

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALIVECOR, INC.,
Petitioner,

v.

APPLE INC.,
Patent Owner

Case IPR2023-00950
U.S. Patent 10,076,257

PATENT OWNER'S PRELIMINARY RESPONSE

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LIST OF EXHIBITS

APPLE-2001	Declaration of Dr. Thomas Kenny
APPLE-2002	Curriculum Vitae of Dr. Thomas Kenny
APPLE-2003	Complaint, <i>Apple Inc., v Masimo Corporation, et al.</i> , Case No. 1-22-cv-01378 (D. Del., Oct. 20, 2022)

LIST OF CHALLENGED CLAIMS

Claim Elements	Claim Limitations
1[pre]	An electronic device for detecting a user's cardiac signal, comprising:
1[a]	an enclosure;
1[b]	a heart sensor configured to detect the user's cardiac signal,
1[b.1]	the heart sensor comprising: a first lead comprising a first pad that is embedded in a first portion of the enclosure,
1[b.2]	wherein an exterior surface of the enclosure comprises an exterior surface of the first portion,
1[b.3]	wherein the first pad is positioned underneath the exterior surface of the first portion,
1[b.4]	and wherein the first pad is configured to detect a first electrical signal of the user's cardiac signal via the user's skin's contact with the exterior surface of the first portion of the enclosure; and
1[b.5]	[the heart sensor comprising:] a second lead comprising a second pad embedded in a second portion of the disclosure a second lead comprising a second pad that is embedded in a second portion of the enclosure, wherein the second pad is configured to detect a second electrical signal of the user's cardiac signal via the user's

	skin's contact with at least one of the second pad and the second portion of the enclosure;
1[c]	a processor coupled to the heart sensor and configured to receive and process the detected cardiac signal,
1[c.1]	wherein the first lead further comprises a first connector coupled to the first pad and configured to provide the first electrical signal detected by the first pad to the processor,
1[c.2]	and wherein the second lead further comprises a second connector coupled to the second pad and configured to provide the second electrical signal detected by the second pad to the processor.
2	The electronic device of claim 1, wherein the first portion and the second portion are located on opposite sides of the electronic device.
3	The electronic device of claim 1, wherein the first portion is electrically isolated from the second portion.
4	The electronic device of claim 1, wherein: the first portion is separated from the second portion by a third portion of the enclosure; at least the third portion is constructed from a material having a first conductivity; and

	the first conductivity is insufficient to transmit the first electrical signal from the first pad to the second pad via the third portion.
8	The electronic device of claim 1, wherein: the enclosure further comprises at least one pocket underneath the exterior surface of the enclosure; and at least one of the first pad and the second pad is placed within the at least one pocket.
9	The electronic device of claim 1, further comprising: a display, wherein the enclosure supports the display, and wherein at least a portion of the exterior surface of the enclosure forms at least a portion of an exterior surface of the electronic device behind the display; and a third lead embedded with the display, wherein the third lead is configured to detect a third electrical signal of the user's cardiac signal via the user's contact with at least one of the third lead and the display.
10	The electronic device of claim 1, wherein the second lead is configured to detect the second electrical signal of the

	user's cardiac signal via the user's contact with the second portion of the enclosure.
11	The electronic device of claim 1, wherein the second lead is configured to detect the second electrical signal of the user's cardiac signal via the user's contact with the second lead.
12	The electronic device of claim 1, wherein the first portion of the enclosure is a bezel.
13	The electronic device of claim 1, wherein the second portion of the enclosure is a bezel.
14	The electronic device of claim 1, wherein an interior surface of the enclosure comprises an interior surface of the first portion, wherein the first pad is positioned on the interior surface of the first portion.
15[pre]	An electronic device for detecting a user's cardiac signal, comprising:
15[a]	an enclosure;
15[b]	a display screen exposed to the user through an opening in the enclosure;
15[c]	a heart sensor configured to detect the user's cardiac

	signal, the heart sensor comprising:
15[c.1]	a first lead embedded in a first portion of the enclosure of the electronic device, wherein the first lead is configured to detect a first electrical signal of the user's cardiac signal via the user's contact with at least one of the first lead and the first portion of the enclosure of the electronic device; and
15[c.2]	a second lead embedded in the display screen of the electronic device, wherein the second lead is configured to detect a second electrical signal of the user's cardiac signal via the user's contact with at least one of the second lead and the display screen of the electronic device; and
15[d]	a processor coupled to the heart sensor and configured to process the first and second electrical signals of the user's cardiac signal.
16	The electronic device of claim 15 , wherein the first lead is configured to detect the first electrical signal of the user's cardiac signal via the user's contact with the first lead.

17	The electronic device of claim 16 , wherein the second lead is configured to detect the second electrical signal of the user's cardiac signal via the user's contact with the second lead.
18	The electronic device of claim 16 , wherein the second lead is configured to detect the second electrical signal of the user's cardiac signal via the user's contact with the display screen.
19	The electronic device of claim 15 , wherein: the first portion of the electronic device comprises a bezel of the enclosure; the electronic device further comprises a non-conductive component positioned between the bezel and the display screen for electrically isolating the first lead from the second lead.
20	The electronic device of claim 15 , wherein the first lead is configured to detect the first electrical signal of the user's cardiac signal via the user's contact with the first portion of the enclosure.
21	The electronic device of claim 20 , wherein the second lead is configured to detect the second electrical signal of the user's cardiac signal via the user's contact with the second lead.

22	The electronic device of claim 20 , wherein the second lead is configured to detect the second electrical signal of the user's cardiac signal via the user's contact with the display screen.
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I. INTRODUCTION

The Board should discretionarily deny institution of AliveCor's '257 Petition for at least two reasons.

First, institution should be denied under *both* 35 U.S.C. §§ 314(a) and 325(d) because of the foreseeable and unmitigated consequences of AliveCor's decision to focus its petition on substantially the same art and arguments already presented against the same patent in an earlier filed and currently pending petition, and its further decision to advance its petition nearly three months after the filing of that earlier petition by Masimo Corporation ("Masimo"). *See, generally, Masimo Corporation v. Apple Inc.*, IPR2023-00745 Pap. 4 (Petition) (PTAB Mar. 22, 2023) ("Masimo IPR"); *Gen. Plastic Indus. Co. v. Canon Kabushiki Kaisha*, IPR2016-01357 Pap. 19 (PTAB Sep. 6, 2017) (precedential) ("*General Plastic*"); *Advanced Bionics LLC v. MED-EL Elektromedizinische Gerate GmbH*, IPR2019-01469 Pap. 6 (PTAB Feb. 13, 2020) (precedential) ("*Advanced Bionics*").

Alternatively, and in addition, institution should be denied because the petition fails to demonstrate a reasonable likelihood of success on the merits.

With regard to the procedural deficiencies discussed in detail below under both the *General Plastic* and *Advanced Bionics* frameworks, AliveCor chose to rely, in each of its three grounds, upon the same primary reference (Markel) that was already asserted in Masimo's earlier-filed petition challenging nearly all of the

same claims. *Compare AliveCor, Inc. v. Apple Inc.*, IPR2023-00950 Pap. 2 (Petition) at 1 with IPR2023-00745 Pap. 4 (Petition) at 1.

AliveCor's petition neither acknowledges nor attempts to explain AliveCor's choice to rely on Markel, nor its decision to advance that prior art in substantially the same manner. *See* IPR2023-00950 Pap. 2 at 91 (failing even to mention the Masimo IPR when arguing against discretionary denial), 95 (failing to identify the Masimo IPR as a related proceeding). In doing so, AliveCor disregards the prejudice to Apple that will inevitably flow from AliveCor's decision to largely re-apply the prior art advanced in the pending Masimo IPR proceeding in a manner that is substantially similar to Masimo's mappings of the same reference, and its further decision to re-apply that prior art nearly three months after the Masimo filing. More, AliveCor disregards the kind of prejudice that has been consistently recognized by this Board in resolving to deny institution of past petitions. *See General Plastic* at 16-19; *Valve Corp. v. Elec. Scripting Prods., Inc.*, IPR2019-00062 Pap. 11 at 16-18 (PTAB Apr. 2, 2019) (precedential) ("*Valve*") *Google LLC v. Uniloc Luxembourg S.A.*, IPR2017-02067 Pap. 10 at 8-11 (PTAB Mar. 29, 2018) ("*Google*").

Indeed, AliveCor's choices on content and timing of its petition will lead to precisely the kind of inefficiency, unfairness, abuse, and potential inconsistency that led this Board to deny institution 35 U.S.C. § 314(a) in *Valve*, where the

follow-on petitioner's similar decision to re-apply earlier advanced prior art was criticized for availing that petitioner of unfair insights into arguments/evidence revealed by patent owner when defending its patent within the natural course of the earlier proceedings . *Valve* at 12 (“[m]ultiple, staggered petitions challenging the same patent and same claims raise the potential for abuse,” “allow[ing] petitioners the opportunity to strategically stage their prior art and arguments in multiple petitions” in a way that is “unfair to patent owners and...an inefficient use of the *inter partes* review process....”) (quoting *General Plastic* at 17-18).

The Board has otherwise also noted concerns over unfairness, inefficiency, and potential for abuse and inconsistency when denying institution to similarly problematic petitions under §§ 325(d) and 315(d). *E.g.*, *Google* at 8-10 (denying institution of a follow-on petition under § 325(d) in part because a subsequent petitioner's reliance on a primary reference earlier mapped by a different petitioner would unfairly advantage the subsequent petitioner, and in part because of efficiency concerns implicated by reconciling arguments, issues, and evidence across multiple independent trials).

To be clear, by delaying submission of its petition re-applying Masimo's Markel primary reference, AliveCor positioned itself to use the Masimo IPR proceeding as a roadmap for its selection of arguments and development of evidence, allowing it to leverage insights gained from Apple's submission of

papers and development of evidence in the Masimo IPR proceeding when preparing its witness for deposition, its petitioner's reply, and its oral hearing arguments. Along those same lines, and as a further consequence of AliveCor's choices, Masimo will be able to review *this* briefing in advance of depositions in the Masimo IPR proceeding, and to adjust its deposition and petitioner's reply strategies based on Apple's arguments against AliveCor. Indeed, institution of AliveCor's petition would result in inefficiencies for the Board and unfairness for Apple across the Masimo and AliveCor IPR proceedings, as papers and exhibits filed within the staggered proceedings will provide the petitioners with an opportunity to continually adjust strategies and arguments pertaining to application of the same primary reference in each other's proceedings.

For at least these reasons, and as addressed at length below with respect to the *General Plastic* and *Advanced Bionics* frameworks, the Board should exercise its discretion to deny institution under 35 U.S.C. §§ 314(a) and 325(d).

Second, AliveCor's petition fails to demonstrate a reasonable likelihood that AliveCor would prevail with respect to at least one of the challenged claims in Grounds 1, 2, and 3. As to Ground 1, AliveCor fails to demonstrate how Markel renders obvious claim 1's recitation of "[a] first pad [that] is positioned underneath the exterior surface of the first portion." Notably inconsistent with this limitation,

Markel clarifies that its electrode¹ is placed *on*—not *underneath*—the exterior surface of the portion of Markel’s device, and, contrary to AliveCor’s assertions, nothing in Markel teaches or suggests positioning an electrode “underneath the exterior surface of the first portion” in order to conceal or hide the electrode. Instead, Markel offers a strikingly different approach to concealment,² which relies upon the use of a “molded conductive plastic electrode” at the exterior surface to establish “little or no visible indication of the electrode presence.” EX1005, [0040].³ Indeed,

¹ Markel does not recite an electrode “pad.” To account for this deficiency, AliveCor asserts that “[a] POSITA would have understood that a ‘pad’ is a component of the electrode,” and refers to Markel’s “second electrode” or “first electrode” for the claim features that specify position or characteristics of the pad. *See e.g.*, Pet., 11-21.

² Concealment of the electrode, as alleged by AliveCor, is neither mentioned nor required by the claims, but rather is a concept that AliveCor erroneously conflates with the electrode being “underneath” another layer.

³ Petitioner submitted US 9,451,895 (the ’895 patent) as EX1005, but erroneously cites to paragraph numbers of the corresponding published application, U.S. Appl. Pub. No. 2007/0021677 (the ’677 publication). For the sake of consistency with

through its disclosure, Markel is not silent on how to conceal an electrode, but instead teaches an alternative to the claimed approach, notably concealing the electrode through its formation from molded conductive plastic, not by placing the electrode underneath another structure. AliveCor failed to even acknowledge this critically relevant aspect of Markel, much less to justify how or why a person of ordinary skill in the art (“POSITA”) would consider it obvious to disregard Markel’s solution in pursuit of the claimed approach.

In addition to its primary argument (alleging that Markel renders obvious placing an electrode underneath a conductive plastic), AliveCor alternatively contends obviousness in Ground 1 based on an overly broad and otherwise unjustified interpretation of claim features 1[b.3] and 1[b.4]. AliveCor’s broad interpretation recites: “the surface of an exposed electrode pad [] is configured to detect a cardiac signal via direct contact with the user’s skin.” Pet., 16. This construction should be rejected and not relied upon as a basis for institution, as this Board has consistently denied institution of petitions that attempt to justify the application of prior art based on incorrect claim interpretations. *E.g., Hologic, Inc. v. Enzo Life Sciences, Inc.*, IPR2018-00019, Paper 17 (PTAB, Apr. 18, 2018).

Petitioner’s citations and ease of Board review, Apple has throughout this Preliminary Response cited to the ’677 publication rather than the ’895 patent.

And, even if this construction were sustainable, which it is not, AliveCor fails to demonstrate what parts (plural) of Markel render obvious a claim reciting the following distinct claim features: “exterior surface of the first portion” and “first pad.” AliveCor instead erroneously maps the same single Markel component to both features. *See Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1404-05 (Fed. Cir. 1996) (concluding that when a claim provides for two separate elements, “they logically cannot be one and the same.”).

Ground 2 fares no better, as AliveCor’s case for combinability relies on an inaccurate characterization of Markel and Nissila as pursuing a common goal, which they do not. *See Hirsch Glass Corp., D/B/A Spectrum Quartz vs. Cambria Company LLC*, IPR2022-00583, Paper 7 (PTAB, Aug. 8, 2022). Dr. Kenny explains this in his declaration, exposing AliveCor’s motivation as hindsight-driven. APPLE-2001, ¶¶85-91.

Ground 3 also fails because AliveCor’s purported motivation to combine Markel and Righter is unnecessary and relies on impermissible hindsight. APPLE-2001, ¶¶96-98. The convenience and comfort in the electrode placement that AliveCor asserts as the motivation to combine is already disclosed in Markel. Pet., 87. Ground 3 additionally fails because AliveCor ignores the electrode-user contact requirement explicitly disclosed in each of Markel and Righter.

For at least these reasons, the Board should deny institution.

II. THE BOARD SHOULD EXERCISE ITS DISCRETION TO DENY INSTITUTION UNDER 35 U.S.C. §§ 314(a) AND 325(d)

A. The *General Plastic* Factors Heavily Favor Denial Under § 314(a)

As the Board recognized in its precedential *Valve* and *General Plastic* decisions, “[m]ultiple, staggered petitions challenging the same patent and same claims raise the potential for abuse,” “allow[ing] petitioners the opportunity to strategically stage their prior art and arguments in multiple petitions” in a way that is “unfair to patent owners and...an inefficient use of the *inter partes* review process....” *Valve* at 12 (quoting *General Plastic* at 17-18).

AliveCor’s petition asserts three grounds, all of which rely upon the same primary reference, Markel, which was the primary reference relied upon in Masimo’s earlier-filed and presently pending petition challenging overlapping claims in a manner similar to that advanced by AliveCor. *See* IPR2023-00950 Pap. 2 at 1; IPR2023-00745 Pap. 4 at 1. AliveCor’s petition neither acknowledges nor attempts to explain AliveCor’s choice to rely on the same primary reference earlier applied by Masimo, in a manner that is highly consistent with the Masimo’s earlier application of Markel, or its nearly three month delay in furnishing substantially similar grounds, much less address prejudices that flow to Apple and inefficiencies borne by the system due to its decisions. *See* IPR2023-00950 Pap. 2 at 91, 95.

Nevertheless apparent are the consequences of AliveCor’s choices, both in advancing Markel as its primary reference and in delaying submission of its highly

redundant petition. Institution of both of Masimo's and AliveCor's petitions will unquestionably expose Apple to the kind of prejudice that this Board has recognized and curtailed by denying institution of similarly situated petitions. Absent such denial, AliveCor's decisions will yield access to an advanced preview of arguments and evidence presented by Apple in the Masimo proceeding on issues relating to Markel – the primary reference advanced in both proceedings, and this will in turn provide AliveCor the opportunity to adjust its arguments/evidence to account for Apple positions revealed throughout the Masimo IPR proceeding.

To illustrate the issue, by filing its petition nearly three months after Masimo's, AliveCor has positioned itself to prepare its own witness for deposition with the benefit of undeserved access to Apple's patent owner's response in the Masimo IPR and all of the evidence filed therewith – including the transcript of Apple's deposition of Masimo's witness. Those materials and the Apple positions revealed therein, which will of course address the common Markel primary reference advanced by both petitioners in substantially similar arguments, will provide AliveCor a roadmap informing not only its preparation of their own witness for deposition, but AliveCor's preparation of its petitioner's reply also. Further, and along those same lines, because it staggered its petition filing, AliveCor will prepare its petitioner's reply with undeserved insights into Apple's patent owner's sur-reply in the Masimo IPR – Apple's final substantive paper

setting forth its final arguments with respect to that reference and related arguments. As these examples demonstrate, by its choices on the timing of its petition and the selection of an earlier-applied primary reference, AliveCor has created a situation ripe both for abuse and for potential inconsistency between proceedings, in which Apple's submission of papers and development of evidence in the Masimo IPR proceeding will provide a roadmap for AliveCor's further selection of counterarguments and development of counterevidence when addressing overlapping claims with overlapping art and arguments.

Further, and as addressed in more detail below, AliveCor's choices will extend similar and equally unfair benefits to Masimo to Apple's detriment, as Masimo will gain similar insights into positions/evidence taken by Apple throughout the Apple/AliveCor proceeding, and those insights will enable Masimo to adjust its approach to preempt the same, e.g., at the oral hearing.

For at least these reasons, Apple respectfully submits that the Board should discretionarily deny AliveCor's petition under *both* 35 U.S.C. §§ 314(a) and 325(d).

With respect to 35 U.S.C. § 314(a), *General Plastic* establishes a non-exhaustive list of seven factors informing the Board's considerations in evaluating follow-on petitions, and *Valve* confirms that those same factors apply when evaluating a follow-on petition filed by a different petitioner. *General Plastic* at

16; *Valve* at 9-11. As explained in more detail below, ***all seven General Plastic factors weigh against institution of AliveCor’s petition***, which would as a consequence of AliveCor’s choices create serious unfairness, inefficiencies, and potential for abuse of a process leading to inconsistent outcomes.

1. Factor 1: AliveCor and Masimo are Significantly Related Defendants, and their Petitions Challenge Overlapping Claims based on Markel

As the Board noted in *Valve* when discretionarily denying institution of follow-on petitions filed by a different petitioner, “application of the *General Plastic* factors is not limited solely to instances in which multiple petitions are filed by the same petitioner,” and “[w]hen different petitioners challenge the same patent, we consider any relationship between those petitioners while weighing the *General Plastic* factors.” *Valve* at 2, 9-11.

In *Valve*, the follow-on petitioner and the original petitioner were co-defendants, both accused of infringing the same patent based on the same product, and both having filed petitions challenging the same claims. *Id.*, 9-11. Still, *Valve* weighed factor 1 against institution based both on the “significant relationship between [petitioners] with respect to Patent Owner’s assertion of the [challenged] patent,” and on the overlap in the challenged claims. *Id.*, 11.

Similarly, AliveCor and Masimo are both defendants accused of infringing Apple’s ’257 patent, and both have filed petitions challenging significantly

overlapping claims based on the same primary Markel reference. *See* IPR2023-00950 Pap. 2 at 1 (AliveCor petition challenging '257 claims 1-22 over Markel, claims 1-22 over Markel in view of Nissila, and claims 12-13 and 19 over Markel in view of Righter), EX1016 (Apple's complaint against AliveCor), APPLE-2003 (Apple's complaint against Masimo); IPR2023-00745 Pap. 4 at 1 (Masimo petition challenging '257 claims 1-4 and 8-22 over Markel in view of Mills).

AliveCor and Masimo stand accused of infringing Apple's '257 patent based on different products, but AliveCor and Masimo are significantly related at least insofar as they would both benefit from institution of both of the AliveCor and Masimo petitions, and further insofar as their respective petitions challenge overlapping claims of the '257 patent based on the same Markel primary reference and substantially similar arguments.

For at least these reasons, Factor 1 weighs against institution.

2. Factor 2: AliveCor Should have Known of Markel at the Time Masimo Filed its Petition

As the Board notes in *General Plastic*, the relevant issue under factor 2 “is whether the prior art references relied on in the follow-on petitions...could have been found with reasonable diligence.” *General Plastic* at 20. The Board further noted when weighing factor 2 against institution that Petitioner left the record “devoid of any explanation why Petitioner could not have found the newly asserted

prior art in any earlier search(es) through the exercise of reasonable diligence.” *Id.*

The record here is similarly devoid of any explanation by Petitioner AliveCor of why it could not have found any of Markel, Nissila or Righter with reasonably diligent searching. This alone informs weighing factor 2 against institution, but more, this record offers insights revealing that *Masimo earlier found and applied the Markel reference in its IPR petition* filed nearly three months earlier than AliveCor’s petition, demonstrating that at least the Markel reference was indeed readily available.

For at least these reasons, Factor 2 weighs strongly against institution.

3. Factor 3: the Timing of AliveCor’s Staggered Petition Filing Creates Unfairness, Inefficiency, and Potential for Abuse and Inconsistent Outcomes

AliveCor filed its June 7, 2023 petition nearly three months after Masimo’s March 22, 2023 petition. With its decision to file at this time, AliveCor positioned itself to systematically and unfairly benefit from seeing Apple’s papers and evidence over the course of an instituted Masimo IPR proceeding.

For example, as noted, AliveCor’s petition relies solely upon Markel as a primary reference, and it maps Markel to the majority of the ’257 Patent’s claim limitations in a manner that is substantially similar to Masimo’s mappings of the same reference. IPR2023-00950 Pap. 2 at 1; IPR2023-00745 Pap. 4 at 1.

Consequently, institution of AliveCor’s petition would allow AliveCor to use the

Masimo IPR proceeding as a roadmap, by applying advance knowledge of evidence and papers filed by Apple in the earlier Masimo IPR proceeding when preparing its witness for deposition, its petitioner's reply, and its oral hearing arguments.

In greater detail, because of the choices that AliveCor made regarding the content and timing of its petition, when preparing its own witness for deposition, AliveCor will be positioned to take full advantage of insights unfairly gained into Apple's patent owner's response in the Masimo IPR and all of the evidence filed therewith – including the transcript of Apple's deposition of Masimo's witness. Similarly, when preparing its petitioner's reply, AliveCor will be positioned to take full advantage of insights unfairly gained into Apple's patent owner's sur-reply in the Masimo IPR – Apple's final substantive paper setting forth its final arguments with respect to that reference and related arguments.

Compounding these problems is the feedback effect created by AliveCor's timing, which will enable Masimo to access, before oral hearing in the Masimo IPR, all arguments and evidence that Apple offers in defending against AliveCor's re-application of the same and substantially the same prior art positions, including those that are improved by AliveCor as a consequence of its opportunity to playbook off of Apple arguments and evidence exposed in Masimo's earlier-started IPR proceeding. And, similarly, before even filing its petitioner's reply,

Masimo will gain valuable and leverageable insights into issues pertaining to the same and substantially the same prior art positions explored by Apple with AliveCor's expert in deposition, and addressed in Apple's response to AliveCor's petition.

As the Board recognized in *Valve* and *General Plastic*, strategically staggered petitions "raise the potential for abuse" that is "unfair to patent owners and...an inefficient use of the *inter partes* review process...." *Valve* at 12; *General Plastic* at 17-18. The same concerns of inefficiency, unfairness, and abuse addressed in *Valve* and *General Plastic* are very much at issue as a result of AliveCor's choices.

For at least these reasons, Factor 3 weighs strongly against institution.

4. Factor 4: AliveCor Filed Nearly Three Months after Masimo

Factor 4 focuses on "the length of time that elapsed between the time the petitioner learned of the prior art asserted in the second petition and the filing of the second petition." As discussed above, AliveCor offers no explanation as to why it could not have found the commonly-applied Markel primary reference and the substantially same Nissila and Righter references in a reasonably diligent earlier search, nor why it waited nearly three months after Masimo's petition filing to re-apply Markel on its own, and in combinations with Nissila and Righter

despite an option to join Masimo's earlier proceeding, which already applied Markel, being readily available to it.

More, the fact that AliveCor relies on its secondary references solely for alleged disclosure of limitations that AliveCor earlier attributes to Markel alone highlights both the cumulative nature of Nissila and Righter. And this also reveals the absence of justification for AliveCor's delay in filing relative to Masimo, and the unfairness, inefficiencies, and potential for abuse and inconsistency flowing from its decisions. *See* IPR2023-00950 Pap. 2 at 1; *Advanced Bionics* at 17 (finding a secondary reference to be the same or substantially the same as an earlier-applied primary reference, based on the secondary reference's application against the same claim limitations).

For at least these reasons, Factor 4 weighs against institution. *See Valve* at 15.

5. Factor 5: AliveCor Neither Acknowledged nor Explained the Timing of its Follow-on Petition Relative to Masimo's

AliveCor's petition neither acknowledges nor attempts to explain the timing of AliveCor's follow-on petition relative to Masimo's, nor AliveCor's choice to rely on the same primary reference earlier applied by Masimo. *See* IPR2023-00950 Pap. 2 at 91 (failing even to mention the Masimo IPR when arguing against discretionary denial), 95 (failing to list the Masimo IPR as a related proceeding).

But as a consequence of AliveCor's choices, including AliveCor's nearly three-month delay in filing relative to Masimo, institution of both Masimo's and AliveCor's petitions would systematically and unfairly advantage AliveCor to Apple's detriment, enabling AliveCor to adjust its arguments throughout its IPR proceeding based on Apple positions that will pertain to substantially similar art and arguments, and that will be revealed over the course of the Masimo IPR proceeding.

Further, and as earlier noted, AliveCor offers no explanation as to why it could not have found the commonly-applied Markel primary reference and the duplicative Nissila and Righter references in reasonably diligent earlier search.

For at least these reasons, Factor 5 weighs against institution. *See Valve* at 13-15.

6. Factors 6 and 7: Institution of AliveCor's Petition Would Inefficiently Direct the Board's Finite Resources Toward Litigation of Substantially Similar Art and Arguments Across Staggered PTAB Trials

When weighing Factors 6 and 7 against institution in *Valve*, the Board noted that "having multiple petitions challenging the same patent, especially when not filed at or around the same time...is inefficient and tends to waste resources," and further suggested that efficiency concerns are particularly implicated when

petitions addressing overlapping claims proceed on their own procedural schedules.” *Valve* at 16.

Because AliveCor’s petition relies solely upon Markel as a primary reference, and maps Markel to the majority of the ’257 Patent’s claim limitations⁴ in a manner that is substantially similar to Masimo’s mappings of the same reference, institution of both of the Masimo and AliveCor IPR proceedings would inefficiently direct the Board’s finite resources toward litigating substantially similar art and arguments across staggered PTAB trials.

For example, and as addressed at length above, AliveCor’s choices have created a feedback effect whereby Masimo and AliveCor would each individually have opportunity to access Apple positions revealed in papers and evidence filed across the staggered Masimo and AliveCor IPRs, and to continually refine their respective arguments based on that information. In at least this way, institution of

⁴ There is stark similarity between the mappings provided by AliveCor and Masimo’s petitions. For example, in independent claim 15, both petitioners applied substantially similar mapping and arguments for *all* the claim elements (*see e.g.*, 15[pre]-15[d]). And with respect to claim 1, AliveCor again appears to apply substantially similar mapping as Masimo’s, with significant overlap apparent in all but one claim element (*see e.g.*, 1[b.3]).

AliveCor's IPR would, in addition to inefficiently directing the Board's finite resources toward litigation and potential appeal of substantially similar art and arguments across staggered PTAB trials, yield the potential for inconsistent outcomes of those trials.

For at least these reasons, Factors 6 and 7 weigh strongly against institution. *General Plastic* at 21 ("multiple, staggered petition filings...are an inefficient use of the *inter partes* review process and the Board's resources").

B. The *Advanced Bionics* Framework Also Favors Denial Under § 325(d)

AliveCor's choices attendant to relying upon and advancing the same primary Markel reference as previously presented in Masimo's petition additionally warrant denial of institution under § 325(d). *See Advanced Bionics* at 10 (noting that the question is "whether the art presented in the petition is 'the same or substantially the same' as the prior art previously presented to the Office during *any* proceeding, ***including prior AIA proceedings***"). The Board, for example, discretionarily denied institution of a follow-on petition under § 325(d) in *Google*, based on the petitioner's reliance on a same primary reference earlier mapped by a different petitioner in an ongoing IPR challenging overlapping claims of the same patent. *See Google* at 8-11 (noting that the follow-on petition featured

the primary reference “as prominently as...previously presented IPRs” in which that reference was “being considered on the merits”).

Similar to *Google*, AliveCor’s petition features the same primary Markel reference as prominently as Masimo’s earlier-filed petition; more than that, AliveCor’s petition relies solely upon Markel as a primary reference, and further implies that the Nisilla and Righter secondary references are substantially the same as Markel, at least insofar as those secondaries are only applied against limitations that AliveCor alleges are also obvious over Markel alone. *See Google* at 9; *Advanced Bionics* at 17 (finding a secondary reference to be the same or substantially the same as an earlier-applied primary reference, based on the secondary reference’s application against the same claim limitations).

The Board’s precedential *Advanced Bionics* decision identifies a two-part framework for determining appropriateness of discretionary denial under 35 U.S.C. § 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 [the] 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 at 8-10. If either “condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute *inter partes* review.” *Id.*

As explained in more detail below, both steps of the *Advanced Bionics* framework are met as a consequence of AliveCor’s choice to leverage the same primary reference as earlier presented in Masimo’s petition, without even acknowledging the existence of Masimo’s petition, let alone attempting to address material errors that would flow from the earlier petition’s institution. For at least those reasons, the Board should discretionarily deny AliveCor’s follow-on petition under 35 U.S.C. § 325(d). *See Google* at 8-10 (discretionarily denying a follow-on petition relying “on [the same] primary reference against which the majority of the claim limitations [were] mapped” in pending IPRs, where petitioner failed to address how its application of the primary reference was in any way materially different from the previous IPRs).

1. Step 1: AliveCor Relies upon the Same Markel Primary Reference Previously Applied by Masimo, and on Secondary References that are Substantially the Same Prior Art

Advanced Bionics Step 1 is satisfied either when “the same or substantially the same art previously was presented to the Office,” or when “the same or substantially the same arguments previously were presented to the Office.”

Advanced Bionics at 8-10. Step 1 is here satisfied for both reasons.

AliveCor's petition relies in *every ground* upon the *same* Markel primary reference previously applied by Masimo as a primary reference in its earlier-filed petition, and on secondary references that are substantially the same as Markel itself, at least insofar as AliveCor alleges that the same claim limitations are rendered obvious both by Markel alone, and by Markel in view of those secondary references. *See* IPR2023-00950 Pap. 2 at 1 (AliveCor petition challenging '257 claims 1-22 over Markel, claims 1-22 over Markel in view of Nissila, and claims 12-13 and 19 over Markel in view of Righter); IPR2023-00745 Pap. 4 at 1 (Masimo petition challenging '257 claims 1-4 and 8-22 over Markel in view of Mills); *Advanced Bionics* at 15-17 (noting that references are "substantially the same" when they disclose "substantially the same information already considered by the Office," and finding a secondary reference relied upon in the same manner as a primary reference to be substantially the same as that primary reference).

Notably, AliveCor asserts Markel in *a single reference obviousness ground* in its Ground 1 against *all* of the claims of the '257 Patent and, thus, applies Markel to *every element of every claim* in the challenged patent. Indeed, it would have been easily foreseeable how this brazen application of the same primary Markel reference naturally results in an *overlap on every claim limitation* that Masimo has applied Markel in its earlier petition. This reason alone demonstrates why AliveCor's petition presents the same or substantially the same prior art or

arguments as Masimo's earlier petition; and, as a result, satisfies step 1 of *Advanced Bionics*.

Furthermore, the Board has discretionarily denied institution under § 325(d) based on facts very similar to those at issue in the instant case in which the ***same primary reference*** is applied by a second petitioner. For example, in *Google*, the Board denied institution under § 325(d) when "[the primary reference] was previously presented to the Office in ... previous IPRs, notwithstanding that Petitioner [was] not a party to the previous IPRs and ***the asserted grounds...[were] not exactly the same as the previous IPRs.***" See *Google* at 8. In its decision, the Board explained that its "exercise of discretion to deny institution under §§ 315(d) and 325(d) is warranted for several reasons" including that: "the previous IPRs and the present Petition rely on [the same] primary reference against which the ***majority*** of the claim limitations are mapped," and "[the primary reference] is being considered on the merits in pending IPRs." *Id.*, 8-10.

Likewise, here: AliveCor's petition and Masimo's earlier petition rely on the same primary Markel reference, and the Board is already considering Markel on the merits in the pending Masimo IPR. Further, although Apple had not yet filed its preliminary response to Masimo's petition when AliveCor filed its petition nearly three months later, the significant gap in time that would exist, as a consequence of AliveCor's choices, between staggered Masimo IPR and AliveCor

IPR proceedings addressing the same primary reference would yield unfairness, inefficiency, and the potential for abuse and inconsistent proceedings, as addressed at length above.

Moreover, similar to *Google*, AliveCor and Masimo both apply Markel to the **majority** of features of independent claims 1 and 15 simply because AliveCor chose to apply Markel alone—without reliance to any other reference—in every single claim in its Ground 1. *Id.*, 9 (“our exercise of discretion to deny institution under §§ 315(d) and 325(d) is warranted....the previous IPRs and the present Petition rely on Zydney as the primary reference against which the majority of the claim limitations are mapped”). For instance, with respect to independent claim 15, AliveCor and Masimo’s reliance on Markel extends to nearly every limitation. For at least that reason, the manner in which AliveCor applies substantially overlapping grounds in its petition in comparison to the earlier Masimo petition calls for discretionary denial.

Further, even setting aside the substantially similar nature of Masimo and AliveCor’s reliance on Markel for the majority of the claims, whether AliveCor and Masimo’s application of Markel is “identical in both petition” should not change that outcome because it is undisputed that AliveCor applied the **same** primary Markel reference, and, further, applied it as the **sole reference** in its Ground 1 against **every** claim of the ’257 Patent. As the Board notes in *Google*,

“[the Board has] statutory authority to deny...*because [the primary reference] was previously presented* to the Office in the previous IPR[], *notwithstanding that...the asserted grounds here are not exactly the same as the previous IPRs.*”
Google at 8; *see also id.* (“the statutory authority to deny the petition based on the same previously presented prior art *is not tied to the format of how that prior art is presented or whether every aspect of the asserted grounds is identical in both petitions*”).

AliveCor’s egregious application of Markel as a sole reference in Ground 1 of this Petition clearly demonstrates that step 1 of the *Advanced Bionics* framework has been duly met in this instance and, for this reason, the analysis need not go further. Nonetheless, additional review of AliveCor’s application of its secondary references serves only to further support that step 1 has been satisfied, as discussed below.

The Board in *Advanced Bionics* determined that a secondary reference (Charvin) was the same or substantially the same prior art that was previously presented to the Office, stating:

...Ground 1 relies on at least [the primary reference] to disclose almost all of the limitations of the claims, and *relies on [the secondary reference] solely to disclose limitations that the Examiner previously found disclosed in [the primary reference] in the same manner that the Examiner relied on [the primary reference]*, based on the totality of the evidence presented, we agree

with Patent Owner that Ground 1 includes only “the same or substantially the same prior art that was previously presented to the Office.”

Advanced Bionics at 17. Based on this reasoning, the Board rejected a petitioner’s argument that there were “significant and material differences between the prior art asserted in this Petition and the prior art evaluated during prosecution.” *Id.*, 16. Notwithstanding AliveCor’s failure even to acknowledge Masimo’s similar and prominent featuring of Markel, or to even attempt to address the *Advanced Bionics* framework with respect to Masimo’s earlier-filed petition, the same reasoning applies to the instant case.

Similar to *Advanced Bionics*, AliveCor advances the same primary reference as previously presented to the Office, and AliveCor’s secondary references are relied upon solely for alleged disclosure of limitations that AliveCor already contends are obvious over Markel. *See* IPR2023-00950 Pap. 2 at 1 (AliveCor petition challenging ’257 claims 1-22 over Markel, claims 1-22 over Markel in view of Nissila, and claims 12-13 and 19 over Markel in view of Righter).

For example, AliveCor alleges obviousness of an electrode pad placed *underneath* an exterior surface of a housing enclosure based on Markel alone (Ground 1, limitation 1[b.3]), and alternatively based on Markel in view of Nissila (Ground 2, limitation 1[b.3]). *See* IPR2023-00950 Pap. 2 at 20, 71-72. By its own mappings, AliveCor here confirms that its secondary Nissila reference is, for

purposes of addressing the claims in question, the same or substantially the same prior art as Markel, which was previously presented to the Office in Masimo's earlier-filed petition. The same is true of Righter, where AliveCor alleges obviousness of "the first portion of the enclosure is a bezel" based on Markel alone (Ground 1, claim 12), and alternatively based on Markel in view of Righter (Ground 2, claim 12).⁵ *See* IPR2023-00950 Pap. 2 at 47, 86-87. AliveCor's alternative use of the references for mapping to the same claim features reveals that the AliveCor prior art is the same or at least substantially the same as the Masimo prior art, despite introduction of Nissila and Righter in the AliveCor petition. *See Advanced Bionics* at 19 (finding unpersuasive, "based on the totality of the evidence presented," petitioner's argument that significant and material differences existed between art not previously of record and art that was of record).

Because AliveCor's grounds are based on the "same or substantially the same prior art that was previously presented to the Office," based on the "totality of the evidence presented," which includes AliveCor's own mappings, and which

⁵ AliveCor made similar assertions with respect to features "the first portion of the electronic device comprises a bezel of the enclosure" (claim 19), and "the second portion of the enclosure is a bezel" (claim 13) based on Markel alone, and alternatively based on Markel in view of Righter. Pet., pp. 50, 65, 88-91.

is notably devoid of any attempt by AliveCor to address the *Advanced Bionics* framework with respect to Masimo's petition, the addition of AliveCor's Nissila and Righter references should not preclude the Board's decision to deny institution here.

For at least these reasons, *Advanced Bionics* Step 1 is satisfied. *See Advanced Bionics* at 10 (noting that the question is "whether the art presented in the petition is 'the same or substantially the same' as the prior art previously presented to the Office during...*prior AIA proceedings*").

2. Step 2: AliveCor Does Not Even Attempt to Demonstrate the Potential for Material Error in the Co-Pending Masimo IPR

AliveCor has the burden at Step 2 of demonstrating material error. *Advanced Bionics* at 8-10. In that regard, it is noteworthy that although AliveCor very briefly addresses 325(d) with respect to the '257 patent's prosecution history, it fails even to acknowledge Masimo's earlier-filed petition, let alone to attempt to address material errors that would flow from institution of the earlier-filed Masimo petition, much less any justification for AliveCor's staggered filing of a petition leveraging the same and substantially same art. *See* IPR2023-00950 Pap. 2 at 91 (failing even to mention the Masimo IPR when arguing against discretionary denial), 95 (failing to identify the Masimo IPR as a related proceeding).

AliveCor's silence on Step 2 is dispositive, at least insofar as AliveCor plainly fails to meet its burden. *See Advanced Bionics* at 10 (noting that "whether the art presented in the petition is "the same or substantially the same" extends to the prior art previously presented to the Office during *any* proceeding, including prior AIA proceedings"); *Google* at 8-10 (discretionarily denying a follow-on petition relying "on [the same] primary reference against which the majority of the claim limitations [were] mapped" in pending IPRs, where petitioner failed to address how its application of the primary reference was in any way materially different from the previous IPRs).

More, it was plainly foreseeable to AliveCor that a decision on institution of its petition would follow institution of Masimo's petition, that the Board might be led by Masimo's petition to institute the Masimo IPR based on Masimo's Markel-based grounds, and that institution of both petitions would yield unfairness, inefficiency, and the potential for abuse and inconsistent results. Yet, AliveCor did nothing to suggest material error in Masimo's application of the same and substantially same prior art that might possibly justify AliveCor's follow-on petition, or otherwise shed light on why AliveCor did not advance distinct prior art grounds, or otherwise simply avail itself of the opportunity to join Masimo's earlier-filed petition.

AliveCor filed its petition before institution of Masimo's petition, but as explained earlier with respect to the *General Plastic* analysis, AliveCor's decision to apply the same and substantially same prior art in its staggered petition imposes prejudice upon Apple (and corresponding and yet unjustified benefits for petitioner) that would extend well after institution, and throughout the life of staggered co-pending proceedings, as well as other consequences including inefficiency and the potential for inconsistency.

In fact, institution of AliveCor's IPR would prejudice Apple throughout both the Masimo IPR and AliveCor IPR proceedings, since Masimo and AliveCor would (as explained at length above) have multiple opportunities to unfairly leverage knowledge gained of Apple positions throughout the course of the concurrent proceedings, and to adjust their arguments accordingly. *See* §II.A.3, *supra*. This type of inequity was, for example, recognized and addressed by the Board in *Google*. *See Google* at 10 (indicating that delay in filing of a subsequent petition is a reason for denying institution because the subsequent petitioner would “*gain benefit[of the] responses filed* in the previous IPR[.]”). If AliveCor's petition is granted institution, the gap in time between the two IPR trials yielded by AliveCor's choices will unquestionably prejudice Apple.

Further, and as articulated in *Google*, discretionary denial of AliveCor's petition is warranted at least because the institution of two proceedings that both

address the same Markel reference would seriously undermine efforts to ensure consistency across proceedings. *See Google* at 10 (“[W]e are concerned not only with *ensuring consistency across multiple trials focused on [the same primary reference]*, but also with administrative efficiency because significant resources of the Board would be consumed reconciling arguments, issues, and evidence across multiple, independent trials); *see Google* at 8-9 (“[W]e have discretionary authority, under 37 C.F.R. § 42.122, to issue ‘any appropriate order regarding the additional matter[, i.e., this proceeding,] including providing for the stay, transfer, consolidation, or termination or any such matter.’”); *see also* 35 U.S.C. § 315(d). For at least these reasons, Step 2 of the *Advanced Bionics* framework weighs against institution.

Indeed, discretionary denial of AliveCor’s petition is warranted under *Advanced Bionics* and *Google* at least because the same and substantially same art was previously presented to the Office, and AliveCor failed to meet its burden in articulating material error in Masimo’s application of that art. More, discretionary denial under 35 U.S.C. § 325(d) would serve to reinforce a decision that is also rightly reached under 35 U.S.C. § 314(a), as explained above with respect to *General Plastic* and *Valve*. At core, both analyses resolve toward denial, because they’re each motivated by the same concerns regarding unfairness, inefficiency,

and the potential for abuse and inconsistency that are implicated by AliveCor's staggered filing of a petition leveraging earlier-presented art.

III. THE BOARD SHOULD DENY INSTITUTION BASED ON THE MERITS

A denial of institution of the present Petition is not only justified based on discretionary bases, for reasons addressed above, but also because the Petition fails to demonstrate a reasonable likelihood of establishing unpatentability on the merits for reasons that follow with respect to each of Grounds 1- 3.

AliveCor fails to demonstrate obviousness of at least claim feature 1[b.3] under any of Grounds 1, 2, and 3. To illustrate, Ground 1 fails because contrary to AliveCor's assertion, Markel does not suggest concealing an electrode *underneath* the exterior surface of the device, but instead suggest an alternative and contrary electrode design. Grounds 2 and 3 also fail because the Petition does not demonstrate that a POSITA would have found it obvious to combine Markel with either of Nissila and Righter. And, Ground 3 additionally fails because AliveCor and its expert blatantly ignore the electrode-user contact requirement explicitly disclosed in each of Markel and Righter.

In addressing AliveCor's substantive failures, we begin with an overview of the subject '257 Patent and the applied art to establish a framework for assessing

the noted failures that render the present Petition unsustainable against the standard for institution.

A. THE '257 PATENT

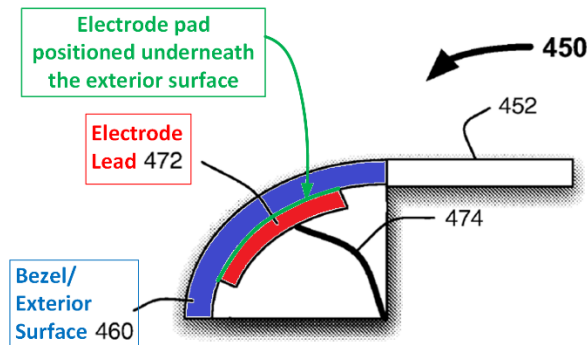
1. Overview of the Specification

The '257 Patent is directed to an electronic device that includes a sensor for detecting a user's cardiac signal. EX1001, 2:1-2; APPLE-2001, ¶¶46-50. Among other benefits, the sensor enables the device to be unlocked in response to "authentica[ting] a user based on the attributes of the user's heartbeat." EX1001, 49-2:3; APPLE-2001, ¶46.

As for cardiac signal collection, the '257 Patent indicates that "heart sensor 112 can include one or more leads connected to the exterior of the electronic device." EX1001, 6:3-8. "The cardiac signals detected by the heart sensor leads can be coupled to a processor incorporated in heart sensor 112, or instead provided to processor 102." *Id.*, 6:10-16. "The processor may then analyze the received signals and generate, from the received signals, one or more characteristic quantities of the user's heartbeat or heart rate for authentication." *Id.*; APPLE-2001, ¶47.

The '257 Patent provides several example configurations for its disclosed electronic device. Among them, "FIG. 4B is a cross-sectional view of [an] illustrative electronic device having a bezel with an embedded heart sensor lead,"

where lead 472 is placed “underneath the outer surface of the bezel.” EX1001, 9:45-49. Lead 472 in FIG. 4B is coupled to a respective connector (474) that “transmit[s] the signals to a processor” of the device. *Id.*, 9:51-52; APPLE-2001, ¶¶48-49; *see also* EX1001, 6:29 (“each lead can include a pad”).



'257 Patent, FIG. 4B (annotated)

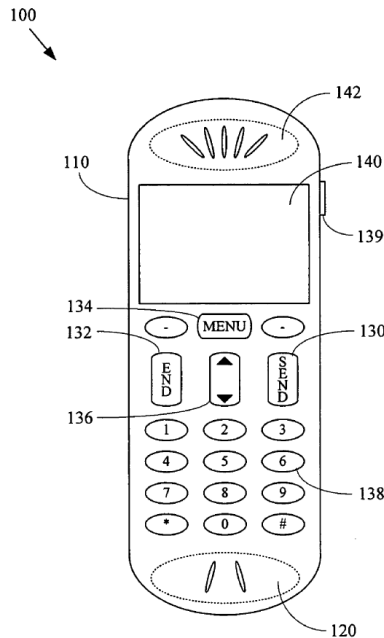
B. GROUND 1 FAILS TO DEMONSTRATE OBVIOUSNESS

Under its Ground 1, AliveCor asserts that claims 1-22 are obvious over Markel alone. Pet., 1; APPLE-2001, ¶51. As explained below, this assertion is unsustainable as it fails, among other things, to account for disclosure by Markel that demonstrates otherwise.

1. Markel: Primary Reference Applied by AliveCor and Masimo

Markel generally discloses “electronic devices with cardiovascular monitoring capability.” EX1005, [0004]. In greater detail, Markel discloses a “mobile communication device [(MCD)] 100” that includes electrodes (which AliveCor points to as the claimed “pads” (Pet., 11)) “adapted to detect cardiac

activity of a user of the [mobile communication device, (MCD)] 100.” *Id.*, [0033], [0035]; APPLE-2001, ¶52.



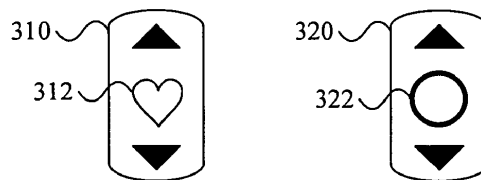
EX1005, FIG. 1

Markel indicates that its electrodes “comprise conductive material” and it describes a configuration in which its electrodes are “formed from conductive plastic (or another material)” that is integrated into various molded components of the mobile communication device. EX1005, [0037]. Markel explains that “various conductive plastics (e.g., graphite-impregnated plastic or the like)” “provide sufficient conductivity for an electrode to perform adequately.” *Id.*; APPLE-2001, ¶53.

Markel explains that its electrodes may be “concealed from the user, and to this point, Markel describes forming its electrodes from “molded conductive

plastic with little or no visible indication of the electrode presence” when “a user need not be aware of the presence of the electrode.” *Id.*, [0039]-[0040].

FIG. 3 depicts examples of *unconcealed* identifiable electrodes. “For example, the first pushbutton 310 comprises a heart-shaped indi[ci]um 312 (or other visible characteristic) to notify a user of the location of the electrode and also the function of the electrode.” *Id.* “Also for example, the second pushbutton 320 comprises a circular projection (or other tactile characteristic) to notify a user of the location of the electrode.” *Id.* In contrast, a ***concealed*** electrode would ***not*** include an indi[ci]um, e.g., indi[ci]um 312 or 322. *Id.*, [0039]-[0040] (“no visible indication of the electrode presence”). APPLE-2001, ¶¶54-55.



EX1005, FIG. 3

In FIGs. 2-6, Markel promotes placement of the electrodes ***on*** different parts of a “cellular or portable telephone” as the MCD. *Id.*, [0045]-[0047], [0050]. Such placement of the electrodes facilitates user engagement with the electrode during the use of the telephone. *See e.g., id.*, [0043] (“the MCD 100 [is] *generally held in the hand* during normal use of the MCD100”); *see also id.*, [0045] (“FIG. 4 provides a non-limiting example of [the] electrode placement,” where “first and

second electrodes may be *disposed on* a main body portion 110 of the MCD 100,” as presented in “FIG. 4”); *id.*, [0046] (“FIG. 5 provides a non-limiting example of [the] electrode placement,” where the electrodes are “*disposed on* a main body portion 110 of the MCD 100 and a pushbutton”); *id.*, [0047] (“FIG. 2 provides non-limiting examples of [electrode] placement,” where the “electrodes may be *disposed on* a same pushbutton of the mobile communication device 100”); (“FIG. 6 provides a non-limiting illustration of [electrode] placement,” where “a first electrode may be *disposed on* a handheld portion of the MCD 100, and a second electrode may be *disposed on* (or proximate) an earpiece of the MCD100.” “Such electrode placement may, for example, provide for *user contact with both electrodes* during the process of listening to the MCD 100”); APPLE-2001, ¶56.

2. Ground 1 fails to demonstrate obviousness of claims 1-22

AliveCor fails to establish a reasonable likelihood of prevailing on the merits in its Ground 1 because Markel does not render obvious the challenged claims. APPLE-2001, ¶¶62-84.

First, AliveCor fails to demonstrate a proper mapping of “wherein [a] first pad is positioned underneath [an] exterior surface of [a] first portion” (Element 1[b.3]) of independent claim 1 because, contrary to AliveCor’s assertion, Markel does not suggest concealing an electrode *underneath* the exterior surface of the device. APPLE-2001, ¶¶72-84. Second, AliveCor attempts to present an overly

broad interpretation of claim elements 1[b.3] and 1[b.4]⁶ based on an unjustifiable alternative construction of independent claim 1. APPLE-2001, ¶¶67-71. And, AliveCor’s attempt to resolve the broad interpretation of the claim that it proclaims obvious in view of Markel is equally unsustainable, as it relies on improperly mapping a single aspect of Markel to each of two distinct claim elements. APPLE-2001, ¶¶63-66.

Accordingly, AliveCor fails to demonstrate that Markel renders obvious independent claim 1 and its dependents claims 2-14.

a) Ground 1 Fails Because Markel Does Not Suggest Concealing an Electrode Underneath the Exterior Surface of the Device

AliveCor fails to demonstrate that Markel discloses or suggests “wherein [a] first pad is positioned underneath [an] exterior surface of [a] first portion” (element 1[b.3]) of independent claim 1. For instance, AliveCor and its expert erroneously allege that based on Markel’s teachings, “[a] POSITA would...have been motivated to place the pad of the ‘second electrode’ *underneath* the conductive plastic of the ‘audio output portion’” because “[t]his would have ‘substantially concealed (or

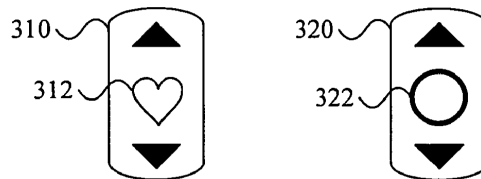
⁶ Claim element 1[b.4] recites “wherein the first pad is configured to detect a first electrical signal of the user’s cardiac signal via the user’s skin’s contact with the exterior surface of the first portion of the enclosure[.]”

hidden)’ the electrode pad from the user[.]” Pet., 20; EX1003, ¶¶135-139. AliveCor is simply wrong. Markel does not disclose or suggest placing an electrode pad *underneath* an enclosure of a device, and this is plainly evident for multiple reasons, as explained below. APPLE-2001, ¶¶72-73.

As an initial matter, AliveCor identifies no Markel disclosure of an electrode hidden by or placed *underneath* a conductive plastic layer. Instead, Markel discloses the use of such conductive plastic to make/form its electrodes, yielding conductive plastic electrodes that are said by Markel to conceal the electrodes contained within them when a “user need not be aware of the presence of the electrode.” EX 1005, [0040]; APPLE-2001, ¶74. Indeed, it is impossible for an electrode, as alleged by AliveCor, to be *underneath* the conductive material when the electrode itself is *made of that same* conductive material.

In more detail, Markel discloses two scenarios: one where the electrodes are identifiable by the user, and the other where the electrodes are “concealed from the user.” EX1005, [0039]; APPLE-2001, ¶75. Markel provides examples to show what it means by identifiable versus concealed electrodes. For identifiable electrodes, “an electrode may comprise *a visible or tactile indicium* to indicate the location of the electrode to a user.” *Id.* For instance, in FIG. 3 (reproduced below) “the first pushbutton 310 comprises a heart-shaped indium 312 (or other visible

characteristic)” and “the second pushbutton 320 comprises a circular projection (or other tactile characteristic) to notify a user of “the location of the electrode.” *Id.*



EX1005, FIG. 3.

Markel then offers insight into what is intended by its reference to *concealed* electrodes, explaining that “an electrode (or all electrodes) or other sensor may be substantially concealed (or hidden) from a user” by having the electrode made of “*molded conductive plastic with little or no visible indication of the electrode presence.*” *Id.*, [0040]. In other words, Markel uses a “molded conductive plastic” to *make or form* its electrode such that the plastic will serve to “conceal (or hide)” the electrode from being identifiable with respect to the rest of the device enclosure. APPLE-2001, ¶76. This is consistent with the rest of Markel, which discloses *forming an electrode from* “conductive plastic,” and molding the conductive plastic into the corresponding portion of the device. *See, e.g.*, EX1005, [0037] (“an electrode may be *formed from* a conductive plastic”); *id.*, [0045] (disclosing that first and second electrodes are placed on, e.g., *molded* into, regions 410b and 420b of the main body, where those regions, too, are *made of* conductive plastic and are separated by an insulating region 415); *id.*, [0047] (disclosing

multiple exemplary pushbuttons that can be *made of* conductive plastic to form an electrode). In other words, the concealed alleged electrode in Markel *is*—i.e., “*made of*” or “*formed from*”—the conductive plastic, not underneath a conductive plastic layer. APPLE-2001, ¶77.

From this, it is apparent why AliveCor failed to cite to Markel teaching or suggesting concealment of an electrodes pad underneath an enclosure of a device, as Markel suggests a specific alternative when concealing its electrodes - making the electrode from conductive plastics, with no mention of positioning the electrode underneath another layer to hide it. Dr. Kenny adds that a POSITA would have understood from Markel’s disclosure that concealment is achieved in Markel by the use of electrodes made from “molded conductive plastic with little or no visible indication,” and that POSITAs would find nothing in cited portions of Markel to inform or encourage placement of an electrode underneath an exterior layer. APPLE-2001, ¶78; EX1005, [0040].

AliveCor further fails to explain why a POSITA would have found Markel’s method of concealment to be deficient in making the electrodes unidentifiable, or why a POSITA would have been motivated in light of Markel’s manner of concealment to nevertheless place an electrode underneath the exterior portion of the device. APPLE-2001, ¶79. And yet, AliveCor contends the obviousness of a modification to Markel’s device, relying on its expert’s unsupported declaration to

conclude in hindsight that hiding the electrode underneath a plastic conductive layer is a form of concealment taught by Markel. EX1003, ¶¶122, 135-139.

As Dr. Kenny has noted, AliveCor's modification of Markel's device, which involves interjecting an intermediate layer and which is necessary to arrive at the claimed invention, is a concept that is never once mentioned in Markel's entire disclosure. APPLE-2001, ¶¶78-80. To this point, nowhere in Markel is there a suggestion to use an alternative embodiment where the electrode would be hidden *underneath* an exterior portion of the device. As such, it would have been understood by a POSITA reading Markel's disclosure, as a whole, that Markel does not teach a method of concealing an electrode by placing the electrode "underneath the exterior surface of" a first portion of the enclosure, as alleged by AliveCor. APPLE-2001, ¶80; *see* Pet., 20.

As a second matter, nowhere does Markel disclose or suggest that its method of concealment involves placing an electrode pad *underneath* an enclosure of a device, as alleged by AliveCor (Pet., 20) because Markel's invention is instead directed to *exposing* its electrodes to *enable a user to contact the electrodes*. APPLE-2001, ¶81. To this point, Markel specifies throughout its disclosure that its electrodes are "disposed on" or "placed on" the exterior surface of the device to "provide for *user contact*" with the electrode. EX1005, [0045], [0050]. For example, with respect to the configurations in Figures 4 and 6, which AliveCor

uses to map to claim 1, the electrode is “**placed on** the right side portion 420,” and “**disposed on** the audio portion 610.” EX1005, [0045], [0050]. “Such electrode placement” in Markel is to “*provide for user contact with both electrodes*” when the user uses the device. *Id.*, [0050].

More specifically, Markel uses the same strategy for its electrode placement on the device’s exterior throughout its disclosure. APPLE-2001, ¶82. Markel starts with providing an “exemplary mobile communication device 100 (‘MCD’).” EX1005, [0033]-[0034]. The electrodes in MCD 100 are “**disposed on** any, any combination of, or all of” the example external device components of MCD 100. *Id.*, [0042]. “Such electrode placement may, for example, provide for **electrode contact with a user** while the user is pushing a particular one or more pushbuttons.” *Id.* Markel then provides examples of where the base for the electrode may be on the exterior body of MCD 100. *See e.g., id.*, [0045] (disclosing that in FIG. 4, “[a] first electrode may, for example, be “**placed on** the left side portion 410 (e.g., placed on or molded into region 410b), and a second electrode may, for example, be **placed on** the right side portion 420.”); *id.*, [0046] (disclosing that the device “in FIG. 5 may comprise a first electrode 510 **positioned on a send button**, and a second electrode **disposed on** the back 520 of the mobile communication device.”); *id.*, [0047] (disclosing FIG. 2, where “electrodes may be **disposed on** a same pushbutton of the mobile communication device 100. In such

an exemplary configuration, *a user may*, for example, *contact both electrodes* while operating the pushbutton.); *id.*, [0050] (disclosing that “a first electrode in [FIG. 6 is] *disposed on* a handheld portion of the MCD 100, and a second electrode may be *disposed on* (or proximate) an earpiece of the MCD100.”).

Even for devices that Markel discloses beyond MCD 100, Markel suggests disposing or placing the electrode *on* an exterior surface of the device. *See e.g.*, *id.*, [0057] (“one or more cardiac sensors (e.g., electrodes) may be *disposed on* a steering wheel, shifting lever or other commonly contacted automobile component.”) *id.*, (“In such an exemplary configuration, each of the left and right hands may *advantageously contact respective cardiac sensors* for extended periods of time and also during stressful situations.”); *id.*, [0076] (disclosing that in FIG. 13, “keyboard 1300 may, for example, comprise one or more cardiac sensors 1310 (e.g. electrodes and/or acoustic sensors) *on a main body portion*.”); *id.*, [0077] (disclosing that in FIG. 14, “an electrode 1410 *on a central main* body portion of the mouse 1400.”); APPLE-2001, ¶83.

From this, it is apparent that concealment is used by Markel to impact the perception of a surface-positioned electrode, which belies movement of electrodes into a position that is underneath an exterior layer, as claimed. Indeed, contrary to AliveCor’s contention, nothing in Markel suggests placing an electrode “underneath” another layer. APPLE-2001, ¶83.

For at least the reasons provided above, AliveCor fails to demonstrate that Markel renders obvious at least claim 1.

b) Ground 1 Also Fails Under a Broader Interpretation of Claim 1

AliveCor also advances a mapping based on a broader interpretation of “wherein [a] first pad is positioned underneath [an] exterior surface of [a] first portion” (Element 1[b.3]) and “wherein the first pad is configured to detect a first electrical signal of the user’s cardiac signal via the user’s skin’s contact with the exterior surface of the first portion of the enclosure” (Element 1[b.4])⁷. AliveCor interpreted these claim elements as encompassing a “surface of an exposed electrode pad that is configured to detect a cardiac signal via direct contact with the user’s skin.” Pet., 16; APPLE-2001, ¶67. This interpretation is referred to by AliveCor as “Apple’s interpretation.” *Id.* By juxtaposing the broader interpretation with a narrower “correct” interpretation in the Petition and its supporting declaration, AliveCor and its expert make clear that they do not actually

⁷ AliveCor refers to both elements 1[b.3] and 1[b.4], collectively, as [1.c.iii]. Pet., 16.

believe the broader interpretation is correct.⁸ *See* Pet., 16-19; EX1003, ¶127 (AliveCor’s expert expressing: “I disagree” with the broader interpretation).

AliveCor’s asserted obviousness under the broader interpretation fails, as it relies improperly upon the mapping of a single prior art component to two distinct features of claim 1. In a first mapping, AliveCor states that “Markel teaches that the second electrode is ‘*positioned on the audio output portion 610*’ of the electronic device” and that “[s]uch electrode placement may, for example, provide for *user contact*’ with the second electrode ‘during the process of listening’ to the electronic device.” Pet., 17 (emphasis in original). In a second mapping, AliveCor states that “[w]ith respect to Markel’s Figure 4 configuration, the second electrode is ‘*placed on the right side portion 420*’ of the electronic device” and “[s]uch electrode placement allows the electrode to ‘*contact a user* during normal (or typical) use of the [electronic device].” Pet., 18 (emphasis in original). AliveCor then argues that because “Markel discloses that its ‘second electrode’ may include an exposed electrode pad that is configured to detect a cardiac signal via direct contact with the user’s skin,” Markel renders obvious claim limitations 1[b.3]-1[b.4]. Pet., 16, 19; APPLE-2001, ¶¶67-70.

⁸ Patent Owner neither adopts nor concedes that AliveCor’s broader interpretation is proper.

In both of its mappings, AliveCor improperly addresses two distinct features of claim 1—i.e., “first pad” and “exterior surface of the first portion”—with the same component in Markel—i.e., an “audio output portion 610” or “the right side portion 420” in Markel. Pet., 17-19. By contrast, independent claim 1 recites an electronic device including “an enclosure,” and “a heart sensor” that comprises the “first pad.” EX1001, 12:21-49. This indicates that the enclosure and the heart sensor are two distinct components of the claimed electronic device. APPLE-2001, ¶71.

The Federal Circuit has held that mapping a single claim component to two distinct components of an invention is legally improper. *See, e.g., Becton, Dickinson & Co. v. Tyco Healthcare Group, LP*, 616 F.3d 1249 at 1254 (“Where a claim lists elements separately, ‘the clear implication of the claim language’ is that those elements are ‘distinct component[s]’ of the patented invention...In the absence of any evidence to the contrary, we must presume that the use of...different terms in the claims connotes different meanings.”); *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1404-05 (Fed. Cir. 1996) (concluding that when a claim provides for two separate elements, “they logically cannot be one and the same.”). AliveCor neither alleges nor offers proof to justify non-application of this presumption.

Furthermore, reliance on AliveCor's broader interpretation, i.e., the alleged incorrect interpretation, is legally improper as it is unacceptable for Petitioner to argue for a claim interpretation that it openly advances as incorrect (e.g., by acknowledging the alternative as "correct"). To this point, the Board has held that a denial of institution is warranted when a petitioner maps the challenged claims to the asserted prior art using the claim construction that the petitioner believed was incorrect. *Hologic, Inc. v. Enzo Life Sciences, Inc.*, IPR2018-00019, Paper 17 (PTAB, Apr. 18, 2018).

In addition to failing to demonstrate obviousness through its primary argument (§III.B.2(a), *supra*), for at least the reasons provided above, AliveCor also fails to meet its burden under its broader interpretation of claim 1.

C. GROUND 2 FAILS TO DEMONSTRATE OBVIOUSNESS

AliveCor fails to demonstrate that Markel in view of Nissila renders obvious claims 1-22 of the '257 Patent. As explained in the following sections, AliveCor fails to demonstrate why a POSITA would have integrated selected portions of Nissila into Markel, as proposed by AliveCor, without relying on impermissible hindsight. APPLE-2001, ¶¶85-91. Accordingly, Ground 2 of the Petition fails.

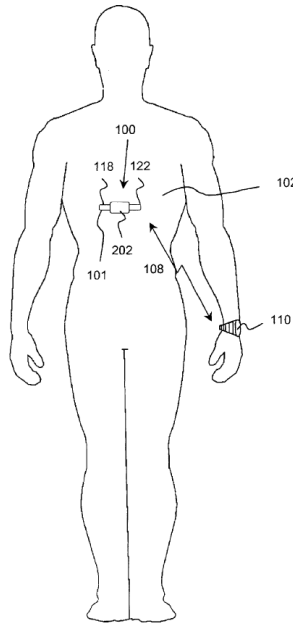
1. Nissila: Secondary Reference Applied by AliveCor

AliveCor asserts that “*Markel* and *Nissilä* share similar goals” because “*Markel* is directed to an electrode that is ‘substantially concealed (or hidden) from a user,” and “*Nissilä* is directed to accomplishing an ‘inconspicuous’ electrode structure.” Pet., 70, citing to EX-1005, [0040] and EX1006, 4:21-24. However, AliveCor attempts to relate single sentences in *Markel* and *Nissila* without taking into account the context in which each of those sentences were presented in the corresponding reference. The context for using “concealment” in *Markel* is not even remotely relevant to the context for using “inconspicuous” in *Nissila*. APPLE-2001, ¶86.

As discussed above with respect to Ground 1, *Markel* uses concealment interchangeably with “unidentifiable,” and discloses a configuration where *the electrode* is concealed/unidentifiable from the rest of the device’s exterior surface when “*a user need not be aware of the presence of the electrode.*” EX1005, [0040]. To the contrary, the whole device—and not the electrodes alone—in *Nissila* is intended to be “comfortable and *inconspicuous to wear.*” EX1006, 2:62-67. Further, since *Nissila*’s device “is attached to the skin 102 of the person’s chest,” the device being “inconspicuous” does not mean that “*the user* need not be aware of its presence,” which is the result of the concealment in *Markel*. Rather the

device in Nissila would be inconspicuous to others. EX1006, 5:18-20; APPLE-2001, ¶87.

More specifically, Nissila discloses a “*band-like*” electrode structure “having an inner surface to be placed against the skin of the person’s chest.” EX1006, 2:16-32; APPLE-2001, ¶¶57-60. “[T]he inner surface of the electrode structure is an adhesive surface *for attaching the electrode structure to the skin of the person’s chest.*” EX1006, 2:16-32. The “*band-like component* of the electrode structure *is of flexible, soft material that fits the skin closely*, and *as a consequence* it is comfortable and *inconspicuous to wear* and does not chafe the skin.” *Id.*, 2:62-67. FIG. 2 of Nissila depicts the “electrode structure 100 placed on the chest 102.” *Id.*, 4:64-65, 5:3-4. “At a first end of the electrode structure 100 there is a first electrode 118 and at a second end of the electrode structure 100 there is a second electrode 122.” *Id.*, 5:6-9.



EX1006, FIG. 2 (illustrating Nissila’s proposed “band-like” electrode structure)

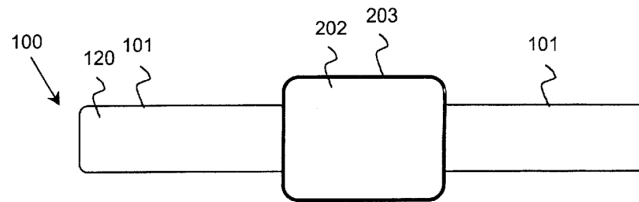


FIG.3

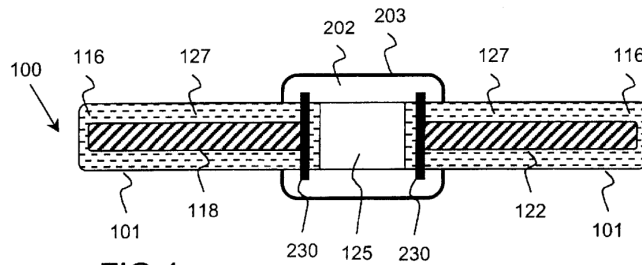


FIG.4

EX1006, FIG. 3 (top), and FIG. 4 (bottom)

2. Ground 2 Fails to Demonstrate Obviousness of Claims 1-22

AliveCor and its expert erroneously allege that a POSITA would have been motivated to combine Markel and Nissila because “[they] share similar goals.”

Pet., 70; EX1003, ¶353; APPLE-2001, ¶86. Even if true, an observation that two references share a common or similar goal has led to skepticism over combinations and denial of institution, when promoted as the primary basis for justifying combinability, as here. *See Hirsch Glass Corp., D/B/A Spectrum Quartz vs. Cambria Company LLC*, IPR2022-00583, Paper 7 at 19-20 (“The mere fact that [prior art reference #1] and [prior art reference #2] ***share a common goal*** of producing products that [achieves a desired trait] ***fails to identify*** what would have prompted the skilled artisan to arrive at the combination in the first place.”).

More, AliveCor is wrong. Markel and Nissila are not in pursuit of a common goal, and this becomes apparent from a comparison of Markel’s reference to electrode concealment and Nissila’s differentiated reference to merely rendering its device “inconspicuous.” APPLE-2001, ¶86.

In greater detail, Markel describes concealing its electrodes from the user in certain embodiments. In particular, Markel explains that an electrode can be “substantially concealed (or hidden) from a user” since the “user need not be aware of the presence of the electrode.” *See* §III.C.1, *supra*; EX1005, [0040]. And to this end, Markel describes an electrode formed using “molded conductive plastic with little or no visible indication of the electrode presence.” EX1005, [0040]. Differently said, Markel promotes concealment of its electrodes by using electrodes made from a conductive plastic material in place of more commonly

known metals, without applying indicia or labeling that would ordinarily be used for identifying the electrodes. APPLE-2001, ¶87. In this way, Markel's electrodes are completely hidden, i.e., "concealed".

In contrast to Markel, nothing in Nissila teaches concealing an electrode from its own user. This stands to reason, as Nissila is directed to an electrode that "measur[es] an ECG signal on the skin of a person's chest" on a device structure that includes "a band-like component [] that is fitted against the skin [] of the person's chest." EX1006, Abstract. Unlike Markel, the user of Nissila's device needs to be aware of the electrodes because "[i]n the solution of the invention, *it is intended* that the electrode structure is placed on the skin of the user's chest." EX1006, 2:61-3:5. Furthermore, as compared to conventional "electrode belts" found in the prior art that are "relatively rigid" structure and may "not bend sufficiently to follow the contours of a human body," Nissila's improved "electrode structure is of *flexible, soft material that fits the skin closely*, and as a consequence it is comfortable and *inconspicuous to wear*." EX1006, 1:58-2:8, 2:61-3:5. And with this added context, it becomes clear that when Nissila states that its "electrode structure is inconspicuous," it is referring to the facts that (i) the electrode structure—i.e., the whole device—is inconspicuous to wear, and (ii) the electrode structure that "fits the skin closely" would not be visible *to others* when

the electrode is facing the user's skin and the structure is placed ***under a user's clothing***. EX1006, 2:61-3:5; APPLE-2001, ¶88.

It is clear that Nissila's usage of "inconspicuous" has nothing to do with visual concealment of electrodes from a user through its placement ***underneath an exterior surface of the housing***, as alleged by AliveCor. APPLE-2001, ¶89.

Instead, Nissila's electrodes are "inconspicuous" ***to others***—not the user—due to its electrodes' flexibility and ability to conform when placed underneath a user's shirt—not an exterior surface of the housing, as alleged by AliveCor. Nothing in Nissila's disclosure describes using a visual concealment of the electrode through, for example, the use of a conductive polymer. Indeed, a POSITA would have understood that visual concealment of the electrode is simply unnecessary for Nissila's electrodes because these electrodes are physically placed underneath the user's clothing. APPLE-2001, ¶89. This is further evidenced by FIGS. 4-9, which are embodiments showing that Nissila's electrodes 118, 122 are shown as visible along the inner surface 116 of the electrode structure 100. EX1006, FIG. 2.

Moreover, AliveCor fails to offer reasons to justify incorporation of the features of Nissila's flexible electrode into electrodes of the type disclosed by Markel, which are part of a protective housing for an electronic device and are not designed for adherence or conformity to a user's body. APPLE-2001, ¶90. Nor could it have, as Markel does not disclose placement of its electrodes under

clothing such that they would necessitate or benefit from being made from a “flexible, soft material that fits the skin closely.” APPLE-2001, ¶90.

Thus, for at least these reasons and those discussed above, it is clear that Markel and Nissila do not share similar goals at all, as AliveCor’s expert purported in his declaration; instead, the goals of these two references are distinct and unrelated. A POSITA would not have been motivated to combine Markel with Nissila, let alone the particular manner AliveCor alleges in order to arrive at the claimed elements. APPLE-2001, ¶90.

For at least these reasons, AliveCor fails to demonstrate that Markel and Nissila render obvious any of claims 1-22. APPLE-2001, ¶¶85-91.

D. GROUND 3 FAILS TO DEMONSTRATE OBVIOUSNESS

1. Righter: Secondary Reference Applied by AliveCor

AliveCor asserts that “[a] POSITA would have combined the electrode placement teachings of *Righter* on the electronic device of *Markel* because the electrode placement in *Righter* is *convenient and comfortable*.” Pet., 87.

Particularly, AliveCor relies on Righter’s disclosure of a “watch” that is “convenient and comfortable for a user to wear,” to assert the obviousness of combining Righter with the devices disclosed in Markel. Pet., 86-87.

Righter’s watch includes a “pair of conductive electrodes 15b, 15c [] provided on opposing side surfaces of the casing 11, where they can be easily

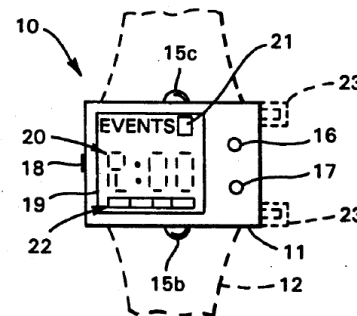
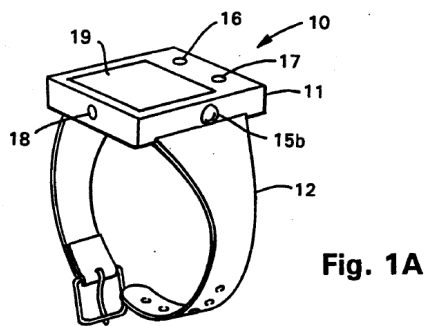
contacted by the thumb and forefinger, respectively, of the user's right hand

(assuming the unit is being worn on the left wrist).” EX1007, 1:65-67, 2:65-3:2;

APPLE-2001, ¶61. Righter emphasizes on the importance of the electrode-skin contact feature, and notes that:

...[the] electrodes are made of a suitable conducting material, preferably silver or silver chloride, and to reduce undesirable ***electrode-skin*** artifact "noise" signals arising from contact variations, at least the side electrodes 15b, 15c ... are small enough in size ***to be covered completely by the user's finger and/or thumb***, and have a curved, as opposed to flat, surface geometry.

EX1007, 5:7-15; APPLE-2001, ¶61.



EX1007, FIGs. 1A (left) and 1B (right)

2. Ground 3 Fails to Demonstrate Obviousness of Claims 12, 13, and 19

Claims 12 and 13 depend from claim 1, and are non-obvious over Markel at least for some of the same reasons discussed above. APPLE-2001, ¶¶92-99.

Specifically, in its use of Righter, AliveCor does not attempt to cure the deficiencies of Markel, for example, with respect to claim feature 1[b.3]. Pet., 86-

89. Nor could AliveCor have credibly alleged that Markel's deficiencies were cured by Righter, or that a combination of Markel and Righter cure those deficiencies. APPLE-2001, ¶92.

For example, as discussed above, Markel is clear that its electrodes are *placed on* the device's exterior surface. Similarly, Righter emphasizes that its electrodes 15b, 15c are "*contacted by the thumb and forefinger.*" EX1007, 2:65-3:2. Indeed, not even AliveCor suggests that Righter would motivate a POSITA to turn away from the surface placement of electrodes taught by Markel, with the contrary and undisclosed placement of an electrode "underneath" an exterior surface of the device (i.e., claim feature 1[b.3]). APPLE-2001, ¶93.

Rather, AliveCor refers back to its flawed interpretation of Markel's disclosure to contend the obviousness of an electrode "substantially concealed (or hidden) from a user," and thus to assert that a combination of Markel and Righter would render claims 12 and 13 obvious. Pet., 87 (citing to para 40 of Markel). But, as discussed above with respect to Ground 1, putting Markel's relied upon disclosure into the context reveals that Markel never suggested hiding an electrode by placing it underneath an exterior surface. Rather, Markel's method of hiding is by making the electrode visually unidentifiable from the rest of the device's exterior surface. APPLE-2001, ¶94.

Further, the design of the electrodes in Righter necessitates them to be in contact with the user's fingers in order to measure the user's ECG. *See e.g.*, EX1007, 2:56-3:2 ("electrodes 15b, 15c are provided on opposing side surfaces of the casing 11, where they can be easily **contacted by the thumb and forefinger**, respectively of the user's [] hand"); APPLE-2001, ¶95. Righter emphasizes that its electrodes 15b, 15c "are made of a suitable conducting material...to reduce undesirable electrode-skin artifact 'noise' signals arising from contact variations," and are "designed to [be] small enough in size **to be covered completely by the user's finger and/or thumb.**" EX1007, 3:7-14. Hiding Righter's electrodes underneath an exterior portion, which is what AliveCor suggests, is against the intended use of Righter's electrodes because by doing so the intended contact between the electrodes and user's fingers will be compromised. APPLE-2001, ¶95.

And, AliveCor's alleged motivation to combine fails because record evidence fails to establish a basis for a POSITA to have believed that combining Righter to Markel would add to the convenience and comfort of using Markel's device. APPLE-2001, ¶¶96-98. AliveCor asserts that "[a] POSITA would have combined the electrode placement teachings of *Righter* on" "the right side portion 420" of "the electronic device of *Markel* **because the electrode placement in Righter is convenient and comfortable.**" Pet., 87. However, AliveCor's

purported motivation is unnecessary and reeks of impermissible hindsight because the configuration shown in FIG. 4 of Markel (which AliveCor uses to assert its combination theory with Righter) already accounts for the user's touching of both electrodes by one hand. This is because the electrodes in that configuration are "placed on" the right and left side portions 410/420, respectively, of the mobile device 400. EX1005, [0044]. Such placement of the electrodes "provide for electrode contact with a user's hand during use of [device 400]." *Id.*, [0043].

Therefore, a POSITA would not seek to combine Markel with Righter for adding this feature, which is already accounted for in Markel. APPLE-2001, ¶97.

AliveCor asserts a similarly deficient motivation to combine Markel and Righter for claim 19 as well. Pet., 90 (referring to arguments made under "Ground 3, [12.a]"). For the same reasons discussed above, AliveCor's asserted theory fails to provide a reason to motivate a POSITA to combine Righter with Markel. APPLE-2001, ¶99.

For at least the reasons discussed above, AliveCor fails to demonstrate that Markel and Righter render obvious dependent claims 12, 13, and 19.

E. CLAIM CONSTRUCTION

AliveCor proposes claim construction for multiple terms recited in claim 1. Petition, 4-5 and 11. On the present record, and at this time, Patent Owner discerns no need to construe explicitly any claim language because doing so would have no

effect on analyses of AliveCor's asserted grounds, and would not assist in resolving the present controversy between the parties. APPLE-2001, ¶¶44-45; *see also Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms that ... are in controversy, and only to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Apple reserves the right to address any construction proposed by Petitioner or the Board.

F. LEVEL OF ORDINARY SKILL

In its petition, AliveCor proffered the following definition of a POSITA:

A person of ordinary skill in the art ("POSITA") at the time of the alleged invention of the '257 Patent would have been a person with a working knowledge of physiological monitoring technologies, a Bachelor of Science degree in an academic discipline emphasizing the design of electrical, computer, or software technologies, and training or at least one to two years of related work experience with capture and processing of data or information, including but not limited to physiological monitoring technologies. More education can supplement practical experience and vice versa.

Pet., 6-7.

Apple disputes AliveCor's asserted POSITA definition for being overly restrictive in view of the subject matter at hand. *Id.* AliveCor fails to provide any

basis for why the skill level of a POSITA should be limited to its proposed definition (i.e., disciplines pertaining to electrical, computer, or software technologies), particularly when the scope of the subject matter and claims of the '257 Patent are largely directed to mechanical aspects and the physical arrangement of the components of devices.

Rather than adopting AliveCor's overly narrow definition, Apple instead offers the following definition for the Board's consideration:

The POSITA of the '257 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.

APPLE-2001, ¶¶42-43.

IV. CONCLUSION

For the foregoing reasons, Apple respectfully requests that the Board deny institution of Grounds 1 and 2 of the present Petition, and thereby deny institution of *inter partes* review of the '257 Patent.

Respectfully submitted,

Date: October 11, 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 12,925, which is less than the 14,000 allowed under 37 CFR § 42.24(b)(1).

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e)(4), the undersigned certifies that on October 11, 2023, a complete and entire copy of this Patent Owner's Preliminary Response were provided via email, to the Petitioner by serving the email correspondence addresses of record as follows:

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