially use the space and size the -- use an appropriate energy density as well as for the power requirements for."). Mestas teaches having curved batteries in a wearable device. It is that teaching that a POSITA would have considered implementing into Schröder. As I explained in my declaration, a battery having a curved shape like the "curved battery" of Mestas would have been obvious to avoid increasing the ring's thickness or straining the battery or housing. Ex-1002 ¶¶214-220. A motivation exists because Mestas's teachings offer better use of Schröder's housing, (Ex-2021, 307:3-17, 310:9-19), and teaches increased battery strength (*id.*, 327:6-15). Dr. Mercier expert acknowledged electronic components were trending smaller, and thus a POSITA would have been motivated to make curved batteries smaller. Ex-1081, 147:20-

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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-2022, 51:8-56:6.Therefore, it was well within the skill set of a POSITA to implement Mestas's curved battery ***teaching*** into Schröder's ring and doing so would allow the wearable device's thickness to be controlled and allow for an elongated battery to be used without stressing the battery or housing. Ex-1002 ¶222.

C. Schröder-Mestas teach elements 1[c]/11[d]/14[c]'s sensor module positioned within the cavity

78. Dr. Mercier only disputes the claimed positioning of the curved battery, sensor module, and flexible PCB. He does not dispute Schröder-Mestas's teachings of claimed sensor module and its functionality. Dr. Mercier argues that Schröder does not teach that its curved battery, sensor module, and flexible PCB are within an internal cavity because Schröder features a replaceable chip module that includes a battery and sensor, and is "not within an internal cavity." Ex-2018 ¶193. Dr. Mercier's argument again relies on bodily incorporation of Figure 3's chip module 10 into Schröder's other figures where a chip module is not illustrated.

79. But this is wrong, as I explained in the previous section. Ex-1081, 124:3-7. Schröder expressly teaches that inlay 12, chip module 10, and other components are arranged inside the ring. Ex-1007, 14:14-20, 15:19-22. Schröder teaches its inlay or "carrier foil" is a PCB, as it is made of "flexible carrier material,"

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such as "Kapton," a polyimide foil widely used for flexible printed circuits. Ex-1007, 12:28-29; Ex-1081, 80:17-81:10. Similarly, the '859 Patent describes a PCB made of "flexible material…such as polyimide." Ex-1001, 18:25-27. Schröder's "carrier foils" are made using "milling, lasering, etching," with components on specific foil layers, enabling a multilayer carrier foil composite. Ex-1007, 13:23-51. In Figures 4-10, Schröder's inlay 12 is described as containing chip module 10, antenna 8, and other "electronic devices." *Id.*, 12:1-3, 13:22-47. Indeed, a POSITA would recognize this inlay with electronic components and interconnecting circuitry constitutes a PCB for two reasons: 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. Second, Dr. Mercier 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 understand that a substrate that carries electronic components and connecting circuitry is a PCB and that the components it could carry would include the battery, sensor module, and chip module 10. Dr. Mercier further agreed Schröder suggests minimizing space in the recess. Ex-1081, 112:4-9.

80. Dr. Mercier appears to argue that a POSITA would not have understood that Schröder's battery, sensor module, and flexible PCB could be included within

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Schröder's cavity. Ex-2018 ¶194. But a POSITA would have known that there are only so many ways to arrange components for a wearable device, like a ring: inside or outside of the ring. And although Dr. Mercier disagrees that a POSITA would have understood how to apply Schröder's teachings, he does not provide any explanation as to why he disagrees, or the analysis required to miniaturize all of the power components to fit inside the housing. Instead, when asked, Dr. Mercier admitted that that it would not be outside the level of a POSITA. *See, e.g.,* Ex-1081, 21:25-23:17; Ex-2021, 454:2-456:22 (my testimony regarding "at the time of 2013, POSITA would have been familiar with the miniaturized electronic components that were available and found it trivial."). Dr. Mercier's other testimony clearly supports my point: the configuration is a matter of choice that a POSITA would have found obvious. Dr. Mercier seems to categorize that the components being inside the ring as significant and faults Schröder's disclosure, but Schröder does not need to disclose what is well-known in the art, such as having electronic components inside of the ring housing because that is within the knowledge of a POSITA and there are certainly motivations on how to configure Schröder's components. For example, as I previously explained, a "POSITA, in looking at the design trade-offs in terms of battery size and providing power for the functionality on the PCB, Schröder, in view of the knowledge of a POSITA, would know how to arrange such components inside of the cavity of Figure 7." Ex-2020, 212:6-214:13; *see also* Ex-1084. Moreover, Dr.

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Mercier discussed that the challenged patents did not invent the ring form factor, batteries, and using biometric sensors on wearables devices. Ex-1081, 15:11-18:22. Dr. Mercier further discussed how a POSITA would be able to perform analysis to understand peak and average power needs of the device to properly size a curved battery that could fit in the wearable device. Ex-1081, 130:18-131:14. Dr. Mercier even acknowledged that a POSITA would have known how to determine the specification for a ring's components to allow them to fit within the ring. *See* Ex-1081, 130:18-131:14.

81. While Dr. Mercier does not address Schröder's sensor module, his argument that Schröder's sensor would be in an external chip module also does not make sense—Schröder's biometric sensors (i.e., the sensor module) that captures a vein image of the finger requires the sensor to face the skin.

82. Dr. Mercier argues that Schröder does not teach that its "inlay or recess houses a curved battery and a full sensor module from Mestas, nor that this recess is inherently a waterproof cavity suitable for such sensitive electronics without significant modification not suggested by Schröder. Mestas provides no guidance on integrating its much larger internal components into Schröder's thin ring or inlay." But I'm not proposing to bodily incorporate Mestas's sensor module and curved battery into Schröder. Schröder teaches a battery, sensor module, and flexible PCB inside of its ring housing. Mestas further teaches that its curved batteries and sensor

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module are proximate to a flexible PCB encased in a waterproof housing. First, the fact that Mestas uses them in larger wearable devices than the claimed ring is not a patentable distinction. Second, a POSITA would have been motivated to have Schröder's sensor assembly "proximate" to the battery, as taught in Mestas, in order to reduce the risk of electrical components losing mechanical or electrical connection to each other and to allow other parts of the ring to be thinner for the wearer's comfort. Ex-1002 ¶224. And a POSITA would have been motivated to make the recess in Schröder a "waterproof cavity," in view of Mestas's well known waterproofing sealing. Specifically, Mestas's housing is "water-resistant as well as impact resistant." Ex-1010 ¶141. A POSITA would have been motivated to implement Mestas's waterproofing sealant techniques into Schröder's finger ring to prevent liquids from entering into the housing and thus increase durability and prevent any damage, including water damage, to the internal components in the device. A POSITA would have considered techniques and methods to protect the internal components when designing a wearable electronic device. Ex-1002 ¶221.

D. Schröder-Mestas teaches element 1[d]/11[e]/14[d]'s flexible PCB

83. While Dr. Mercier focuses on claim 14's requirement of its flexible PCB be "positioned proximate a first portion of the planar surface of the interior bounding member between the raised circumferential portions," Dr. Mercier repeats its argument that Schröder-Mestas does not teach a flexible PCB inside of the

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housing that integrates a PCB-mounted processor, memory, and communication module. Ex-2018 ¶¶195-200. But Schröder expressly teaches that inlay 12, chip module 10 (which includes the 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, 112:4-9.

84. Dr. Mercier then argues that because Schröder's Figure 7 is not provided with any dimensions or detailed structural views, Schröder does not teach element 14[a]'s flexible PCB positioned between raised circumferential portions. Ex-2018 201-202. But the claim 14 is not limited to any particular sizing of the raised circumferential portions and planar surface of the interior bounding member. Ex-1081, 15:25-19:9, 135:4-17. Instead, the claims assume the existence of appropriately sized flanges to provide a cavity for the flexible PCB and its components. In my declaration, I explained how Schröder's flexible PCB is positioned on the planar surface of the interior bounding member between raised circumferential portions by inlay 12 sitting in between the U-Shaped portions of Schröder's ring component 16. Specifically, I discussed how Schorder teaches how its ring halves can be U-Shaped with the inlay 12 being arranged between. Ex-1007, 12:45-455. As shown in Figure 7 below, the U-shaped housing components extend from interior bounding member 16 to exterior bounding member 18 and are connected to each other to surround and seal inlay 12 (and components mounted

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thereon, purple). A POSITA would have understood that inlay 12 (the claimed "flexible printed circuit board" (purple) is proximate the "planar surface element" (orange) and the "opposed circumferential portions" (red) because it is "inserted" in the recess between the exterior and interior bounding members. The claim requires no more, and this is exactly to how the '859 Patent specification explains it and shows it. Ex-1002 ¶¶245-246.

Schröder

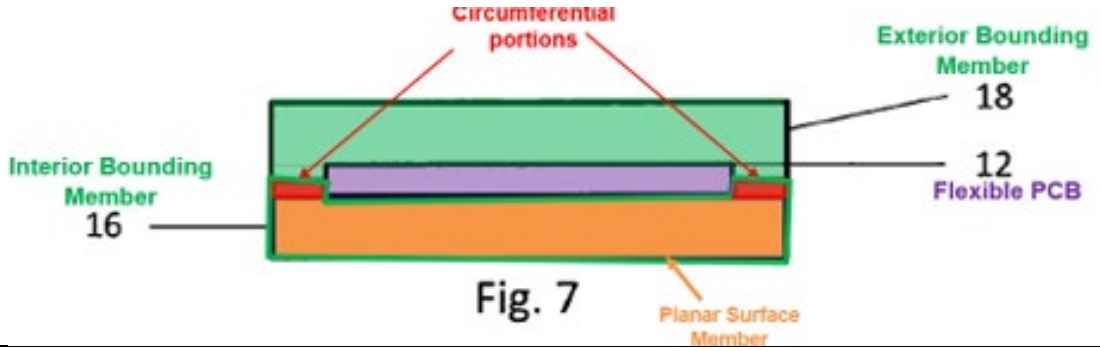


Fig. 7

'859 Patent

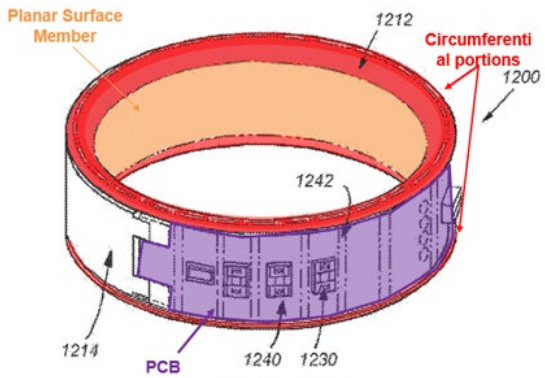


FIG. 12F

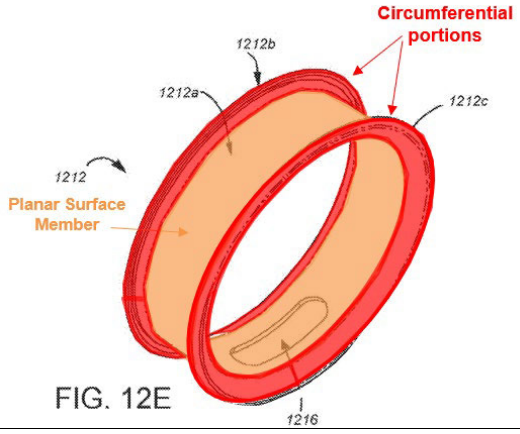


FIG. 12E

85. Even if Schröder is silent on the exact dimensions, a POSITA would know how to place it within the U-Shaped ring components. To the extent that

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specific dimensions are needed, 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.

86. While Dr. Mercier provides no opinion on the Schröder-Mestas combination (Ex-1002 ¶¶227-228), PO argues there is no motivation to implement Mestas's flexible PCB (and the PCB-mounted components) positioned within the interior bounding member into Schröder. POR, 72-73. But as I explained in Sections III.A and III.C, a POSITA would have been motivated to apply Mestas's teaching of how its sensor module and battery are positioned proximate to a flexible PCB to Schröder.

E. Schröder-Mestas teaches elements 1[e]/11[g]/14[e]'s processor

87. While Dr. Mercier's declaration title includes claims 1 and 11 (Ex-2018 ¶203), elements 1[e]/11[g]/14[e] recite

1[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	11[G] a processor, coupled to the memory, the processor configured for accessing the sensed data from the memory, and for performing one or more analyses on the sensed data; and	14[E] a processor, the processor configured for performing one or more analyses on the sensed condition data to produce results data;

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Dr. Mercier does not dispute Schröder-Mestas's processor performs one or more analyses on the sensed condition data, as recited in element 14[e].

88. Dr. Mercier admits that Schröder's processor is used for user authentication based on biometric data. Ex-2018 ¶206. But, Dr. Mercier argues that Schröder's biometric data is a "far cry from the continuous physiological data processing required for determining steps taken, sleep quality, dynamic heart rate, blood pressure, and body temperature." *Id*. However, I do not rely on Schröder's processor alone, but the combination of Schröder-Mestas. Ex-1002 ¶¶229-233.

89. Dr. Mercier also admits that Mestas's processor determines athletic performance metrics including heart rate steps taken and calories. Ex-2018 ¶207. He instead argues that Mestas does not explicitly disclose determining "quality of sleep," "blood pressure," or "body temperature." *Id*. But claim 1 only requires the processor "determining one or more of." Mestas explicitly describes that processing is "employed with the sensor, algorithm and sensed data." Ex-1010 ¶201. Mestas, as explained in the previous section, teaches using its accelerometer and/or heart rate sensor in order to sense a change in "different parameters, metrics or physiological characteristics including but not limited to speed, distance, steps taken, and energy expenditure such as calories, heart rate and sweat detection." Ex-1010 ¶148.

90. Dr. Mercier argues that a POSITA would not incorporate Mestas's health monitoring into Schröder because Schröder's processor would need to be

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altered to perform the distinct, power-intensive, and continuous data analysis. Ex-2018 ¶208. By 2013 it was well known in the art that processors used in wearable devices could be configured, scaled, or duty-cycled to accommodate additional biometric monitoring tasks without exceeding power or design constraints. *See, e.g*., Ex-1084. A POSITA would have been motivated to implement Mestas's teachings to Schröder to improve the Schröder's processor, which already processes data from is biometric data.

IV. DR. MERCIER'S OBJECTIVE INDICIA ARGUMENTS FAIL

A. PO is not entitled to a presumption of nexus

91. Dr. Mercier notes that the Administrative Law Judge made serval finings regarding objective indicia in U.S. International Trade Commission ("ITC") Investigation No. 337-TA-1398. Ex-2018 ¶¶214-215, 245-246, 258. I understand that the ALJ only considered a limited number of claims of the '178 patent and did not consider the '034 patent, '702 patent, '859 Patent, nor the '953 patent. But Dr. Mercier does not show that coextensiveness with the '178 claims means coextensiveness with the different claims of the '859 Patent.

92. Dr. Mercier argues "Oura Ring Gen. 3 and 4 are coextensive with the Challenged Claims of the '859 Patent" by providing a claim mapping of Oura Gens. 3 and 4 to only independent claim 1 of the '859 Patent. Ex-2018 ¶¶216-244. I understand by counsel, that PO must "show[] that the asserted objective evidence is

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tied to a specific product and that product 'embodies the claimed features, and is coextensive with them.'" While the inquiries of whether Gens. 3 and 4 practice the challenged claims and are coextensive with the challenged claims may overlap, but showing that the products practice the claims does not show that there is nexus because notable unclaimed features are not considered Dr. Mercier's mapping does not show that the product is in fact coextensive with the '859 Patent claims because he does not consider the unclaimed features. Therefore Gens. 3 and 4 are not entitled to a presumption of nexus.

93. Oura Ring Gens. 3 and 4 include significant unclaimed features that are critical or amount to the "heart" of another patent. First, PO's evidence emphasizes the importance of the Oura Ring Application, with Mr. Andrew Clarke stating that the "Oura Ring and Oura application form a complete solution" (Ex-2019 ¶21) and PO's employee stating that the application is "absolutely essential." (*id*. (citing Ex-2024, at 88, 93-95)). The Oura Ring Application provides users "access to three daily scores—Sleep, Readiness, and Activity." *Id*. ¶20 (citing Ex-2051). While the Oura Ring Application, that is essential to PO's product, is not claimed anywhere in the '859 Patent, PO's U.S. Patent No. 10,842,429 recites:

> A method for assessing readiness of a user, the method comprising:
> …

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determining a rest summary for the rest period, based on the measured at least one biosignal and at least one biosignal of a previous rest period;

determining an activity summary for the activity period, based on the obtained movements of an activity period and obtained movements of at least one previous activity period;

determining a body response summary based on the rest summary and the activity summary;

calculating a readiness score based on the body response summary and a previous body response summary, whereby the readiness score indicates a level of readiness of the user; and

using a user interface of the mobile communication device to show elements contributing to the readiness score and instructions related to physical activity and mental activity for improving the readiness score.

Ex-1086, 24:65-25:16. The fact that PO obtained the '429 Patent covering the calculation of the sleep, readiness, and activity scores and displaying the scores on a user interface shows how these features amount to more than an insignificant feature not claimed by the '859 Patent.

94. Second, the Oura Ring Membership works "'hand-in-hand'" with the Oura Ring, "such that a user's experience improves over time as the Oura Ring gathers mores data, enabling Oura to generate more nuanced insights into the user." Ex-2019 ¶21. The Oura Ring Membership was released with the Gen. 3 launch but the claims of the '859 Patent do not recite a membership for users nor the "nuanced insights into the user" via the mobile application. The claims of the '859 Patent do not even recite what to do with the measured/detected data from its light emitting

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component nor the mobile application. *See also* Ex-1082, 222:16-224:22 (discussing the ’178 and ’702 patent).

95. Third, PO’s evidence emphasizes the sleek and comfortable design and materials used in the ring. *See, e.g.*, Ex-2100, 11 (sleekness); Ex-2102 (comfort); Ex-2059, 2 (materials); Ex-2098 (same). While Dr. Mercier agrees that the challenged patent does not explicitly recite a “sleek and comfortable” requirement, the ’859 Patent also does not recite any sleek and comfortable requirement. *See, e.g.*, Ex-1081, 34:1-15 (“while there’s no explicitly stated upper bound, a POSITA would understand that there is an upper bound, you know, to abide by the desires and recommendations of the specification to make the ring comfortable”), 215:3-11 (“Q. The claims don't recite an aesthetically pleasing ring, correct? A. That's right. That language isn't in the claims, but, again, the claims are read in light of the specification, and the specification, you know, makes small and comfortable use very important.”); *see also* Ex-1082, 216:4-17. The ’859 Patent also does not recite the specific material used as the internal and external housing components. Yet PO’s U.S. Patent No. 11,599,147, recited using various materials, such as “titanium, titanium alloy, steel, platinum, gold, silver, aluminum, polymer, plastic, tungsten carbide, and a metal alloy.” Ex-1087, 33:56-62, 34:33-36. The fact that PO obtained the ’147 Patent covering the materials to be used shows how these features amount to more significant features not claimed by the ’859 Patent.

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96. Finally, PO attempts to point to the same products for the same alleged objective indication across four patents, which rebuts its contention that the products are coextensive with the '859 Patent claims. The claims across U.S. Patent Nos. 11,868,178, 11,874,702, 10,281,953, and the '859 Patent do not cover the same invention. For example, the '859 Patent recites that the flexible PCB is positioned within the cavity proximate to the curved battery and sensor module and is coupled to a processor and memory in a waterproof cavity, which is not recited in the other three patents. This is a significant feature, as shown by Dr. Mercier's arguments about the prior art's teachings but there is not any analysis regarding which evidence of the same secondary considerations asserted across the four patents is attributable to the claims requiring this feature and those that do not.

B. PO has not proven actual nexus

97. Due to the significant unclaimed features, PO, Dr. Mercier, and Mr. Clarke cannot demonstrate that actual exists between the evidence presented and the claims of the '859 Patent because the evidence is directed to significant unclaimed features. I understand that Dr. Mercier only opines on nexus, copying, and long-felt need, while Mr. Clarke provides arguments about the alleged commercial success.

1. Commercial success

98. Mr. Clarke argues that, Gens. 3 and 4 have been a "marketplace success," as based on the "absolute sales and sales growth, the Oura Ring's

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contribution to Oura as a company, and its marketplace performance relative to competing products." Ex-2019 ¶32. Yet Dr. Mercier does not opine on the Gen. 3 and 4's "commercial success" and Mr. Clarke refused to provide any technical analysis of the ring's nexus to the challenged claims. *See, e.g.*, Ex-1083, 192:19-193:2. Therefore, Gens. 3 and 4 have not been shown as an "success" or how the sales figures are a direct result to the claimed invention of the '859 Patent.

a. Sales and sales growth are based on unclaimed features

99. Mr. Clarke argues that Oura's success is evidenced by substantial sales and sales growth since the introduction Gen. 3 and continued increase with the Gen. 4. Ex- 2019 ¶33. But sales are not due to the claimed invention of the '859 Patent as discussed below.

b. Generations 1 and 2's commercial sales show that the characteristics of the '859 Patent were not commercially successful

100. While Dr. Mercier and PO do not assert that Oura Ring Generations 1 and 2 are coextensive with the claims of the '859 Patent (Ex-1081, 47:6-13, 49:2-50:9), there is no difference between Gens. 1 and 2 to Gens. 3 and 4 other than the improved sensors, sleekness and comfort of the ring which are not recited in the '859 Patent. For example, Mr. Clarke explained that the Gen. 3 included "new green LED sensors, red LED sensors, and upgraded temperature sensors for "improved monitoring of a user's heart rate, blood oxygen sensing, period prediction, among

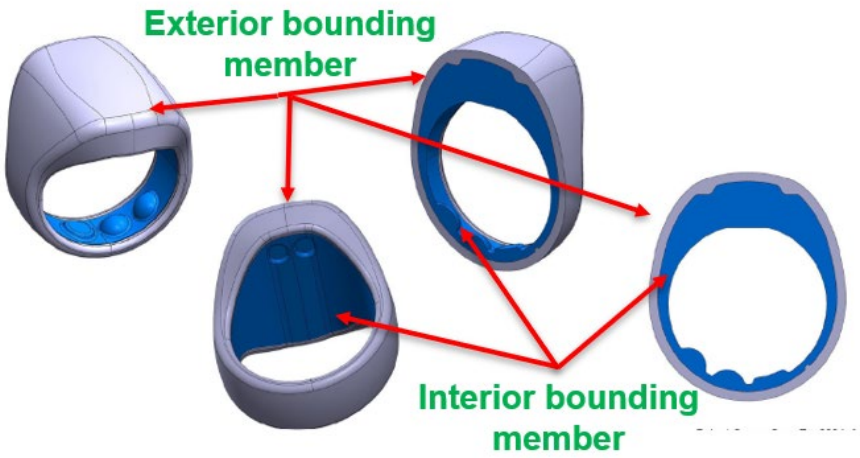
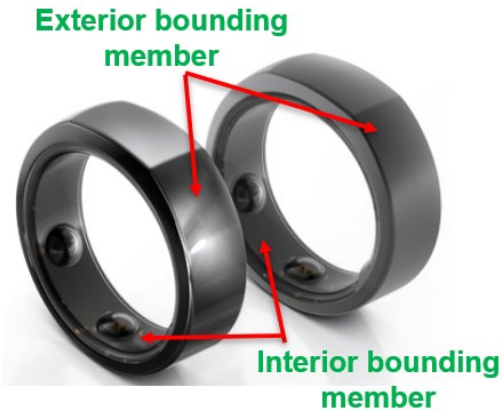
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other metrics and features." Ex-2019 ¶17. Mr. Clarke relies on Ex-2098, which discusses the materials the ring is made of, the weight and dimensions, compatibility, connectivity, but there is no mention of the circular form factor of the ring. Similarly, Ex-2100 discusses how the Gen. 3 is "sleek and compact." *Id*., 11. These features are again all unclaimed in the '859 Patent.

101. Mr. Clarke then discusses how the Gen 4 brought "battery life improvements, greater measurement accuracy, and an all-new circular titanium-based design" Ex-2019 ¶18. Mr. Clarke relies on Ex-2059, which discusses how the Gen. 4 ring was made of titanium, details its "smart sensing platform" to give the user the most complete picture of health by using research-grade sensors, battery life and the Oura Ring Membership. Yet these features are all unclaimed int the '859 Patent.

102. But it is clear that Gens. 1 and 2 are a wearable ring computing device, which include an external and internal bounding members. *See also* Ex-1081, 49:20-68:3 (analyzing the aspects of the Gens. 1 and 2 products contained aspects of the claims, such as an inner and outer circumferential surfaces, battery, and PCB); Ex-1082, 229:7-230:2 ("Q. And is the ring depicted in Exhibit 2121 similar to any figures you described in your declarations" A. "Yes. This is a real-life depiction of the Oura generation 1 design").

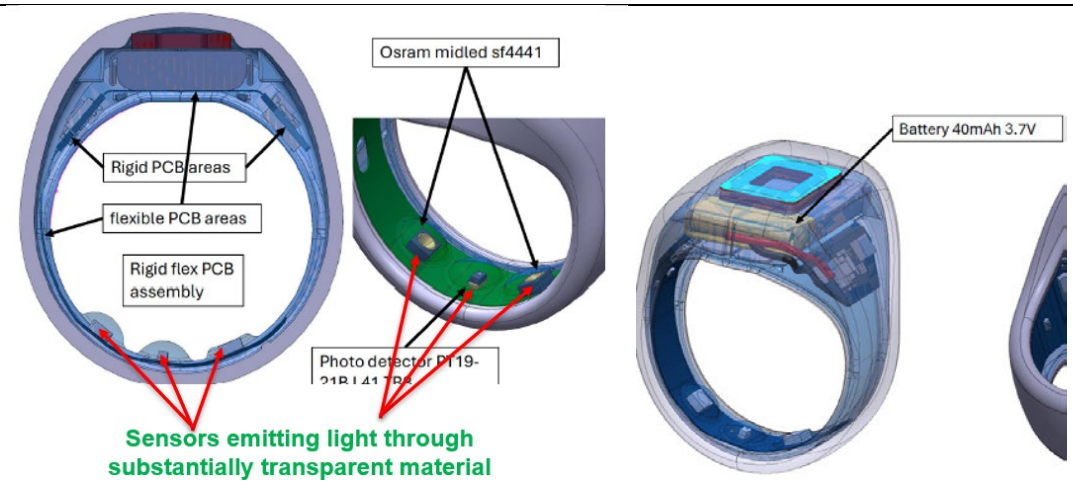
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Gen. 1
 Ex-2034, 7 (not redacted in the exhibit)
Gen. 2
 Ex-1355, 1.

103. Gens. 1 and 2 also include a battery, PCB, and one or more light emitting sensors (sensor module) positioned between the housing components, as recited in the '859 Patent. Gens. 1 and 2's sensors emit light through a substantially

transparent material to contact the user's tissue. Gens. 1 and 2 further have a processor, memory, and communication module included inside the housing.

Gen. 1



Ex-2034, 6-7 (not redacted in the exhibit)

How often do I have to recharge the ring?

You need to charge the ring once every three days, for only 30-60 minutes.

Another alternative is to charge the ring 20-30 minutes daily: place the ring in the charger in the morning or evening while taking a shower or eating breakfast. Make it a habit and wear the ring at all other times. The charging box is a design item that looks good displayed anywhere.

Ex-1360, 8.

Nanoscale Sensor Processing Unit



Ōura is the culmination of three decades of pioneering research in the world's most advanced ways of interpreting your body. Its technology presents the cutting edge of

- heart rate based algorithm processing
- optoelectronic signal processing and biosignal detection
- analysis of activity, recovery, sleep and chronobiology

Ex-1359, 18

What is Ōura

ŌURA is an elegant ring that measures your body reactions. It ´s seamless, effortless and comfortable for 24/7 wear. It measures both physiology and behavior. It senses continuously and is a completely stand-alone device.

Ōura comes with a smartphone application. The ring automatically shares its buffered findings with the mobile app which gives you personalized, actionable guidance to perform at your best. The app combines physiological and behavioral data as well as your inputs on how you're feeling.

Is it waterproof?

Yes, it is waterproof up to 5 ATM or 50 meters.

Ex-1360, 1.

Is it waterproof?

Yes, it is waterproof up to 5 ATM or 50 meters.

Ex-1360, 5.

Gen. 2.



Ex-1355, 1.

SENSORS

- Oura proprietary pulse waveform and pulse amplitude variation detection with infrared PPG sensor
- Body temperature sensor
- 3D accelerometer and gyroscope

Ex-1356, 3.

Battery Life

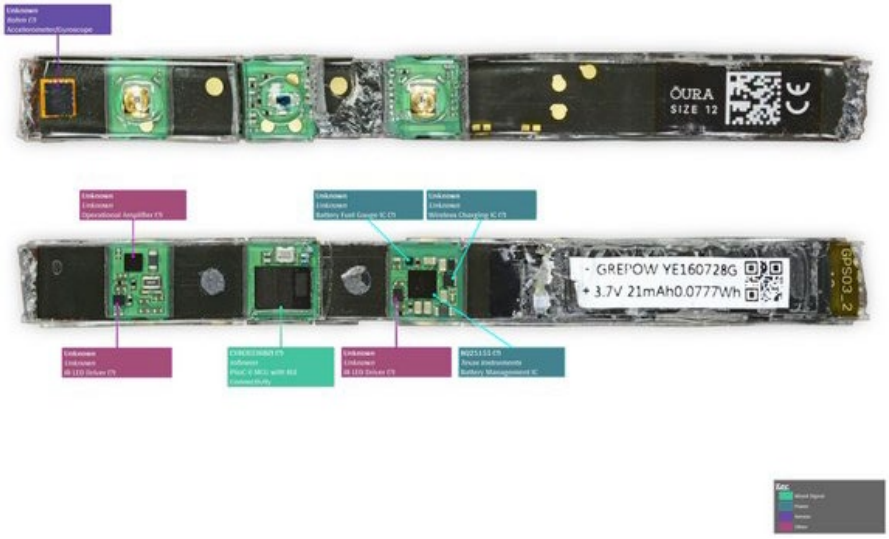
- Up to one week with a single charge
- Wireless charging: charging time 20–80 minutes depending on how often you charge

Ex-1356, 4.

PRODUCT SPECS

- Dual-core arm-processor: ARM Cortex based ultra low power MCU
- In-ring memory to store data up to 6 weeks
- Water resistant: 100m / 328ft
- Bluetooth Smart, Airplane mode

Ex-1356, 3.



Ex-1357.

Teardowns of the Gen. 2 ring are available online. For example, below shows the wiring of the flexible PCB. *See* Ex-1358.



104. If the commercial success was a direct result of the unique characteristics of the claimed invention of the '859 Patent, then Gens. 1 and 2 would have also been successful. To the extent that Dr. Mercier did not opine on Gens. 1

and 2 because they are not a "wedding band" form factor, the claims of the '859 Patent do not claim a wedding band form factor with unitary thickness around. Therefore, there is no reason to not consider the Gen. 1 "Super Bowl ring" or Gen. 2's plateau-ed design ring, in his analysis.

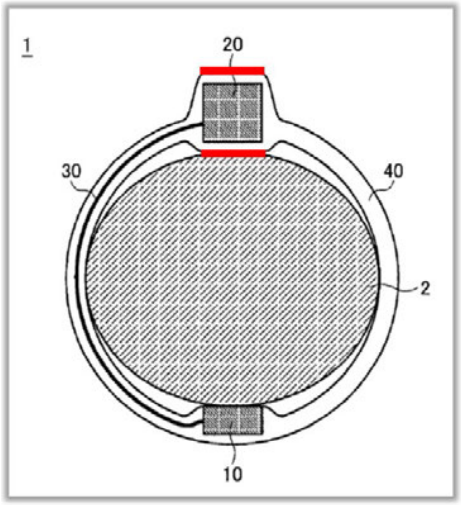
c. Mr. Clarke fails to distinguish the sales of the Gen. 3 Oura Ring

105. Mr. Clarke asserts that that the company's monthly unit sales since the launch of the Gen. 3 [redacted] its earlier average monthly unit sales. Ex-2019 ¶33. While Dr. Mercier and Mr. Clarke do not assert that Gens. 1 and 2 are coextensive with the claims (Ex-1081, 47:6-13, 49:2-50:9), Mr. Clarke did not attempt distinguish the sales of when the Gen. 2 was available for purchase after the launch of Gen. 3. Ex-1083, 104:3-106:7. The alleged sales of Gen. 3 thus also include sales of Gen. 2.

106. Mr. Clarke also failed to distinguish the sales between the two Gen. 3 models: Heritage and Horizon. The Heritage Gen. 3 has been described to include a "classic plateau design." Ex-2098; Ex-2056; Ex-2099. While Dr. Mercier assert that the Gen. 3 is coextensive with the claims of the '859 Patent, Dr. Mercier does not explain how the Heritage Gen. 3, with its flat-top ("plateau"), is coextensive with the claims. In a related proceeding, however, Dr. Mercier argues that Niwa does not disclose an external housing component with an external circumferential surface

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because Niwa teaches that the top of its ring is "planar" as shown in Dr. Mercier's annotation of Niwa Figure 1 below. *See* PGR2024-00030, Ex-2018 ¶¶187-188.



107. To the extent that Dr. Mercier asserts that Heritage Gen. 3 is not coextensive with the claims due to its similar planar surface, Mr. Clarke did not distinguish the sales of the Heritage Gen. 3 models as compared to the Horizon Gen. 3 models to support any commercial success of a coextensive product. In fact, his declaration does not even mention how the Gen. 3 has two models, even when noting that the Gen. 2 did come in two models (Balance and Heritage). *Compare* Ex-2019 ¶16 *with* ¶17.

108. Mr. Clarke contends that the sales of Gen. 3 [redacted] over time (Ex-2019, Appendix 7) but Gen. 3's only enhanced capabilities included how its sensors "expand[ed] from infrared to include red and green LEDs that enable daytime heart rate, workout heart rate, and SpO2 sensing with the same long-lasting battery life of

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up to 7 days." Ex-2043. The red and green LEDs, enabled heart rate detection, SpO2 sensing, and a 7 day-long battery are not specifically recited in the '859 Patent or make it any structurally difference from Gens. 1 and 2.

109. Mr. Clarke further argues agues that the "[c]onsistent with the growth in Oura Ring unit sales is the growth in subscribers to the Oura Membership." Ex-2019 ¶34. The Oura Ring Membership was launched with the Gen. 3's launch to provide "additional personalized data and insights in the Oura application, such as an in-depth sleep analysis, live and accurate heart rate monitoring, body temperature readings for early illness detection and period prediction[.]" Ex-2019 ¶21. The '859 Patent does not recite a membership or providing health insights. Ex-1082, 222:16-224:13. The Membership is a separate product offering that is not direct result of the unique characteristics of the '859 Patent.

110. Mr. Clarke continues that, since the launch of the Oura Ring Gen. 4, sales of the Oura Ring in just the first quarter of FY2025 [redacted] of Oura's full year FY2024 sales. Ex-2019 ¶33. The Gen. 4 ring similarly includes the same unclaimed features of the Gen. 3 ring. Additionally, PO argues that its success is due to the ring, but as I previously testified "having good marketing" leads to sales. Ex-2020, 68:16-60:22. Mr. Clarke attempts to downplay PO's marketing efforts (Ex-1083, 179:13-186:2), but it is undisputable that PO's marketing [redacted] in FY2021, [redacted] in FY2022 to [redacted] in FY2023. *See* Ex-

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2107, 5; Ex-2108, 5; Ex-2109, 6; *see also* Ex-2110, 6 (marketing expenses totaling [redacted] From October 2024 to Q1 2025). In my experience commercializing a product, I understand that [redacted] and the "addition of experience professionals in marketing, sales, and product development" of course would lead to an increase in sales. Ex-2047, 5.

d. Contribution from Oura ring to the Oura company doesn't show success

111. PO and Mr. Clarke argue that the Oura ring is critical to PO's existence as a company because "[redacted] of Oura's overall revenue is attributable to the Oura Ring" and that "Oura's only product offering is the Oura Ring." Ex-2019 ¶38. But Mr. Clarke does not specify whether the Generation 3 and 4 Oura Ring contributed to the Oura company or Oura Rings in general (thus including Gens. 1 and 2). Moreover, Mr. Clarke's testimony that the "[redacted]." Ex-2019 ¶36 n.8. The Oura ring is ***not*** the only product offering when users have to pay for at least [redacted] separate from their purchase of the Oura ring. Ex-1083, 194:17-195:23. Therefore [redacted].

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112. The company's brand partnerships to the Oura Ring products, but the partnerships spanning "a range of areas such as women's health, metabolic health, behavioral health, and fitness and lifestyle" and "glucose biosensing" are unclaimed. Ex-2019 ¶40. Nowhere in the '859 Patent is a mobile application or using the sensors to provide heath and wellness insights for "women's health, metabolic health, behavioral health, and fitness and lifestyle" or glucose sensing claimed. Mr. Clarke is also unclear on the timing associated with the Oura ring. He states that "[a]s of November 2023, Oura had entered into over 600 partnerships." It is unclear whether the "over 600 partnerships" are tied to the Gen. 3 or over the history of the company, from the Gen. 1 launch to present.

2. PO did not create a new market segment within the wearables market

113. PO argues that Oura's development and commercialization enabled the company to be labeled as one of the market pioneers in the smart ring marketplace. POR, 82-83. PO's evidence to support this discuss the health tracking (Ex-2089), battery life, and application support (Exs-2026, 2060), which are unclaimed in the '859 Patent. As Mr. Clarke discussed, there were others in the market earlier or even around the same time as Oura. Ex-1083, 205:13-23 ("I don't dispute that there may have been other rings"), 205:24-209:3 (discussing other smart ring companies).

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3. PO has not established copying by others

114. Dr. Mercier argues that Ultrahuman and RingConn copied the use of "external housing and internal housing component of [the] Oura Ring where the internal housing is made of internal potting to develop a directly competing product." Ex-2018 ¶¶247-254. Dr. Mercier additionally argues that RingConn also copied the "optical protrusion in the potting material" of Oura Ring Gen. 3. But as explained in above in Section IV.A, Dr. Mercier has failed to show that Gen. 3 is coextensive with the challenged claims and cannot show the asserted copying is directed to the challenged claims or the claims of other Oura patents, or some combination thereof. Specifically, the "internal housing made of internal potting" is not explicitly claimed in the '859 Patent.

115. Dr. Mercier asserts that Ultrahuman and RingConn smart rings "appear[] to have copied Oura Ring Gen. 3" but the features that are "copied" were well known in the art as evidenced by the prior art, as I described in Ex-1002 over the prior art and the technology background section.

4. Dr. Mercier has not shown a long-felt need

116. Dr. Mercier argues that there was a long felt need to have a finger worn ring with an arrangement with "comfort and compactness" and a "curved battery in conjunction with a printed circuit board mounted within a ring housing." Ex-2018 ¶¶255-261. But a ring that is comfortable to wear like a wedding band with a curved

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battery with a PCB within the housing were well known in the art (Ex-1002, Section V) and therefore cannot provide nexus.

117. Dr. Mercier asserts that Asada was the world's leading wearable ring researcher and realized that comfort and compactness were key, but that Asada's prototype failed to achieve these goals. Ex-2018 ¶¶255-256, 260. However, as I described in my deposition (Ex-2020, 125:5-127:1), Dr. Mercier mischaracterizes the scope of Asada's research by omitting the fact that Asada's primary research focus was addressing pressure-induced variations in ring sensors and mitigating associated noise. Notably, Asada did not identify nor emphasize any technical issues related to battery challenges.

118. Dr. Mercier also claims he was "shocked" of PO's use of a curved battery as evidence of long felt unresolved need. Ex-1082, 221:7-23. Asada and Dr. Mercier 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. Critically, Dr. Mercier fails to provide any evidence indicating that either his or Asada's attempts or inability to commercialize a wearable ring was specifically due to issues with curved battery technology. Dr. Mercier does not rule out other plausible factors for lack of commercialization success, such as insufficient marketing strategies, limited expertise regarding manufacturing scale-up, or prohibitive production costs.

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Consequently, failure to bring a wearable ring with a curved battery to market does not demonstrate that a POSITA would have recognized a long-felt need nor that commercialization attempts had been made and failed to resolve technical issues specifically related to curved battery technology.

119. I note that Dr. Mercier added that the ITC Initial Determination:

> found that for the related '178 patent, the 'record evidence demonstrates a long-felt but unresolved need for a compact, comfortable ring that could provide continuous health monitoring, and that others failed to provide such a wearable monitoring system.' The ALJ cited consumer desire for a less obtrusive yet accurate tracker, especially for sleep, as evidence of this need. Accordingly, the ALJ concluded, 'This factor weighs in favor of a determination of non-obviousness of the asserted claims.' Ex. 2116 at 116.

Ex-2018 ¶258. Yet again the ITC did not consider the '859 Patent claims, which are different than the '178 patent claims considered by the ITC. The '859 claims also do not recite a "compact, comfortable ring that could provide continuous health monitoring," nor "a less obtrusive yet accurate tracker, especially for sleep." There is no connection between what the ITC found for a limited number of claims to the '859 Patent's claims challenged here.

V. CONCLUSION

120. All of the challenged claims are obvious over the prior art.

121. In signing this declaration, I understand that the declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the

United States Patent and Trademark Office. I acknowledge that I may be subject to cross-examination in this case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

122. I declare that all statements made herein of my knowledge are true, that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

123. I declare under penalty of perjury that the foregoing is true and correct.

Date: September 2, 2025

Respectfully Submitted,



Dr. Brian W. Anthony

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