UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MASIMO CORPORATION
Petitioner,

v.

APPLE INC.,
Patent Owner

Case IPR2023-00745
U.S. Patent 10,076,257

PATENT OWNER'S
SUR-REPLY TO PETITIONER'S REPLY

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APPLE-2004	Joint Claim Construction Brief for Apple Asserted Patents from *Apple Inc. v. Masimo Corporation et al.*, Case No. 1-22-cv-01378 (D. Del. Oct. 20, 2022)
APPLE-2005	Definition of "embedded" from Wiley Electrical and Electronics Engineering Dictionary, IEEE Press, Wiley-Interscience (2004)
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APPLE-2011	Transcript of May 15, 2024 deposition of Alan L. Oslan

I. INTRODUCTION

Masimo has failed to meet its burden to demonstrate by a preponderance of the evidence that the '257 Patent claims would have been obvious. In the Patent Owner's Response ("POR"), Apple extensively identified the Petition's multiple, inconsistent mappings of the prior art to the challenged claims. POR, 13-68. As previously discussed, Masimo's arguments in the Petition repeatedly and incoherently jump between different mappings from element to element, failing to provide a clear indication of which mapping is being discussed in any given paragraph. *Id.* In this way, Apple's POR demonstrated that none of the various prior art mappings provide all the requirements for the claimed "first pad" of claim 1.

In its Reply, Masimo now attempts to correct the errors found in the Petition, as identified in the POR, by pivoting to new mappings of the prior art to the challenged claims. However, not only are its new mappings unsupported by the original Petition, but they directly conflict with its own previous arguments, as explained herein. The law forbids post-petition backfilling with new theories and arguments that "could have been included in a properly-drafted petition" from the start. *In re Magnum Oil Tools Int'l*, 829 F.3d 1364, 1378-81 (Fed. Cir. 2016); *Intelligent Bio-Systems, Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) ("utmost importance"). This case is no exception.

Despite the Petitioner's Reply advancing new theories that were not present in the Petition, even if those arguments were considered, these new theories still fall short of providing all elements of the challenged claims. As explained in this Sur-Reply, Masimo's new arguments yet again fail to provide all recited requirements for the "first pad" and, further, fail to provide the "first portion of the enclosure" of claim 1.

Validity of claims 1-4 and 8-22 of the '257 patent should be confirmed.

II. Claim Construction

Masimo does not dispute Apple's construction for "embedded in" and admits that term "embedded in" is narrower than the term "embedded." Pet. Rep., 1 (comparing "the *narrower* phrase 'embedded in'" to the term "embedded")[1]; EX1065, ¶212 ("'embedded in' is narrower than 'embedded.'"). Notably, Masimo's expert does not actually explain how "'embedded in is narrower than 'embedded'" in his declarations. EX1065, ¶212. Remarkably, under questioning, Masimo's expert *could not* articulate how the term "embedded in" is narrower than the term "embedded." Indeed, rather than explain his own claim construction, Masimo's expert instead insisted on verbally parroting the language in his declaration that "embedded in is narrower than 'embedded.'" APPLE-2011, 15:9-

[1] All emphases are added in this document, unless indicated otherwise.

17:6 (when asked about in what aspects "the term 'embedded in' is narrower than the term 'embedded,'" Mr. Oslan responded "I did not do that analysis in my declarations" and could provide no examples of how the two terms differ), 22:21-27:10 (Masimo's expert refusing to indicate how the term "embedded in" is narrower than the term "embedded" and instead reading irrelevant portions of his third declaration in response to questioning).

Masimo's expert also refused to indicate whether he believed any of the various constructions for "embedded" or "embedded in" advanced by Masimo and Apple were correct. APPLE-2011, 28:11-31:18, 13:1-10 (refusing to indicate if he believes the construction of "embedded" in the Petition is correct), 21:3-20. For example, when asked if he had an "opinion on whether the constructions for 'embedded' or 'embedded in' discussed in [his] declarations are correct or not" Mr. Oslan stated "***I did not do an analysis of if they're correct or not***." APPLE-2011, 21:14-22:19. Later, when asked if he agreed with Masimo's district court construction for "embedded in" he appeared to indicate that it was appropriate to have different constructions in the different forums. *Id.*, 28:11-20. Then when asked "which construction [do] you believe to be the correct construction" he responded "[s]o ***I have no opinion on – of these definitions, which is correct***." *Id.*, 28:21-29:8. The fact that Mr. Oslan has provided no analysis for the proper scope

of the term "embedded in" (rather than the broader term "embedded") is summed up by the following exchange:

> **Q. So you have no opinion as to what the correct construction for the term "embedded in" is; is that correct?**
>
> MR. EVERTON: Objection to form.
>
> THE WITNESS: ***So I did not form that opinion***. I only opined on that using any of the definitions of "embedded" or "embedded in" that the '257 claims are unpatentable.

APPLE-2011, 31:11-18.

As such, Dr. Kenny's testimony is the only expert testimony on record as to the proper scope of the term "embedded in" rather than the broader term "embedded." APPLE-2003, ¶¶27-46. The one-sided expert testimony on this issue compels adoption of Apple's proposed construction for "embedded in."

III. Petitioner's Reply Presents Improper New Theories Regarding Ground 1's Application of Mills to Claim 1

As addressed in the POR, Ground 1 of the Petition presents three mappings of Mills to claim 1: a first mapping in which Mills' entire electrode 14 is mapped to the claimed first pad; a second mapping in which the stainless-steel expanse 14a is mapped to the first pad while the 3-micron thick outer-plating 14b is mapped to the "first portion of the enclosure"; and a third mapping in which the top of the trapezoid-shaped leaf spring 62 is mapped to "a pad" while the entire electrode 14

is mapped to the first portion of the enclosure. POR, 16-22 (citing Pet., 18-26, 29, 31).

In its Reply, Masimo now abandons these mappings in favor of new mappings and attempts to leverage the inconsistencies and lack of clarity in the Petition to insist that the originally presented mappings were intended to be combined in ways not actually articulated in the Petition. However, comparison of the theories presented in the Petitioner's Reply with those in the original Petition reveal that Masimo's theories are not only new but contradict positions taken in the Petition. As addressed in the POR, the Board should decline Masimo's invitation "to assume the role of archeologist of the record" and refuse to "piece together Petitioner's inconsistent and contradictory arguments into a cogent and coherent explanation that supports an obviousness showing." *Amazon.com, Inc., et al. v. Avago Technologies General IP (Singapore) PTE. LTD.*, IPR2017-01112, Paper 11 at 13 (PTAB Aug. 23, 2017); *Facebook, Inc. et al v. Uniloc USA, Inc. et al.*, IPR2017-01524, Paper 7 at 19 (PTAB Dec. 4, 2017); POR, 23-27.

As a first issue, Masimo's assertion that it "did not identify the entire electrode 14" as the "first pad" in the Petition but only "identified pad 14a as the 'first pad'" (Pet. Rep., 15-16) is demonstrably false—the Petition repeatedly identified the entire electrode 14 as allegedly corresponding the claimed "first pad":

> Accordingly, Mills discloses a first pad - electrode 14.

Pet., 19.

> Fig. 1 of Mills discloses its electrode 14 (first pad) is "integrally molded" (*i.e.*, embedded) into the housing. EX1006, Fig. 1; 3:8-9; EX1003, ¶59.

Pet., 19.

> 10" – a wrist-worn cardiac data monitor. EX1006, 3:62-67. A POSITA would understand from this disclosure the electrode 14 (pad) of Mills is configured to detect

Pet., 26.

> EX1006 at 4:67 – 5:3; *see also* 4:1-3. Accordingly, leaf spring 62 is a first connector coupling electrode 14 (first pad) to the processor of Mills. EX1003, ¶¶60, 65.

Pet., 31; *see also* EX1003, ¶59 ("first pad 14").

With respect to Masimo's second mapping in the Petition,[2] Masimo modifies this mapping by now arguing, for the first time, that the claimed "first portion" of the enclosure is a combination of an unspecified "upper portion of housing 12 and plating 14b." Pet. Rep., 8, 17 (newly asserting that the "first portion" includes plating 14b and an unspecified "part of housing 12"). Similarly, with respect to

[2] Masimo refers to this mapping as its "First Theory" in the Petitioner's Reply.

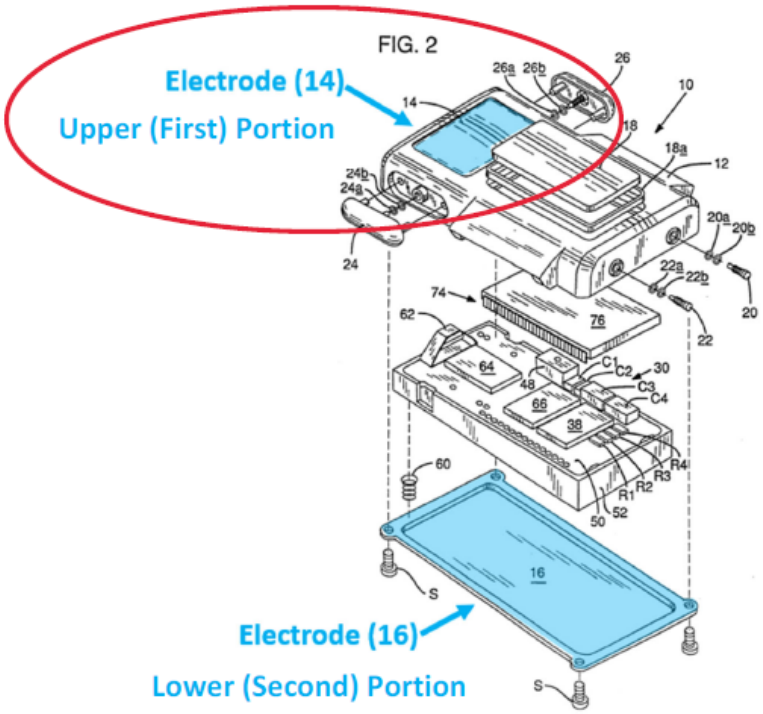
Masimo's third mapping in the Petition,[3] Masimo modifies this mapping by now identifying, for the first time, a combination of "an upper part of housing 12 and electrode 14 as the claimed 'first portion.'" Pet. Rep., 5-6, 18 (newly asserting that an unspecified "upper part of housing 12 and the electrode" together provide the claimed "first portion." But by doing so, Masimo fatally ignores that the Petition never articulated that the claimed "first portion" is a combination of the plating 14b/electrode 14 and some unidentified portion of the housing 12.

Unlike Masimo's alleged new mappings, the Petition repeatedly refers to the plating 14b or electrode 14 ***alone*** as corresponding to the claimed first portion in these two mappings. For example, the Petition states that "the pad (base metal 14a) is positioned underneath the exterior of the ***first portion (conductive surface coating 14b)***." Pet., 21. In another example, the Petition identifies "the exterior surface 14b of the first portion of the enclosure." Pet., 22. Similarly, with respect to its third mapping, Masimo asserts that "***electrode 14 (first portion)*** has an exterior surface 14b." Pet., 24. Masimo then asserts that "the pad of leaf spring 62 is positioned underneath the ***electrodes/first portion***." Pet., 25.

The Petition's annotated drawings further reveal that Masimo's second and third mappings relied on the plating 14b or electrode 14 (respectively) as the first

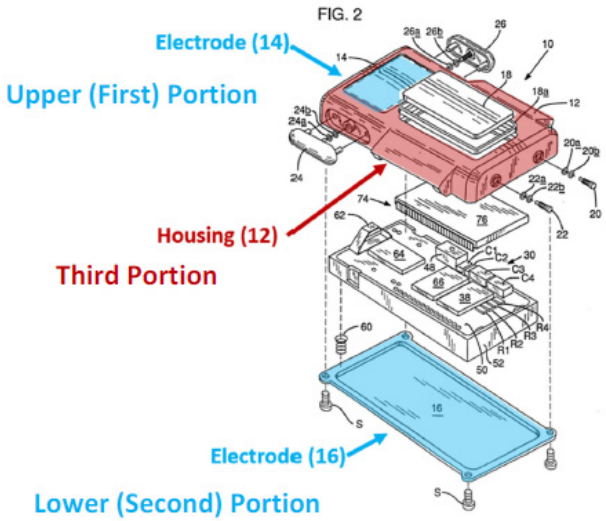
[3] Masimo refers to this mapping as its "Second Theory" in the Petitioner's Reply.

portion, not some combination of the plating 14b/electrode 14 and some unidentified portion of the housing 12. Specifically, the Petition uses color coded annotations and corresponding coloring of the figures of Mills to identify which potions of Mills' device Masimo was mapping to specific claim terms. The Petition includes numerous annotated versions of Mills' FIG. 2 with the text "Upper (First) Portion" in blue and the electrode 14 (not the electrode 14 in combination with a portion of housing 12) colored in the same shade of blue, indicating clearly Masimo's original theory that, in its second and third mappings, either the plating 14b or electrode 14 alone allegedly provides the claimed "first portion."

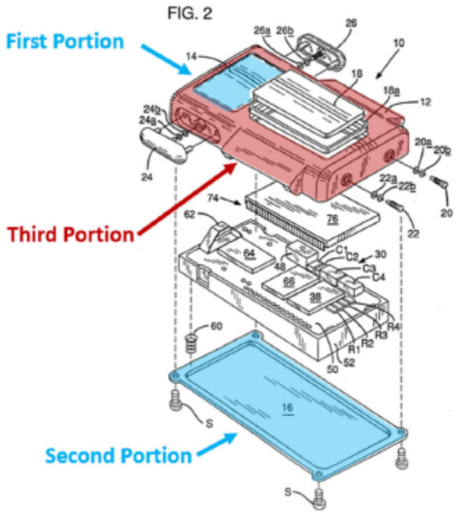


Pet., 34, *see also* 23, 25 (similarly identifying the electrode 14 as the "Upper (First) Portion" using blue text and shading).

Notably, there is indisputable inconsistency between Masimo's assertion that the Petition somehow identified a combination of the plating 14b/electrode 14 and some unidentified portion of the housing 12 as corresponding to the claimed "first portion" and the original Petition's analysis of select dependent claims. To illustrate, Masimo addresses claims 3 and 4 with an annotated versions of Mills' FIG. 2 in which only the electrodes 14 and 16 are colored in blue and identified as the first and second portions, respectively, and ***the entire housing 12 is colored in red and identified as a distinct third portion isolating the first portion from the second portion***:



Pet., 35



Pet., 37

These figures, and the corresponding discussion in the Petition, clearly demonstrate Masimo's original theory of the case: Masimo asserted that either all of electrode 14 or the outer plating 14b of electrode 14b allegedly read on the claimed "first portion' with the housing 12 of Mills' device providing a distinct third portion that operated to electrically isolate the first and second portions. Pet., 34-37. Further, nothing in the Petition indicates that the original mapping for claims 3 and 4 were offered as an alternative mapping. As such, Masimo's new theory that the first portion is a combination of Mills' plating 14b/electrode 14 and some unspecified portion of the housing 12 is in direct contradiction to the previously asserted argument that the housing 12 provides a third portion that electrically isolates the first and second portions of the enclosure. Pet., 34-37.

Masimo's new and tardy theory should be disregarded under the law. *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1330 (Fed. Cir. 2019) (agreeing with the Board's decision "holding [petitioner] to the obviousness theory in its petition"). This new mapping was absent from the petition and should therefore be disregarded because a PTAB final decision cannot rely on such a new theory that "could have been included in a properly-drafted petition, but was not." *Intelligent Bio-Systems*, 821 F.3d at 1369-70 ("obligation for petitioners to ***make their case in their petition***"); *see also Magnum Oil*, 829 F.3d 1364, 1378-81; *Harmonic Inc. v. Avid Tech., Inc*., 815 F.3d 1356, 1363 (Fed. Cir. 2016) ("In an IPR, the petitioner

has the burden from the onset to show with particularity why the patent it challenges is unpatentable."); APPLE-2003, ¶¶61-63.

IV. Masimo's New Theory for Ground 1 Fails To Provide All Requirements of Claim 1 and its Dependents

A. Claim 1 is patentable under Masimo's new theory

Even if Masimo's new theory that the claimed "first portion of the enclosure" is allegedly disclosed by a combination of the plating 14b/electrode 14 and some unspecified portion of the housing 12 had been properly included in the Petition (which it was not), this new mapping still fails to provide all elements of claim 1 because the housing 12 cannot possibly be part of the "first portion of the enclosure" as that element is recited in claim 1.

Claim 1 recites several requirements for the "first portion of the enclosure":

- "a first lead comprising a first pad that is ***embedded in a first portion of the enclosure***." (Elements 1[b(i)]-1[b(ii)])
- "wherein ***the first pad is positioned underneath the exterior surface of the first portion***." (Element 1[b(iv)])
- "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(v)])

The housing 12 of Mills device cannot properly serve as a part of the first portion of the housing at least because it fails to provide this last recitation (Element 1[b(v)]). APPLE-2003, ¶98. As Dr. Kenny previously testified "the housing 12 in Mills is formed from a non-conductive plastic" and "[t]herefore, it is impossible for the user's cardiac signal to be detected 'via the user's skin's contact with the exterior surface ***of the first portion of the enclosure***'…because the housing 12 is non-conductive." APPLE-2003, ¶98 (citing EX1006, 6:40-45; APPLE-2008, 65:8-67:7). Moreover, Masimo's expert confirmed on multiple occasions (e.g., in his initial declaration and both depositions) that the housing 12 of Mills' device is an insulator insufficient to convey "a first electrical signal of the user's cardiac signal via the user's skin's contact" with the housing 12. EX1003, ¶68 ("Mills discloses its housing 12 may be molded plastic, such as acrylonitrile-butadiene-styrene (ABS). EX1006, 6:40-43. Plastics, in general, are well-known electrical insulators and ABS plastic is an electrical insulator."); APPLE-2008, 65:8-67:7; APPLE-2011, 35:6-22. Mr. Oslan also confirmed that contact with the electrodes would be necessary to detect the user's cardiac signal and that contact with the housing 12 would be insufficient to detect the user's cardiac signal. APPLE-2008, 66:3-5 ("in Mills the user 4 would have to contact electrode 14 at least to get an ECG signal"), 66:21-7 (confirming that "contact with both the electrode 14 and the electrode 16 is required to detect the ECG signal"); APPLE-

2011, 36:1-8 ("So to detect a cardiac signal, a user would at least have to touch the electrode 14 and the electrode 16").

The housing 12 of Mills' device therefore cannot be a part of the claimed "first portion of the enclosure" because Mills' device is an insulating plastic and therefore cannot convey "a first electrical signal of the user's cardiac signal via the user's skin's contact" with the housing 12. APPLE-2003, ¶98. Masimo's vague assertions that "Mills's pads are embedded in an enclosure" or that Mills' leaf-spring 62 is "embedded in the device of Mills" (Pet., Rep. 1, 23) are irrelevant because claim 1 requires more than that the first pad be merely embedded in the enclosure or device but rather require that the first pad be embedded in a first portion of the enclosure that is sufficiently conductive to convey a first electrical signal of the user's cardiac signal via the user's skin's contact with the first portion of the enclosure.

The specification of the '257 patent confirms this requirement of the claims that the claimed "first portion of the enclosure" must be sufficiently conductive to convey an electrical signal of the user's cardiac signal. For example, in describing alternative embodiments, the '257 patent states "[t]o provide an electrical signal from the user to the processing circuitry, ***the leads can*** be exposed such that the user may directly contact the leads, or may instead or in addition ***be coupled to an electrically conductive portion of the device enclosure*** (e.g., ***a metallic bezel or***

housing forming the exterior of the device)." EX1001, 2:44-50. In another example, the '257 patent states that "the ***electrical conductivity of portions of the electronic device enclosure*** and the leads are suitably selected and designed" such that "***the leads can be positioned underneath the exterior surface*** of the enclosure ***while providing sufficient conductivity*** for detecting cardiac electrical signals." *Id.*, 2:64-3:13 ("electronic signals can be transmitted through the steel or aluminum enclosure"), *see also* 9:45-48 (describing that "lead 472 can be placed within the thickness of bezel 460 (e.g., in a pocket within the bezel wall), but underneath the outer surface of the bezel" such that the "***bezel 460 can allow electrical signals to propagate from the user to the outer surface of bezel 460, through bezel 460, and into lead 472***, which may in turn transmit the signals to a processor"), 6:33-39 (describing "conductive portions of the electronic device housing" acting as part of the lead).

The '257 patent specification therefore confirms the recitations of claim 1 itself that the first portion is conductive to allow the first pad "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***." APPLE-2003, ¶98. As such, Masimo's new theory fails because Mills' housing 12, which is made of insulating, non-conductive plastic, cannot convey the user's cardiac signal and

therefore does not satisfy the claimed requirements for the "first portion of the enclosure."

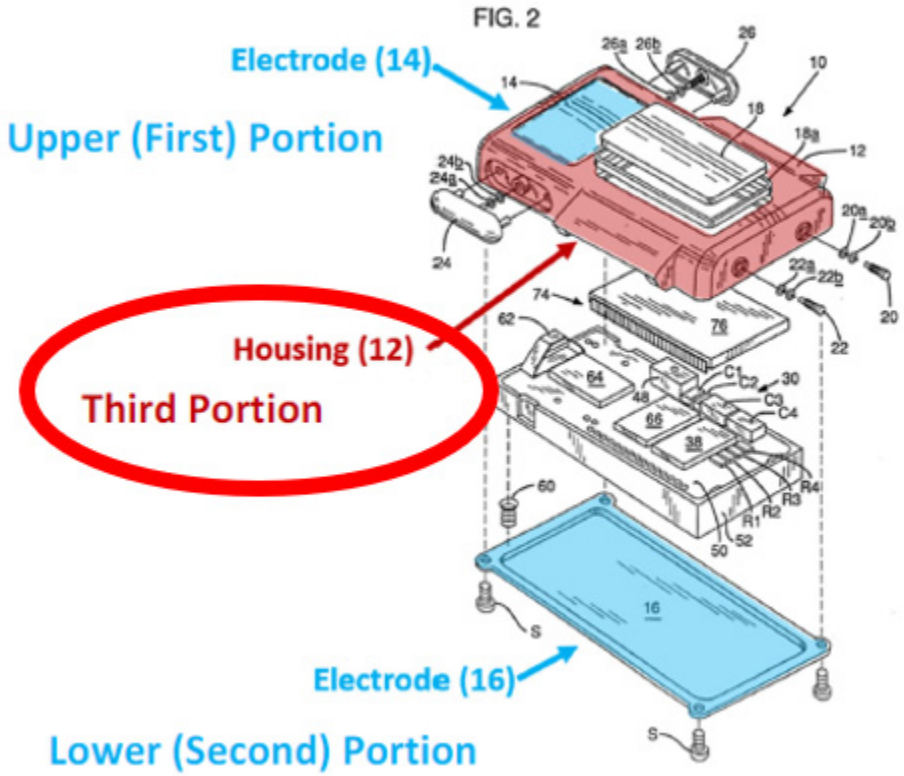
B. Additional considerations demonstrate patentability of Claim 2 under Masimo's New Theory

As discussed above, Masimo newly asserts for the first time in its Reply that the claimed "first portion" is a combination of an unspecified "upper portion of housing 12 and plating 14b" and the second portion is a combination of an unspecified "lower portion of Mills's housing 12 and electrode 16's plating." Pet., Rep., 8, 4. Nowhere in the Petition or the Petitioner's Reply does Masimo identify what part of the respective "upper portion" and "lower portion" of housing 12 allegedly correspond to the claimed first and second portions of the enclosure. Therefore, in addition to failing to disclose claim 1, Masimo fails to identify how its new theory demonstrates that "the first portion and the second portion are ***located on opposite sides of the electronic device***" as required by claim 2 because Masimo does not identify the actual portions of housing 12 that it now asserts provide part of the claimed first and second portions of the enclosure.

C. Additional considerations demonstrate patentability of Claims 3-4 under Masimo's New Theory

As discussed above, in its analysis of claims 3-4 in the Petition, Masimo identifies the entire housing 12 as a "third portion" that electrically isolates the first

portion (Electrode 14) from the second portion (Electrode 16) of Mills' device. Pet., 34-37 ("…third portion of its enclosure, housing 12").



Pet., 35.

The entire housing 12 cannot serve as the insulating third portion that electrically isolates the first portion from the second portion while also simultaneously serving as part of the first portion and/or second portion of the enclosure. For this additional reason, Masimo has failed to demonstrate unpatentability of claims 3 and 4 under its new theory.

V. Masimo's First Through Third Mappings for Ground 1 Still Fail To Provide All Requirements of Claim 1 and its Dependents

In addition to the faults identified with respect to Masimo's new theory for Ground 1 (above), Masimo's first, second, and third mappings, as originally presented in its Petition, still fail to provide all elements of claim 1 for the reasons discussed in the POR. POR, 23-46. Masimo's first mapping (electrode 14 is the first pad) still fails at least because the electrode 14 is not positioned underneath the first portion of the enclosure. *Id.*, 27-30. Masimo's second mapping (plating 14b is the first portion, base metal expanse 14a is the first pad) fails at least because the base metal expanse 14a is not "embedded in" the plating 14b and the plating 14b is not a portion of the enclosure separate from the base metal expanse 14a. *Id.*, 30-39.

Masimo's third mapping (electrode 14 is the first portion, top of leaf spring 62 is the first pad) fails at least because the top of the leaf spring 62 is not embedded in the electrode 14. *Id.*, 39-46. Masimo's third mapping additionally fails because the Petition failed to identify a connector that connects the top of leaf spring 62 to the processor. POR, 44-46. Masimo now asserts, for the first time, that the "bridging portion of the leaf spring" provides the claimed first connector, separate from the "top of the leaf spring." EX1065, ¶265; Pet., Rep., 19. However, no such analysis exists in the Petition's discussion of Element 1[c(i)], which only

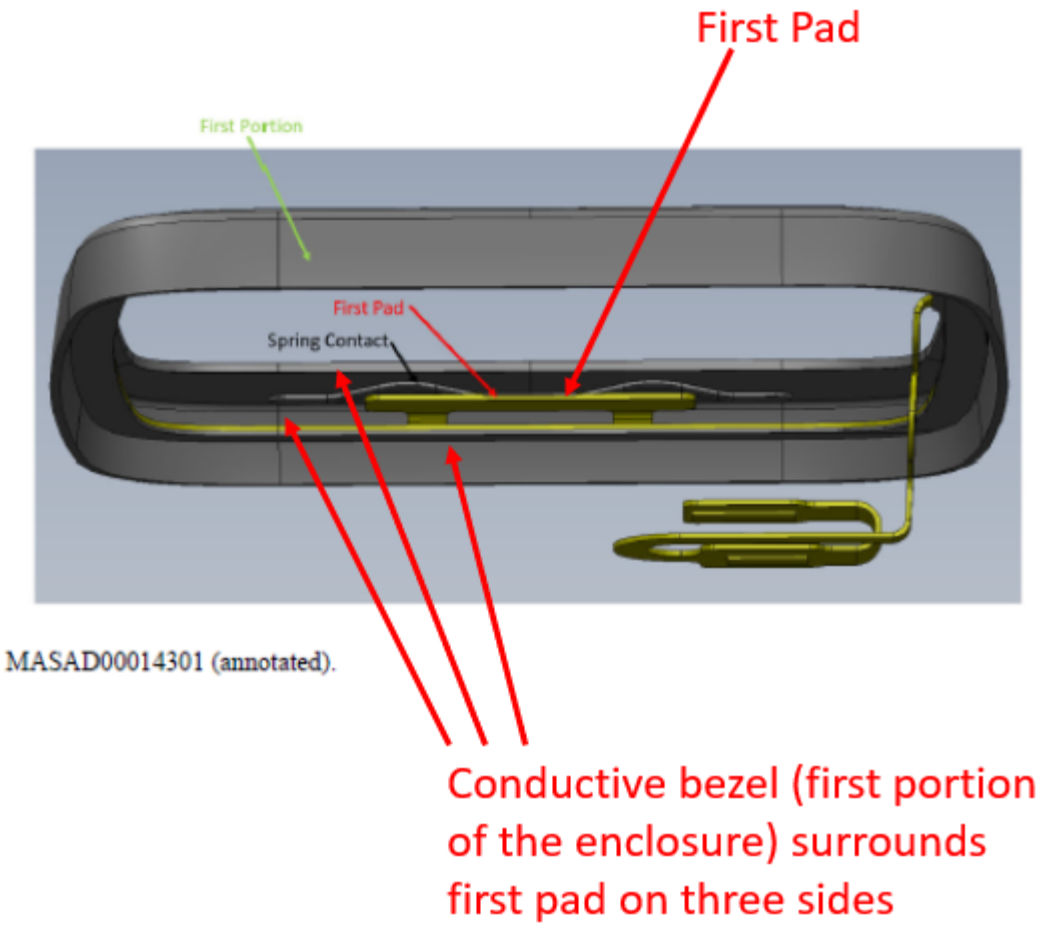
identifies the entire "leaf spring 62 [as] a first connector coupling electrode 14 (first pad) to the processor." Pet., 31. There is simply no discussion of separate "top" and "bridging" portions of the leaf spring 62 in the Petition's analysis of Element 1[c(i)]. Pet., 31-32. Masimo's new theory must be disregarded because it was absent from the Petition's case-in-chief and thereby ignored the "utmost importance" addressed in *Intelligent Bio-systems*, and because a PTAB final decision cannot rely on such a new theory that "could have been included in a properly-drafted petition, but was not." *Intelligent Bio-Systems*, 821 F.3d at 1369; *Magnum Oil*, 829 F.3d 1364, 1378-81

For these and the additional reasons discussed in the POR, Masimo's initial three mappings presented in Ground 1 of the Petition fails to provide all elements of claim 1.

VI. Apple's Infringement Positions are Fully Consistent with its Validity Positions in the Present Proceeding

Apple's positions in the present proceeding are fully consistent with those taken in the District Court. For example, in both forums Apple advocates that "embedded in" be given its plain and ordinary meaning. POR, 5; APPLE-2004, 57. Furthermore, Apple's infringement positions with respect to Masimo's W1 watch are fully consistent with the positions in the present proceeding because the identified "first pad" of the W1 is partially surrounded by the conductive bezel as

identified in the Opening Irazoqui Report. Contrary to Masimo's assertion that the first pad of the W1 is "not…surrounded at all" by the first portion of the enclosure (Pet. Rep., 12-13), the Irazoqui Report clearly shows that the first pad is surrounded on three sides by the conductive bezel (the first portion of the enclosure):



MASAD00014301 (annotated).

EX1063, 3

The entire bezel of the W1 is conductive and therefore serves as the first portion of the enclosure. As shown above, the first pad is surrounded by an upper

portion of the bezel, the side wall of the bezel, and an inner lip of the bezel positioned below the first pad. Apple's district court positions are therefore fully consistent with those taken in the present proceeding.

VII. Ground 2 Fails to Provide All Elements of Claim 1 for the Reasons Addressed in the Patent Owner's Response

A. Masimo's First Mapping for Ground 2 Fails Because the Electrodes Are Positioned on the Exterior of the Device

As discussed in the POR, Masimo's first mapping of the Markel-Mills combination to Claim 1, in which Markel's electrode 410b provides the claimed "first pad" fails because the electrode 410 is an external electrode "disposed on a main body portion 110" of Markel's device to "provide **for *electrode contact with a user's hand***." POR, 53-55; Pet., 42-43; EX1005, [0045], [0043]; APPLE-2008, 84:19-85:6 (Masimo's expert confirming that the electrodes 410b, 420b are on the exterior of the device to allow a user "to touch the electrode in 410b."); APPLE-2003, ¶¶152-154. As such, Masimo's first mapping for Ground 2 fails for the reasons discussed in the POR. *Id.* Masimo now appears to have abandoned this first mapping for Ground 2, asserting that "[t]hese arguments ignore Masimo's proposed combination" in which "Masimo relied on the Mills's [*sic*] leaf-spring pad…as the first pad." Pet. Rep., 22; *see also* Pet., 42 (identifying "[a] first electrode…'placed on or molded into the region 410b'" as "a first pad.").

B. Masimo's Second Mapping for Ground 2 Fails for the Reasons Addressed in the Patent Owner's Response

1. *Masimo's Second Mapping of Markel-Mills to Claim 1 Fails to Provide Element 1[b(i)] for the Reasons Addressed in the Patent Owner's Response*

As discussed in the POR, in Masimo's second mapping for Markel-Mills combination to claim 1, Masimo maps the top of Mills' leaf-spring 62 to the claimed "first pad" and Markel's electrode 410b, stating ""[t]he top of the trapezoid-shaped leaf spring 62 is a pad" and "the ***pad at region 410b is a first portion of the exterior surface*** of the enclosure of the device 400." Pet., 46, 48-49 (discussing "the ***electrodes/first portion 410b*** exterior surface of Markel."), 56 ("region 410b (first portion)"), 57 ("region 410b (first portion)"), 63-64 (discussing "the ***first pad (leaf spring 62 of Mills)*** positioned on the interior surface of the ***first portion (region 410b of Markel)***"); POR, 52-53. The Petition repeatedly included an annotated version of Markel's FIG. 4 in which Masimo identified the Markel's electrode 410b (outlined in blue) as the "1st Portion" (using blue text):

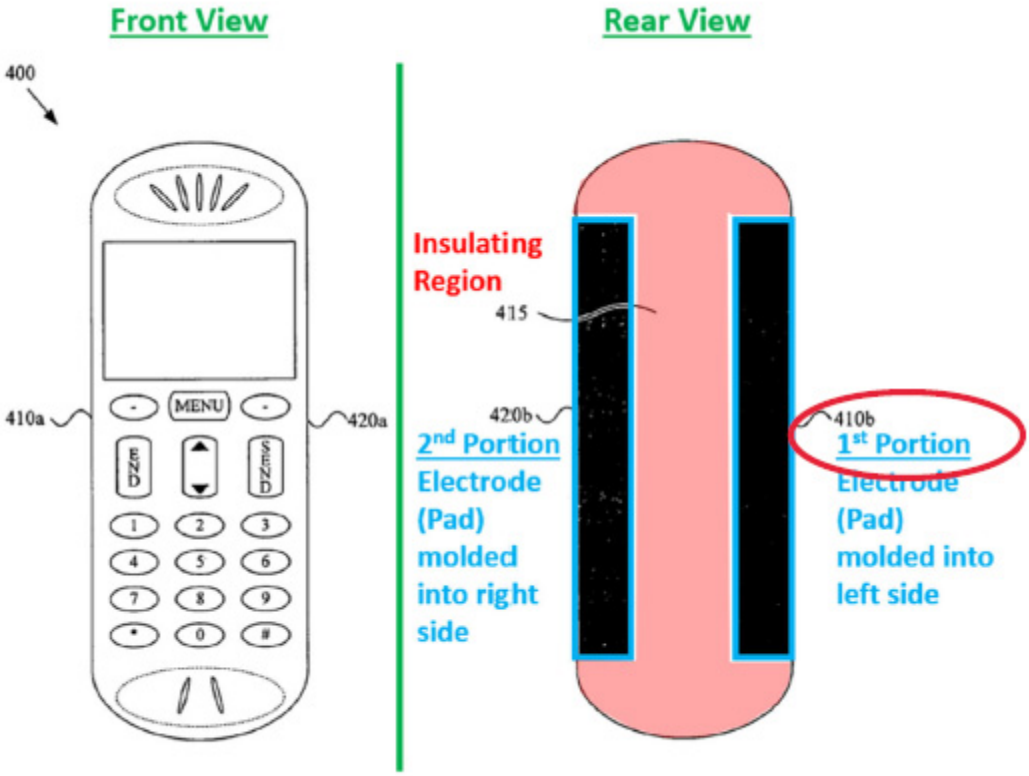
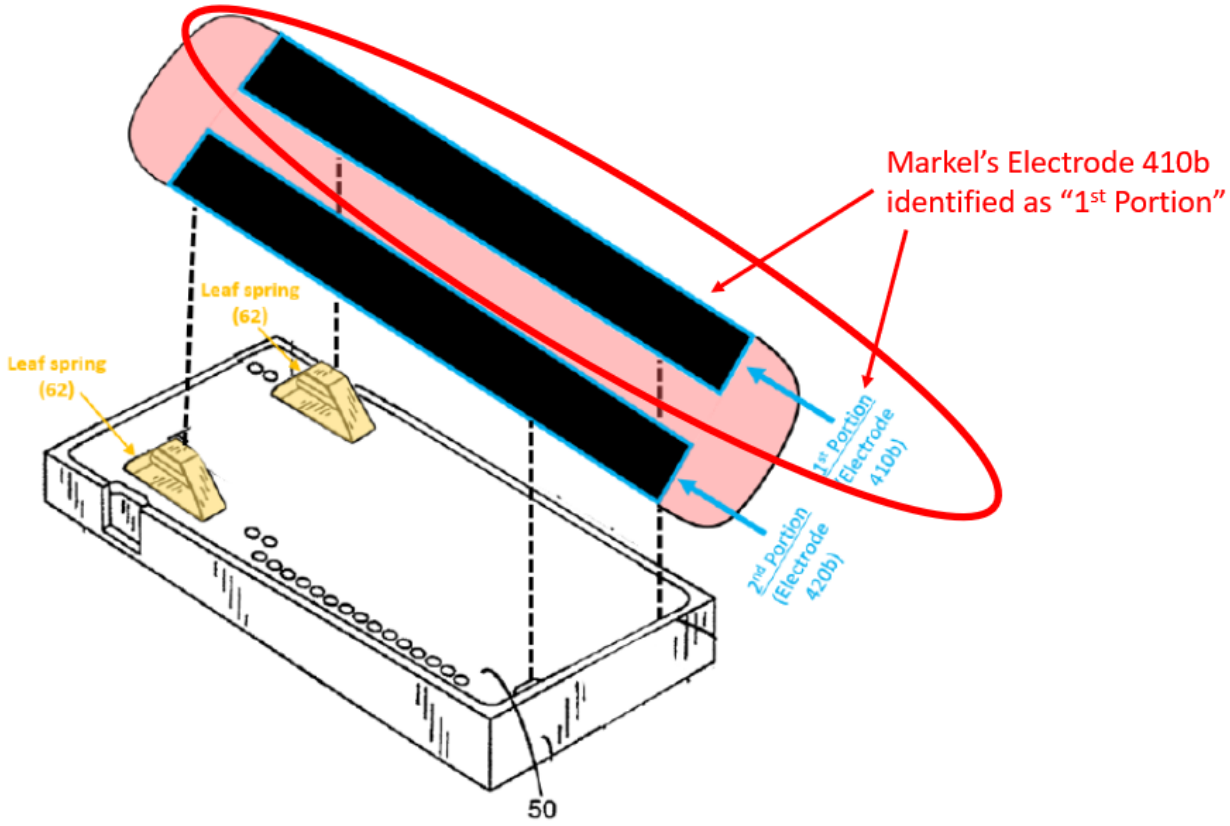


Figure 4

Pet., 43 (further annotated with a red oval by Apple); *see also* Pet., 49, 55, 57, 60, 74, 82; APPLE-2011, 42:4-9 (Masimo's expert stating that "410b is the first portion" in the Markel-Mills combination).

In his most recent declaration, Masimo's expert reiterates this mapping, once again identifying Markel's electrode 410b as a "1st Portion" in his mockup of the combined device of Markel and Mills:



EX1065, ¶292 (additional annotation in red by Apple); *see also* EX1065, ¶296; APPLE-2011, 38:3-39:1 (Masimo's expert confirming that he continues to identify Markel's electrode 410b as the "first portion" in the Markel-Mills combination).

For the reasons discussed in the POR, Masimo's second mapping of the Markel-Mills combination to claim 1 is deficient because Masimo has failed to demonstrate that the first pad (top of Mills' leaf spring 62) is embedded in the first portion of the enclosure (Markel's electrode 410b). POR, 55-57. Specifically, neither the Petition nor the Petitioner's Reply ever describes an arrangement in which the top of Mills' leaf spring 62 (identified by Masimo as the "first pad") is at

least partially set in or partially surrounded by Markel's electrode region 410b (identified by Masimo as the "first portion of the enclosure"). Indeed, all descriptions of the proposed combination of Markel and Mills provided by Masimo and its expert demonstrate that the top of Mills' leaf spring 62 is in flat, parallel contact with the back surface of Markel's conductive electrode region 410b, and not at least partially set in or partially surrounded by the electrode region 410b in the device resulting from the combination of Markel and Mills. APPLE-2003, ¶¶157-166.

For example, Masimo asserts that in the Markel-Mills combination the "top pad portion" of the leaf spring 62 of Mills "is placed underneath an exterior surface material and ***against an inner wall*** of the exterior surface material." Pet., 48. Masimo's expert reiterated during his most recent deposition that in his proposed combination of Markel and Mills, the top of leaf spring 62 of Mills would be merely contact the back side of the electrode region 410b. APPLE-2011, 37:1-19, 40:3-11. Specifically, Masimo's expert stated that in his proposed combination of Markel and Mills "***the backside of electrode 410b is in electrical contact with one of the leaf springs***." *Id.*, 40:3-11. However, it is not sufficient that the top of Mills leaf spring 62 be merely "placed…against an inner wall" of the first portion of the enclosure but rather Element 1[b(i)] requires that the "first pad…***is embedded in*** a first portion of the enclosure." APPLE-2003, ¶¶157-159, 162 (Dr. Kenny stating

that "two flat surfaces being placed in parallel contact with each other does not constitute the leaf spring 62 being 'embedded in' the electrode 410b").

Markel does not describe any specific geometry for the portion of electrode 410b that faces an interior of Markel's device and Masimo does not propose any modification or implementation for the inner face of the electrode 410b as allegedly obvious. APPLE-2003, ¶161. Indeed, Masimo's expert confirmed that "Markel does not get into the details of how…the inside of the electrodes" are configured. APPLE-2008, 86:15-21, 112:10-13. Masimo merely alleges that the electrode region 410b would have "an inner wall." Pet., 48. There is therefore no evidence on the record of an inner portion of the electrode region 410b having a groove, indent, or other physical configuration for receiving the top of Mills' leaf spring 62 such that the top of the leaf spring 62 would be "embedded in" the electrode region 410b as required by the claims. APPLE-2003, ¶161 (Dr. Kenny observing that "[t]he only guidance for the inner configuration of an electrode in the combination is the electrode 14 of Mills" which "is flat" on its inner surface). Furthermore, Masimo has proposed no such additional modification to Markel to include such a feature nor has Masimo provided any evidence to support such an additional modification. *Id.* Therefore, for the reasons discussed in the POR, Ground 2 fails with respect to claim 1.

Masimo now attempts to revive Ground 2 by asserting that "the leaf-spring pad would be embedded in the enclosure in the combination." Pet. Rep., 23. However, merely being embedded "in the enclosure" generally is not sufficient. As discussed above (*supra*, p. 12), claim 1 recites several requirements for the arrangement between the first pad and the first portion of the enclosure, including that the "first pad…is embedded in a first portion of the enclosure." EX1001, cl. 1. As discussed above (and the POR), Masimo has failed to demonstrate that the top of Mills' leaf spring is embedded in Markel's electrode region 410b (which Masimo identifies as the claimed "first portion of the enclosure") and therefore the Markel-Mills combination fails to provide claim 1.

Furthermore, although Masimo has not revoked its mapping of the electrode region 410b of Markel to the claimed "first portion of the enclosure," Masimo's assertion in the Petitioner's Reply that "the leaf-spring pad would be embedded in the enclosure in the combination" (Pet. Rep., 23) at least suggests that Masimo is now implying that the claimed first portion of the Markel-Mills combination includes the electrode region 410b plus some additional, unspecified portion of the enclosure. Although Masimo does not make such a mapping express in the Petitioner's Reply, even if it had, such an argument should be rejected as an improper new argument that "could have been included in a properly-drafted

petition" but was not. *Magnum Oil*, 829 F.3d 1364, 1378-81; *Intelligent Bio-Systems*, 821 F.3d at 1369-70.

Furthermore, such a new mapping would still fail to satisfy claim 1 because, as discussed with respect to claim 1 above (*supra*, pp. 11-15), a non-conductive plastic portion of the enclosure cannot properly serve as a part of the claimed first portion of the enclosure. Specifically, as Masimo describes in the Petition, "Markel further discloses an insulating region 415 that electrically isolates the region 410b from the region 420b." Pet., 46; EX1005, [0045].

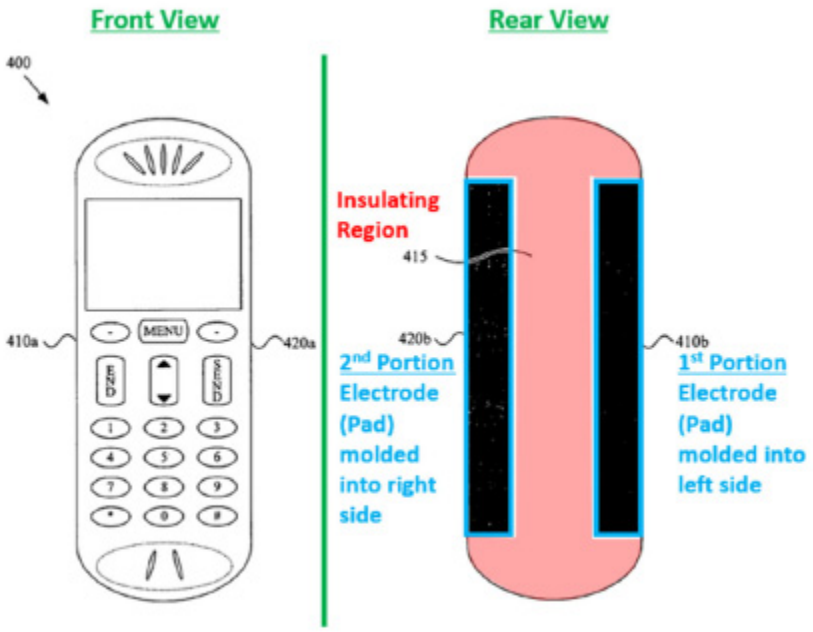


Figure 4

Pet., 57.

As discussed above with respect to ground 1 (*supra*, pp. 13-15), such an insulating material cannot serve as the first portion of the enclosure because it

cannot conduct the user's electrical signal and therefore cannot convey "a first electrical signal of the user's cardiac signal via the user's skin's contact" with the insulting region 415. APPLE-2011, 33:2-13 (Masimo's expert stating that "if someone were to touch only 415, the insulating region, that there would be no cardiac signal detected.")

2. *Masimo's Second Mapping of Markel-Mills to Claim 1 Fails to Provide Element 1[c] for the Reasons Addressed in the Patent Owner's Response*

As discussed in the POR, the Ground 2 analysis of Element 1[c] in the Petition includes only a discussion of connectors that connect external electrodes of the device to the internal processing circuitry and includes no discussion of how Mills' leaf spring 62 (identified as the "first pad" in Masimo's second mapping) would be connected to the processor in the proposed combination. POR, 58-60; Pet., 51-54. There is simply no description in the Petition of how the connectors of Markel would be arranged in the proposed combination to couple the leaf spring 62 to Markel's processor. Pet., 51-54; APPLE-2003, ¶¶172-173. Although the Petition asserts that "it would have been obvious to use the internal componentry of Mills as a substitute" for the internal circuitry of Markel's device (Pet., 53), Masimo provides no discussion of how Mills' leaf spring 62 would be coupled to the processor by a first connector (as claim 1 requires) in its analysis of Element 1[c].

VIII. CONCLUSION

In addition to the above discussed reasons, the additional arguments laid out in the POR demonstrate patentability of the challenged claims. For at least the reasons discussed above, and in the POR, the challenged claims are patentable over Grounds 1 and 2.

Respectfully submitted,

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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 Sur-Reply to the Petitioner's Reply totals 5,463, which is less than the 5,600 allowed under 37 CFR § 42.24.

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4), the undersigned certifies that on June 3, 2024, a complete and entire copy of this Patent Owner's Sur-Reply to the Petitioner's Reply and its accompanying exhibit were provided via email to the Petitioners by serving the correspondence email addresses of record as follows:

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