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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MASIMO CORPORATION,
Petitioner,

v.

APPLE INC.,
Patent Owner.

IPR2023-00745
Patent 10,076,257 B2

Before KEN B. BARRETT, JOSIAH C. COCKS, and ROBERT L. KINDER, *Administrative Patent Judges*.

KINDER, *Administrative Patent Judge*.

PRELIMINARY GUIDANCE

PATENT OWNER'S MOTION TO AMEND

I. INTRODUCTION

On October 16, 2023, we instituted trial as to claims 1–4 and 8–22 of U.S. Patent No. 10,076,257 B2 ("the '257 patent," Ex. 1001). Paper 8 ("Inst. Dec."). After institution, Patent Owner filed a contingent Motion to Amend (Paper 13 ("Mot.")) requesting that "[t]o the extent the Board finds any of original claims 16–22 unpatentable," we amend the '257 patent to "enter[] at least the proposed claim(s) [22–28] presented herein in substitution for the corresponding claim(s) found unpatentable."[1] Mot. 1–2. Petitioner filed an opposition on April 1, 2024. Paper 18 ("Opp."). Petitioner submitted a Supplemental Declaration of Alan L. Oslan, Ph.D. (Ex. 1051) in support of the Opposition.

In the Motion, Patent Owner requested that we provide preliminary guidance concerning the Motion in accordance with the Board's pilot program concerning motion to amend practice and procedures. Mot. 1–2; *see also* Notice Regarding a New Pilot Program Concerning Motion to Amend Practice and Procedures in Trial Proceedings under the America Invents Act before the Patent Trial and Appeal Board, 84 Fed. Reg. 9,497 (Mar. 15, 2019) (providing a patent owner with the option to receive preliminary guidance from the Board on its motion to amend) ("Notice"). We have considered Patent Owner's Motion and Petitioner's Opposition.

In this Preliminary Guidance, we provide information indicating our initial, preliminary, non-binding views on whether Patent Owner has shown a reasonable

[1] We note Patent Owner numbered its contingent claims starting at number **22**, which is also the number of an original claim. This confuses the record because the number 22 now applies to two separate claims. Patent Owner is requested to *avoid such numbering mistakes in the future*. For the purpose of this Preliminary Guidance, we will refer to Patent Owner's *proposed substitute claim 22* in order to differentiate it from *original claim 22*.

likelihood that it has satisfied the statutory and regulatory requirements associated with filing a motion to amend in an *inter partes* review and whether Petitioner (or the record) establishes a reasonable likelihood that the substitute claims are unpatentable. *See* Notice, 84 Fed. Reg. at 9,497 ("The preliminary guidance . . . provides preliminary, non-binding guidance from the Board to the parties about the [motion to amend]"); *see also* 35 U.S.C. § 316(d) (statutory requirements for a motion to amend); 37 C.F.R. § 42.121 (regulatory requirements and burdens for a motion to amend); *Lectrosonics, Inc. v Zaxcom, Inc.*, IPR2018-01129, Paper 15 (PTAB Feb. 25, 2019) (precedential) (providing information and guidance regarding motions to amend).

For purposes of this Preliminary Guidance, we focus on the proposed substitute claims, and specifically on the amendments proposed in the Motion. *See* Notice, 84 Fed. Reg. at 9,497. We do not address the patentability of the originally challenged claims. *Id.* Moreover, in formulating our preliminary views on the Motion and Opposition, we have not considered the parties' other substantive papers on the underlying merits of Petitioner's challenges. We emphasize that the views expressed in this Preliminary Guidance are subject to change upon consideration of the complete record, including any revision to the Motion filed by Patent Owner. Thus, this Preliminary Guidance is not binding on the Board when rendering a final written decision. *See id.* at 9,500.

II. PRELIMINARY GUIDANCE

A. Statutory and Regulatory Requirements

For the reasons discussed below, at this stage of the proceeding, and based on the current record, it appears that Patent Owner has not shown a reasonable likelihood that it has satisfied these requirements for proposed substitute claims 22–28.

1. Reasonable Number of Substitute Claims

Does Patent Owner propose a reasonable number of substitute claims? (35 U.S.C. § 316(d)(1)(B))
Although Patent Owner's proposed number of substitute claims is equal to the number of contingently-replaced challenged claims, Patent Owner does not appear to have met its burden to establish that the Motion to Amend complies with the requirements of 37 C.F.R. § 42.121(a)(3). Section 42.121(a)(3) states that "[a] motion to amend may . . . propose a reasonable number of substitute claims" with the "presumption [being] . . . that only one substitute claim would be needed *to replace* each challenged claim, and it may be rebutted by a demonstration of need." 37 C.F.R. § 42.121 (emphasis added). Although Patent Owner asserts that "for each challenged MTA claim [(here, original challenged claims 16–22)], Apple proposes only one substitute claim, fitting the 'presumption . . . that only one substitute claim would be needed to replace each challenged claim'" (*see* Mot. 10), Patent Owner's substitute claims 22–28 do not appear to be *replacements* for the originally challenged claims 16–22 (as 37 C.F.R. § 42.121(a)(3) requires). Contrary to Patent Owner's argument that "the proposed substitute claims retain all features of the corresponding original claims" (*see* Mot. 2), Patent Owner's proposed substitute claims 22–28 retain *neither* the features of corresponding *original claims 16–22 nor the features of the corresponding independent base claim* (*claim 15*, from which original claims 16–22 depend). *See* Mot. App. (Claims Appendix). For example, proposed substitute claims 22–28 now all depend from original independent claim 1 (and not from original independent claim 15 from which original claims 16–22 depend). *See* Mot. App. (Claims Appendix); *see also* Ex. 1001, 13:49–14:50. Proposed substitute claims 22–28 also delete substantially all original limitations of original claims 16–22 that they are intended to replace. *See* Mot. App. (Claims Appendix). In particular: (i) proposed substitute claim 22 deletes all limitations of original claim 16 even though it is intended to be a "Substitute for claim 16"; (ii) proposed substitute claim 23 deletes all limitations of original claim 17 even though it is intended to be a "Substitute for claim 17";

(iii) proposed substitute claim 24 deletes all limitations of original claim 18 even though it is intended to be a "Substitute for claim 18";
(iv) proposed substitute claim 25 deletes all limitations of original claim 19 even though it is intended to be a "Substitute for claim 19";
(v) proposed substitute claim 26 deletes all limitations of original claim 20 even though it is intended to be a "Substitute for claim 20";
(vi) proposed substitute claim 27 deletes all limitations of original claim 21 even though it is intended to be a "Substitute for claim 21"; and,
(vii) proposed substitute claim 28 deletes all limitations of original claim 22 even though it is intended to be a "Substitute for claim 22."

See id.

So, although Patent Owner calls proposed claims 22–28 "[s]ubstitute[s] for" originally challenged claims 16–22 (*see id.*), Patent Owner's proposed claims 22–28 lack a meaningful relationship to original claims 16–22, and the limitations of proposed claims 22–28 are not traceable to the limitations of original claims 16–22.

A patent owner "may file one motion to amend a patent," (37 C.F.R. § 42.121(a)); however, what Patent Owner has done in this instance is propose an entirely new claim set not related to the limitations of the original claims 16–22 – we question whether Patent Owner has proposed a reasonable number of *substitute claims* within the confines of our limited mandate set forth in 35 U.S.C. § 315(d). Patent Owner has the burden to establish that the proposed number of substitute claims is reasonable. Patent Owner has not sufficiently explained why seven proposed new claims—*whose features and dependencies are not traceable to features and dependencies of the seven original claims they are intended to replace*—represent "*a reasonable* number of substitute claims" to "*replace each challenged claim*." *See* 37 C.F.R. §§ 42.121(a)(3) (emphases added), 42.121(d)(1) (noting that "patent owner bears the burden of persuasion to show, by a preponderance of the evidence, that the motion to amend complies with the requirements of . . . paragraphs (a)(2), (a)(3), (b)(1), and (b)(2) of [37 C.F.R. § 42.121]"). The parties should further address whether Patent Owner's proposed new claims comply with our statutory and regulatory requirements, including 37 C.F.R. § 42.121.

At this juncture, Patent Owner has not met the burden of showing that it has proposed a reasonable number of *substitute claims*.

We acknowledge that Patent Owner has not yet had the opportunity to address our concerns outlined *supra*. Patent Owner will have the opportunity to do so in its Reply to Petitioner's Opposition (or in a revised motion to amend). *See* Notice, *passim*.

2. Respond to Ground of Unpatentability

Does the Motion respond to a ground of unpatentability involved in the trial? (37 C.F.R. § 42.121(a)(2)(i))
Yes. Patent Owner responds to the grounds of unpatentability on which we instituted trial. Mot. 6–9, App. (Claims Appendix); *see* Inst. Dec. 10. Upon review of Patent Owner's arguments, we agree that proposed substitute claims 22–28 recite new limitations, and new combinations of limitations, that directly respond to the grounds of unpatentability involved in the trial. *See* Mot. App. (Claims Appendix). Petitioner contends the Motion does not respond to a ground of unpatentability. *See* Opp. 1, 4–5. Petitioner, however, does not explain the basis of this argument; rather, Petitioner asserts that the proposed substitute claims "are not responsive to the invalidity grounds at issue" (*see* Opp. 1, 4–5) without addressing Patent Owner's detailed arguments (*see* Mot. 6–9) as to how the substitute claims' amendments directed to features of the processor and location and morphology of leads and pads, respond to Petitioner's grounds of unpatentability based on Mills and Markel. Indeed, Petitioner's grounds of unpatentability asserted that various features pertaining to leads, pads, and processor recited in the originally challenged claims were anticipated or obvious in view of Mills, or Markel and Mills. *See* Pet. 16–84. And Patent Owner's proposed substitute claims 22–28 add limitations directed to features of the leads, pads, or processor. *See* Mot. App. (Claims Appendix). Moreover, "nothing in the America Invents Act (AIA) or the Board's regulations precludes a patent owner from amending a claim to both overcome an instituted ground and correct other perceived issues in the claim." *Am. Nat'l Mfg. v. Sleep No. Corp.*, 52 F.4th 1371, 1380 (Fed. Cir. 2022). For purposes of this preliminary guidance and based on the current record, we are therefore persuaded that Patent Owner's amendments presented via proposed substitute claims 22–28 respond to the grounds of

unpatentability that were instituted by the Board in the Decision to Institute. *See* Mot. 6–9; Inst. Dec. 21–30, 36–43.

3. Scope of Amended Claims

Does the amendment seek to enlarge the scope of the claims? (35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii))

Patent Owner may not have met its burden to establish that the Motion to Amend complies with the non-enlargement requirement of 37 C.F.R. § 42.121(a)(2)(ii).

Patent Owner argues the proposed substitute claims are non-broadening because "the proposed substitute claims retain all features of the corresponding original claims, and add non-broadening limitations." Mot. 2. However, Patent Owner's argument is factually incorrect because proposed substitute claims 22–28 do not retain the features *of their allegedly corresponding original claims 16–22*, and also do not retain the features *of the original base independent claim* of original claims 16–22 (*i.e., claim 15*). That is because proposed substitute claims 22–28 (i) now depend from original claim 1 (and not from original claim 15), and also (ii) delete all features of original claims 16–22 and delete the feature of "a second lead embedded in the display screen" that was incorporated into original claims 16–22 through their dependency from claim 15. *See* Mot. App. (Claims Appendix); *see also* Opp. 2–4 (noting that the Motion to Amend "chang[ed] the dependencies of all the substitute claims from independent claim 15 to Claim 1" and "deleted all the original claim limitations in each of the original dependent claims"). For these reasons, we agree with Petitioner's assessment that "[Patent Owner] . . . has wholesale replaced Claims 16–22 with entirely new limitations." Opp. 5.

We acknowledge Patent Owner's additional argument that "[t]he proposed claims [22–28] . . . do not enlarge the scope of the corresponding original claims. . . . each proposed substitute claim does not broaden the corresponding original claim." Mot. 2. We understand Patent Owner's argument (*see id.*) to be that proposed substitute claims 22–28 "do[] not broaden the corresponding original claim" because proposed substitute claims 22–28 depend from original claim 1 such that the scope of proposed claims 22–28 is narrower than the scope of original claim 1. Even if this is the case, Patent Owner does not appear to have met its burden to establish that its proposed substitute claims 22–28 *are what is*

intended to be covered by the statutory and regulatory non-enlargement requirements of 37 C.F.R. § 42.121 and 35 U.S.C. § 316. Here, Patent Owner's proposed substitute claims seek to change the overall dependency and all of the features of original claims 16–22 they are intended to replace.

We acknowledge that a substitute dependent claim that *deletes some limitations of its corresponding original dependent claim while still retaining all limitations of the original independent claim from which the original dependent depends*, would not enlarge the scope of the claims—as such a substitute dependent claim would be narrower than the original independent claim from which the substitutable original dependent depends. *See Sisvel Int'l S.A. v. Sierra Wireless, Inc.*, 81 F.4th 1231, 1237–38 (Fed. Cir. 2023); 37 C.F.R. § 1.175; MPEP § 1412.03 (9th ed. Rev. 07.2022, rev. February 2023). Patent Owner, however, has not met the burden of establishing that broadening substitute dependent claims *beyond even the scope of the original independent claim (here, claim 15) from which the substitutable original dependents (16–22) depended*, would satisfy the statutory and regulatory non-enlargement requirements of 37 C.F.R. § 42.121 and 35 U.S.C. § 316.

Because Patent Owner has not met this burden, for purposes of this preliminary guidance and based on the current record, we are unpersuaded that proposed substitute claims 22–28 do not enlarge the scope of the claims in satisfaction of the statutory and regulatory requirements of 37 C.F.R. § 42.121 and 35 U.S.C. § 316.

We acknowledge that Patent Owner has not yet had the opportunity to address our concerns (and Petitioner's arguments outlining a similar concern regarding "jettisoning" limitations of claim 15, *see* Opp. 2) with respect to the non-enlargement requirements of 37 C.F.R. § 42.121 and 35 U.S.C. § 316. Patent Owner will have the opportunity to do so in its Reply to Petitioner's Opposition (or in a revised motion to amend). *See* Notice, *passim*.

4. New Matter

Does the amendment seek to add new subject matter? (35 U.S.C. § 316(d)(3); 37 C.F.R. § 42.121(a)(2)(ii))

Patent Owner does not appear to have met the burden to establish written description support for proposed substitute claim 28.

With respect to proposed substitute claims 22–27, although Patent Owner appears to have met the burden to establish written description support in a *patent application publication* of the application that became the '257 patent,[2] Patent Owner has not met the burden to establish written description support in *the original disclosure* of the '257 patent that was filed Dec. 20, 2013 (as Appl. No. 14/136,658), or in *the original disclosure* of the parent of the '257 patent that was filed Jan. 23, 2009 (as Appl. No. 12/358,905).

In order to provide guidance to the parties—and in view of the fact that the patent application publication (Ex. 2001) of Appl. No. 14/136,658 is presumed to be substantially identical to the original disclosure of the '257 patent (filed as Appl. No. 14/136,658)—we discuss Patent Owner's identified support for the proposed substitute claims in Ex. 2001. We note, however, that a Motion to Amend is required to set forth the support "in the original disclosure of the patent," which Patent Owner has not done. *See Lectrosonics*, Paper 15 at 7–8 (requiring Patent Owner to "set forth written description support in the originally filed disclosure of the subject patent for each proposed substitute claim"); *see also* 37 C.F.R. § 42.121(b)(1).

Proposed Substitute Claim 22

Proposed substitute dependent claim 22 adds limitations directed to the positioning of the first pad in a bezel. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 22 depends from original claim 12 (which, in turn, depends from original claim 1) and recites that the electronic device "further compris[es] a touch screen display, wherein the bezel extends around the touch screen display; and wherein the first pad is embedded in an inner surface of the bezel." *See id.*

Patent Owner's Motion sets forth written description support for proposed substitute claim 22. *See* Mot. 11 (citing Ex. 2001 ¶¶ 9, 16–18, 24–25, 34, 42, 44–50, 55, Figs. 3, 4B, and 5). Petitioner, however, contends that proposed substitute claim 22 adds new subject matter because paragraphs

[2] Patent Owner has set forth support for proposed substitute claims 22–28 in US Patent Application Publication 2014/0171776 A1 (Ex. 2001, *see* Mot. 11–12) which is the patent application publication of Appl. No. 14/136,658.

34 and 44 and Figure 3 of Exhibit 2001 "do[] not support a 'first pad [that] is embedded in an inner surface' of a bezel [that extends around the touch screen display]." Opp. 6–7.

We do not find Petitioner's contentions persuasive because Petitioner fails to address some of the portions in Ex. 2001 referenced by Patent Owner as written description support for the claimed "bezel [that] extends around the touch screen display" and the claimed "first pad [that] is embedded in an inner surface of the bezel." *See* Mot. 11. The section of Mr. Oslan's declaration cited by Petitioner (*see* Opp. 7 (citing Ex. 1051 ¶ 149)) similarly fails to address why the entirety of Patent Owner's cited paragraphs and Figures are insufficient to meet Patent Owner's burden of showing support for the limitations in proposed substitute claim 22.

For example, paragraphs 9, 42, and 46–50 and Figures 5 and 4B (of Exhibit 2001) cited by Patent Owner disclose a bezel (e.g., 510 and 460 in Figs. 4B–5) that extends around a touch screen display (e.g., 502 and 452 in Figs. 4B–5), and paragraphs 9, 47, 50 and Figure 4B cited by Patent Owner disclose a pad (e.g., 472, of a first lead that includes pad 472 and connector 474, *see* Fig. 4B) that is embedded in an inner surface of the bezel (e.g., 460). *See* Ex. 2001 ¶¶ 9, 42, 46–50, Figs. 4B and 5; *see also id.* ¶ 44 (providing that leads 322 and 324 of Figure 3 may be "embedded directly in bezel 310"); Mot. 11 (citing Ex. 2001 ¶¶ 9, 16–18, 24–25, 34, 42, 44–50, 55, Figs. 3, 4B, and 5).

Thus, at this stage, we are not persuaded by Petitioner's assertions that Patent Owner's proposed substitute claim 22 adds new subject matter. Here, it appears that there is adequate support (in Exhibit 2001) for "a touch screen display, wherein the bezel extends around the touch screen display; and wherein the first pad is embedded in an inner surface of the bezel" (as claimed in proposed substitute claim 22).

Proposed Substitute Claim 23

Proposed substitute dependent claim 23 depends from proposed substitute claim 22 and adds further limitations directed to second and third leads and pads, and the use of the pads by a user. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 23 recites that the electronic device includes "a third lead comprising a third pad that is embedded in the second portion of the enclosure [(recited in claim 1)], wherein the third pad is configured to detect a third electrical signal of the user's cardiac signal via the user's skin's contact with the third pad," "the

second pad [(recited in claim 1)] is configured to detect the second electrical signal of the user's cardiac signal via the user's skin's contact with the second pad," and "the first pad detects signals through a first hand, and the second and third pads detect signals through a second hand." *See id.*

Patent Owner's Motion sets forth written description support for proposed substitute claim 23. *See* Mot. 11 (citing Ex. 2001 ¶¶ 34, 43–44, 46–47, Figs. 3, 4B, and 5). Petitioner, however, contends that proposed substitute claim 23 adds new subject matter because (i) there is no support for three pads embedded in an enclosure as claimed, and (ii) there is no support for such pads of which two contact the user's skin of one hand, and the other pad (the first pad) detects signals from the other hand. Opp. 7–8.

We do not find Petitioner's contentions persuasive because Petitioner fails to address some of the portions in Ex. 2001 referenced by Patent Owner as written description support for the claimed limitations. *See* Mot. 11. For example, paragraphs 34, 44, 46, and 47 (of Exhibit 2001) cited by Patent Owner disclose multiple leads that "can include a pad or extended area placed on the outer or inner surface of an electronic device bezel or housing" (¶ 34), "leads 322 and 324 to be embedded directly in bezel" (¶ 44), "several leads . . . placed along different portions of bezel" (¶ 47), leads "positioned on the exterior surface of bezel 310" (¶ 46) or "embedded along the outer surface of bezel 410" (¶ 46), and leads "positioned against the back surface of bezel 460" (¶ 47) or "placed within the thickness of bezel 460 (e.g., in a pocket within the bezel wall), but underneath the outer surface of the bezel" (¶ 47). Moreover, paragraph 46 (describing "[l]ead 422 . . . embedded along the outer surface of bezel 410" in Figure 4A) and paragraph 47 (describing "lead 472 . . . positioned against the back surface of bezel 460" or "[a]lternatively . . . placed within the thickness of bezel 460 (e.g., in a pocket within the bezel wall), but underneath the outer surface of the bezel") expressly disclose that multiple such leads may be included in an electronic device. *See id.* ¶¶ 46 (describing "several distinct leads 422 positioned on bezel 410"), 47 (describing "several leads [that] are placed along different portions of bezel 460").

Moreover, the disclosure (as reflected in Exhibit 2001) indicates that Figure 3 may include multiple "leads [that] can be integrated in any suitable portion of the electronic device" such as "[l]eads 322 and 324 . . . coupled to sides 312 and 314 of bezel 310" or "[a]lternatively, bezel 310

can include any other suitable number of leads, or any other suitable distribution of leads along bezel 310 and in other portions of electronic device 300." *See* Ex. 2001 ¶ 42. The disclosure (as reflected in Exhibit 2001) also indicates that "[b]ezel 510 [of the electronic device in Figure 5] can be separated into several electrically isolated segments" whereby "bezel 510 can be separated into any suitable number of electrically isolated segments, and each segment can have any suitable size." *Id.* ¶¶ 48, 50.

We are therefore unpersuaded by Petitioner's arguments that proposed substitute claim 23 adds new subject matter because there is no support for three pads embedded in an enclosure, with two of the pads contacting the user's skin, and the other pad embedded in an inner surface of a bezel.

With respect to the limitation in proposed substitute claim 23 reciting that "the first pad detects signals through a first hand, and the second and third pads detect signals through a second hand," we agree with Petitioner that paragraphs 43–44 (of Exhibit 2001) describe three leads that detect electrical signals through two hands *but these leads do not map to the leads recited in proposed substitute claim 23*. *See* Opp. 8. As noted by Petitioner (Opp. 8), the three leads described in paragraph 43 and expressly shown in Figure 3 are not all *embedded in an enclosure or bezel*; rather, one of the leads (326, which detects signals through one of the two hands) is "embedded in or behind display 302" (*see* Ex. 2001 ¶ 43)—such that lead 326 cannot map to a "first pad [embedded in an inner surface of the bezel] [that] detects signals through a first hand" (as required by proposed substitute claim 23).

Even though we agree with Petitioner on this point, we are not persuaded, at this stage, that claim 23 lacks written description support. We are unpersuaded by Petitioner's argument at least because: paragraph 34 (of Exhibit 2001) provides that "the size and location of the leads can be selected to ensure that sufficient contact is made between the user (e.g., the user's hand or finger)"; paragraph 42 (describing Figure 3) provides that "bezel 310 can include any other suitable number of leads, or any other suitable distribution of leads along bezel 310 and in other portions of electronic device 300" with "[t]he size of leads 322 and 324 . . . selected based on any suitable consideration, including for example the different possible positions of a user's hands on the device"; and paragraph 48 provides that "the sizes and distribution of each [conductive lead] segment [in Fig. 5] can be selected based on physiological considerations (e.g.,

where a user's hand will be positioned on the device, or aligning the segments to contact particular portions of the user's body)." *See* Ex. 2001 ¶¶ 34, 42, 48. At this stage and based on the current record, it appears that these paragraphs *may imply or suggest proposed claim 23's limitation* of "the first pad [that] detects signals through a first hand, and the second and third pads [that] detect signals through a second hand."

As Petitioner notes, however, "*a description which renders obvious a claimed invention is not sufficient to satisfy the written description requirement*." Opp. 6 (citing *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1356 (Fed. Cir. 2010)) (emphasis added). Patent Owner has the burden to establish written description support, and we will determine whether the above-discussed paragraphs (or others) of Exhibit 2001 (and the original disclosure) provide actual support for "the first pad [embedded in a bezel] [that] detects signals through a first hand, and the second and third pads [embedded in a portion of the disclosure] [that] detect signals through a second hand" (as recited in proposed substitute claim 23) upon a final record. We will also determine whether and how a limitation that describes how a user *employs* the electronic device (i.e., "the first pad detects signals through a first hand, and the second and third pads detect signals through a second hand") actually limits the claimed electronic device. We will determine after a complete trial and on a full record, whether Patent Owner will have met the burden to establish written description support for the limitation of "the first pad [that] detects signals through a first hand, and the second and third pads [that] detect signals through a second hand" (if this limitation is retained in proposed substitute claim(s)).

Proposed Substitute Claim 24

Proposed substitute dependent claim 24 depends from proposed substitute claim 23 and adds further limitations directed to the second and third pads. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 24 recites that "the second and third pads are adjacent pads" and "an electrically isolating component is inserted between the second and third pads." *See id.*

Patent Owner's Motion sets forth written description support for proposed substitute claim 24. *See* Mot. 11 (citing Ex. 2001 ¶¶ 10–11, 47). Petitioner, however, contends that proposed substitute claim 24 adds new subject matter because there is no support for adjacent pads. Opp. 8–9.

Petitioner asserts "Figure 3 is the only figure Apple relied upon that has three leads, but none of its leads are adjacent." *Id.*

We do not find Petitioner's contentions persuasive because Petitioner fails to address some of the portions in Ex. 2001 referenced by Patent Owner as written description support for the claimed limitations. *See* Mot. 11. For example, paragraphs 10–11 (of Exhibit 2001) cited by Patent Owner disclose an electronic device that "can include several leads" in the device's enclosure, and "*the leads may be electrically isolated*. . . . [and] *an electrically isolating component can be inserted between adjacent leads*." Ex. 2001 ¶¶ 10–11 (emphasis added). Moreover—and contrary to Petitioner's argument that "Figure 3 is the only figure Apple relied upon that has three leads" (*see* Opp. 9)—Figure 5 of Patent Owner's disclosure (relied upon as support for proposed substitute claim 23, from which claim 24 depends, *see* Mot. 11) is also described as possibly including three leads/conductive segments, some of which may be adjacent and separated by an electrically isolating component. *See* Ex. 2001 ¶¶ 48 ("[b]ezel 510 can be separated into several electrically isolated segments, for example segments 522 and 524. The segments can be electrically isolated using isolating portions 530 and 532" and "[a]lthough FIG. 5 shows bezel 510 broken into two segments having similar sizes . . . bezel 510 can be separated into any suitable number of electrically isolated segments, and each segment can have any suitable size"), 50 ("heart sensor leads can be placed at any other suitable position on the electronic device enclosure" and "if the enclosure is constructed from a bezel supporting a display and a housing forming the exterior surface of the device behind the display, one or more leads can be embedded in or adjacent to the housing"), Fig. 5.

Thus, at this stage, we are not persuaded by Petitioner's assertions that Patent Owner's proposed substitute claim 24 adds new subject matter. Here, it appears that there is adequate support (in Exhibit 2001) for "the second and third pads [that] are adjacent pads" and "an electrically isolating component [that] is inserted between the second and third pads" (as claimed in proposed substitute claim 24).

Proposed Substitute Claim 25

Proposed substitute dependent claim 25 adds limitations directed to the positioning of the first pad in an electrically conductive metal bezel. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 25 depends from original claim 1 and recites that "the first pad is embedded in an inner surface of an electrically conductive metal bezel that

forms a portion of an exterior surface of the electronic device" and "the second pad is exposed on the exterior surface of the electronic device for direct contact from a user." *See id.*

Patent Owner's Motion sets forth written description support for proposed substitute claim 25. *See* Mot. 12 (citing Ex. 2001 ¶¶ 9, 16–18, 34, 42, 44–50, 55, Figs. 3, 4B, and 5). Petitioner, however, contends proposed substitute claim 25 adds new subject matter because (i) the claimed first pad "embedded in an inner surface" of a bezel is "unsupported for the reasons provided . . . regarding Claim 22" and (ii) the specification "does not describe or suggest an embodiment with a 'first pad' embedded under the 'inner surface' of a 'metal bezel' and a second pad 'exposed.'" Opp. 9.

As discussed *supra* with respect to proposed substitute claim 22, we are not persuaded by Petitioner's arguments that a first pad embedded in an inner surface of a bezel lacks written description support in Appellant's disclosure (as evidenced by Ex. 2001). Patent Owner also referenced portions in Ex. 2001 that provide support for the bezel being an electrically conductive metal bezel (as recited in proposed substitute claim 25). *See* Mot. 12 (citing Ex. 2001 ¶¶ 9, 34, 44, 47, 48).

Petitioner's additional argument that the specification "does not describe or suggest an embodiment with a 'first pad' embedded under the 'inner surface' of a 'metal bezel' and a second pad 'exposed'" (Opp. 9) is also unpersuasive. Paragraphs 9, 34, 46–48 of Ex. 2001 referenced by Patent Owner provide written description support for an electronic device having a pad embedded in an inner bezel surface and another pad exposed on an exterior surface of the device (as required by proposed substitute claim 25).

Thus, at this stage, we are not persuaded by Petitioner's assertions that Patent Owner's proposed substitute claim 25 adds new subject matter. Here, it appears that there is adequate support (in Exhibit 2001) for "the first pad is embedded in an inner surface of an electrically conductive metal bezel that forms a portion of an exterior surface of the electronic device" and "the second pad [being] exposed on the exterior surface of the electronic device for direct contact from a user" (as claimed in proposed substitute claim 25).

Proposed Substitute Claim 26

Proposed substitute dependent claim 26 adds limitations directed to the processor. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 26 depends from original claim 1 and recites "the processor [of claim 1] is further configured to extract one or more characteristics of the detected cardiac signal and compare the extracted one or more characteristics with one or more characteristics previously stored in memory that were associated with an authorized user" and "if the extracted one or more characteristics match those of an authorized user, the electronic device authenticates the user." *See id.*

Patent Owner's Motion sets forth written description support for proposed substitute claim 26. *See* Mot. 12 (citing Ex. 2001 ¶¶ 7, 51). Petitioner, however, contends that proposed substitute claim 26 adds new subject matter because "Apple has not shown that the claimed extraction and authentication have support." Opp. 9.

We do not find Petitioner's contentions persuasive because Petitioner fails to address the entirety of the portions in Exhibit 2001 referenced by Patent Owner as written description support for the claimed extraction and authentication recited in proposed substitute claim 26.

For example, paragraph 7 (of Exhibit 2001) cited by Patent Owner discloses "software or hardware operative to process the output of a cardiac sensor to extract, from the received output, characteristics of the user's heartbeat, heart rate, or other cardiac signals" such as "one or more characteristic durations associated with the user's heart rate" or "one or more characteristic amplitudes or amplitude ratios associated with the user's heart rate." *See* Ex. 2001 ¶ 7; *see also id.* ¶ 8 (describing operations for comparing, matching, and authenticating). Paragraph 51 (of Exhibit 2001) cited by Patent Owner discloses that "[u]pon receiving the cardiac activity, the electronic device can extract one or more characteristics of the received activity and compare the extracted characteristics with the characteristics previously stored in memory that were associated with authorized users" and "[i]f the extracted characteristics match those of an authorized user, the electronic device can authenticate the identified user." *See id.* ¶ 51. Contrary to Petitioner's argument (*see* Opp. 9), paragraph 51 of Exhibit 2001 is not limited to a cardiac signal detected by "lead 326 embedded under the display for authentication during the process of unlocking the device" (*see* Opp. 9).

Thus, at this stage, we are not persuaded by Petitioner's assertions that Patent Owner's proposed substitute claim 26 adds new subject matter. Here, it appears that there is adequate support (in Exhibit 2001) for a "processor . . . further configured to extract one or more characteristics of the detected cardiac signal and compare the extracted one or more characteristics with one or more characteristics previously stored in memory that were associated with an authorized user" and "if the extracted one or more characteristics match those of an authorized user, the electronic device authenticates the user" (as claimed in proposed substitute claim 26).

Proposed Substitute Claim 27

Proposed substitute dependent claim 27 adds limitations directed to the positioning of the second pad, and the spatial relationship between the first and second pads. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 27 depends from original claim 1 and further recites that "the exterior surface of the enclosure comprises an exterior surface of the second portion [in which the second pad is embedded, per base claim 1], wherein the second pad is positioned underneath the exterior surface of the second portion of the enclosure," "the first and second pads are adjacent pads," and "an electrically isolating component is inserted between the first and second pads." *See id.*

Patent Owner's Motion sets forth written description support for proposed substitute claim 27. *See* Mot. 12 (citing Ex. 2001 ¶¶ 9–11, 33, 50, 55, Figs. 3 and 5). Petitioner, however, contends that proposed substitute claim 27 adds new subject matter because the limitations of a second pad "positioned underneath the exterior surface of the second portion" and of "first and second pads" being "adjacent pads" are "unsupported for the same reasons provided with respect to Claim 24." Opp. 9–10.

As discussed *supra* with respect to proposed substitute claim 24 (and proposed substitute claim 22, from which proposed substitute claim 24 depends), we are not persuaded by Petitioner's arguments that adjacent pads separated by an electrically isolating component lack written description support in Appellant's disclosure (as evidenced by Ex. 2001).

We are also unpersuaded by Petitioner's argument that a second pad positioned underneath the exterior surface of a second enclosure portion has been shown to lack written description "for the same reasons provided with respect to Claim 24." *See* Opp. 9–10. Petitioner has not addressed

the limitation of *a pad positioned underneath the exterior surface of an enclosure* with respect to proposed substitute claim 24. *See* Opp. 8–9 (showing Petitioner's arguments regarding written description support with respect to proposed claim 24).

In any case, we observe that the "second pad" limitations in proposed substitute claim 27 mirror the "first pad" limitations in original claim 1, and are supported by at least Figure 4B and paragraphs 11 ("the leads can be positioned underneath the exterior surface of the enclosure. . . . electronic signals can be transmitted through the steel or aluminum enclosure to a silver based lead underneath the enclosure") and 47 ("[L]ead 472 of the heart sensor can be positioned against the back surface of bezel 460. Alternatively, lead 472 can be placed within the thickness of bezel 460 (e.g., in a pocket within the bezel wall), but underneath the outer surface of the bezel.") of Exhibit 2001.

Thus, at this stage, we are not persuaded by Petitioner's assertions that Patent Owner's proposed substitute claim 27 adds new subject matter. Here, it appears that there is adequate support (in Exhibit 2001) for "the exterior surface of the enclosure comprises an exterior surface of the second portion [in which the second pad is embedded, per base claim 1], wherein the second pad is positioned underneath the exterior surface of the second portion of the enclosure," "the first and second pads are adjacent pads," and "an electrically isolating component is inserted between the first and second pads" (as claimed in proposed substitute claim 27).

Proposed Substitute Claim 28

Proposed substitute dependent claim 28 depends from proposed substitute claim 27 and adds further limitations directed to the enclosure and the use of the pads by a user. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 28 recites that "the first pad detects signals from a first hand and the second pad detects signals from a second hand," "the first and second portions of the enclosure are located on a same face of the electronic device," and "the first and second portions of the enclosure each comprise a metallic conductive portion exposed for direct user contact." *See id.*

Patent Owner's Motion sets forth written description support for proposed substitute claim 28. *See* Mot. 12 (citing Ex. 2001 ¶¶ 6, 9–11, 33, 43, 50, 55, Figs. 3 and 5). Petitioner, however, contends that proposed substitute claim 28 adds new subject matter because (i) there is no support for "the

first and second portions of the enclosure [where the first and second pads are located] are located on a same face of the electronic device," and (ii) there is no support for adjacent pads (per base claim 27) where "the first pad detects signals from a first hand and the second pad detects signals from a second hand." Opp. 10.

With respect to first and second enclosure portions (and implicitly, pads) being located "on a same face of the electronic device," we agree with Petitioner's assessment that "the specification never uses the term 'face'" and does not appear to provide an explicit textual description of electrode pads being "on a same face of the electronic device" (as proposed substitute claim 28 recites). *See* Opp. 10.

At the same time, Figure 5 cited by Patent Owner in support appears to show conductive segments/leads 522, 524 that are partially visible when viewing the frontal face of the device. *See* Ex. 2001, Fig. 5. Whether this positioning of leads in the enclosure qualifies as enclosure portions and leads that are "located *on a same face* of the electronic device" (as claimed by claim 28), is unclear—at least because it appears (from Figure 5) that the bulk of leads 522 and 524 actually extend on *opposite vertical sides* of the device (i.e., along left and right vertical sides of the device that are perpendicular to the frontal face of the device in Figure 5). Moreover, Patent Owner's citation to paragraphs 6, 9–11, 33, 43, 50, 55, and Figures 3 and 5 on page 12 of the Motion does not explain how or where, in these paragraphs or figures, is there a disclosure of enclosure portions (and embedded leads) "located on a same face of the electronic device" (as recited in proposed substitute claim 28).

Patent Owner has the burden to establish written description support for "first and second portions of the enclosure [holding the first and second pads] are located on a same face of the electronic device" as claimed in proposed substitute claim 28. On the current record, the evidence of written description support is ambiguous at best. Thus, Patent Owner has not met this burden. For purposes of this preliminary guidance and based on the current record, we agree with Petitioner that proposed substitute claim 28 contains new matter, for the reasons discussed *supra*. We acknowledge that Patent Owner has not yet had the opportunity to respond. Patent Owner will have the opportunity to do so in its Reply to Petitioner's Opposition (or in a revised motion to amend) in this proceeding. *See* Notice, *passim*.

With respect to the other feature in proposed substitute claim 28 that requires different hands to use the two adjacent first and second pads (i.e., "the first pad detects signals from a first hand and the second pad detects signals from a second hand"), we observe that adjacent pads have written description support in Exhibit 2001 (as discussed *supra* with respect to proposed substitute claims 24 and 27). We also observe that—although paragraph 43 (describing Figure 3) of Exhibit 2001 mentions only *one hand* using the leads embedded in the device's bezel (*see also* Opp. 10)—paragraphs 34, 42, and 48 of Exhibit 2001 *may imply or suggest* that enclosure-set pads are touched *by different hands* (as discussed *supra* with respect to proposed substitute claim 23). But as we noted for proposed substitute claim 23, "*a description which renders obvious a claimed invention is not sufficient to satisfy the written description requirement*." *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1356 (Fed. Cir. 2010) (emphasis added). Patent Owner has the burden to establish written description support, and we will determine whether Patent Owner adequately addresses whether paragraphs 34, 42, and 48 (or others) of Exhibit 2001 (and of the original disclosure) provide actual support for adjacent first and second pads whereby "the first pad detects signals from a first hand and the second pad detects signals from a second hand" as recited in proposed substitute claim 28. We are also concerned with how a limitation that describes how the user employs the pads (i.e., "the first pad detects signals from a first hand and the second pad detects signals from a second hand") actually limits the claimed electronic device. We will determine after a complete trial and on a full record, whether Patent Owner will have met the burden to establish written description support for this limitation (if this limitation is retained in proposed substitute claim(s)).

B. Patentability

For the reasons discussed below, at this stage of the proceeding, and based on the current record,[3] it appears that Petitioner (or the record) has not shown a reasonable likelihood that proposed substitute claims 22–28 are unpatentable.

Does the record establish a reasonable likelihood that the proposed substitute claims are unpatentable?
I. Indefiniteness **No, as to proposed substitute claim 23.** Petitioner argues the added limitation directed to "a third lead comprising a third pad that is embedded in the second portion of the enclosure, wherein the third pad is configured to detect a third electrical signal of the user's cardiac signal via the user's skin's contact with the third pad" renders proposed substitute claim 23 indefinite. Petitioner argues that "if 'embedded in' requires the top surface of the pad to be covered by the enclosure because, under that construction, the pad could not both be 'embedded in' the enclosure and have contact with the user's skin." Opp. 15. Petitioner's argument has not established a reasonable likelihood that proposed substitute claim 23 is indefinite. "[C]laims are required to be cast in clear—as opposed to ambiguous, vague, indefinite—terms." *In re Packard*, 751 F.3d 1307, 1313 (Fed. Cir. 2014); *see also Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014) (claims must "inform those skilled in the art about the scope of the invention with reasonable certainty"). Petitioner's assertion that a hypothetical interpretation of proposed substitute claim 23 renders the claim indefinite (*see* Opp. 15) is not supported by a reasoned explanation. For example, Petitioner does not present an analysis of the language of claim 23 and/or of supporting portions in the Specification cited by Patent Owner (*see* Mot. 11) explaining why the scope of the subject matter embraced by the above-referenced limitation of claim 23 would be unclear to a person of ordinary skill in the art. Petitioner has not shown that a

[3] We express no view on the patentability of original claims 1–4 and 8–22 in this Preliminary Guidance. Instead, we focus on limitations added to those claims in the Patent Owner's Motion to Amend.

person of ordinary skill in the art could read "a third pad that is embedded in the second portion of the enclosure, wherein the third pad is configured to detect a third electrical signal of the user's cardiac signal via the user's skin's contact with the third pad" recited in proposed substitute claim 23 with more than one reasonable interpretation, or that the claimed "embedded in" and skin contacting limitations render the metes and bounds of proposed substitute claim 23 scope unclear.

Accordingly, at this stage of the proceeding, on the record before us, Petitioner has not shown a reasonable likelihood that proposed substitute claim 23 is indefinite.

II. Obviousness

No, as to proposed substitute claims 22–28.

Petitioner has asserted the following obviousness challenge against the following proposed substitute claims:

> Ground asserting Markel (Ex. 1005)[4] and Mills (Ex. 1006)[5] against proposed substitute claims 22–28.

See Opp. 11–25.

On this record, it appears that Petitioner has not shown a reasonable likelihood that proposed substitute claims 22–28 are unpatentable as obvious over Markel and Mills.

Proposed Substitute Claims 22–25

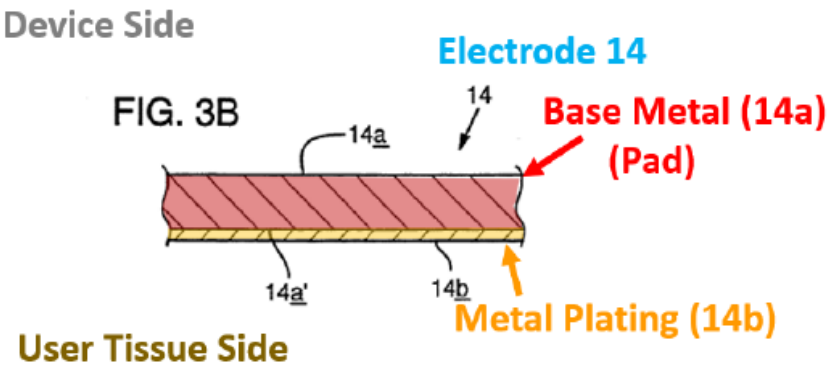
Proposed substitute dependent claim 22 adds limitations directed to the positioning of the first pad in a bezel. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 22 depends from original claim 12 (which, in turn, depends from original claim 1) and recites that the electronic device "further compris[es] a touch screen display, wherein the bezel extends around the touch screen display; and wherein the first pad is embedded in an inner surface of the bezel." *Id.*

Petitioner contends claim 22 is obvious over Markel and Mills. Opp. 11–14. In particular, Petitioner relies on a combination of Markel and Mills to teach the recitation in proposed substitute claim 22 requiring "the

[4] US 2007/0021677 A1, published January 25, 2007. *See* Opp. 11.
[5] US 5,351,695, issued Oct. 4, 1994. *See* Opp. 11.

first pad" to be "embedded in an inner surface of the bezel" that "extends around the touch screen display." Opp. 13–14. Petitioner relies on Markel's Figures 1, 4, and 15 and paragraphs 40, 44, and 45 to disclose "*a first pad (electrode) embedded in a bezel*." *See* Opp. 12–13 (citing Ex. 1005 ¶¶ 40, 44, Fig. 15) (emphases added). Petitioner identifies a "bezel surrounding the display 140" in Markel's Figure 1 and "an electrode [that] may be disposed on a video display device 140 (e.g., a border of the display or integrated into a touch screen)," and notes that Markel's "plurality of electrodes (or other sensors) may be disposed in any of a variety of locations." Opp. 12–13 (citing Ex. 1005 ¶¶ 44–45). Petitioner also identifies a teaching in Markel according to which "an electrode (or all electrodes) or other sensor may be substantially concealed (or hidden) from a user." Opp. 13 (citing Ex. 1005 ¶ 40).

Petitioner then relies on Mills to disclose "*embedding a base metal electrode (14a, a pad) on the inner surface of a metal plating (14b)*" in Figure 3B (reproduced below, with Petitioner's annotations). Opp. 13–14 (citing Ex. 1006 Fig. 3B) (emphases added).



Mills' Figure 3B illustrates "an enlarged, fragmentary cross-sectional view of the lower electrode [14] shown in FIG. 3A" where "electrode **14** preferably comprises an expanse **14***a* formed of a base metal such as stainless steel, with expanse **14***a* being electrically connectable with . . . monitoring equipment" and "[p]lating an outer, skin-contactable region or surface **14***a'* of expanse **14***a* is a composition **14***b* (shown in greatly enlarged thickness in FIG. 3B relative to that of expanse **14***a*)" that includes a "bio-compatible, conductive (e.g. metallic) element such as titanium." Ex. 1006, 2:48–50, 3:66–4:10. "[B]ase metal-plating composition **14***b*. . . . can be plated by known chemical or physical vapor deposition techniques," where "[s]uch plating of base metal expanse **14***a*

has been found to protect, and thus to greatly extend the life, of a dry skin electrode such as electrode **14** by producing an extremely hard, exterior, skin-contactable surface" and "also has been found to provide high conductivity and thus to produce a high quality electrical interface between an electrode such as electrode **14** and the patient's skin surface." *Id.* at 4:32–47. Petitioner has annotated Figure 3B to mark "Electrode 14," "Base Metal (14a) (Pad)," "Metal Plating (14b)," the "Device Side," and the "User Tissue Side." *See* Opp. 14.

Petitioner does not identify where *a bezel* is in Mills but asserts that a "**pad** . . . **embedded in an inner surface of the bezel**" (as recited in proposed substitute claim 22) is taught by the combination of Markel and Mills because "[a] POSITA would have been motivated to combine Markel's concealed electrodes with Mills' metal plating and would have had a reasonable expectation of success in doing so." Opp. 13–14 (citing Ex. 1003 ¶¶ 84–87).

On this record, we disagree with Petitioner's contentions. Mills explains that the 3-microns thick metal-plating (e.g., titanium nitride/carbide/or carbo-nitride) composition 14b is deposited on a base metal (e.g., stainless steel) portion/expanse 14a of electrode 14 "to provide high conductivity and thus to produce a high quality electrical interface between an electrode such as electrode **14** and the patient's skin surface, which may be very dry"—thereby indicating that *plated layer 14b is in fact part of the multi-layer electrode 14*. *See* Ex. 1006, 4:1–10, 4:32–47. That is, plated metal composition 14b is *that part of electrode 14 that contacts the patient's skin*. *See id.*; *see also id.* at 2:13–20 (providing that the "electrodes [are] located on a wrist-contacting, inner or rear base plate and on an outer or front surface contactable by the palm of the patient's other hand," and such "electrodes preferably are formed by plating a region of a stainless steel or other base metal expanse with a thin layer of titanium nitride (TiN), titanium carbide (TiC) or titanium carbo-nitride (TiCN)"), 4:19–24 ("Those skilled also will appreciate that such electrode **14** comprising such plated expanse obviates use of a messy, conductive gel, and even the so-called 'residue-free' self-adhesive gelatinous pads that often are used to enhance conductivity between an electrode and a patient's skin."), 6:57–67 (explaining that "[i]n operation. . . . the palm of the right hand easily can be placed into contact with upper electrode 14"), Abstr. (providing that "the skin electrodes are made of titanium nitride-plated stainless steel and

form inner, wrist-contacting, and outer, other hand's palm-contactable regions of the housing").

At this stage, we are therefore unpersuaded that Mills teaches anything other than *a multi-layer electrode exposed to the outside for directly contacting a user's skin*. Petitioner has not sufficiently explained why *the outer layer* (e.g., 14b in Mills' Figure 3B) *of such a multi-layer electrode* could be considered *a bezel* (as recited in proposed substitute claim 22).[6] Petitioner also has not sufficiently explained why *an inner layer* (e.g., 14a in Mills) of such a multi-layer electrode (14) could be considered to be *embedded in an inner surface of a bezel* (as required by proposed substitute claim 22)—when Mills actually discloses that the multi-layer electrode (14) is in fact exposed to the outside for directly contacting the skin of the user.

Thus, at this stage we find that Petitioner has not explained how Mills provides a teaching for the "inner surface" limitation recited in proposed substitute claim 22.

Petitioner also has not shown how Markel would remedy this deficiency of Mills. Petitioner has not identified where Markel shows an electrode/lead pad embedded in an *inner surface* of a bezel. Rather, Petitioner relies on Mills for the "inner surface" limitation of proposed substitute claim 22, and relies on Markel for "disclos[ing] a first pad (electrode) embedded in a bezel." *See* Opp. 13–14.

We have reviewed Petitioner's cited portions of Markel and do not find that they describe an electrode/lead pad embedded in an *inner surface* of a bezel. Although Markel appears to disclose a bezel (or what it calls "a border of the display" or "border portion of the display device," *see* ¶¶ 44, 78, *see also* Opp. 12–13 discussing Markel's "bezel"), Markel does not provide a teaching of a pad (of a lead) being "embedded *in an inner surface* of the bezel [(or 'border portion')]" as required by proposed substitute claim 22. *See* Mot. App. (proposed substitute claim 22) (emphases added). Rather, Markel states that its electrodes "may be *disposed on* a video display device 140 (e.g., a border of the display or integrated into a touch screen)" (¶ 44 (emphasis added)), "*placed on (or*

[6] We observe the '257 patent itself distinguishes a *bezel* from a *conductive plating* applied to electrodes/leads. *See* Ex. 1001, 9:8–10 ("a conductive coating can be applied to leads **322** and **324** to match the color, tone and reflectivity of bezel **310**").

proximate to) an audio output portion 142 (e.g., a speaker) of the MCD" (¶ 44 (emphasis added)), "*disposed on* a main body portion 110 of the MCD 100" (¶ 45 (emphasis added)), located "*on a border portion* of the display device" (¶ 78 (emphasis added)), or located "*on a first [or second] side* of the display device" (¶ 78 (emphasis added)). This description in Markel does not appear to disclose an electrode pad being *embedded in an inner surface* of Markel's device body or border.

Petitioner also references paragraphs 37, 38, 40, 44, 45, and 68 of Markel in support of the obviousness arguments. *See* Opp. 13 (citing Ex. 1005 ¶¶ 37, 38, 40, 44, 45, and 68). We observe that Markel's paragraphs 37, 44, and 68 (together with paragraph 35) describe electrodes that are *exposed to the outside for directly contacting a user's skin*, as the paragraphs reference "an electrode [that] may comprise a metallic surface exposed for user contact," a user "touching the electrodes," and electrodes placed to "provide for electrode contact with an ear or cheek of a user of the MCD." *See* Ex. 1005 ¶¶ 35 ("touching the electrodes"), 37, 44, 68. Markel's paragraph 40 (which Petitioner references for disclosing "concealed electrodes," *see* Opp. 13–14), provides that

> an electrode (or all electrodes) or other sensor may be *substantially concealed (or hidden) from a user*. For example and without limitation, *an electrode may comprise molded conductive plastic with little or no visible indication of the electrode presence*. In various exemplary scenarios, *a user need not be aware of the presence of the electrode*.

Ex. 1005 ¶ 40 (emphases added). It appears paragraph 40 merely discloses that *electrodes/leads include an outside conductive plastic* ("an electrode may comprise molded conductive plastic," ¶ 40) of a particular appearance that makes the electrode "substantially concealed (or hidden) from a user." *See id.* ¶ 40; *see also id.* ¶¶ 37 ("an electrode may comprise a metallic surface exposed for user contact. Also for example, an electrode may be formed from conductive plastic"), 38 ("an electrode may comprise one or more projections to enhance conductive contact with a user" and "an electrode may comprise one or more depressions or indentations to enhance conductive contact with a user"). We do not see paragraph 40 of Markel as disclosing an electrode pad that is *embedded in an inner surface of a bezel* (as required by proposed substitute claim 22). Finally, we note Markel's paragraph 45, which provides that "[a] first electrode may, for example, be placed on the left side portion **410** (e.g., placed on or molded

into region **410***b*), and a second electrode may, for example, be placed on the right side portion **420** (e.g., placed on or molded into region **420***b*)." Ex. 1005 ¶ 45. This paragraph does not specify that the electrodes are embedded *in an inner surface* of a bezel or MCD (Markel's main body portion 110).

Petitioner's additional arguments regarding an ordinarily skilled artisan's motivation "to combine Markel's concealed electrodes with Mills' metal plating" (*see* Opp. 14) do not identify why Markel and Mills would lead the ordinarily skilled artisan to an electrode pad embedded in an inner surface of a bezel (as recited in proposed substitute claim 22). Petitioner's support for these arguments relies upon (i) Petitioner's arguments regarding "Markel's concealed electrodes" and "Mills' metal plating" (which we find insufficient, as discussed *supra*) and (ii) paragraphs 84–87 of the initial Declaration of Mr. Oslan (Ex. 1003) which do not address limitations of the proposed substitute claims (such as a "pad [that] is embedded in an inner surface of the bezel").

Thus, based on the current record, Petitioner does not appear to have shown a reasonable likelihood that Markel and Mills disclose or suggest a lead "pad [that] is embedded in an inner surface of the bezel [that extends around the touch screen display]," as recited in proposed substitute claim 22. Petitioner also does not appear to have shown a reasonable likelihood that Markel and Mills disclose or suggest all limitations of **proposed substitute claims 23 and 24**, which depend from proposed substitute claim 22 and therefore require the "first pad . . . embedded in an inner surface of the bezel" recited in proposed substitute claim 22.

With respect to other limitations in proposed substitute claims 23 and 24 (i.e., second and third adjacent pads that contact the user's skin/hand, and electrically isolating component between the pads), it appears that Petitioner has sufficiently shown that Markel and Mills disclose or suggest these other limitations (*see* Opp. 15–18).

Thus, based on the current record, Petitioner does not appear to have shown a reasonable likelihood that Markel and Mills disclose or suggest all the limitations recited in proposed substitute claims 22, 23, and 24.

Proposed substitute dependent claim 25 adds limitations directed to the positioning of the first pad in an electrically conductive metal bezel. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 25 depends from original claim 1 and recites that "the first pad is

embedded in an inner surface of an electrically conductive metal bezel that forms a portion of an exterior surface of the electronic device" and "the second pad is exposed on the exterior surface of the electronic device for direct contact from a user." *See id.*

With respect to claim 25's "first pad [that] is embedded in an inner surface of an electrically conductive metal bezel that forms a portion of an exterior surface of the electronic device"—which is similar to the limitation of a "first pad [that] is embedded in an inner surface of the bezel" recited in proposed substitute claim 22—Petitioner's obviousness analysis relies upon its previous analysis in section IV.A.2 of the Opposition. *See* Opp. 19; *see also id.* at 13–14 (section IV.A.2 discussing obviousness of proposed substitute claim 22 in view of Markel and Mills). As discussed *supra* with respect to proposed substitute claim 22, at this stage and based on the current record, we are not persuaded by Petitioner's assertions that Markel and Mills disclose or suggest an electrical pad embedded in an inner surface of a bezel.

Thus, based on the current record, Petitioner does not appear to have shown a reasonable likelihood that Markel and Mills disclose or suggest all the limitations recited in proposed substitute claim 25.

Proposed Substitute Claims 26

Proposed substitute dependent claim 26 adds limitations directed to the processor. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 26 depends from original claim 1 and recites "the processor [of claim 1] is further configured to extract one or more characteristics of the detected cardiac signal and compare the extracted one or more characteristics with one or more characteristics previously stored in memory that were associated with an authorized user" and "if the extracted one or more characteristics match those of an authorized user, the electronic device authenticates the user." *See id.*

Petitioner contends proposed substitute claim 26 is obvious over Markel and Mills. Opp. 19–20. In particular, Petitioner relies on Markel's paragraphs 85, 98, and 130 for a "processor [that] extracts a characteristic of the cardiac signal and compares it to previously stored characteristics of an authorized user." Opp. 19–20. Petitioner also relies on Markel's paragraphs 93 and 98 for "perform[ing] a comparison to identify a user's cardiac signal from "acquired information in the memory 1740 (e.g., indexed by user identification).'" Opp. 20. And Petitioner relies on

Markel's paragraph 97 for concluding that "Markel's device 'authenticates' an 'authorized user.'" *Id.*

Petitioner's reliance on these portions of Markel does not appear to show a reasonable likelihood that the teachings of Markel teach or suggest the user authentication operations recited in proposed substitute claim 26, by which a compared and matched "detected cardiac signal" from a user is used to "authenticate[] the user." *See* Mot. App. (proposed substitute claim 26). That is, claim 26's processor authenticates a user based on the user's detected cardiac signal. *See id.*

Markel's paragraphs 85 and 93 do not discuss user authentication; rather, they describe a "cardiac information acquisition module 1710" in a mobile device 1700 that acquires the user's cardiac signal. *See* Ex. 1005 ¶¶ 85, 93. The "profile (e.g., stored in the memory 1740)" (*id.* ¶ 93) includes "acquisition constraints or directives" for the acquisition of cardiac information and "information-directing behavior of the cardiac information acquisition module 1710 (e.g., timing behavior, triggering behavior, sensor interface behavior, UI behavior, etc.)." *See id.* Markel does not specify that the "profile" described in paragraph 93 includes cardiac signal characteristics previously stored in memory that were associated with an authorized user and are to be used for user authentication (as recited in proposed substitute claim 26).

Markel's paragraph 97 provides that the "cardiac information acquisition module 1710 may . . . be adapted to identify the user of the MCD 1700" and "such identification (or authentication) may be utilized in an exemplary scenario where a variety of users may be utilizing the MCD 1700," whereby "the acquisition module 1710 may be adapted to acquire cardiac information for a plurality of different users and to segment such information according to user identity." *See id.* ¶ 97. Paragraph 97 therefore provides that a user may be identified or authenticated, but the paragraph does not disclose *how* the user is authenticated or identified, and more particularly, does not disclose that *the user's detected cardiac signal/information is used to authenticate or identify the user* (as in proposed substitute claim 26). Rather, Markel states that identifying a user allows cardiac information acquired from that user to be "segment[ed] . . . according to user identity" (*id.* ¶ 97), to be "store[d] . . . in the memory 1740 (e.g., indexed by user identification)" and "access[ed] . . . from the memory 1740" (*id.* ¶ 98), and to be "analyze[d] . . . by, at least in part, performing spectral analysis on a cardiac signal" and "determining a

difference between a current cardiac signal at least one previous cardiac signal, and determining the existence of a cardiac pathology based, at least in part, on spectral analysis of the determined difference" (*id.* ¶ 130).

Petitioner's reliance on Mr. Oslan's associated testimony (*see* Ex. 1051 ¶¶ 182–184 cited at Opp. 20) does not appear to show a reasonable likelihood that the teachings of Markel render obvious the authentication limitation recited in proposed substitute claim 26. Mr. Oslan's testimony relies on paragraphs 98 and 130 of Markel; however, these portions of Markel do not provide persuasive support for the proffered testimony and for Petitioner's position (as discussed *supra*). Petitioner (and Mr. Oslan's referenced testimony) also relies on Exhibit 1055 (*see* Opp. 20, Ex. 1051 ¶ 183), but Petitioner has not established (or even attempted to establish) that the ECG technology described in Exhibit 1055 (which "collected ECG data at two electrode placements. . . . at the base of the neck and fifth intercostal spacing (chest)" and cautions that "[t]he magnitude of the electrical potential [measured in an ECG signal] varies with the placement of electrodes relative to the heart," *see* Ex. 1055, 134, 139) is suitable for, and combinable with, the cardiovascular monitor disclosed in Markel.

Thus, based on the current record, Petitioner does not appear to have shown a reasonable likelihood that the teachings of Markel (and Mills) teach or render obvious a "processor . . . configured to extract one or more characteristics of the detected cardiac signal and compare the extracted one or more characteristics . . . wherein if the extracted one or more characteristics match those of an authorized user, the electronic device authenticates the user" as recited in proposed substitute claim 26.

Proposed Substitute Claims 27–28

Proposed substitute dependent claim 27 adds limitations directed to the positioning of the second pad, and the spatial relationship between the first and second pads. *See* Mot. App. (Claims Appendix). More particularly, proposed substitute claim 27 depends from original claim 1 and further recites that "the exterior surface of the enclosure comprises an exterior surface of the second portion [in which the second pad is embedded, per base claim 1], wherein the second pad is positioned underneath the exterior surface of the second portion of the enclosure," "the first and second pads are adjacent pads," and "an electrically isolating component is inserted between the first and second pads." *See id.*

Petitioner contends proposed substitute claim 27 is obvious over Markel and Mills. Opp. 21–22. Petitioner notes that proposed substitute claim 27 requires both the first and the second electrode pads to be "*positioned underneath the exterior surface* of . . . [a] portion of the enclosure" (emphasis added) and relies upon Markel's paragraph 40 for allegedly "teach[ing] exactly this arrangement." Opp. 21 (citing Ex. 1005 ¶ 40 ("an electrode (or all electrodes) or other sensor may be substantially concealed (or hidden) from a user")).

At this stage and based on the current record, Petitioner's reliance on Markel's disclosure of *concealed or hidden* electrodes does not appear to show a reasonable likelihood that Markel's concealed or hidden electrodes teach an electrode pad *positioned underneath the exterior surface* of Markel' enclosure. Although Markel appears to disclose an enclosure (or what it calls "a border of the display" or "border portion of the display device," *see* ¶¶ 44, 78, *see also* Opp. 21 discussing Markel's "enclosure" in Figure 15), Markel does not appear to provide a teaching of a lead pad being "positioned underneath the exterior surface of . . . [a] portion of the enclosure [with an exterior surface of the enclosure portion forming an exterior surface of the enclosure]" (as recited in proposed substitute claim 27). Rather, Markel states that its electrodes "may be *disposed on* a video display device 140 (e.g., a border of the display or integrated into a touch screen)" (¶ 44 (emphasis added)), "*placed on (or proximate to)* an audio output portion 142 (e.g., a speaker) of the MCD" (¶ 44 (emphasis added)), "*disposed on* a main body portion 110 of the MCD 100" (¶ 45 (emphasis added)), located "*on a border portion* of the display device" (¶ 78 (emphasis added)), and located "*on a first [or second] side* of the display device" (¶ 78 (emphasis added)). This description in Markel does not appear to disclose an electrode pad being *positioned underneath the exterior surface* of a portion of the enclosure.

Moreover, Markel's paragraphs 35, 37, 44, and 68 describe electrodes that are *exposed to the outside for directly contacting a user's skin*, as the paragraphs reference "an electrode [that] may comprise a metallic surface exposed for user contact," a user "touching the electrodes," and electrodes placed to "provide for electrode contact with an ear or cheek of a user of the MCD." *See* Ex. 1005 ¶¶ 35 ("touching the electrodes"), 37, 44, 68.

And Markel's paragraph 40 (cited by Petitioner on page 21 of the Opposition) appears to merely disclose that *electrodes/leads include an outside conductive plastic* ("an electrode may comprise molded conductive

plastic") of a particular appearance that makes the electrodes "substantially concealed (or hidden) from a user." *See* Ex. 1005 ¶ 40; *see also id.* ¶¶ 37 ("an electrode may comprise a metallic surface exposed for user contact. Also for example, an electrode may be formed from conductive plastic"), 38 ("an electrode may comprise one or more projections to enhance conductive contact with a user" and "an electrode may comprise one or more depressions or indentations to enhance conductive contact with a user"). Petitioner has not sufficiently explained how Markel's paragraph 40 would teach an electrode pad that is *positioned underneath an exterior surface of the enclosure* (as required by proposed substitute claim 27). We further note Markel's paragraph 45 (which Petitioner asserted against the pad positioning limitations in proposed substitute claim 22, *see* Opp. 13) that provides that "[a] first electrode may, for example, be placed on the left side portion **410** (e.g., placed on or molded into region **410***b*), and a second electrode may, for example, be placed on the right side portion **420** (e.g., placed on or molded into region **420***b*)." Ex. 1005 ¶ 45. This paragraph also does not appear to teach that electrodes are positioned *underneath an exterior surface of the enclosure or MCD* (Markel's main body portion 110).

Petitioner also relies upon Mills' Figure 3B for showing "embedding a base metal electrode (14a, a pad) under a metal plating (14b)." Opp. 21 (citing Ex. 1006 Fig. 3B). Petitioner then relies upon "the plating of Mills" and "[Markel's] concealed electrodes" to infer what an ordinarily skilled artisan would allegedly envision from a combination of Markel and Mills. *See* Opp. 21–22 (citing Ex. 1051 ¶¶ 187–188).

We presented an analysis of Mills' Figure 3B as part of our analysis of Petitioner's obviousness allegations with respect to proposed substitute claim 22, *supra*. As we noted there, Mills appears to disclose that *plated layer 14b* (in Figure 3B) *is in fact part of the multi-layer electrode 14,* the plated metal composition 14b being *that part of electrode 14 that contacts the patient's skin*. *See* Ex. 1006, 2:13–20, 4:1–10, 4:19–24, 4:32–47, 6:57–67, Abstr. As we noted in our analysis of proposed substitute claim 22, at this stage, we are unpersuaded that Mills teaches anything other than *a multi-layer electrode exposed to the outside for directly contacting a user's skin*.

At this stage, Petitioner has not sufficiently explained why *an outer layer* (e.g., 14b in Mills' Figure 3B) *of such a multi-layer electrode* could be considered an exterior surface *of an enclosure* (underneath which the

second lead pad is positioned, as recited in proposed substitute claim 27). Petitioner also has not sufficiently explained why *an inner layer* (e.g., 14a in Mills) of such a multi-layer electrode (14) could be considered to be *positioned underneath* an exterior surface *of an enclosure* (as required by proposed substitute claim 27)—when Mills actually discloses that *the multi-layer electrode 14 is in fact exposed to the outside for directly contacting the skin of the user*.

Thus, based on the current record, Petitioner does not appear to have shown a reasonable likelihood that Markel and Mills disclose or suggest all the limitations recited in proposed substitute claim 27, and all the limitations recited in proposed substitute claim 28 (which depends from claim 27 and includes the "second pad . . . positioned underneath" limitation as well as the further limitation of the enclosure's "metallic conductive portion exposed for direct user contact" to provide a signal path to the "second pad . . . positioned underneath the exterior surface of the second portion of the enclosure"). We note, however, that we also have the following concerns. Although Mills and Markel appear to be limited to electrodes *covered by conductive coatings or plating layers*, the scope of the term "*enclosure*" (as recited in "the exterior surface of the enclosure comprises an exterior surface of the second portion, wherein the second pad is positioned underneath the exterior surface of the second portion of the enclosure" in proposed substitute claim 27) appears to be appreciably broader than, e.g., the scope of the "*bezel*" recited in proposed substitute claim 22, and the scope of the "*electrically conductive metal bezel*" recited in proposed substitute claim 25. Thus, we have concerns as to whether the term "enclosure" (as recited in proposed substitute claim 27) may be construed as broad enough to encompass the *conductive coatings or plating layers that are at the surface of Markel's and Mills' electrodes.*

We note the '257 patent does not appear to define "enclosure," instead providing exemplary language (such as "the device enclosure (e.g., a metallic bezel or housing forming the exterior of the device)," *see* Ex. 1001, 2:48–50). We invite Petitioner and Patent Owner to develop their arguments during trial to address this issue. For example, we invite the parties to address whether the term "enclosure" (as recited in proposed substitute claim 27) may be broad enough to encompass a conductive coating or plating layer that is at the surface of an electrode. We will determine after a complete trial and on a full record, whether Petitioner

will have met the burden to establish obviousness of proposed substitute claim 27 in view of the combination of Markel and Mills.

For completeness, we add that, with respect to other limitations recited in proposed substitute claims 27 and 28 (i.e., adjacent pads, electrically isolating component between pads, first and second pads that contact different hands, and enclosure portions located on a same face of the electronic device), it appears that Petitioner has sufficiently shown that Markel and Mills disclose or suggest these other limitations (*see* Opp. 22–24).

III. CONCLUSION

This concludes the Preliminary Guidance, which is Patent Owner's first option under the Board's pilot program. Notice, 84 Fed. Reg. at 9,497. Patent Owner has an additional option under the Board's pilot program to file a revised MTA by DUE DATE 3. *See* Scheduling Order.

In addition to those two options under the Board's pilot program, Patent Owner is reminded that amendments of the challenged claims may also be pursued in a separate reissue or reexamination proceeding before, during, or after an AIA trial proceeding, including subsequent to the issuance of the Final Written Decision. We draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

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