

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MASIMO CORPORATION,

Petitioner,

v.

APPLE INC.,

Patent Owner

Case IPR2023-00734

U.S. Patent No. 10,942,491

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	RESERVED
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. (“Mensingher”)
Ex. 2007	U.S. Patent No. 7,682,070 to Burton (“Burton”)
Ex. 2008	RESERVED
Ex. 2009	RESERVED
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	RESERVED
Ex. 2016	RESERVED
Ex. 2017	RESERVED

Ex. 2018	RESERVED
Ex. 2019	Prosecution History of US Patent No. 10,627,783
Ex. 2020	U.S. Patent Pub. No. 2014/0275852 to Hong et al. (“Hong”)
Ex. 2021	U.S. Patent No. 4,448,199 to Schmid (“Schmid”)

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. 10,942,491 (the “’491 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. And, given the similarity of and common deficiencies in the petition’s references and the art of record, Petitioner had the burden to demonstrate why the Examiner nevertheless erred in a manner material to patentability. In that regard, the Petition does not grapple with the prosecution record or the reasons presented therein that led to allowance of the claims, nor does the Petition state any rationale or explanation articulating any erroneous determination or finding that

¹ Although the Petition implicates additional claims beyond the independent claims of the ’491 Patent, Petitioner confined its argument under § 325(d) exclusively to the independent claims. *See* Petition, 94 (contending that “references relied on” in the Petition “are materially better than the references considered during examination” because “they disclose every limitation of the *independent claims*”) (emphasis added).

led to allowance. Petitioner has thus failed to carry its burden in demonstrating material error despite the cumulativeness of the Petition's references to the art of record. For these reasons, and as further explained below, the Petition should be denied under § 325(d).

In more detail, the '491 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, 1:35-39. To that end, the '491 Patent provides a wearable electronic device with an enhanced feature set—including, among other features, “touch input, force input, an interchangeable attachment system, health monitoring functionality, wireless power charging.” *Id.*, 1:22-28, 1:42-45. To facilitate this “wide range of functionality,” the '491 Patent contemplates a specific assembly and configuration of components integrated into the “relatively compact space of” its wrist-worn device. *Id.*, 1:42-45, 1:53-59. 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 being configured to facilitate transmission of optical signals to/from the biosensor module and wireless power signals to the wireless charging receive coil. *Id.*, 2:47-64, 5:29-44, 44:31-45:25.

Indeed, during prosecution, this specific arrangement and configuration of the claimed cover, which facilitates transmission of both optical and wireless power signals, was the reason why the claims were allowable over the art of record. *See* Ex. 1002, 595-600, 607-609, 468-473, 10-12; *see also* Ex. 1001, 1:22-28, 2:47-58, 39:40-46, 40:42-57, 44:31-51, 45:15-25.

Much like the art of record, the references relied upon in the Petition, including Kotanagi, Honda, and Choi, generally describe (1) devices with the capability to measure heart rate and electrical signals, and to perform wireless charging, and (2) 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 a cover that facilitates *both* optical and wireless power signal transmission. *See* Ex. 1002, 595-600, 607-609, 468-473, 10-12.

The Petition's references are thus cumulative of the art of record at least because they suffer from the same deficiencies and fail to disclose or suggest the features that ultimately led to allowance. Against this backdrop, Petitioner bears the burden to demonstrate why, given this similarity between the Petition's references and the art of record, the Examiner nevertheless erred in allowing the claims. The Petition, however, provides only a one-paragraph long assessment of

325(d) (Petition, 94), which fails to grapple with the prosecution record and fails to articulate any material error in the Examiner's rationale for allowance.

Moreover, the Petition's one-paragraph long 325(d) analysis only asserts that the references presented in the Petition are "materially better than the references considered during examination." Petition, 94. In support of this assertion, the Petition states that the references in the Petition disclose features of the independent claims, such as "wireless charging, a transparent or dielectric or non-conductive cover, [and] electrodes," which were allegedly not disclosed in the references of record. Petition, 94². This analysis, however, is deficient because it does not acknowledge the cumulative nature of the Petition's prior art relative to the features found to be allowable over the art of record. Nor does this analysis explain why, given the similarity between the Petition's ground references and the prior art before the examiner, the examiner would have reconsidered and rejected

² Although the Petition states that "the references relied on herein ... disclose every limitation of the independent claims, including wireless charging, a transparent or dielectric or non-conductive cover, electrodes, *and other features*" (Petition, 94), the Petition does not specify or discuss the "other features" that are alleged to be disclosed by the Petition's references and not the art of record.

the claims in view of the petition's cumulative prior art while not doing so in view of the cited prior art of record.

Further still, and contrary to Petitioner's above-noted assertion, the Petition's identified features that are allegedly absent from the prosecution record were in fact clearly disclosed in numerous references cited during prosecution. *See* §VII *infra*. Notably, many of these references—including Hong (wireless charging, dielectric/transparent/non-conductive cover), Schmid (electrodes), and Mistry (wireless charging)—were identified by the Examiner and applied in claim rejections during prosecution. 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 '491 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 the feature that led to allowance, namely a rear cover via which ***both*** wireless and optical signals would be transmitted. Petitioner has also failed to meet its burden to demonstrate any material error during prosecution despite presenting references in its Petition that are cumulative of references considered during prosecution (and in that regard, presenting ground references that suffer

from the same deficiencies as present in the art of record). For these reasons and as further explained below, the Petition respectfully requests denial of the Petition under § 325(d).

II. THE INVENTION OF THE '491 PATENT

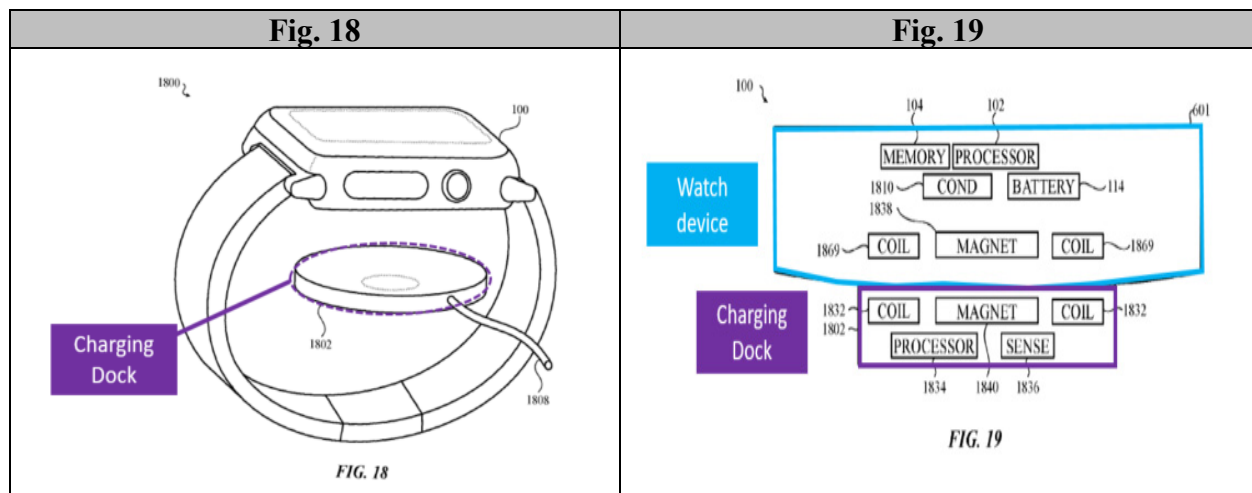
The '491 Patent relates to “a wearable electronic device” that provides a “wide range” of features, including among others, “wireless power charging” and “health monitoring functionality.” Ex. 1001, 1:22-28, 1:42-45.

The '491 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, 1:35-39. “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.*, 1:39-42.

In contrast, and “compared to some traditional wearable electronic devices,” the '491 patent provides “an expansive feature set” that is “integrated into” the “relatively compact space of a wrist-worn device.” *Id.*, 1:42-45, 1:53-59. In some embodiments, the '491 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.*, 1:22-28, 1:49-59, 7:13-28, 5:32-44, 4:27-52.

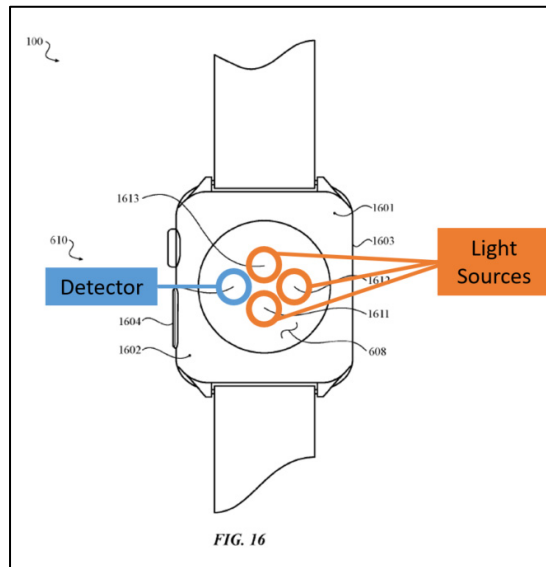
The '491 Patent discloses a device 100 that can facilitate wireless recharging of its rechargeable battery via a charging dock. *Id.*, 1:22-28, 8:55-67. A perspective view of the device 100 and the charging dock 1802 is shown in Fig. 18 (below left; annotated), with a simplified block diagram of the device and charging dock being shown in FIG. 19 (below right; annotated). *See id.*, 6:32-35.



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.*, 43:6-9. 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.*, 45:15-25. 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.*, 44:31-51. 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.*, 44:31-51, 45:15-25.

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.*, 37:49-58; 8:31-41, 13:27-45. 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, 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.*, Fig. 16 (reproduced and annotated below; 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.*, 13:37-42, 39:40-46.

In some embodiments, the biosensor module (which integrates some or all 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 '491 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 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.*, 1:22-28, 2:47-58, 39:40-46, 40:42-57, 44:31-51, 45:15-25.

III. PROSECUTION HISTORY SUMMARY

A. Prosecution History of the '491 Patent

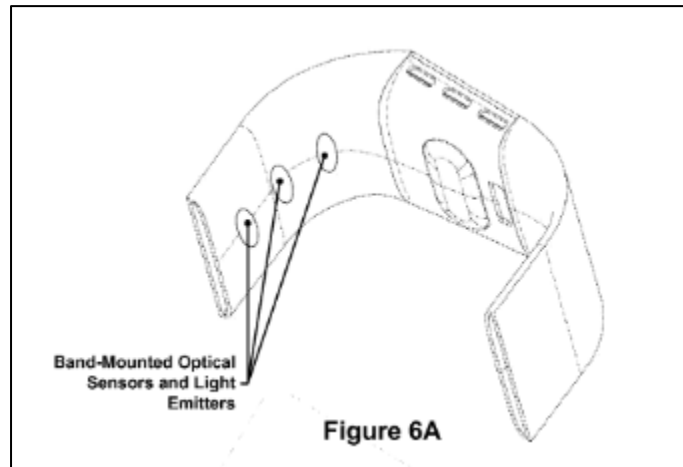
The application for the '491 Patent (App. No. 16/826,130) was filed on March 20, 2020. Ex. 1002, 1476-1480. This application is a continuation of US Application Nos. 15/261,912 (now US Patent No. 10,620,591); 15/261,914 (now US Patent No. 10,613,485), and 15/261,917 (now US Patent No. 10,627,783), which are continuations of U.S. Patent App. No. 14/842,617 (now US Patent No. 10,599,101), filed 1 September 2015. *See id.* The application for the '491 Patent further claims priority to a provisional application (App. No. 62/044,974) filed on September 2, 2014. *See id.*; Ex. 1001, pp. 1-2.

During prosecution, the Examiner issued an office action, rejecting the then-pending claims (pending claims 21-40) on multiple prior art-based grounds. Ex. 1002, 1119-1131. Specifically, the Examiner rejected the pending claims in view of multiple references, including Hong (U.S. Patent Pub. No. 2014/0275852; Ex.

2020), Schmid (U.S. Patent No. 4,448,199; Ex. 2021), and Mistry (US Publication No. 2014/0139486; Ex. 2005). *See id.* In support of these rejections, the Examiner provided the following pertinent findings and rationale:

1. “*Hong et al. describe a wearable heart rate monitor in the form of an electronic wristwatch* (figure 2a). Figure 2C shows that the watch is comprised of *a housing formed from metal* (para 164, some or all of the interior or skinside housing consists of a metal material such as nickel-free stainless steel) wherein *the housing has a rear opening* (i.e., section of the *housing bearing sensor protrusion in figure 2c*), a *touch sensitive display* positioned partially within the housing (para 272, *the display screen uses capacitive touch detection*); an attachment band coupled to the housing and configured to couple the electronic watch to a user (para 108); *a cover (i.e., protective transparent layer shown in figure 3A)* covering an optical sensor and creating a seal along the rear opening of the housing (para 148, 155, 165), *the protective transparent layer may be formed from a dielectric material (e.g., plastic or glass)* (para 144); and *an optical biosensor positioned within the rear opening of the housing and configured to transmit an optical signal through the transparent cover via LED sources and receive reflected light via photodetector in order to measure a heart rate of a user* (figures 2C and 3A-3C, para

136-147, 159).” Ex. 1002, 1123³. The following image reproduces FIG. 6A of Hong, showing the rear portion of Hong’s portable monitoring device along with its band, optical sensors, and light emitters. *See* Ex. 2020, FIG. 6A.



2. “Schmid describes a wrist worn device similar to a wrist watch that includes a first electrode and second electrode (electrodes 21) located on the rear side of housing 2 configured to contact a user's skin when worn on the wrist provide a measure of the user's electrocardiogram (col 5 lines 24-37). Thus, Schmid demonstrates that wrist worn electrocardiogram measurement devices were known in the art. As electrocardiograms are known biometric signals for accessing a patient's health, modification of the health monitor of Hong et al. to include electrodes for measuring an

³ Emphasis added throughout unless otherwise noted.

- electrocardiogram is considered to have been obvious to one of ordinary skill in the art at the time of the invention since the modification is considered to comprise combining prior art elements according to known methods to yield predictable results....” Ex. 1002, 1124.
3. “[T]he cover ... in Hong ... covers the optical sensor and creates a seal along the rear opening of the housing” and “*the protective transparent layer may formed from a dielectric material (e.g., plastic or glass)*” Ex. 1002, 1124.
4. “*Hong et al. also teaches* that the wearable electronic device includes an *internal rechargeable battery wherein the device may engage a charger such as a docking station* using magnetic properties between magnets located in the charger and wearable device to facilitate battery recharge (para 305 and 306). *The transmission of recharge energy from the charger may be wireless (para 306).* However, Hong et al. is not clear if there is a recharging receive coil located within the device to receive charging energy. *Mistry et al., similar to Hong et al., describes a wearable sensing device with similar charging features (para 125-129). To facilitate charging of the device, the wearable device or band may include an antenna or coil located therein to receive recharging energy from the charger and is positioned to properly align with the charger*

coil to optimize power transfer (para 128). The antenna of Mistry et al. is considered similar to the coil as claimed. Both Hong et al. and Mistry et al. are considered to teach the necessary elements, or suitable equivalents, for functionally providing wireless energy transfer for recharging the battery.” Ex. 1002, 1125-1127.

Applicant subsequently interviewed the Examiner, with the substance of the interview including a discussion of the cited prior art and Applicant’s proposal to “define the dielectric cover serving as the point for wireless transfer of energy to recharge the electronic watch” in addition to the claim’s existing feature regarding the cover also facilitating optical signal transmission. *See* Ex. 1002, 607-609, 1215-1219 (including language of amended independent claims, with amendments aligned with those discussed during the interview). According to the Examiner, while “further search and consideration would be required,” “[s]uch amendment would overcome the prior art of record.” *Id.*, 607.

Consistent with the discussion during the interview, Applicant filed a response that included claim amendments reciting that the rear cover—which can be optically transparent or formed of a dielectric or non-conductive material—is configured to transmit/receive both optical signals and wireless power signals. *See* Ex. 1002, 595-599 (see amended claims 21, 28, and 35 that recite these features), 600 (memorializing interview discussion where the examiner “indicated that

amendments similar to those presented herein would likely overcome the pending rejections”). This response and the claim amendments included therein resulted in allowance of the claims in the very next action. *See* Ex. 1002, 468-473, 10-12. The application subsequently issued as the ’491 Patent on March 9, 2021. Ex. 1001, p. 1; Ex. 1002, 3.

B. Prosecution History of the ’783 Patent

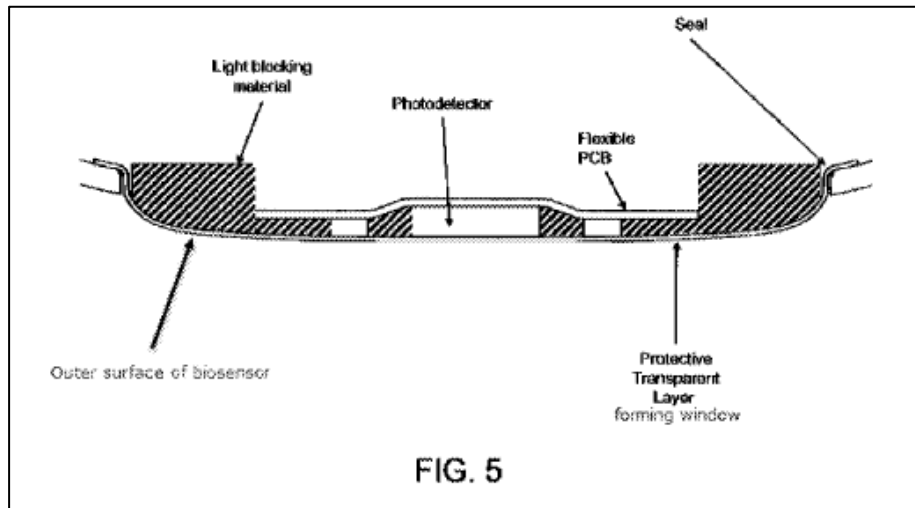
The application for the ’491 Patent is a continuation of an earlier patent application that matured into the ’783 Patent. Ex. 1001, p. 1. A brief overview of the ’783 Patent’s prosecution is provided below.

During prosecution of the application for the ’783 Patent, the Examiner (the same Examiner who examined the application for the ’491 Patent) issued an office action, rejecting the then-pending claims on multiple prior art-based grounds. Ex. 2019, 1475-1504. Specifically, the Examiner rejected the pending claims of this application 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. 2019, 1478, 1487-1493. Notably, the Yuen reference cited during prosecution of the ’783 Patent shares a common inventor (inventor Yuen) with the Hong reference relied upon during prosecution of the ’491 Patent, with both the Hong and Yuen references being

commonly assigned to Fitbit LLC. *See* Exs. 2001, 2020. Indeed, both Hong and Yuen share many similar figures and descriptions. *Compare* Ex. 2001, *with* Ex. 2020.

In applying Yuen and the other references to form the rejections of the then-pending claims, 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).”



- Ex. 2019, 1478-1480 (citing Ex. 2001, FIGS. 3-5, ¶¶45-48); *see also id.*, 1488-1489. Notably, similar disclosures are present in the Hong reference discussed above in the context of the '491 Patent's prosecution.
2. "Mistry et al. describes a *wearable wristwatch sensor* comprising a touch sensitive display and *an optical sensor*." Ex. 1002, 1490-1491. Notably, and as explained in §III.A *supra*, Mistry was cited and relied upon during the '491 Patent's prosecution as well.
 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. 2019, 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. 2019, 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. 2019, 1273-1278 (see pending claims 35, 43, and 49, reciting these features); 1279. This response resulted in allowance of the claims (*see* Ex. 2019, 887, 707-708, 382-386, 200-201, 14-15).

Much like during the '491 Patent's prosecution, the application for the '783 patent was deemed to be allowed because the art of record "fail[ed] to teach or suggest the *specific arrangement and configuration of the claimed cover, opening in the housing*, and wireless charging coil" that facilitate passing of both optical signals and wireless power signals through the rear cover of the device. Ex. 2019, 387.

C. Prosecution History of Pending Applications Related to the '491 Patent

Prosecution is ongoing in four patent applications that are continuations of the '491 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 applications for the '491 and '783 Patents. In each of these applications, Applicant submitted the IPR Petition for at least the '783 Patent along with the art cited therein (which overlaps at least in part with the references relied upon in the IPR petition relating to the '491 Patent. *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 '491 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 ’491 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 device⁴, as recited in independent claims of the ’491 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

⁴ 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.

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 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 antenna⁵, a cover, a biosensor module,

⁵ The antenna limitation is not included in the ’491 Patent’s independent claims and specifically recites “an antenna configured to facilitate wireless

and a wireless charge receiving coil. *Id.*, 152. Like the '491 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 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 includ[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.

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.

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 '491 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 '491 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 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 '491 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 '491 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

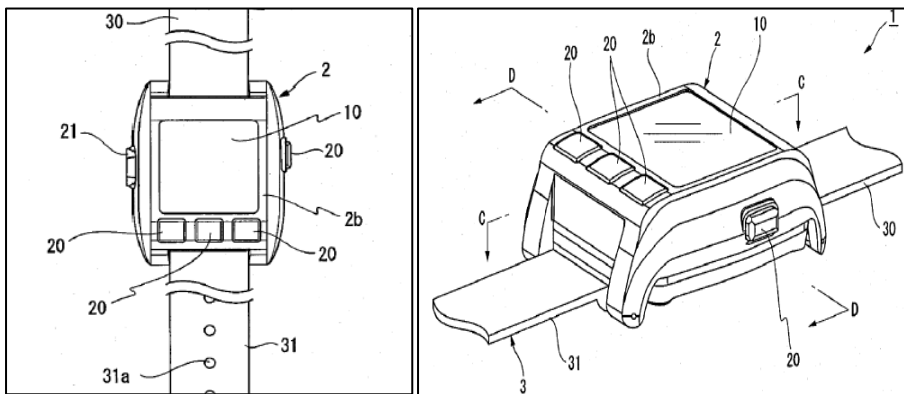
While not agreeing with Petitioner's proposed constructions (or lack thereof) for certain claim terms (*see* Petition, 7-10), ***solely*** for purposes of this Preliminary Response, Patent Owner does not object to the constructions proposed by Petitioner at this time. Patent Owner reserves the right to assert alternative

constructions for relevant claim terms in this or another proceeding involving the '491 Patent (or another patent related thereto), where appropriate.

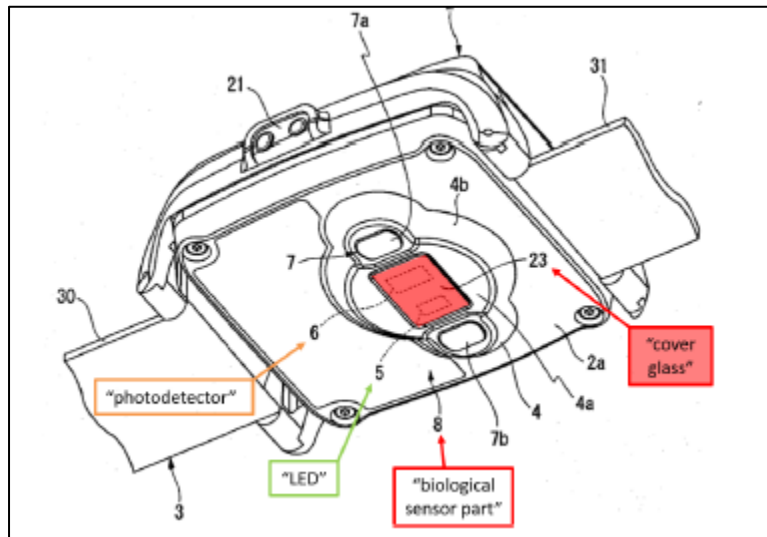
VI. THE ASSERTED PRIOR ART

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.

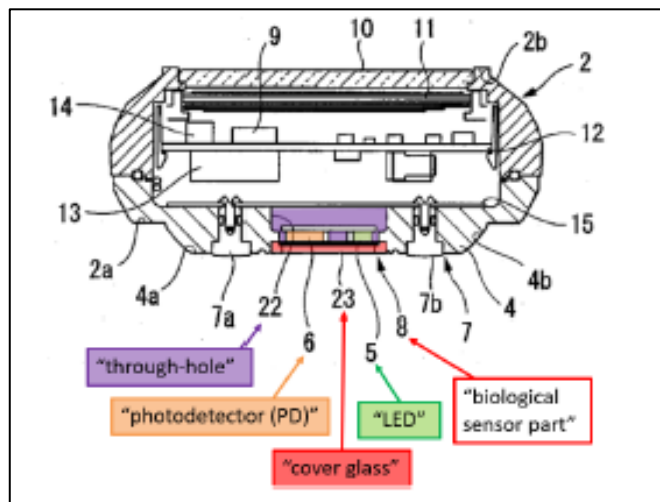


The rear surface of Kotanagi’s wristwatch device, which is reproduced below (in a figure annotated and provided by Petitioner), includes “a protruding part 4 ... [that] is formed on the lower surface 2a of the housing 2.” *Id.*, ¶45.



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, Fig. 7

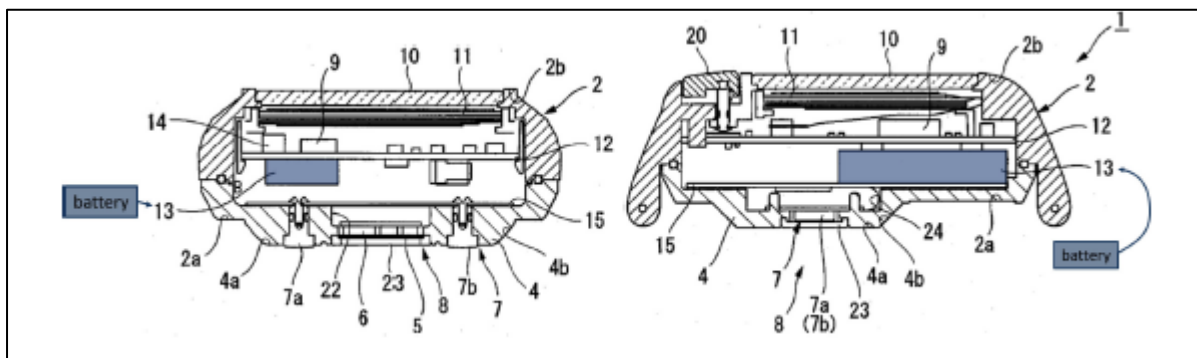
(reproduced on right; annotated by Petitioner). A cover glass 23 covers the through-hole 22 and the biological sensor part 8. Ex. 1005, ¶55, Fig. 7.



When Kotanagi’s 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

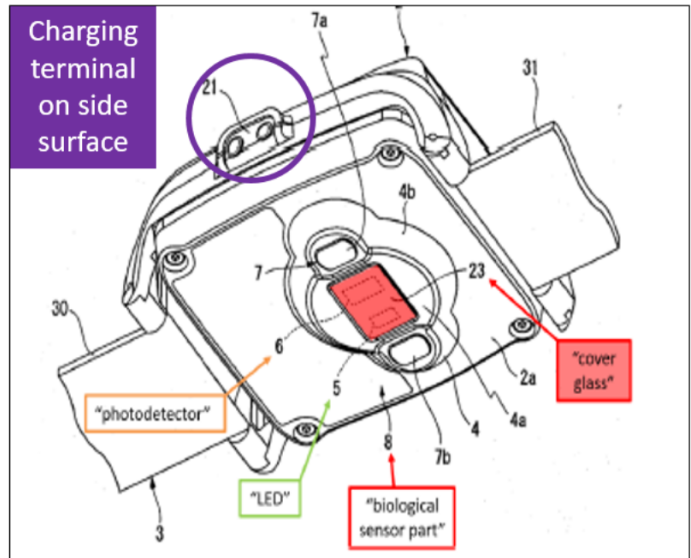
reflected light from the “body out of the light emitted by the LED 5,” and generates “a pulse signal ... corresponding to the amount of received light.” *Id.*, ¶46.

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)

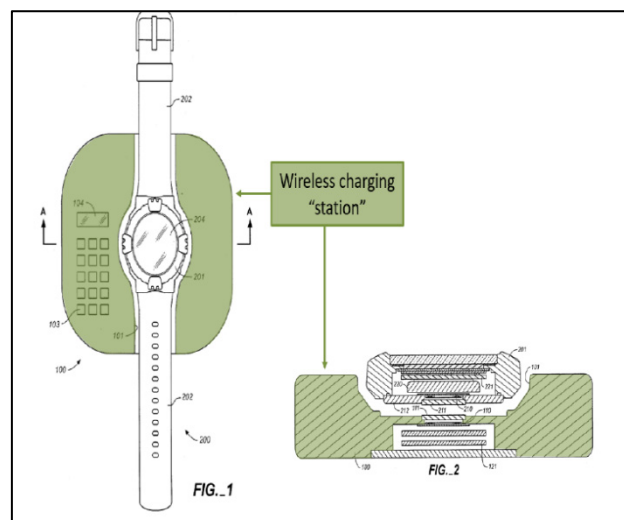
Honda provides an electronic apparatus (e.g., an electronic watch) that enables “efficiency of a power transmission from a charging unit to” the apparatus in a “non-contact” fashion. Ex. 1006, 1:5-16, 2:55-60.

In particular, Honda seeks to overcome deficiencies in prior 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,” “the degree of magnetic

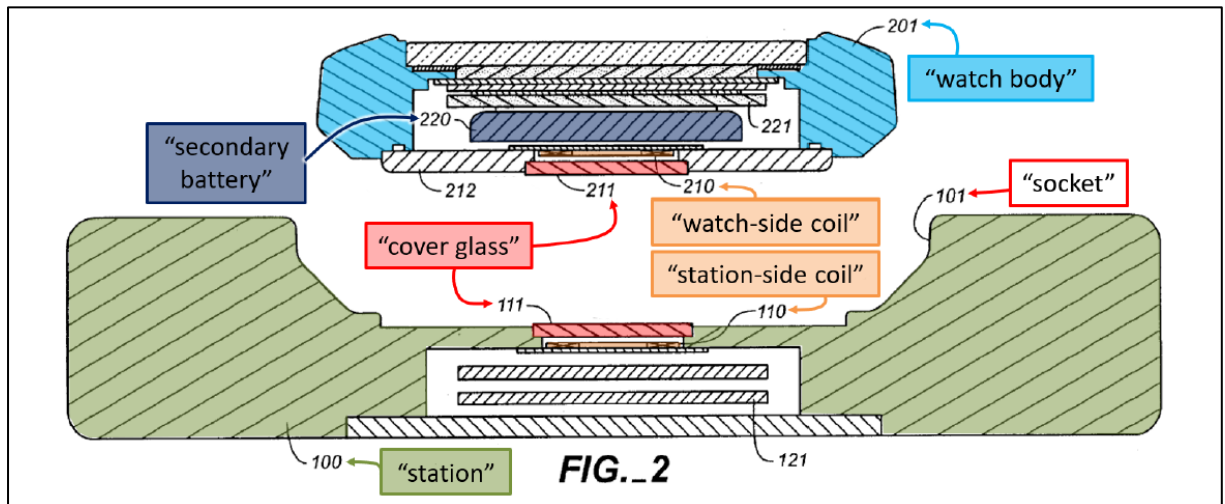
coupling weakens, substantially reducing the charging current to the secondary battery for charging.” *Id.*, 2:39-44. Second, Honda recognizes that metal materials in the housing can create eddy currents, which in turn can “weaken[] the electromagnetic coupling” between the charging coils and limit the 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, Honda 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 '491 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, 94.

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.

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 the Office and in that regard, the Petition’s references suffer from the same deficiencies as the art of record with respect to the claim features that ultimately resulted in allowance.

1. Overview of the Petition’s Relied-Upon Teachings in the Grounds Presented with Respect to Independent Claims 7 and 14

Beginning with independent claims 7 and 14, the Petition advances a combination of Kotanagi (Ex. 1005) and Honda (Ex. 1006). *See* Petition, 15-30, 31-40. As explained below and further with reference to Section VII.A.2 *infra*, Kotanagi and Honda are cumulative of the art of record because, like the art of record, they fail to disclose or suggest the claim features that ultimately led to

allowance—namely that the same cover facilitates transmission/reception of both optical signals and wireless power signals.

Kotanagi allegedly teaches a wrist-mounted device that includes optical elements (e.g., LEDs and photodetector) positioned below a glass cover positioned over an opening in the device housing. *See* Petition, 15-21. 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 (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 disclose or suggest wireless charging using the *same cover* via which optical signals are allegedly transmitted and received by/from the optical elements—which was the basis for allowance over the art of record during prosecution. *See* Ex. 1005, ¶53; *see also, e.g.,* Ex. 1001, claim 7 (“*the cover configured to pass an optical signal through ... the non-conductive material of the cover*” and “*the wireless charging receive coil configured to inductively couple to an external wireless charging device through the non-conductive material of the cover.*”), claim 14 (“*a cover ... disposed over the biosensor module and the wireless charging receive coil*, wherein: the ... device

is configured to *receive wireless power through the ... the cover using the wireless charging receive coil; and* the ... device is configured to *measure a heart rate ... through the ... the cover using the biosensor module.*”). In this regard, Kotanagi is cumulative to the art of record because, like the art of record, Kotanagi also fails to disclose the same claim features that led to allowance.

Petitioner further alleges that Honda teaches a wrist-mounted device that enables wireless charging by positioning a wireless charging coil behind the cover at the bottom of the device. *See* Petition, 22-27. Petitioner also references Honda’s additional disclosure that its “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; *see* Petition, 27-28. However, Honda does not disclose whether the “unshown sensor” is an optical sensor. *See* Ex. 1006, 6:18-20, 8:40-42. Honda also does not disclose any optical signal transmission using such an “unshown sensor.” Nor does Honda disclose or suggest that such optical transmission happens using *the same cover/opening* via which wireless power signals are transmitted—which was found to be the basis for allowance over the art of record during prosecution. *See id.* In this regard, Honda, like Kotanagi, is also cumulative to the art of record because Honda also fails to disclose the same claim features that led to allowance (and were found to be absent from the art of record).

2. Kotanagi and Honda are Substantially the Same as the References Considered During the '491 Patent's Prosecution with Respect to Independent Claims 7 and 14

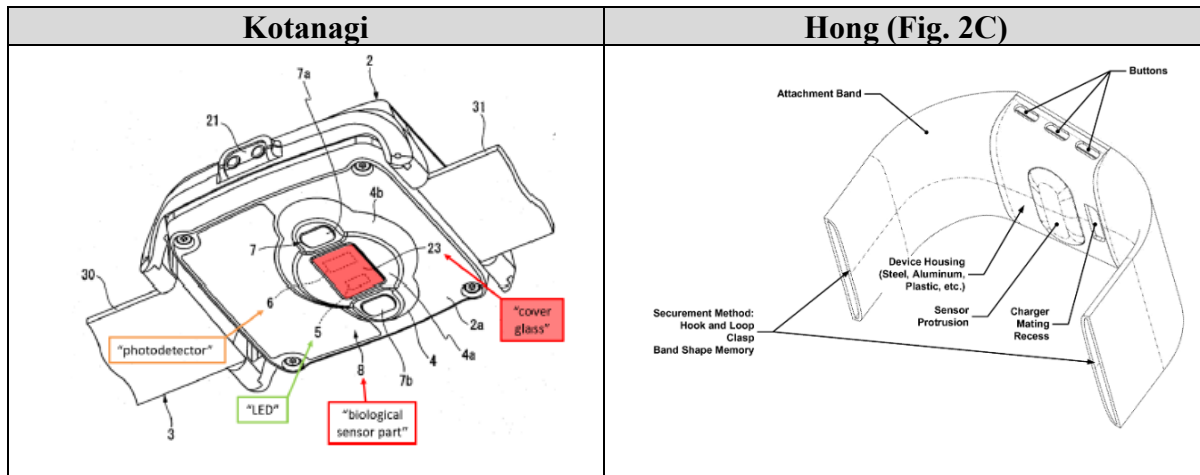
During prosecution of the '491 Patent, the Examiner cited and considered multiple prior art references with teachings that are the same as or substantially the same as the above-described art and arguments presented in the Petition. In more detail, and as explained further below, the ground references relied upon in the Petition are cumulative of the art of record because they fail to disclose or suggest the same features—namely, the rear cover facilitating transmission/receipt of both optical signals and wireless power signals—that were found to be absent from the art of record and that ultimately led to allowance of the claims.

For example, during prosecution, the Examiner cited and applied the Hong reference in an office action. Ex. 1002, 1123 (citing Ex. 2020, Hong). Kotanagi is substantially the same as and cumulative to Hong because both Hong and Kotanagi fail to disclose or suggest the claim features that led to allowance of the claims—i.e., they both allegedly disclose a watch that facilitates transmission of optical signal through a rear cover but **does not** disclose or suggest that the same cover also facilitates transmission of wireless power signals, as required by the independent claims.

Hong's and Kotanagi's wrist-worn devices share multiple additional similarities, further amplifying the cumulativeness of Kotanagi with respect to

Hong. Specifically, like the alleged disclosures in Kotanagi, Hong was determined to disclose that its watch includes optical elements positioned behind a transparent, dielectric/non-conductive cover that is provided at the rear of the watch's housing and further discloses that these optical elements facilitate detection and measurement of pulse rate. *See* Ex. 2020, FIGS. 2C, 3A-3C, ¶¶ 136-148, 155, 159, 164-165, 272; Ex. 1002, 1122-1124 (finding that (1) "Hong's wearable heart rate monitor is in the form of an electronic wristwatch" with a metal housing, a touch sensitive display, an attachment band, and a transparent, dielectric cover covering an optical sensor positioned in a rear opening of the housing, and (2) Hong's "optical biosensor is "configured to transmit an optical signal through the transparent cover via LED sources and receive reflected light via photodetector").⁶ The following table provides a side-by-side comparison of the rear sides of Kotanagi's and Hong's wrist-worn devices, with both providing optical sensors in a protruded portion within the respective device's rear cover. *See id.*

⁶ Additional Applicant-cited and Examiner-considered references similarly disclosed wrist-worn devices with optical sensors in the rear portion of the device that transmit and receive optical signals through a rear cover of the device. *See, e.g.,* Ex. 2003, ¶¶ 285-289, 322, FIG. 7-13; Ex. 2010, 534, 536, 538.



Further still, and similar to Kotanagi's alleged disclosure of wireless charging, the Examiner also found that "Hong et al. also teaches that the wearable electronic device includes an internal rechargeable battery wherein the device may engage a charger such as a docking station using magnetic properties between magnets located in the charger and wearable device to facilitate battery recharge" where the "transmission of recharge energy ... may be wireless." Ex. 1002, 1125-1127.

At bottom, each of Hong and Kotanagi describes a wrist worn device with an optical sensor configured to transmit/receive optical signals via a back cover of a wrist-worn device, and each contemplates wireless charging in addition to the respective device's biosensing capabilities. Yet, both references fail with respect to the claim features that led to allowance of the claims—i.e., both references fail to disclose or suggest any wireless power signal transmission via the same rear cover of the device through which the optical signals are transmitted/received.

Similarly, Honda is substantially the same as and cumulative to the multiple references cited and considered by the examiner during prosecution. In particular, Honda is cumulative to the below-described references of record in that, while disclosing wrist-worn devices with wireless charging capabilities, Honda and these references do not disclose or suggest wrist-mounted devices that facilitate **both** wireless charging and optical signal transmission via the device's rear cover—as was found to be the failure in the art of record when the Examiner allowed the claims.

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 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.***”); Ex. 1001, pp. 3 (listing Mooring). Mooring, like Honda, fails to disclose any optical signal transmission via the same rear cover through which wireless power signals are

transmitted (which against was found to be the basis for allowance of the claims during prosecution).

Although Mooring was cited by the Applicant in an IDS (and subsequently considered by the examiner), 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 (Mistry), ¶127 (Examiner-cited and applied reference, describing wireless charging receive coil in body of a wearable electronic device); Ex. 2006 (Mensinger), 26:2-27 (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***”); Ex. 2020 (Hong), ¶¶305-306; Ex. 1002, 1125-1128 (finding that Mistry and Hong disclose wireless charging). Notably, Mistry (Ex. 2005) and Hong (Ex. 2020) were expressly cited and applied by the Examiner in forming his rejection during the ’491 Patent’s prosecution, and Mensinger (Ex. 2006) was cited on the face of the ’491 Patent and was one of seven references independently identified by the examiner during the prosecution of the earlier and related ’783 Patent. Ex. 1002, 1122-1131; *see* Ex. 2019, 1487-1491.

What’s more, both the Examiner and the Applicant cited prior art references during prosecution of the ’491 Patent that disclosed watches or other wrist-mounted devices with both wireless charging and biometric sensing capabilities.

For example, during prosecution, the examiner independently identified and applied the Mistry and Hong references, each of which discloses a wrist-worn device that can facilitate wireless charging and biometric sensing. Ex. 2005, ¶¶124, 125, 127-128; Ex. 2020, ¶¶305-306, FIGS. 2A-2C, 3A-3C, 4-5; *see* Ex. 1002, 1123-1129. Similarly, Applicant identified references that also disclosed wrist-worn devices that can facilitate wireless charging and biometric sensing. 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. Again, the Examiner’s allowance of the claims over this and other references of record stemmed from the finding that none of these references disclose or suggest a rear cover that facilitates transmission/receipt of **both** wireless power and optical signals.

In summary, much like the alleged teachings of Kotanagi and Honda, the record indicates that the Examiner identified and/or considered multiple references teaching (1) wrist-worn devices with rear covers 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. And, like the art of record over which the Examiner found the claims allowable, Kotanagi and Honda fail to disclose the very features found to be absent from the art of record—i.e., they fail to disclose or suggest a rear cover that facilitates

transmission/receipt of wireless power and optical signals. Thus, with respect to independent claims 7 and 14, 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 '491 Patent.

3. Teachings in Kotanagi, Honda, and Choi are Substantially the Same as the References Considered During the '491 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 further relies upon the Choi reference. Petition, 42-54. Relative to independent claims 9 and 15, independent claim 1 additionally recites (1) the cover is formed of a dielectric material, (2) a touch-sensitive display, and (3) a first and a second electrode that are used to measure an electrocardiogram. See Ex. 1001, claim 1 (reciting (1) "a touch-sensitive display positioned at least partially within the housing"; (2) "a cover formed from a dielectric material"; and (3) the electronic watch is configured to measure an electrocardiogram using the first electrode and the second electrode" that are "positioned along a rear surface of the electronic watch"). Petitioner relies upon Kotanagi's cover glass teaching for the claimed "dielectric cover" and further relies upon Choi's teachings of a "touch display" and electrodes that are allegedly used for ECG measurements for the

above-recited “touch sensitive display” and “electrode” limitations. Petition, 43-45, 51-54.

As a threshold matter, the prosecution record confirms that none of these additional limitations of claim 1 were identified as being the basis for allowance of this claim over the art of record. Indeed, these claim features were present in the pending claims at the time the Examiner issued his rejections and stood rejected in view of the art used in forming the rejections. Ex. 1002, 1119-1131. And, it was the subsequent amendments that required **both** wireless power and optical signal transmission through the rear cover that led to allowance. Ex. 1002, 607-609, 595-600, 468-473. In that regard, Kotanagi and Honda (and even Choi) are facially cumulative to prior art before the Examiner at least by virtue of them having the same deficiency as the prior art before the examiner—i.e., they each individually did not disclose or suggest this particular feature, which ultimately led to allowance of the claims.

Unsurprisingly then, for these additional limitations present in claim 1, the Examiner considered and applied references during prosecution that included disclosures substantially the same as those present in the Petition’s identified Kotanagi and Choi references. For example, much like Kotanagi’s identified glass cover, the Examiner applied the Hong reference in asserting that its “**protective transparent layer** shown in Fig. 3A [of Hong]” is “**formed from a dielectric**

material (e.g., plastic or glass).” Ex. 1002, 1123-1124, 1127-1128. Similarly, like Choi’s touch display, the Examiner asserted that Hong discloses the claimed “touch sensitive display” given its disclosure that the “display screen uses capacitive touch detection.” Ex. 1002, 1123. Moreover, like the Petition’s application of Choi’s alleged electrode-based ECG measurements in combination with Kotanagi, the Examiner applied the Schmid reference in combination with Hong, and determined “Schmid describes a wrist worn device ... that includes a first electrode and second electrode ... located on the rear side of the housing” and configured to “provide a measure of the user electrocardiogram.” Ex. 1002, 1123-1124. Notably, even the Petition turns to Schmid’s teachings as evidence further supporting the purported combination based on Choi’s alleged teachings of electrode-based ECG measurements. Petition, 51-52 (citing Ex. 1029⁷).

Thus, although Kotanagi, Honda, and Choi were not considered during examination of the application for the ’491 Patent, these references are substantially the same as various references of record cited and considered during prosecution—including Hong, Mistry, Schmid, Mooring (among other

⁷ The Schmid reference relied upon during prosecution (Ex. 2021) is a continuation-in-part of the Schmid reference cited in the Petition (Ex. 1029) and includes similar disclosures as those relied upon from Ex. 1029 in the Petition.

references)—in that they suffer from the same deficiencies that ultimately led to allowance of the claims (i.e., they fail to disclose or suggest a rear cover that facilitates transmission/receipt of wireless power and optical signals). 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 ’491 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 Meet its Burden of Demonstrating Material Error During Prosecution

As described in detail with reference to § VII.A, the Petition’s references are cumulative of the art of record at least because they suffer from the same deficiencies and fail to disclose or suggest the features that ultimately led to allowance. Against this backdrop, Petitioner bears the burden to demonstrate why, given this similarity between the Petition’s references and the art of record, the Examiner nevertheless erred in allowing the claims.

However, the Petition fails to advance any rational argument regarding material error during prosecution. *See* Petition, 94. 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 transparent or dielectric or non-conductive cover, electrodes, and other features.*” *Id.* Patent Owner respectfully disagrees with these assertions for the reasons explained below.

As a threshold matter, Petitioner does not engage with the prosecution record and the amendments and arguments therein that led to allowance, and instead concocts a list of features that are allegedly disclosed by the Petition’s references but otherwise absent from the art of record. Petition, 94. However, the deficiency of the prior art considered by the Examiner during prosecution is not the failure of the prior art to disclose this list of features—“a transparent or dielectric or non-conductive cover, electrodes, and other features”—as asserted by Petitioner. *See id.* Rather, and as explained above (*see* §III.A *supra*) and as Petitioner acknowledges (*see* Petition, 6-7), the Examiner allowed the claims upon finding that the prior art of record failed to provide the structural arrangement of a rear cover configured to allow transmission of *both* biosensor signals and wireless charging signals. *See* Ex. 1002, 607-609, 1215-1219, 595-600, 468-473. Petitioner did not grapple with the very foreseeable issue of what led to allowance,

nor did Petitioner articulate any rationale explaining how or why the examiner erred in reaching this conclusion. As such, Petitioner has failed to set forth any rationale or explanation warranting a renewed review of the claims in view of the Petition's references that are cumulative of the references already considered and applied by the examiner.

Even Petitioner's assertion that the references relied upon in the Petition teach "what ... was missing from the prior art" (Petition, 6-7) is entirely conclusory and again, this assertion also fails because the teachings of the ground references relied upon in the Petition are cumulative of the prior art of record and similarly fail to disclose or suggest the features that led to allowance—namely, a cover configured to allow transmission of **both** biosensor signals and wireless charging signals. Specifically, like the already-considered prior art during prosecution, neither Kotanagi nor Honda disclose or suggest a wrist-mounted device with a rear cover 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. Further still, Petitioner fails to account for the fact that Kotanagi contemplates charging via the side surface (instead of the rear) of its wrist-worn device. Ex. 1005, ¶53, Fig. 5. Thus, 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.

Along these lines, even if the ongoing prosecution in each of the pending applications related to the '491 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 '491 Patent. *See* §III.B *supra*. This is especially the case when considering that the prosecution of these applications is ongoing 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 '491 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.

In summary, Petitioner fails to engage with the prosecution history and the reasons for allowance of the claims to propound any argument regarding material error during prosecution and in this regard, Petitioner wholly fails to meet its burden of proof under the second prong of *Advanced Bionics* framework

2. Petitioner's Assertion of Absence of Certain Claim Features from the Art of Record Stands Refuted in View of the Examiner's Express Identification of References Teaching These Features

Petitioner asserts 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 transparent or dielectric or non-conductive cover, electrodes....” Petition, 94. This assertion is flawed because, as explained below, the references of record do in fact disclose the allegedly absent features of wireless charging, a transparent or dielectric or non-conductive cover, and electrodes.

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. 2020, ¶¶305-306; Ex. 2005, ¶¶124, 125, 127-128; Ex. 2004, 1:38-55; Ex. 2006, 26:2-27.
- For the allegedly missing “transparent or dielectric or non-conductive cover” features, the record includes at least the following references that were considered by the examiner that disclose covers made of

glass (which Petitioner contends are an example of transparent/dielectric/non-conductive material): Ex. 1002, 1123-1124; Ex. 2020, Fig. 3A, ¶¶148, 155, 165; Ex. 2005, ¶¶125-129; Ex. 2001, ¶¶46-48, Figs. 3-5; Ex. 2019, 1493 (citing Ex. 2007, 3:41-57)⁸ (recognizing that glass or sapphire are “commonly employed” for “covers”).

- For the allegedly missing “electrodes” feature, the record includes at least the following references that were considered by the examiner: Ex. 1002, 1123-1124; Ex. 2021, 5:24-37, Fig. 1.

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 “wireless charging,” the above discussion demonstrates that numerous references—identified by both the Applicant and the Examiner—provided teachings of wireless

⁸ Ex. 2007 to Burton was independently identified by the examiner and applied during the prosecution of the earlier and related ’783 patent.

charging. *See, e.g.*, Ex. 2020, ¶¶305-306; Ex. 2005, ¶¶124, 125, 127-128; Ex. 2004, 1:38-55; Ex. 2006, 26:2-27. Indeed, the Examiner expressly noted that both Hong and Mistry disclose wireless charging. *See* Ex. 1002, 1125-1127.

- The same is also true for the “transparent or dielectric or non-conductive cover” features, for the reasons described above.

Specifically, consistent with Petitioner’s allegation that glass is a non-conductive, dielectric, and optically transparent material (Petition, 8), the Examiner expressly considered and relied upon Hong’s transparent cover and noted that this cover is formed of a dielectric material such as glass or plastic. *See* Ex. 1002, 1123-1124; *see also* Ex. 1002, 1123-1124; Ex. 2020, Fig. 3A, ¶¶148, 155, 165; Ex. 2005, ¶¶125-129; Ex. 2001, ¶¶46-48, Figs. 3-5; Ex. 2019, 1493 (citing Ex. 2007, 3:41-57).

- Similarly, with respect to the “electrodes” feature, the Examiner expressly noted that this feature is taught by Schmid as applied in combination with Hong. Ex. 1002, 1123-1124; Ex. 2021, 5:24-37, Fig. 1.

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 '491 Patent. Thus, even if Petitioner's listing of the above-considered features constitutes an allegation of material error, the prosecution record clearly indicates that the Examiner did not err in finding that each of these features was disclosed by the art of record, including multiple references applied in an office action that expressly disclosed these features.

For at least the above reasons, Petitioner has failed to carry its burden to demonstrate material error during prosecution, and a thorough evaluation of the prosecution record of the '491 Patent—which Petitioner does not even grapple with as part of its one-paragraph long 325(d) analysis (*see* Petition, 94)—supports the inference that there was in fact no material error during prosecution of the application for the '491 Patent. In other words, 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 '491 Patent—much like the ground references identified with respect to the independent claims in the Petition—did not disclose or suggest a rear cover via which **both** wireless and optical signals could or would

be transmitted. Petitioner has failed to show any error, much less any material error by the Examiner in reaching this conclusion.

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: July 25, 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 10,764, which is less than the 14,000 allowed under 37 CFR § 42.24(b)(1).

Respectfully submitted,

Date: July 25, 2023

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e)(4), the undersigned certifies that on July 25, 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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