

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MASIMO CORPORATION,

Petitioner,

v.

APPLE INC.,

Patent Owner

Case IPR2023-00634

U.S. Patent 10,627,783

PATENT OWNER PRELIMINARY RESPONSE

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PATENT OWNER'S LISTING OF EXHIBITS

Ex. 2001	U.S. Patent Pub. No. 2014/0107493 to Yuen et al. (“Yuen”)
Ex. 2002	U.S. Patent Pub. No. 2016/0103985 to Shim et al. (“Shim”)
Ex. 2003	U.S. Patent Pub. No. 2017/0011210 to Cheong et al. (“Cheong”)
Ex. 2004	U.S. Patent No. 7,946,758 to Mooring (“Mooring”)
Ex. 2005	U.S. Patent Pub. No. 2014/0139486 to Mistry et al. (“Mistry”)
Ex. 2006	U.S. Patent No. 8,229,535 to Mensinger et al. (“Mensing”)
Ex. 2007	U.S. Patent No. 7,682,070 to Burton (“Burton”)
Ex. 2008	U.S. Patent Pub. No. 2007/0228404 to Tran et al. (“Tran”)
Ex. 2009	U.S. Patent Pub. No. 2005/0274971 to Wang et al. (“Wang”)
Ex. 2010	U.S. Prov. App. No. 61/943,004 (“Cheong Provisional”)
Ex. 2011	File History of U.S. Patent App. No. 17/188,995
Ex. 2012	File History of U.S. Patent App. No. 17/951,973
Ex. 2013	File History of U.S. Patent App. No. 18/075,253
Ex. 2014	File History of U.S. Patent App. No. 18/119,175
Ex. 2015	U.S. Patent Pub. No. 2010/0193804 to Brown et al. (“Brown”)
Ex. 2016	U.S. Patent Pub. No. 2005/0030518 to Nishi et al. (“Nishi”)

- Ex. 2017 U.S. Patent No. 7,455,423 to Takenaka (“Takenaka”)
- Ex. 2018 File History of Shim (Ex. 2002), with Korean priority
document—KR Patent Application 10-2269797B1—included
therein at pages 203-348 (“Shim File History”)

I. INTRODUCTION

The Petition should be denied under 35 U.S.C. § 325(d) because the grounds presented therein, particularly as they relate to the independent claims of U.S. Patent No. 10,627,783 (the “’783 Patent”)¹, rely upon references that are cumulative of the art of record and suffer from the same deficiencies. Among these deficiencies is the failure of these references, like the art of record, to disclose or suggest the specific configuration of the device recited in the independent claims.

In more detail, the ’783 Patent sought to improve on portable devices, particularly wearable devices (e.g., wristwatches), that had traditionally included “relatively limited functionality” or “were only able to perform a specialized set of functions or tasks.” Ex. 1001, 1:32-36. To that end, the ’783 Patent provides a wearable electronic device with an enhanced feature set—including, among other

¹ Although the Petition implicates additional claims beyond the independent claims of the ’783 Patent, Petitioner confined its argument under § 325(d) exclusively to the independent claims. *See* Petition, 109-110 (contending that “references presented herein ... disclose ... the independent claims” and “references considered during examination did not disclose ... the independent claims”).

features, “touch input, force input, an interchangeable attachment system, health monitoring functionality, wireless power charging.” *Id.*, 1:18-25, 1:46-56. To facilitate this “wide range of functionality,” the ’783 Patent contemplates a specific assembly and configuration of components integrated into the “relatively compact space of” its wrist-worn device. *Id.*, 1:39-56. This includes providing a wireless charging component (e.g., a wireless charging receive coil) and a “biosensor module” behind a cover/opening in the rear portion of the device, with this rear cover/opening being configured to facilitate transmission of optical signals to/from the biosensor module and wireless power signals to the wireless charging receive coil. *Id.*, 2:44-64, 5:25-40, 44:41-45:28. Indeed, during prosecution, the Examiner identified this “specific arrangement and configuration of the claimed cover, opening in the [device’s] housing,” which facilitates transmission of both optical and wireless power signals, as the reason why the claims were allowable over the art of record. *See* Ex. 1002, 387, 1269; *see also* Ex. 1001, 1:18-25, 2:44-64, 40:43-53, 44:38-62, 45:18-22.

Much like the art of record, the references relied upon in the Petition, including Kotanagi, Honda, and Kateraas, generally describe devices with the capability to measure heart rate and perform wireless charging, and further describe *either* optical signal transmission *or* wireless power signal transmission charging via the rear cover/opening of a wrist-worn device. *See* §§ VI-VII *infra*.

Yet, these references suffer from the same deficiencies that the Examiner observed in the art of record—i.e., they fail to disclose or suggest the “specific arrangement and configuration of the claimed cover, opening in the housing” that facilitate **both** optical and wireless power signal transmission. *See* Ex. 1002, 387, 1269.

Petitioner nevertheless attempts to color the references presented in the Petition as “materially better than the references considered during examination” because, according to Petitioner, the references in the Petition disclose features of the independent claims, such as “wireless charging, a ceramic cover, [and] convex shapes,” which were allegedly not disclosed in the references of record. Petition, 109-110. This argument fails given the numerous references cited during prosecution that disclose or suggest these very features that Petitioner incorrectly argues as being absent from the art of record. *See* §VII *infra*. Notably, many of these references were identified by the Examiner and some were even applied by the Examiner in an office action. *See id.* Thus, on this record, Petitioner has not and cannot meet its burden of showing material error during prosecution.

In summary, the prosecution history of the ’783 Patent demonstrates that the Examiner was in possession of references that contemplated substantially the same functionality as that presented via the references identified in the Petition, and yet correctly concluded that the claims were allowable because the references of record—much like the ground references identified in the Petition—did not

disclose or suggest a rear cover/opening via which **both** wireless and optical signals would be transmitted. For these reasons and as further explained below, the Petition respectfully requests denial of the Petition under § 325(d).

II. THE INVENTION OF THE '783 PATENT

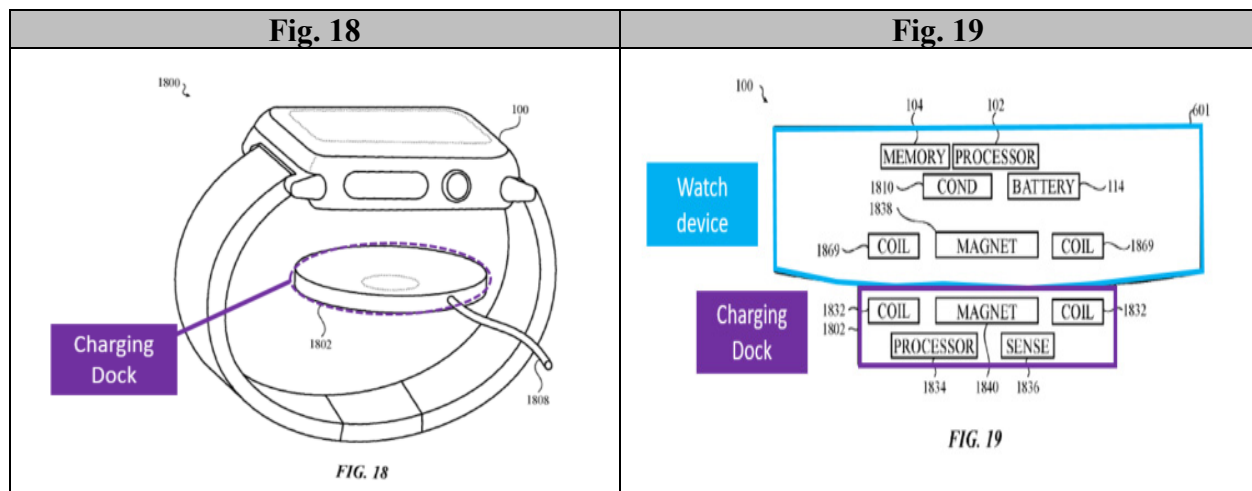
The '783 Patent relates to “a wearable electronic device” that provides a “wide range” of features, including among others, “wireless power charging” and “health monitoring functionality.” Ex. 1001, 1:19-25, 1:39-41.

The '783 Patent explains that traditional portable devices, particularly wearable electronic devices, had “relatively limited functionality or [were] only able to perform a specialized set of functions or tasks.” Ex. 1001, 1:32-36. “For example, some traditional electronic wristwatches” were “configured to perform a relatively limited set of functions, including displaying time, date, and performing basic timing functions.” *Id.*, 1:36-39.

In contrast, and “compared to some traditional wearable electronic devices,” the '783 patent provides “an expansive feature set” that is “integrated into” the “relatively compact space of a wrist-worn device.” *Id.*, 1:39-42, 1:46-56. In some embodiments, the '783 Patent provides a wrist-worn device that “integrate[s] or combine[s] multiple subsystems”—including a wireless charging receive coil operating in conjunction with a power conditioning circuit and biometric sensors—“into a single device” to provide a wrist-worn device with a wide range of features,

including wireless charging and biometric sensing capabilities. *Id.*, 1:19-25, 1:46-56, 7:9-24, 5:25-40, 4:24-49.

The '783 Patent discloses a device 100 that can facilitate wireless recharging of its rechargeable battery via a charging dock. *Id.*, 1:18-25, 8:50-59. A perspective view of the device 100 and the charging dock 1802 is shown in Fig. 18 (below left; annotated), with a simplified block diagram of the device and charging dock being shown in FIG. 19 (below right; annotated). *See id.*, 6:28-31.

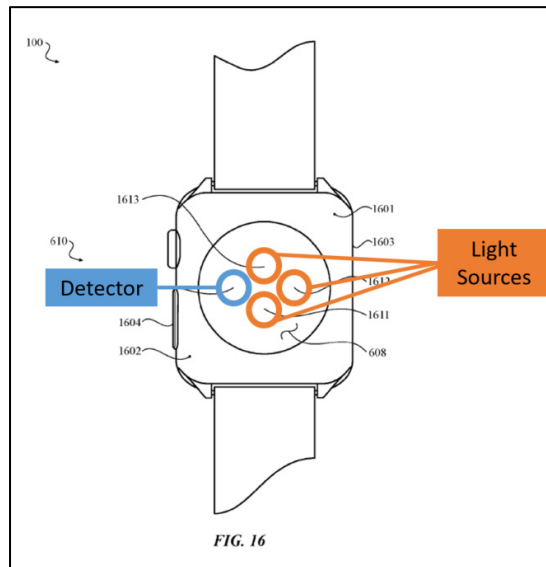


As shown above, an “inductive power transmitter dock 1802 ... is configured to couple to and wirelessly transmit power to an inductive power receiver,” such as the watch device 100. *Id.*, 43:5-11. The charging of the device’s battery 114 is facilitated when “a bottom surface of the housing of the device 100 ... partially contact[s] a top surface of the dock housing.” *Id.*, 45:18-26. In particular, the “internal battery 114 is operably connected to a receive coil 1869 via power conditioning circuit 1810” and the receive coil further includes

“one or more windings for inductively coupling with a transmit coil 1832 of the dock 1802.” *Id.*, 44:36-44. When the bottom surface of the housing of the device 100 (e.g., the rear cover) contacts the top surface of the dock housing, the “receive coil 1869” receives power from a transmit coil 1832 of the dock 1802 (where the power transfer is facilitated via “electromagnetic induction or magnetic resonance”) and “may pass the received power to [the] battery 114 ... via power conditioning circuit 1810.” *Id.*, 44:38-62, 45:18-22.

In addition to wireless charging, the device 100 can also facilitate biometric sensing using a “biosensor module” made up of “one or more sensors” that are “used to calculate a health metric,” such as “a heart rate, a respiration rate, blood oxygenation level, a blood volume estimate, blood pressure, or a combination thereof.” *Id.*, 37:48-55; 8:26-38, 13:24-42. The figure on the right shows an exploded view of an example embodiment of the wearable device, with “a biosensor module 710 ... disposed in an opening formed in the rear surface of the housing 601.” *Id.*, Fig. 7, 28:7-24. In some embodiments, and as depicted in further detail with reference to FIG. 16 (reproduced and annotated below), the “biosensor module 710 may include one or more light sources, one or more photodetectors, and one or more electrodes or conductive elements that are configured to detect and measure a physiological condition or property of the

user.” *Id.*, 28:7-23, Fig. 16 (showing an array of light sources 1611-1613 and a photodetector 1614).



The light sources 1611-1613 and the detector 1614 on the rear portion of the device “are configured to function as an optical sensor or sensors,” such as “a photoplethysmography (PPG) sensor or sensors.” *Id.*, 38:23-38. Additionally, the device can include “one or more electrodes” (e.g., electrodes 1601 and 1602 in FIG. 16 above) that can be used to “measure electrical properties of the user’s body.” *Id.*, 13:34-39, 39:40-46.

In some embodiments, the biosensor module (which integrates some or all of the above-described biosensors) is “separate from and attached to the housing 601 of the device 100.” *Id.*, 40:43-50. For example, and as illustrated with respect to Figs. 7 and 16 (shown above), “the biosensors” can be “disposed relative to or attached to a rear cover 608 that is formed from an optically transparent material

and is configured to be positioned with the opening of the housing 601.” *Id.*, 40:43-50.

In this manner, the ’783 Patent provides a wearable device with at least wireless charging capabilities and biometric sensing, and recites a specific configuration in which the same rear cover/opening of the device facilitates both wireless power transmission to the receive coil on the device 100 and optical signal transmission to/from the biosensor module. *See id.*, 1:19-25, 2:44-55, 13:34-39, 39:40-46, 40:43-50, 44:38-62, 45:18-22.

III. PROSECUTION HISTORY SUMMARY

A. Prosecution History of the ’783 Patent

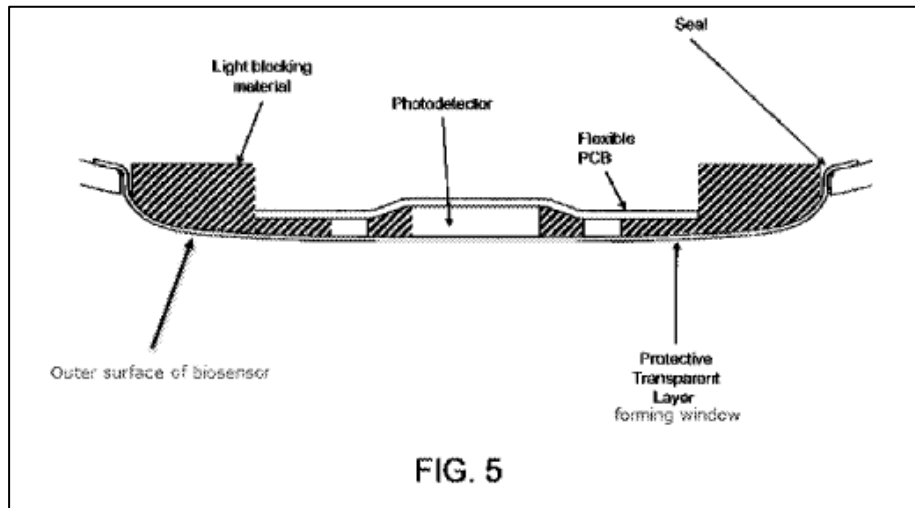
The application for the ’783 Patent was filed on September 10, 2016. Ex. 1001, p. 1. This application (App. No. 15/261,917) is a continuation of a non-provisional application (App. No. 14/842,617) filed on September 1, 2015, and further claims priority to a provisional application (App. No. 62/044,974) filed on September 2, 2014. Ex. 1002, 1965; Ex. 1001, pp. 1-2.

During prosecution, the Examiner issued an office action, rejecting the then-pending claims on multiple prior art-based grounds. Ex. 1002, 1475-1504. Specifically, the Examiner rejected the pending claims in view of multiple references, including (among others), Yuen (US Patent Pub. No. 2014/0107493; Ex. 2001), Mistry (US Publication No. 2014/0139486; Ex. 2005), Mensinger (U.S.

Patent No. 8,229,535; Ex. 2006), and Burton (US Patent No. 7,682,070; Ex. 2007). Ex. 1002, 1478, 1487-1493. In support of these rejections, the Examiner provided the following pertinent findings and rationale:

1. “Yuen et al. describes a wearable electronic device that includes biometric and biosensor monitoring (para 46-48)... Figures 3 and 4 show the *biosensor module protruding from the bottom side* of the device housing. Figure 5 is further relied on to show the rear cover for the biosensor module comprising an edge protruding outwardly from the bottom portion of the housing and *having an outer surface with a convex contour shape*.... [F]igure 5 also shows the wearable device with *an array of LED light sources and a photodetector within the biosensor protrusion and serving as one or more optical components of the biosensor module* (para 45, also see figures 8 and 9).”²

² Emphasis added throughout unless otherwise noted.



Ex. 1002, 1478-1480 (citing Ex. 2001, FIGS. 3-5, ¶¶45-48); *see also id.*, 1488-1489.

2. “Mistry et al. describes a *wearable wristwatch sensor* comprising a touch sensitive display and *an optical sensor*.” Ex. 1002, 1490-1491.
3. “Burton describes a wrist worn device considered analogous to the other cited references. *Burton is relied on to teach that wristwatches include a protective transparent cover ..., wherein the cover may be formed from a polymer, glass, or sapphire crystal (col 3 lines 41-57). ... [B]urton teaches that sapphire is a commonly employed material for watch crystals or covers.*” Ex. 1002, 1493.

Applicant subsequently interviewed the Examiner, with the substance of the interview including a discussion of the cited prior art and Applicant’s proposal to add “structural features to the claim including features that facilitate wireless charging, such as a ... cover configured to allow *transmission of biosensor signals*

and wireless charging signals.” Ex. 1002, 1269. According to the Examiner, “[s]uch amendment” would “overcome the prior art of record.” *Id.*

Consistent with the discussion during the interview, Applicant filed a response that included claim amendments reciting a rear cover or opening configured to pass both optical signals and wireless power signals. *See* Ex. 1002, 1273-1278 (see pending claims 35, 43, and 49, reciting these features); 1279 (memorializing examiner’s agreement that “claims that include structural elements, such as a rear cover, that allow transmission of both biosensor signals and wireless charging signals would overcome the current rejections”). This response resulted in allowance of the claims (*see* Ex. 1002, 887, 707-708, 382-386, 200-201, 14-15), with the Examiner noting in his reasons for allowance that the “prior art fails to teach or suggest the *specific arrangement and configuration of the claimed cover, opening in the housing*, and wireless charging coil.” Ex. 1002, 387. The application subsequently issued as the ’783 Patent on April 21, 2020. Ex. 1001, p. 1; Ex. 1002, 3.

B. Prosecution History of Pending Applications Related to the ’783 Patent

Prosecution is ongoing in four patent applications that are continuations of the ’783 Patent. These include App. Nos. 17/188,995 (“’995 Application”), 17/951,973 (“’973 Application”), 18/075,253 (“’253 Application”), and

18/119,175 (“’175 Application”). Each of these applications is being examined by the same examiner (Examiner Brian T Gedeon) who examined the application for the ’783 Patent. In each of these Applications, Applicant submitted the IPR Petition for the ’783 Patent along with the art cited therein. *See* Ex. 2011, 359-361; Ex. 2012, 311-313; Ex. 2013, 338-340; Ex. 2014, 280-282. In subsequently-entered office actions, the Examiner formed rejections in view of some of the references cited in the Petition, including the Kotanagi and/or Honda references that are applied with respect to the independent claims of the ’783 Patent in the Petition. *See* Ex. 2011, 387-405; Ex. 2012, 623-634; Ex. 2013, 361-383; Ex. 2014, 1-14. Applicant intends to respond to each of the entered actions, but has not done so as of the filing date of this response.

With respect to the ’995 Application, the Examiner entered an office action on May 8, 2023, in which the Examiner rejected pending independent claims 21 and 35 based on the combination of Honda in view of Kotanagi and U.S. Patent No. 5,738,104 to Lo et al. (“Lo”). Ex. 2011, 391-397, 336-343. The Examiner separately rejected pending independent claim 28 based on the combination of Honda in view of Kotanagi, Lo, U.S. Pub. No. 2015/0026647 to Park (“Park”), and U.S. Patent No. 4,375,219 to Schmid (“Schmid”). *Id.*, 398-401, 336-343. Notably, the pending claims are different from the claims of the ’783 Patent in that the pending claims do not recite a wireless charging coil in the device or any

transmission of wireless power signals to a wireless charging coil through a rear cover of the claimed device³, as recited in independent claims of the '783 Patent.

See id.

With respect to the '175 Application, the Examiner entered an office action on May 24, 2023, in which the Examiner rejected pending claims 21-40, and in particular, rejected pending independent claims 21, 30, and 35 based on the combination of Kotanagi in view of Park and Lo. Ex. 2014, 1-16, 285-289. Pending independent claims 21, 30, and 35 recite a light source and a photodetector, where the light source is “configured to emit light through the rear cover” and the photodetector is configured to receive/detect reflected light emitted by the light source. *Id.*, 285, 287; *see id.*, 288. The pending claims do not recite any charging coil or transmission of power signals to a charging coil through a rear cover. *See id.*, 285-289. Although pending claim 28 recites “a power interface positioned at the rear of the housing and configured to receive power from an external charging device” (*id.*, 286), the Examiner alleged that this feature is

³ The only reference to wireless charging in the pending claims appears in claim 34, which recites that the device’s “convex exterior profile facilitates alignment between the rear cover and a mating surface of an external wireless charging device.” *See id.*, 340.

disclosed based on Kotanagi's teaching of an "external connection terminal 21" for wired charging of the rechargeable battery 13. *See id.*, 9 (citing Ex. 1005, ¶¶49, 53). In other words, the Examiner did not rely upon any art-based teachings of a wireless charging receive coil or wireless charging of such a coil through a rear cover. *See id.*

With respect to the '973 Application, the Examiner entered an office action on April 24, 2023, in which the Examiner rejected pending claims 21-31 based on the combination of Honda in view of Kotanagi. Ex. 2012, 152-154, 627-633. Pending independent claim 21 recites multiple features of an "electronic device," including a housing, a band, a display, an antenna⁴, a cover, a biosensor module, and a wireless charge receiving coil. *Id.*, 152. Similar to the '783 Patent's independent claims, pending claim 21 recites a "cover disposed over [a] second opening" that "is configured to pass optical signals generated by the biosensor

⁴ The antenna limitation is not included in the '783 Patent's independent claims and specifically recites "an antenna configured to facilitate wireless communication between the electronic device and a mobile phone, wherein the wireless communication comprises transmission of information to the mobile phone for visual display to the user." *Id.*, 152.

module” and “to pass wireless power from an external wireless charging device to the wireless charging receive coil.” *Id.*

With respect to the '253 Application, the Examiner entered an office action on April 25, 2023, in which the Examiner rejected the pending independent claims (claims 21, 32, 41) based at least on the combination of Honda in view of Kotanagi and Park, or Honda in view of Kotanagi and Lo. Ex. 2013, 150-157, 365-370, 374-379. In particular, independent claims 21 and 32, together with claims 27 and 34, recite a “charging coil ... configured to receive wireless power through the rear cover,” “a light source configured to emit light,” “a detector configured to receive a reflected portion of the emitted light,” and the “rear cover include[ing]: a first window to transmit light from the light” and “a second window to receive the reflected portion of the emitted light.” *Id.*, 150-153.

However, as explained in §§ VII.A and VII.B *infra*, Honda’s and Kotanagi’s teachings—as relied upon in the Petition and in the office actions for the '973 and '253 Applications—are cumulative of teachings previously considered by the Examiner during the '783 Patent’s prosecution with respect to its “cover” limitations, and suffer from the same deficiencies present in the art of record with respect to the '783 Patent’s claims (i.e., they fail to disclose or suggest a cover that is configured to transmit/receive optical signals and wireless power signals).

Moreover, as noted above, prosecution in these (as well as the other two applications) is ongoing, no final determinations or evaluations of the art have been reached in any of these applications, and Applicant intends to present a response to each of the office actions to highlight the same deficiencies in Honda and Kotanagi (as well as the other cited references) as was present in the art at issue during the prosecution of the application for the '783 Patent. Thus, Patent Owner submits that the pending and non-final prosecution record in these related—but different—applications do not inform or speak to the issues germane to the Board's exercise of discretion under § 325(d), which is applicable in the context of “another proceeding or matter involving *the patent* [that] is before the Office,” and which provides that, in such a context, “a Director [may] reject the petition because the “the same or substantially the same prior art or arguments *previously were presented to the Office*” *with respect to that patent*. See 35 U.S.C. § 325(d) (emphasis added); *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 7, 9 (PTAB Feb. 13, 2020) (precedential) (explaining that (1) under § 325(d), the “art and arguments *must have been previously presented* to the Office *during proceedings pertaining to the challenged patent*” and (2) § 325(d) discretion “reflects a commitment to defer to *previous Office evaluations of the evidence of record*” for the patent at issue).

IV. PERSON OF ORDINARY SKILL IN THE ART

Patent Owner contends that a person of ordinary skill in the art on or about the claimed priority date of the '783 Patent would have had at least a bachelor's degree in electrical engineering, mechanical engineering, biomedical engineering, computer engineering, physics, or a related field, and would have had at least two years of relevant work experience with capture and processing of data or information, including but not limited to physiological information, or equivalents thereof. Less work experience may be compensated by a higher level of education and vice versa.

V. CLAIM CONSTRUCTION

While not agreeing with Petitioner's proposed constructions (or lack thereof) for certain claim terms (*see* Petition, 13-16), *solely* for purposes of this Preliminary Response, Patent Owner does not object to the constructions proposed by Petitioner at this time. Patent Owner reserves the right to assert alternative constructions for relevant claim terms in this or another proceeding involving the '783 Patent (or another patent related thereto), where appropriate.

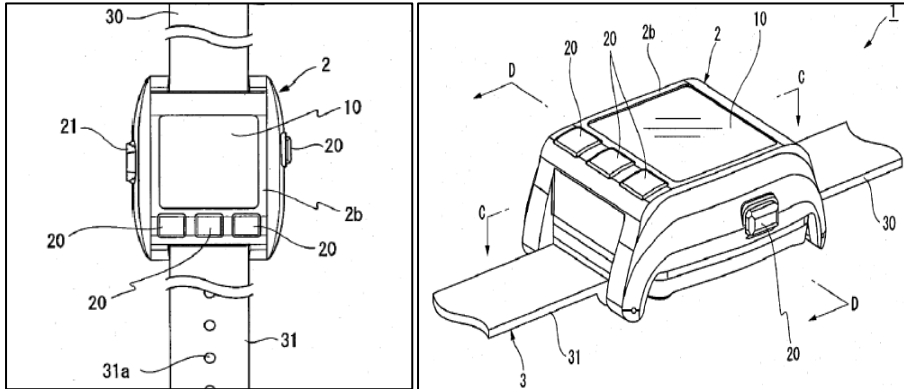
VI. THE ASSERTED PRIOR ART

A. Kotanagi (Ex. 1005)

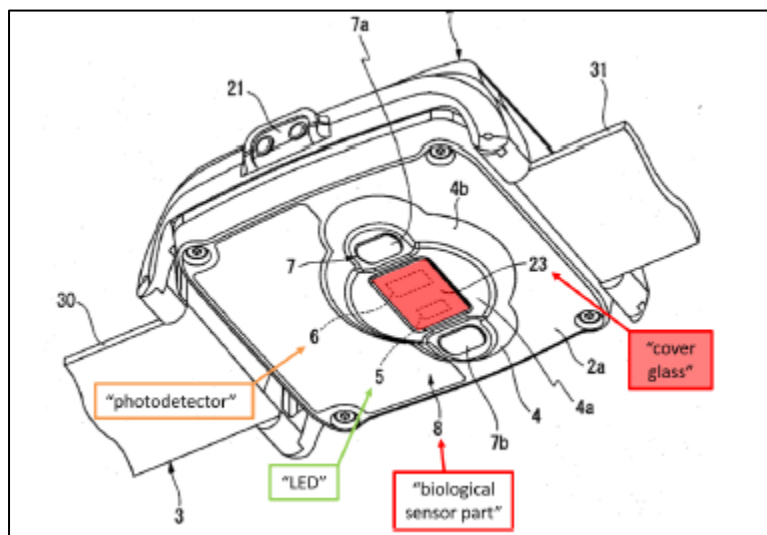
Kotanagi discloses a "biological information measuring device 1," which as shown in FIGS. 1 and 2 below, includes a "wristwatch-type device" that "detects

pulse rate as a type of biological information while mounted to [a] wrist (arm)”

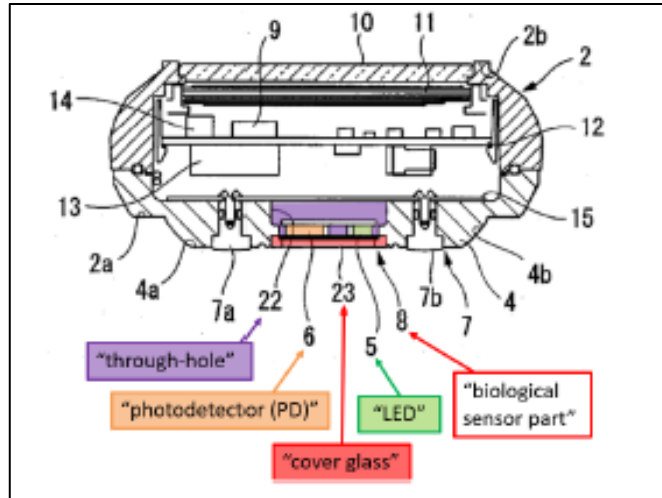
Ex. 1005, ¶44.



The rear surface of Kotanagi’s wristwatch device, which is reproduced below (in a figure annotated and provided by Petitioner), includes “a protruding part 4[,] which protrudes from the lower surface 2a[,] is formed on the lower surface 2a of the housing 2.” *Id.*, ¶45.

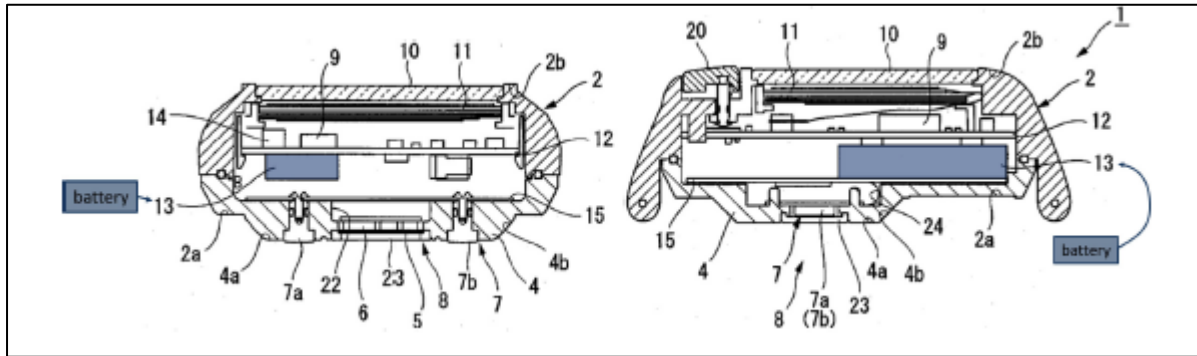


A biological sensor part 8, which includes a LED 5 and a photodetector (PD) 6, is disposed on the lower surface 4a of the protruding part 4. Ex. 1005, ¶46. As shown below, the biological sensor part 8 is “formed in the center of the lower surface 4a of the protruding part 4,” with the “LED 5 and the PD 6” being positioned in “the protruding part 4.” *Id.*, ¶¶55-56. A cover glass 23 covers the through-hole 22 and the biological sensor part 8. Ex. 1005, ¶55, Fig. 7 (reproduced on right; annotated by Petitioner).



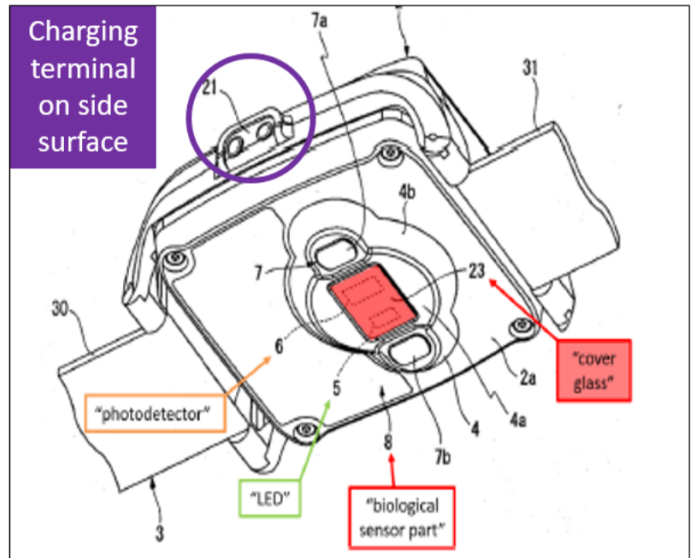
When the wristwatch is mounted on a user’s wrist, Kotanagi explains that the LED 5 “emit[s] light toward the ... body” and the PD 6 receives reflected light from the “body out of the light emitted by the LED 5,” and generates “a pulse signal ... corresponding to the amount of received light.” *Id.*, ¶46.

Kotanagi’s wristwatch device 1 includes a battery 13 that is used to power up the device and its different subcomponents:



Ex. 1005, Figs. 6-7 (annotated by Petitioner), ¶53. Kotanagi discloses that the battery 13 is rechargeable, and further discloses an external connection terminal 21 “for recharging the rechargeable battery 13 by supplying power from an external device such as a recharger.” *Id.*, ¶53; *see id.*, ¶72 (“the rechargeable battery 13 can be charged with power by connecting a recharging cord or the like connected to a recharger to the external connection terminal 21”). “In addition, rather than the external connection terminal 21,” Kotanagi contemplates that “a transformer or the like for supplying power to a recharger and to the inside of the housing 2 may be provided so as to recharge the rechargeable battery in a contactless state.” *Id.*, ¶53,

However, Kotanagi does not disclose how the rechargeable battery would be charged in the “contactless state” nor does it disclose the surface via which such charging would be performed. *See id.* The only positional reference for charging that Kotanagi provides is via the “side surface of the housing.” *Id.*,



¶53 (“an external connection terminal (recharging means) 21 for recharging the rechargeable battery 13 ... is provided on *the side surface of the housing 2*”), Fig. 5 (reproduced above; annotated by Patent Owner and Petitioner; showing connection terminal 21 for charging on the side surface of the device’s housing).

B. Honda (Ex. 1006)

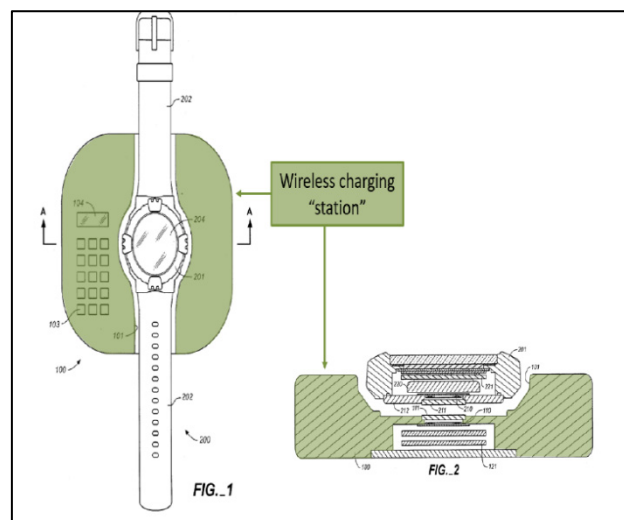
Honda provides an electronic apparatus (e.g., an electronic watch) that enables “efficiency of a power transmission from a charging unit to” the apparatus in a “non-contact” fashion. Ex. 1006, 1:5-16, 2:55-60.

In particular, Honda seeks to overcome deficiencies in prior non-contact contactless charging implementations. First, Honda recognizes that, when the gap between charging coils in the receiver device (e.g., the electronic watch) and the transmitting device (e.g., the charger) “is increased,” and “the degree of magnetic

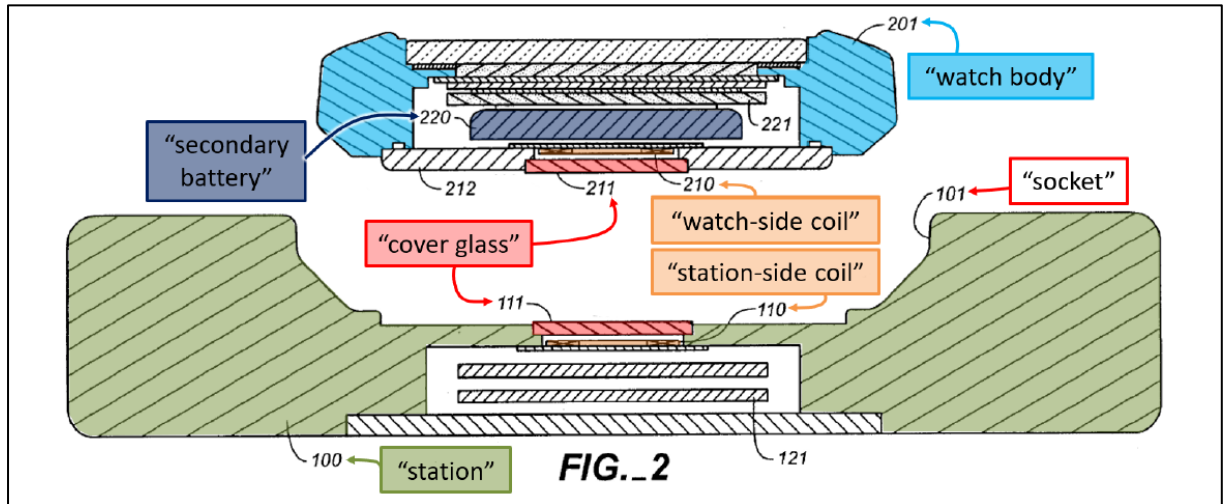
coupling weakens, substantially reducing the charging current to the secondary battery for charging.” *Id.*, 2:39-44. Second, Honda recognizes that metal materials in the housing can create eddy currents, which in turn can “weaken[] the electromagnetic coupling” between the charging coils and limit the quick charging of the device’s battery. *Id.*, 2:44-52, 13:25-32.

Honda seeks to address these problems, with one of its goals being to enable quick charging of the device’s battery. *Id.*, 2:55-60. To that end, Honda discloses “an electronic apparatus” that “includes a first device and a second device, which perform a power transmission ... through the electromagnetic coupling of coils which are arranged in mutually facing positions in the respective devices,” where the relative inner and outer diameters of coils in the first and second devices can vary by certain predetermined amounts without affecting charge efficiency. *See id.*, 2:66-4:26.

As shown in Figs. 1 and 2 (reproduced on right; annotated by Petitioner), an electronic watch 200 is shown seated in a socket 101 of a station 100 to facilitate a charging operation. *Id.*, 6:4-11.



An expanded version of FIG. 2 (as annotated by Petitioner) is reproduced below and provides a sectional view of the watch 200 shown in FIG. 1. *Id.*, 6:21-22, FIG. 2.



As shown, “a watch-side coil 210 for ... battery charging is arranged in a case back 212 of the watch body 201 and is covered with a cover glass 211. The watch body 201 includes a circuit board 221, connected to a secondary battery 220 and a watch-side coil 210.” Ex. 1006, 6:22-27. In the charging station 100, a station-side coil 110 is arranged in the portion of the socket 101” that faces “the watch-side coil 210, and is covered with a cover glass 111.” *Id.*, 6:28-35. “The station 100 includes a circuit board 121, to which the station-side coil 110, the input section 103, the display section 104, and a primary power source (unshown) are connected.” *Id.*

“When the electronic watch 200 is placed onto the station 100, the station-side coil 110 and the watch-side coil 210 are physically out of contact with each other, but magnetically coupled with each other because the surfaces of coil winding of both coils are generally ... parallel to each other.” *Id.*, 6:36-40.

Additionally, to reduce the charging inefficiencies stemming from the use of metal materials in the device’s housing, the ’783 Patent contemplates “the use of an insulating material,” such as glass, for “the external housing results in a transmission efficiency ten times as high as the one achieved by a stainless product.” *Id.*, 13:45-48. In some embodiments, a deposited surface can be employed on the inner surface of the glass member for aesthetic purposes and to avoid damage/deterioration of the device’s components from UV light. *See id.*, 13:53-64, Fig. 15 and associated description.

In addition to its charging capabilities and associated descriptions, Honda additionally discloses that the watch 200 “detects biological information including the pulse rate or the heart rate of the body through an unshown sensor and stores it.” *Id.*, 6:17-20, 8:40-42. Honda, however, does not explain where the “unshown sensor” would be provided or positioned in the device, nor does it disclose or suggest such an “unshown sensor” would facilitate transmission of biometric signals through the rear cover/opening in the described device. *See id.*

**VII. THE PETITION SHOULD BE DISCRETIONARILY DENIED
UNDER § 325(D)**

The PTAB uses the following two-part framework to determine whether to exercise its discretion to deny institution of an *inter partes* review under § 325(d):

- (1) whether the same or substantially the same art previously was presented to the Office *or* whether the same or substantially the same arguments previously were presented to the Office; and
- (2) if *either condition* of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims

Advanced Bionics, Paper 6 at 8.

As explained below, Petitioner has failed to carry its burden under both parts of the *Advanced Bionics* framework because (1) the Petition advances substantially the same prior art references or arguments that were previously presented to and considered by the Examiner during prosecution and (2) Petitioner has not demonstrated that the Office erred in a manner material to the patentability of challenged claims.

A. *Substantially the Same Prior Art And Arguments Were Previously Presented to the Patent Office During the '783 Patent's Prosecution*

Petitioner argued that the petition should not be discretionarily denied under Section 325(d) because the Petition “presents *new prior art* and new patentability

arguments that have never previously been before the Office.” Petition, 109-110.

Petitioner’s arguments fail the first part of the *Advanced Bionics* framework, under which the critical inquiry is not whether “new prior art” or new arguments are being presented in the petition. Rather, the first part of the *Advanced Bionics* framework is satisfied when the Petition raises the “*same or substantially the same*” art or arguments as previously presented to the Office with respect to the patent at issue, as is the case here. Specifically, and as explained below, the first part of the *Advanced Bionics* framework is satisfied here because the Petition advances references and arguments that are cumulative of what was previously presented to and considered by the Office during prosecution of the ’783 Patent.

1. Overview of the Petition’s Relied-Upon Teachings in the Grounds Presented with Respect to Independent Claims 9 and 15

Beginning with independent claims 9 and 15, the Petition advances a combination of Kotanagi (Ex. 1005) and Honda (Ex. 1006). *See* Petition, 21-32, 41-50. Kotanagi allegedly teaches a wrist-mounted device that includes optical elements (e.g., LEDs and photodetector) positioned behind a cover/opening at the bottom of the device’s housing. *See* Petition, 21-22. Per Petitioner, Kotanagi also contemplates wireless charging based on its disclosure of “a transformer or the like for supplying power to a recharger and to the inside of the housing 2 ... to recharge the rechargeable battery 13 in a contactless state.” Petition, 22-23 (citing Ex. 1005,

¶53). Even assuming *arguendo* that this disclosure in Kotanagi suggests wireless charging, Kotanagi does not disclose or suggest where any wireless charging components (e.g., charge receiving coil, transformer, etc.) are positioned, nor does Kotanagi describe wireless charging using the *same cover/opening* via which optical signals are allegedly transmitted and received by/from the optical elements—as is required by the independent claims. *See* Ex. 1005, ¶53; *see also*, e.g., Ex. 1001, claim 9 (“*cover is configured to pass optical signals to and from the biosensor module*” and “to pass *wireless power to the wireless charging receive coil*”), claim 15 (“a biosensor module ... configured to transmit optical signals and receive reflected *optical signals through the opening [in the bottom portion] of the housing; and* a wireless charging receive coil ... configured to receive *wireless power through the opening of the housing*”).

Petitioner further alleges that Honda teaches a wrist-mounted device that enables wireless charging by positioning a wireless charging coil behind the cover/opening at the bottom of the device. *See* Petition, 23-25. Honda additionally discloses that the “electronic watch 200 detects biological information including the pulse rate or the heart rate of the body through an unshown sensor and stores it.” Ex. 1006, 6:18-20, 8:40-42; Petition, 31. However, Honda does not disclose whether the “unshown sensor” is an optical sensor. Honda also does not disclose any optical signal transmission using such an “unshown sensor,” much

less describe that such optical transmission happens using ***the same cover/opening*** via which wireless power signals are transmitted—as is required by the independent claims.

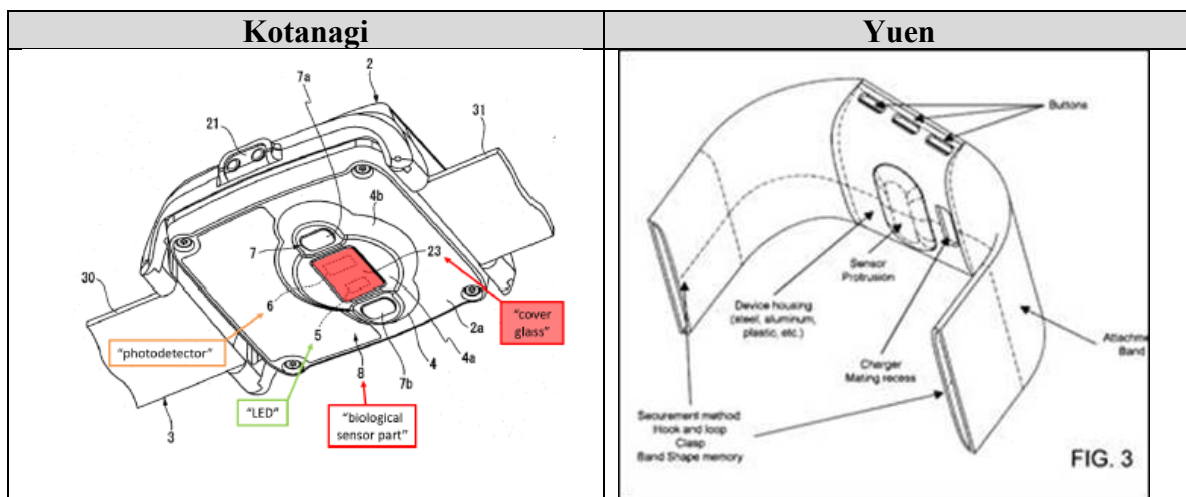
2. *Kotanagi and Honda are Substantially the Same As The References Considered During the '783 Patent's Prosecution with Respect to Independent Claims 9 and 15*

During prosecution of the '783 Patent, the Examiner cited and considered multiple prior art references with teachings that are the same as or substantially the same as the above-described art and arguments presented in the Petition.

For example, during prosecution, the Examiner cited and applied the Yuen reference in an office action. Ex. 1002, 1478 (citing Ex. 2001, Yuen). Yuen is substantially the same as Kotanagi in that Yuen—like Kotanagi—contemplates a watch with optical elements positioned behind a rear cover of the watch's housing and further discloses that these optical elements facilitate detection and measurement of pulse rate. *See* Ex. 2001, FIGS. 3-5; Ex. 1002, 1478-1479

(finding that (1) ***Yuen's "FIGS. 3 and 4 show the biosensor module protruding from the bottom side of the device housing,"*** (2) Yuen's FIG. 5 further "show[s] the ***rear cover for the biosensor module*** comprising an edge protruding outwardly from the bottom portion of the housing and having an outer surface with a convex contour shape," and (3) Yuen's FIG. 5 "also shows the wearable device with ***an array of LED light sources and a photodetector within the biosensor protrusion***

and *serving as one or more optical components of the biosensor module*”). The following table provides a side-by-side comparison of the rear sides of Kotanagi’s watch and Yuen’s watch, with both providing optical sensors in a protruded portion within the rear cover (notably, the figure of Yuen’s watch was expressly cited and reproduced in the Examiner’s entered office action). *See id.*



Similarly, Shim—a reference that was cited in an information disclosure statement (IDS) and considered by the examiner—describes an optical sensor (e.g., heartbeat sensor) configured to transmit/receive optical signals via a back cover of a wrist-worn device. *See* Ex. 2002, ¶¶126-129, 148, 155, FIGS. 2A-2B, 3, 6A-6C; Ex. 2018, pp. 203-348, FIGS. 2(a)-2(b), 3, 6a-6c, ¶¶90, 93; 6; *see also* Ex. 2003, ¶¶285-289, 322, FIG. 7-13 (showing and describing yet another record reference teaching a biosensor provided in rear surface of wrist-worn device—much like the teachings of Yuen and Shim); Ex. 2010, 534, 536, 538 (similarly showing sensor

on rear surface of device); *see also Peloton Interactive, Inc. v. iFIT, Inc.*, IPR2022-00029, Paper 13 (PTAB Apr. 22, 2022) (references cited on an IDS that are expressly considered by the examiner constitute as previously presented art under the *Advanced Bionics* framework). Additionally, like Petitioner's allegations in view of Kotanagi, Shim also contemplates wireless charging in addition to its biosensing capabilities. *See, e.g.*, Ex. 2002, ¶112 ("As another example, the power supply unit 190 ***may be configured to charge a battery through a wireless method without using the connection port.*** In this case, the power supply unit 190 may receive power from ***an external wireless power transmission device through at least one of an inductive coupling method*** based on a magnetic induction phenomenon, and a magnetic resonance coupling method based on an electromagnetic resonance phenomenon."); Ex. 2018, pp. 203-348, ¶¶74-75 (similar disclosure). And, much like Kotanagi, Shim also does not describe any wireless power signal transmission via the back cover of the device via which the optical signals are transmitted/received. *See id.*

Similarly, the Examiner cited and considered multiple references that are substantially similar to Honda's teachings of wrist-mounted devices that facilitate wireless charging via the rear cover. One such reference cited and considered during prosecution is Mooring, which describes wrist-worn devices being wirelessly charged via coils positioned and attached to the back cover of the

device. *See* Ex. 2004, 1:38-53 (“[A] currently available type of electronic watch referred to as a “smart watch” is capable of wireless connectivity ***The type of components found inside the case of a smart watch may include a ... a rechargeable battery, and an inductive charging coil.*** The watch may be recharged by placing the watch in a watch stand, and plugging the watch stand into the wall. ***When a coil attached to the contact surface on the back of the watch comes in contact with a charging plate on the watch stand, the smart watch battery is charged through induction.***”).

Although Mooring was cited by the Applicant in an IDS, it was not the only such reference contemplating wireless charging. Indeed, multiple other references of record similarly contemplated wireless charging. *See, e.g.*, Ex. 2005, ¶127 (Examiner-cited reference, describing wireless charging receive coil in body of a wearable electronic device); Ex. 2006, 26:2-27 (Examiner cited reference teaching that “the battery 234 (or batteries) is configured ***to be charged via an inductive and/or wireless charging pad***” and that batteries can be charged using “***wireless methods***”). Notably, each of Mistry (Ex. 2005) and Mensinger (Ex. 2006) was one of seven references independently identified by the examiner and which was expressly relied upon in rejecting certain pending claims during prosecution. *See* Ex. 1002, 1487-1491.

What's more, both the Applicant and the Examiner cited prior art references during prosecution of the '783 Patent that disclosed watches or other wrist-mounted devices with both wireless charging and biometric sensing capabilities. For example, in addition to contemplating wireless charging, Mooring contemplates "biological sensors (e.g., pulse, body temperature, blood pressure, body fat, etc.)" being included in the watch device. Ex. 2004, 10:16-30. Same is also true for the Applicant-cited Shim reference, which also contemplates both wireless charging and biometric sensing. Ex. 2002, Abstract, ¶¶13, 71-72, 112; *see* Ex. 2018, pp. 203-348, ¶¶34, 74-75, 90, 93. Further still, during prosecution, the examiner independently identified and applied the Mistry reference, which discloses a wrist-worn device that can facilitate wireless charging and biometric sensing. Ex. 2005, ¶¶124, 125, 127-128; *see* Ex. 1002, 1491-1492. Again, it bears repeating that Mistry was one of the seven references identified and cited by the examiner during prosecution. *See* Ex. 1001, pp. 1-6.

In summary, much like the alleged teachings of Kotanagi and Honda, the record indicates that the Examiner identified and considered multiple references teaching (1) wrist-worn devices with rear covers/openings that are configured to receive either optical signals or wireless power signals, and (2) wrist-worn devices with dual capabilities of wireless signal transmission and optical signal transmission. Thus, with respect to independent claims 9 and 15, the totality of the

record demonstrates that the Petitioner's identified references of Kotanagi and Honda are substantially the same as the art expressly cited and considered by the examiner during prosecution of the '783 Patent.

3. Teachings in Kotanagi and Kateraas are Substantially the Same As the References Considered During the '783 Patent's Prosecution with Respect to Independent Claim 1

With respect to independent claim 1, the Petition continues to rely upon Kotanagi and Honda, and optionally also relies upon the Kateraas reference. Petition, 57-69. Relative to independent claims 9 and 15, independent claim 1 additionally recites that the rear cover is a "ceramic cover." Petitioner contends that Kotanagi's teaching of "cover glass" maps to the claimed "ceramic cover" because, per Petitioner, "glass is considered a subset of ceramics." Petition, 60. Petitioner additionally and optionally relies upon Kateraas's teachings of certain types of allegedly "ceramic" materials, such as sapphire, to argue that Kotanagi's glass would be substitutable for such an allegedly ceramic material. Petition, 60-63, 68-69; *see id.*, 13 (in construing "ceramic cover," contending that "prior art having a rear cover of **glass or sapphire** or any other ceramic material satisfies this limitation").

Thus, under Petitioner's own interpretation and application of such an interpretation to Kotanagi, a ceramic cover can include a cover made of glass. *See id.* However, glass covers were identified and considered by the Examiner during

prosecution, particularly in view of the Yuen reference that was applied by the Examiner during prosecution. Ex. 1002, 1478-1480 (citing Yuen (Ex. 2001)); Ex. 2001, ¶60.

Similarly, the record also reflects cited and considered art that teaches covers made of an allegedly ceramic material such as sapphire—similar to Petitioner’s allegation in view of Kateraas. For example, in an office action issued during prosecution, the examiner relied upon Burton to reject a claim reciting a cover made of sapphire (a ceramic material as Petitioner alleges). *See* Ex. 1002, 1493 (“In regard to claim 20, ... Burton describes a wrist worn device considered analogous to the other cited references. ***Burton is relied on to teach that wristwatches include a protective transparent cover . . . , wherein the cover may be formed from a polymer, glass, or sapphire crystal*** ... Modification of the cover in the invention described by Utter, Gayle et al., Mistry et al., and Burton et al. to be made of sapphire is considered obvious to one of ordinary skill in the art ***since Burton teaches that sapphire is a commonly employed material for watch crystals or covers.***”); *see* Ex. 2007, 3:41-57, 1:27-41.

Thus, although Kotanagi, Honda, and Kateraas were not considered during examination of the application for the ’783 Patent, Petitioner’s relied-upon disclosures in these references are substantially the same as the teachings of the various references of record, including Yuen, Mooring, Mistry, Burton (among

other references), which were cited and considered by the examiner during prosecution. For at least these reasons, the first prong of the *Advanced Bionic* framework is satisfied.

B. Petitioner Has Not Met its Burden to Demonstrate Any Error Material to Patentability, Nor Does the Record Support a Finding of Such Error

Because the first prong of the *Advanced Bionic* framework is satisfied, Petitioner bears the burden to demonstrate the second prong of the framework, namely “that the Office erred in a manner material to the patentability of challenged claims” of the ’783 Patent. As explained below, Petitioner has failed to carry its burden of showing an error material to patentability, nor can it make such a showing in light of the totality of the prosecution record.

1. Petitioner Has Failed to Meets its Burden of Demonstrating Material Error During Prosecution

As a threshold matter, the Petition fails to advance any argument regarding material error during prosecution. *See* Petition, 109-110. At most, Petitioner argues that the references presented in the Petition are “materially better than the references considered during examination because ... they disclose *every limitation of the independent claims, including wireless charging, a ceramic cover, convex shapes, and other features*” and that “the Examiner found the references considered during examination did not disclose all limitations of the

independent claims.” *Id.* Patent Owner respectfully disagrees with these assertions for the reasons explained below.

First, as discussed in § VII.A *supra* and as summarized below, the prior art cited and considered by the examiner during prosecution disclosed the very features that the Petitioner specifically identifies as not being disclosed by the art of record.

- For the allegedly missing “wireless charging” feature, the record includes at least the following references that were considered by the examiner: Ex. 2004, 1:38-55, Ex. 2005, ¶¶124, 125, 127-128; Ex. 2002, ¶112; Ex. 2018, pp. 203-348, ¶¶74-75; Ex. 2006, 26:2-27.
- For the allegedly missing “ceramic cover” feature, the record includes at least the following references that were considered by the examiner: Ex. 2001, ¶60; Ex. 2007, 3:41-57; *see* Ex. 1002, 1478-1480, 1493.
- For the allegedly missing “convex shapes” feature, the record includes at least the following references that were considered by the examiner: Ex. 2001, Fig. 5; EX-1002, 1479, 1489. Notably, however, “convex” shape-related features are only recited in the dependent claims—and not in the independent claims, as Petitioner incorrectly suggests. *See* Ex. 1001, claims 8, 12, 17-18.

Thus, contrary to Petitioner's assertions, the prior art advanced in the petition provides nothing "new" or "materially better" than the prior art already considered by the examiner.

Second, Petitioner has made no showing to demonstrate or suggest that the examiner misapprehended or overlooked the teachings in the references of record.

- With respect to the "wireless charging" claim feature, the above discussion demonstrates that numerous references—identified by both the Applicant and the Examiner—provided teachings of wireless charging. *See, e.g.*, Ex. 2004, 1:38-55; Ex. 2005, ¶¶124, 125, 127-128; Ex. 2002, ¶112; Ex. 2018, pp. 203-348, ¶¶74-75; Ex. 2006, 26:2-27.
- The same is also true for the "ceramic cover" claim feature, for the reasons described above. Specifically, consistent with Petitioner's allegation that ceramic includes glass or sapphire (Petition, 13, 60-65), the Examiner expressly considered Yuen's rear cover **glass** teachings as well as the teachings of Burton for a cover made of sapphire (which Petitioner alleges is a ceramic) during prosecution. *See* EX-1002, 1493, 1478-1480; Ex. 2001, ¶60; Ex. 2007, 3:41-57.
- Similarly, with respect to the "convex" shapes feature, the Examiner expressly noted that this is taught by Yuen's rear cover shown in its

FIG. 5, which has a “rear cover for the biosensor module” having “an outer surface with *a convex contour shape*.” EX-1002, 1479, 1489 (citing Yuen, FIG. 5).

On this record, Petitioner has failed to demonstrate, much less suggest, how any of the identified features were absent from the art of record, including in various Applicant-cited references as well as Examiner-identified references that were expressly addressed during prosecution of the '783 Patent. Thus, Petitioner has failed to meet its burden of showing any material error during prosecution of the '783 Patent.

2. *The Totality of the Record Does Not Support a Finding of Material Error During Prosecution*

Not only has Petitioner failed to carry its burden to demonstrate material error during prosecution, a thorough evaluation of the prosecution record of the '783 Patent—which Petitioner does not even grapple with in its 325(d) analysis (*see* Petition, 109-110)—supports the inference that there was in fact no material error during prosecution of the application for the '783 Patent.

As a starting point, the deficiency of the prior art considered by the Examiner during prosecution is not the failure of the prior art to disclose “wireless charging, a ceramic cover, convex shapes, and other features,” as asserted by Petitioner. *See* Petition, 109. Rather, and as explained below, the Examiner found

the prior art lacking in describing or suggesting the particular structural arrangement of a cover/opening configured to allow transmission of **both** biosensor signals and wireless charging signals. *See* Ex. 1002, 1269, 387. And, as also explained below, the petition's identified references for the independent claims are similarly deficient, i.e., none of the references for the independent claims disclose, suggest, or render obvious the features that actually led to the allowance of the claims, namely, a cover/opening configured to allow transmission of **both** biosensor signals and wireless charging signals.

In more detail, during prosecution, the Applicant interviewed the Examiner and in a subsequently-entered interview summary, the Examiner noted that a "cover configured to allow transmission of biosensor signals and wireless charging signals" would "overcome the prior art of record." Ex. 1002, 1269. Indeed, the response submitted by Applicant after the interview included claims that expressly recited these features, and this amendment in turn immediately led to an allowance in the next Action. Ex. 1002, 1273-1281 (response to office action), 883-887 (notice of allowance). The examiner's reasons for allowance expressly noted that the "prior art fails to ***teach the specific arrangement and configuration of the claimed cover, opening in the housing, and wireless charging coil.***" Ex. 1002, 387. The allowed claims are the same as the ones now at issue in the Petition.

Despite acknowledging the events that actually led to allowance of the application for the '783 patent (*see* Petition, 11-12), Petitioner made no showing in its §325(d) analysis to address or even refute any error in the Examiner's assessment or rationale for allowability. *See* Petition, 109-110. In other words, Petitioner simply did not grapple with the foreseeable issue of what led to allowance nor did Petitioner articulate any rationale or identify any evidence suggesting that the examiner erred in reaching this conclusion in view of the art of record.

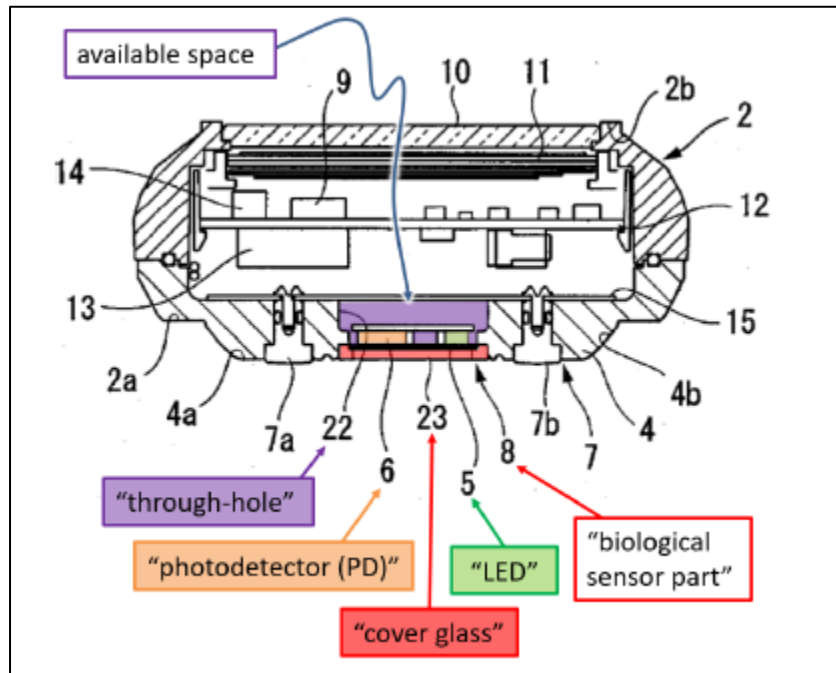
Indeed, as described above, the references cited in the Petition provide nothing new relative to the prior art already considered by the examiner. That is, they are cumulative of the already-considered prior art, having the same deficiency that the Examiner was focused on in allowing the claims of the '783 patent. Specifically, like the already-considered prior art during prosecution, neither Kotanagi nor Honda (or any other reference identified in the Petition) disclose or suggest a wrist-mounted device with a rear cover/opening that enables ***both*** wireless charging and biometric sensing. At best, each of these references teaches ***either*** wireless charging ***or*** biometric sensing via the rear cover/opening of the corresponding wrist-mounted device—much like the above-described references (*see* §VII.A *supra*) that were cited and considered during prosecution.

Along these lines, even if the ongoing prosecution in each of the pending applications related to the '783 Patent are considered for purposes of §325(d)—despite each such proceeding/matter involving a different application and not constituting “another proceeding or matter involving *the patent*”—the Examiner’s reliance on Honda and/or Kotanagi in forming the pending rejections in these applications is not persuasive or germane to the question of material error in the patentability of the '783 Patent. *See* §III.B *supra*. This is especially the case when considering that the prosecution of these applications is ongoing, no final determinations or evaluations of the art as they relate to “patentability” have been reached, and Applicant intends to present responses to the pending office actions to highlight the same deficiencies in Honda and Kotanagi (as well as the other cited references) as was present in the art at issue during the prosecution of the application for the '783 Patent (as explained above). *See* §III.B *supra*. And, again, Petitioner bears the burden of demonstrating material error during prosecution, which Petitioner has failed to do here for reasons explained above. *See* §VII.B.1 *supra*.

Further still, despite the deficiencies in Kotanagi and Honda mirroring those of the art of record, Petitioner nevertheless purports that a POSITA would have been motivated to combine the teachings of Kotanagi and Honda to render obvious a wrist worn device with a cover/opening that allows transmission of both

biosensor signals and wireless charging signals. Petition, 31-32. In support of this assertion, Petitioner presents the following factors as allegedly supporting a motivation to combine Kotanagi and Honda:

- **Factor (1)** - “Kotanagi teaches a pulse rate biosensor watch that may be charged in a ‘contactless state,’ motivating a POSITA to look to Honda. EX1005 ¶(0053). Honda teaches wireless watch charging, but also refers to watch sensors for pulse/heart rate or heart rate of the body, motivating a POSITA to look to Kotanagi.” Petition, 31, 25.
- **Factor (2)** - “[Kotanagi and Honda] are assigned to subsidiaries of the same Seiko parent company.” Petition, 31, 25.
- **Factor (3)** - “Given Honda’s teaching of a wireless receive coil near a rear opening similar to that taught in Kotanagi (where both Honda’s and Kotanagi’s openings have a cover glass), a POSITA would have noticed the available space near Kotanagi’s opening and been motivated to use that space for such a coil, with a reasonable expectation of success.” Petition, 30-32 (reproducing below the annotated figure provided by Petitioner in the petition).



- **Factor (4)** - “Honda’s Figure 15 and related text teach metal covers are inferior for power transmission due to, e.g., eddy currents. EX1006 at 14; *id.* at 2:48–50. A POSITA would thus have aligned Honda’s coil with Kotanagi’s opening such that power could pass through the cover.” Petition, 32 (some internal citations and quotations omitted).

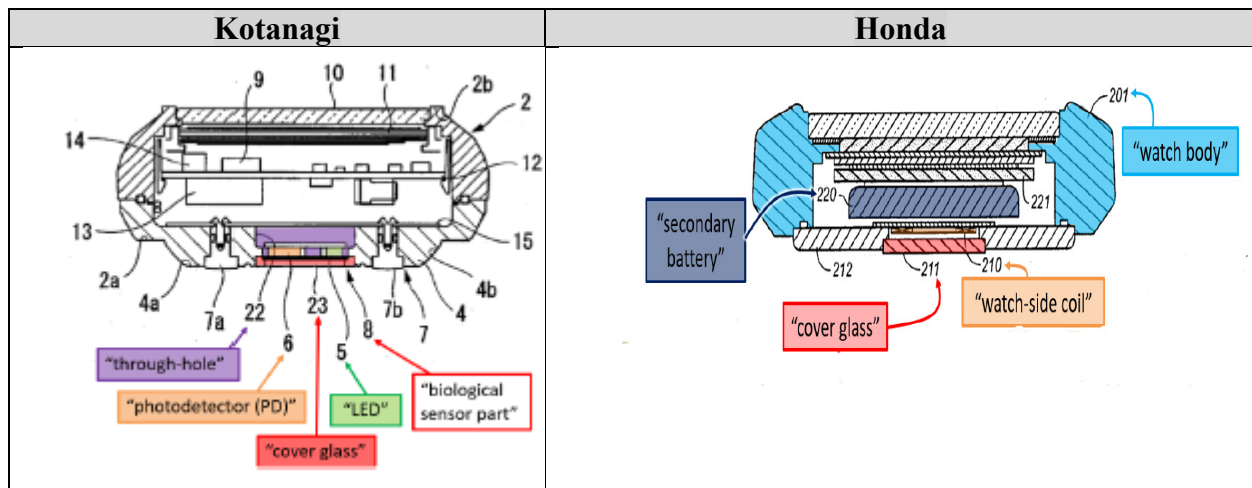
However, as explained below, each of Petitioner’s alleged motivating factors is refuted by the express teachings of the references, and without any rational underpinning, Petitioner’s arguments amount to nothing more than an exercise in impermissible hindsight reconstruction to meet the claim language.

Regarding the alleged first motivating factor, while Petitioner argues that each of Kotanagi and Honda contemplates its respective device’s additional

capability to either wirelessly charge or perform biometric sensing (*see* Petition, 31), those teachings do not disclose or suggest such additional capability being facilitated by the respective wrist-worn device's rear cover/opening. At best, those cursory disclosures contemplate wrist-worn devices with both wireless charging and biometric sensing capabilities—which again was well encapsulated by the prior art of record that the examiner expressly considered (as described above; *see* §VII.A *supra*). In other words, neither Kotanagi nor Honda discloses a rear cover that enables transmission of ***both*** wireless charging signals and biometric signals. Nor is there any disclosure or allegation in the Petition's analysis of the independent claims suggesting that each device's cover could or would additionally facilitate transmission of these two very different types of signals.

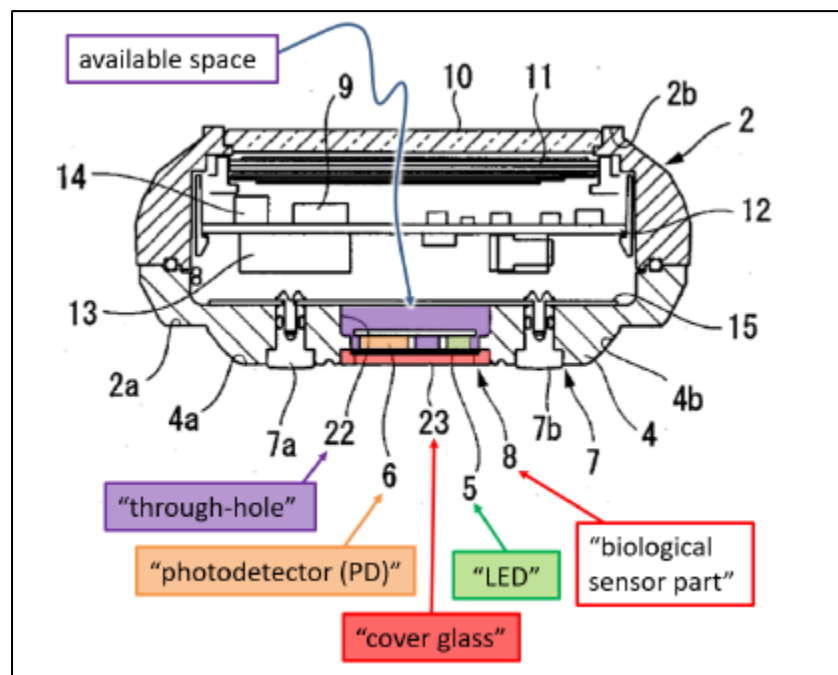
Regarding the alleged second motivating factor, simply because two references are owned by entities in the same corporate family does not constitute a motivation to combine the references. Petitioner cites no authority suggesting otherwise. Moreover, what Petitioner omits is that Honda pre-dated Kotanagi by over six years and despite the alleged motivation due to ownership by entities in the same corporate family, the later-filed Kotanagi reference only contemplated charging via the side surface (instead of the bottom/rear) of the device housing. *See* Ex. 1005, ¶53.

Regarding the alleged third motivating factor, Petitioner argues that Honda contemplates positioning the charging coil behind the rear cover and this would have motivated putting the charge coil in the rear portion of Kotanagi's device. *See* Petition, 31-32. Simply because Honda puts its charging receive coil in the rear portion of the device does not constitute a reasonable motivation to combine, particularly when considering the structural differences between Honda's and Kotanagi's devices. Specifically, as illustrated below (in figures from Kotanagi and Honda, as annotated by Petitioner), the rear portions of Honda's and Kotanagi's devices are structurally different in that Kotanagi's device includes numerous elements, such as an optical LED, a photodetector, and flexible board in a space provided in the rear of the device, whereas Honda's device only includes a charging coil positioned immediately adjacent to the rear cover.



In other words, Honda's device does not have to contend with or account for the presence of any of the additional components (optical sensors, flexible circuit boards) that are provided in Kotanagi.

Despite the structural differences in how the components are arranged in the rear portion of Kotanagi's device (relative to Honda's device), Petitioner identifies some available space in Kotanagi's device (as shown below) that is behind the optical elements, and contends that this location is where a wireless charge receiving coil could be positioned. See Petition, 31-32 (below figure, including annotations therein, reproduced from the Petition).



As a threshold matter, Petitioner's proposed assembly in its manufactured combination hypothesizes about what *could* be done—as opposed to what *would*

have been done when a POSITA would have been confronted with the teachings of Honda and Kotanagi. Indeed, Kotanagi's device includes numerous other "available spaces" where the charging coil *could* be positioned, and under Petitioner's logic, a POSITA could have readily positioned the coil in any of those locations. And yet, Petitioner only hones in on the rear portion of Kotanagi's device to serve its hindsight-driven motivation to present a combination that could read on the claims.

Petitioner, however, has failed to demonstrate that a POSITA would have been motivated to position the charge receiving coil behind Kotanagi's optical elements—particularly when doing so would be counter to the teachings of the references and would impair the charging capabilities of the proposed combination. For example, Honda's teaching of positioning the wireless charging receive coils behind the rear cover does not contemplate or suggest placing the charging receive coil in a location that is separated by Kotanagi's optical elements. Indeed, this would be counter to Honda's stated goal of improving charging efficiency by reducing the space between the charging receive coil and the transmitting coil. *See* Ex. 1006, 2:38-43, 2:55-60 (explaining that, as gap between coils is increased, "the degree of magnetic coupling weakens, substantially reducing the charging current to the secondary battery"). Indeed, in Honda's device, charging efficiency is maintained by positioning the charge receiving coil directly adjacent to the cover

glass. *See* Ex. 1006, Fig. 2 (reproduced above). Thus, adding space and optical elements between the charging coil and the cover glass (as would result in Petitioner's contemplated placement of Honda's charging coil in the identified space of Kotanagi) would be detrimental to wireless charging efficiency and counter to Honda's stated goals that are geared toward increasing/improving charging efficiency. *See* Ex. 1006, 2:38-43, 2:55-60.

Similarly, positioning Honda's wireless charging receive coil behind Kotanagi's optical elements and the board to which they are connected would also be counter to Honda's teachings. Specifically, some of these components (optical elements, such as photodetectors and LEDs, and the flexible board) are typically made of metal-based materials. *See* Ex. 2008, Abstract, ¶¶11, 23-25, 29 (corroborating that light emitting diode (LED) is made from metal-based materials, including among other components, "a metal substrate," "a metal layer," "a mirror layer," and "electrode[s]"); Ex. 2009, ¶¶24, 25, 27, 29 (describing use of metal in LEDs, where the LED includes semiconductor layers, electrodes, metal-based carriers, and a reflective layer made of metal); Ex. 2015, ¶¶14-15, 29-30 (describing a photodetector that, includes among other components, "a metal layer," a photodiode having a semiconductor region, and an electrode); Ex. 2016, ¶¶1-2, 21-22, 79, 82, 84 (describing a photodetector for portable communication tools as including semiconductor elements and electrodes made of, at least in part,

metal); Ex. 2017, 3:37-42, 4:6-17, 4:28-32 (describing components of the LED, including electrodes made at least in part of metal, and a metal-based reflector). Indeed, even Petitioner expressly acknowledges Honda's teaching of metal being "inferior for power transmission due to, e.g., eddy currents." Petition, 32 (citing Ex. 1006 (Honda), 14, 2:48-50). Thus, disposing elements made of such materials between the transmit and receive-side coils, as Petitioner's proposed combination suggests, would reduce charging efficiency and be counter to Honda's teachings of achieving improved wireless charging efficiency. *See* Ex. 1006, 2:38-43, 2:55-60.

For these reasons, Petitioner's third alleged motivating factor is simply a product of impermissible hindsight for at least two reasons: (1) it neglects the substantial structural differences between Kotanagi's and Honda's devices by, for example, focusing only on the particular "space" in Kotanagi's device that allegedly satisfies the claimed features to the exclusion of other "available spaces" in which a charging coil also *could* be placed using Petitioner's same logic; and (2) when accounting for those structural differences, the proposed positioning is counter to Honda's teachings related to improvement of wireless charging efficiency. Such a showing, therefore, cannot support *prima facie* obviousness.

Regarding the alleged fourth motivating factor, Petitioner suggests that metal impairs wireless power signal transmission, which (according to Petitioner) would have motivated positioning of the charging receiving coil behind Kotanagi's

cover glass in the rear portion of the device. *See* Petition, 32. This argument presupposes that Kotanagi’s device housing has to be made of metal, which is not the case. Kotanagi expressly discloses that the device’s housing “is made of a *plastic or a metal* material.” Ex. 1005, ¶48. Thus, to the extent there were any concerns about wireless signal transmission efficiency in view of a metal housing, Kotanagi’s own teachings would have motivated use of a material other than metal—such as an insulating material like plastic—which would not encounter any of the alleged signal transmission inefficiencies stemming from transmission via a metal material. *See* Ex. 1006, 13:45-48 (describing use of an “insulating material for external housing” to achieve increased “transmission efficiency”). Moreover, in view of Kotanagi’s express disclosure of use of plastic in the housing, and considering the issues with charging efficiency by the positioning of charging receive coils behind the optical elements, there would be no reason to position the charging receiving coil in the rear portion of Kotanagi’s device.

Further still, and notably, Kotanagi contemplates wired charging via the side surface (instead of the rear) of its wrist-worn device. Ex. 1005, ¶53 (stating “an external connection terminal (recharging means) 21 for recharging the rechargeable battery 13 by supplying power from an external device such as a recharger is provided on the side surface of the housing 2”), Fig. 5 (showing connection terminal 21 on side surface of device). And, to the extent Kotanagi

further contemplates wireless charging, there would be no reason or benefit to relocate the wireless charging functionality away from the side surface of the device. This is especially the case where, as here, Petitioner has failed to advance any reasonable motivation or benefit for doing so, and when considering the detrimental impact on wireless charging efficiency arising from positioning the charging coil in the rear portion of the device (as described above). Petitioner has therefore failed to meet its burden to demonstrate any reasoned motivation to relocate Kotanagi's charging functionality—even if changed from wired charging to wireless charging—from the side surface of the device to the rear/bottom of the device.

For at least the above reasons, Petitioner has failed to show any error, much less an error that is material to the patentability of the independent claims of the '783 Patent. On the contrary, the totality of the prosecution record demonstrates that the Examiner was in possession of references that contemplated substantially the same functionality as that presented in the Petition, and yet correctly concluded that the claims were allowable because the references of record during prosecution of the '783 Patent—much like the ground references identified with respect to the independent claims in the Petition—did not disclose or suggest a rear cover/opening via which **both** wireless and optical signals could or would be transmitted.

VIII. CONCLUSION

For the foregoing reasons, Petitioner respectfully requests that the Board exercise its discretion to deny the Petition under § 325(d).

Respectfully submitted,

Date: June 28, 2023

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CERTIFICATION UNDER 37 CFR § 42.24(d)

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Patent Owner's Preliminary Response totals 10,226, which is less than the 14,000 allowed under 37 CFR § 42.24(b)(1).

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e)(4), the undersigned certifies that on June 28, 2023, a complete and entire copy of this Patent Owner's Preliminary Response and its supporting exhibits were provided via email, to the Petitioner by serving the email correspondence addresses of record as follows:

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