

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALIVECOR, INC.,
Petitioner

v.

APPLE INC.,
Patent Owner

Case No. IPR2023-00950

U.S. Patent No. 10,076,257 B2

**PETITIONER'S SUR-REPLY IN OPPOSITION TO
PATENT OWNER'S CONTINGENT MOTION TO AMEND**

TABLE OF CONTENTS

LIST OF EXHIBITS.....	iv
I. APPLE FAILED TO CARRY ITS BURDEN.	1
II. APPLE FAILED ITS BURDEN ON WRITTEN DESCRIPTION.	3
III. THE PROPOSED SUBSTITUTE CLAIMS WOULD HAVE BEEN OBVIOUS OVER KNOWN PRIOR ART.....	5
A. APPLE FAILED TO SHOW NON-OBVIOUSNESS OF CLAIM 23.....	5
B. APPLE FAILED TO SHOW NON-OBVIOUSNESS OF CLAIMS 24 AND 25.	7
C. APPLE FAILED TO SHOW NON-OBVIOUSNESS OF CLAIM 26.....	10
D. APPLE FAILED TO SHOW NON-OBVIOUSNESS OF CLAIM 27.....	11
IV. SUBSTITUTE CLAIM 24 IS INDEFINITE.....	12

TABLE OF AUTHORITIES

	Page(s)
CASES	
<i>Apple Inc. v. Qualcomm Inc.</i> , IPR2018-01277, Paper 46 (PTAB Jan. 17, 2020)	1, 2
<i>Ariad Pharms., Inc. v. Eli Lilly & Co.</i> , 598 F.3d 1336 (Fed. Cir. 2010)	5
<i>In re Anova Hearing Labs, Inc.</i> , 809 Fed. Appx. 840 (Fed. Cir. 2020).....	7
<i>L’Oreal USA, Inc. v. Olaplex, Inc.</i> , 844 F. App’x 308 (Fed. Cir. 2021)	7
<i>Lectrosonics, Inc. v. Zacom</i> , IPR2018-01129, Paper 15 (PTAB Feb. 25, 2019).....	1, 3
<i>Masimo Corp. v. Apple Inc.</i> , IPR2023-00745, Paper 8 (PTAB Oct. 16, 2023).....	7
<i>Network-1 Techs., Inc. v. Hewlett-Packard Co.</i> , 981 F.3d 1015 (Fed Cir. 2020)	3
<i>Nike, Inc. v. Adidas AG</i> , 955 F.3d 45 (Fed. Cir. 2020)	10
<i>Philip Morris Products, S.A. v. Rai Strategic Holdings, Inc.</i> , IPR2020-00920, Paper 21 (PTAB Nov. 15, 2021).....	9
<i>Predicate Logic, Inc. v. Distributive Software, Inc.</i> , 544 F.3d 1298 (Fed. Cir. 2008)	2, 3
<i>Sisvel Int’l S.A. v. Sierra Wireless, Inc.</i> , 81 F.4th 1231 (Fed. Cir. 2023)	4
OTHER AUTHORITIES	
37 C.F.R. § 42.121(a)(3).....	1
37 C.F.R. § 42.121(b)(1).....	4

37 C.F.R § 42.121(d)	1
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LIST OF EXHIBITS

Exhibit	Short Name	Description
Ex. 1001	'257 Patent	U.S. Patent No. 10,076,257 B2
Ex. 1002	'257 File History	Prosecution History of U.S. Patent No. 10,076,257 B2
Ex. 1003	Berger Declaration	Declaration of Dr. Ronald D. Berger
Ex. 1004	Berger CV	Curriculum vitae of Dr. Ronald Berger
Ex. 1005	Markel	U.S. Patent Appl. No. 11/492,278
Ex. 1006	Nissilä	U.S. Patent No. 6,775,566
Ex. 1007	Righter	U.S. Patent No. 5,191,891
Ex. 1008	Farrington	U.S. Patent No. 7,502,643
Ex. 1009	Cardiology Explained	EUAN A. ASHLEY & JOSEF NIEBAUER, CARDIOLOGY EXPLAINED (2004)
Ex. 1010	Cudahy	U.S. Patent No. 5,184,620
Ex. 1011	Sujdak	U.S. Patent No. 6,847,836
Ex. 1012	Geddes	U.S. Patent No. 4,606,352
Ex. 1013	Ceballos	U.S. Patent No. 6,522,915
Ex. 1014	Gilles	U.S. Patent No. 4,635,646
Ex. 1015	Weiss	U.S. Patent No. 5,623,926
Ex. 1016	Apple's Complaint	Complaint, <i>Apple Inc. v. AliveCor, Inc.</i> , Case No. 4:22-cv-07608-HSG, Dkt. No. 1 (N.D. Cal., Dec. 12, 2022)
Ex. 1017	Hobson	U.S. Patent No. 7,876,274

Exhibit	Short Name	Description
Ex. 1018	National Judicial Caseload Profile	U.S. District Courts – National Judicial Caseload Profile (accessed via https://www.uscourts.gov/sites/default/files/cms_na_distprofile0331.2022.pdf)
Ex. 1019	Ducker Decl.	Declaration of Philip Ducker
Ex. 1020	Engstrom	U.S. Patent Application Publication No. 2008/0113650
Ex. 1021	Berger Second Decl.	Second Declaration of Ronald D. Berger, M.D., Ph.D., F.H.R.S.
Ex. 1022	Kenny Tr.	Transcript of June 19, 2024 deposition of Dr. Thomas W. Kenny
Ex. 1023	Berger Third Decl.	Third Declaration of Ronald D. Berger, M.D., Ph.D., F.H.R.S.

For the reasons below, the Board should deny Apple's Revised Motion.

I. APPLE FAILED TO CARRY ITS BURDEN.

Apple bears the burden to show that the motion to amend is in compliance. 37 C.F.R. § 42.121(d). Apple failed its burden for multiple reasons.

First, Apple must show that it proposed a reasonable number of substitute claims *in its motion to amend*. See 37 C.F.R. § 42.121(a)(3); *Lectrosonics, Inc. v. Zacom*, IPR2018-01129, Paper 15 at 4-5 (PTAB Feb. 25, 2019). As AliveCor explained, Apple's RMTA proposed amending claim 13 to include all of original claim 12's limitations, effectively resulting in more than one substitute claim for original claim 12 (*see* Paper 32 ("Opp."), 1-2). Indeed, Apple does *not* dispute that it removed all traces of claim 13 from substitute claim 26, *nor* does it dispute that it added the limitations of claim 12 (*see* Paper 36 ("Reply"), 1). Yet Apple's RMTA did not even address Apple's ploy to obtain more than one substitute claim for original claim 12, let alone provide justification. Therefore, Apple's RMTA failed its burden to show a reasonable number of substitute claims.

Apple's reliance on *Qualcomm* is misplaced (*see* Reply, 2 (citing *Apple Inc. v. Qualcomm Inc.*, IPR2018-01277, Paper 46 at 45 (PTAB Jan. 17, 2020))). There, patent owner made related narrowing amendments to the corresponding independent claims *in addition* to removing related limitations from the dependent claims (*id.* at 44). The Board thus found it "reasonable to remove" certain limitations in the

dependent claims in those circumstances (*id.*). Here, Apple has *not* made similar narrowing amendments to the independent claim 1; instead, Apple proposes amending only *dependent* claims to add all limitations from original claim 12 into proposed substitute claim 26. The result is that neither of substitute claims 25 or 26 would include any limitations original to dependent claim 13. Additionally, while the Board in *Qualcomm* ultimately held that patent owner's amendment was not unresponsive, the Board did not make any findings as to the reasonable number of asserted claims or the non-enlargement requirement (*id.* at 45). *Qualcomm* thus does not suggest that Apple proposed a reasonable number of substitute claims.

Second, Apple's RMTA also failed its non-enlargement burden. Apple's own cited authority indicates that a "non-enlargement" analysis is confined to whether a substitute claim enlarges the scope of the original claim. *Predicate Logic, Inc. v. Distributive Software, Inc.*, 544 F.3d 1298, 1303 (Fed. Cir. 2008); Paper 29 at 4 (citing *Predicate Logic*). Under that analysis, the proper comparison is between original claim 13 and substitute claim 26. Because Apple deleted a limitation and broadened the scope of claim 13 without explaining how it failed to enlarge scope, Apple failed its burden to show that the new independent claim 26 is not enlarged.

The Board should dismiss Apple's rejoinders. First, Apple's reliance on *Predicate Logic* is misplaced because (as explained earlier) this decision supports AliveCor's position; not Apple's (Opp., 2). In addition, there the Federal Circuit

compared an original *independent* claim to the amended *independent* claim. *See Predicate Logic*, 544 F.3d at 1303. Similarly, in *Network-1 Techs., Inc. v. Hewlett-Packard Co.*, 981 F.3d 1015 (Fed Cir. 2020), the Federal Circuit found that an *independent* claim was not invalid for improper claim broadening because the *independent* claim was not amended during a reexamination proceeding. *Id.* at 1029. *Network-1* did not address whether the newly proposed dependent claims resulted in claim broadening. *Id.* These decisions are factually inapposite here, where Apple has proposed amending a dependent claim.

Finally, Apple incorrectly argues that *Lectrosonics* does not require new features to be traceable to the original claim features (Reply, 1). *Lectrosonics* imposes at least two independent requirements: (1) that the motion identify the challenged claim that it is intended to replace; and (2) that “[a]ll proposed claims should be traceable to an original challenged claim.” *Lectrosonics*, Paper 15 at 5. This is consistent with the Board’s Preliminary Guidance, which recognized that Apple failed to show that the features of the newly proposed claims were traceable to the features of the original claims (*see* Paper 26, 4-5). Because Apple’s RMTA did not (and could not) trace the *new features* of substitute claims 24, 26, and 27 to the *original features* of claims 11, 13, and 14 (respectively), Apple’s proposed claims are not reasonable substitutes (*see* Opp., 2-3).

II. APPLE FAILED ITS BURDEN ON WRITTEN DESCRIPTION.

Apple's RMTA failed to set forth "support in the original disclosure of the patent for each claim that is added or amended" for claims 23 and 27 in the RMTA itself, as required by 37 C.F.R. § 42.121(b)(1). Apple's Reply is too late to show that the claims satisfy the written description requirement (*see* Reply, 3-5). The Board should disregard Apple's belated efforts and find that Apple has not met its burden. *See Sisvel Int'l S.A. v. Sierra Wireless, Inc.*, 81 F.4th 1231, 1238 (Fed. Cir. 2023).

For claim 26, Apple's Reply fails to address the deficiency identified in AliveCor's Opposition (*see generally* Reply, 4-5). As AliveCor explained, the original disclosures explain that the bezel can be "separated into any suitable number of electrically isolated segments" and does not disclose two pads in the same portion of the bezel (Opp., 5 (citing APPLE-2016, [0048], [0050]; APPLE-2017, [0047]; APPLE-2012, [0047], [0048])). Apple is relying on generic teachings that the bezel can include "any other suitable number of leads," but this fails to teach two pads in the same portion of the enclosure because the disclosures teach that the bezel needs to be separated into different portions or segments (*id.*).

Similarly, Apple's reliance on disclosure for "adjacent leads" does not provide written description support for two pads in the same portion of the enclosure, because the written description explains that an electrically isolating component needs to be "inserted between adjacent leads" (*see* Reply, 5 (citing APPLE-2016, [0009]-[0010]; APPLE-2017, [0009]-[0010]; APPLE-2012, [0008]-[0009])).

Disclosure that merely renders obvious a claimed invention is not sufficient. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1356 (Fed. Cir. 2010).

Finally, Apple’s Reply failed to address the third pad that is exposed for “user’s skin’s contact with the third pad” (*compare* Opp., 6 *with* Reply, 4-5). Apple again relies on generic teachings about exposed electrode pads (Reply at 4-5).

III. THE PROPOSED SUBSTITUTE CLAIMS WOULD HAVE BEEN OBVIOUS OVER KNOWN PRIOR ART.

A. Apple failed to show non-obviousness of claim 23.

The Board should reject Apple’s argument that there is “no disclosure in *Markel*” of a pad positioned underneath the exterior surface of the second portion (Reply, 5-6). *First*, Apple’s argument fails because the new limitation of a “pad positioned underneath the exterior surface of the second portion of the enclosure” is substantially similar to the original limitations in claim 1. And the Board need only consider whether the new limitation is patentable if the Board *already* determined that *Markel* alone and/or in combination with *Nissilä* render obvious the original limitations of claim 1 (*see* Pet. 10-21, 71-74). For similar reasons, therefore, *Markel* alone and/or in combination with *Nissilä* must render obvious the new limitation. *Second*, Apple’s argument fails because *Markel* distinguishes electrode pads that are “placed on” an enclosure from electrode pads that are “molded into” different portions of the enclosure (Ex. 1005, [0045], [0050]). Thus, *Markel* discloses an electrode pad that is underneath the enclosure. *Third*, Apple’s Reply does not dispute

that *Markel* in view of *Nissilä* renders obvious a pad positioned under a portion of the enclosure¹ (*see* Opp., 10 (citing Ex. 1003, ¶¶356-61, 378-83)).

The Board should reject Apple’s argument that a POSITA would not have applied *Engstrom*’s electrode placement to the mobile device of *Markel* (Reply, 6-7). *Engstrom* teaches electrode placement that “**advantageously** . . . facilitate[s] real time capturing of a heart beat profile of the user” (Ex. 1020, [0029] (emphasis added); *see also* Ex. 1021, ¶¶47, 69). One of the advantages, teaches *Engstrom*, is that its device can “**dynamically discern**” between appropriate sensors to capture the cardiac signal of the user’s right or left hand (*id.*, [0029]; *see also* Ex. 1021, ¶¶47, 69). Because *Engstrom* teaches that its electrode placements are *advantageous* over other electrode placement solutions, a POSITA would have been motivated to

¹ Apple falsely states that AliveCor’s Opposition is “silent with respect to *Nissilä*” (Reply, 7). Petitioner contended that substitute claim 23 is obvious over the combination of *Markel*, *Nissilä*, and/or *Engstrom*. Opp., 10. Petitioner further contended that a POSITA would have combined *Nissilä*’s electrode structure with *Markel*’s electronic device in order to accomplish *Markel*’s stated goal of an electrode that is substantially concealed or hidden (Opp. 7-8 (citing Pet. 69-71; Ex. 1021, ¶45; Ex. 1003, ¶355); *see also* Paper 26, 25-26 (Guidance finding reasonable likelihood that the *Markel-Nissilä* combination renders obvious similar limitation)).

combine that electrode placement with *Markel*'s mobile device (Ex. 1021, ¶¶47, 69).

There is also no merit to Apple's contention that a POSITA would not have combined *Engstrom* and *Markel* because the latter "already achieves" the goal of contacting a user (Reply, 6-7). "That a particular piece of prior art achieves a desirable goal to some extent hardly means that relevant artisans would have lacked a motivation to achieve the goal to a greater extent." *L'Oreal USA, Inc. v. Olaplex, Inc.*, 844 F. App'x 308, 319 (Fed. Cir. 2021). And Apple's reliance on *In re Anova Hearing Labs, Inc.* is misplaced (Reply, 7 (citing 809 Fed. Appx. 840 (Fed. Cir. 2020))).² *Anova* did not "stand for the proposition that there can be no motivation to incorporate a feature from one reference into another when the other reference already has the same or a similar feature." *Ex parte Hatambeiki*, 2024 Pat. App. LEXIS 1611, *9 (PTAB May 3, 2024). Here, AliveCor and its expert explained that a POSITA would have been motivated to combine the mobile device of *Markel* with the "advantageous[]" electrode positions of *Engstrom* (Ex. 1021, ¶¶47, 69).

Finally, Apple challenges the combination of *Markel*'s Figures 4 and 15, but the Board previously rejected this argument. *See Masimo Corp. v. Apple Inc.*, IPR2023-00745, Paper 8, at 43 (PTAB Oct. 16, 2023).

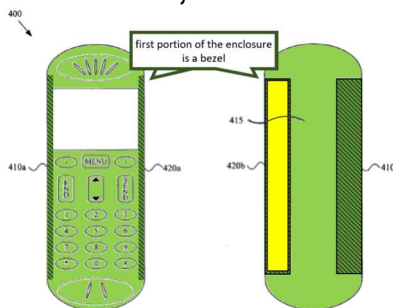
B. Apple failed to show non-obviousness of claims 24 and 25.

² Apple's *Anova* argument for claims 24 and 25 fail for the same reasons (Reply, 9).

Apple’s Reply disclaims the “pocket” structure (*see* Reply, 8). But Apple previously relied on this very structure for written description support of claims 24 and 25 (*see* RMTA, 13 (citing APPLE-2016, [0047] (“[L]ead 472 can be placed within the thickness of bezel 460 (e.g., *in a pocket within the bezel wall.*)”)); *see also* Reply, 4). And in its Guidance, the Board *also* relied on the “pocket” structure as support for “embedded in an inner surface” (recited in similar claims) (Paper 26, 9). Apple’s positions now are contradictory. If “embedded in an inner surface” does not and cannot include a “pocket” structure (as Apple now apparently contends), then Apple failed to show written description support for claims 24 and 25.

Regardless, Apple failed to show non-obviousness of claims 24 and 25. *First*, Apple does not dispute any patentability analysis using the “pocket” structure (*see generally* Reply, 8-10). *Second*, the Board should reject Apple’s argument that there is no disclosure in *Markel* of the claimed first pad embedded in a bezel (*see id.*, 8).

Ex. 1005, Fig. 4 (annotated); *see also* Pet., 49



According to *Markel*’s Figure 4, the “side portions” (dark green, above) wrap around the front and back of the device, like a bezel (Ex. 1003, ¶251). Both the front and back view of *Markel*’s electronic device have labels corresponding to the “right

side portion 420” (Ex. 1005, Fig. 4; Ex. 1003, ¶251). Above, the electrodes extend to the rim that encircles *Markel*’s electronic device (Ex. 1003, ¶251). *Markel* also discloses electrodes “disposed in a ***border*** of the display” (Ex. 1005, [0044]; Ex. 1003, ¶251). Thus, *Markel*’s electrode pads in Figure 4 are embedded in side portions 420*b* and 410*b*, which include the “bezel” (Ex. 1003, ¶251).

Third, the Board should reject Apple’s argument that Dr. Berger’s testimony is insufficient based on a false premise that Dr. Berger did not identify any relevant prior art teaching (*see* Reply, 9-10). Dr. Berger relied on *Markel*’s explicit teachings (Ex. 1021, ¶63 (citing Ex. 1003, ¶118)). Specifically, *Markel* discloses an electrode that is “coupled” to the cardiac information module, which can be seen in block diagram Figure 10 (Ex. 1003, ¶118 (citing Ex. 1005, [0059], Fig. 10)). From this, Dr. Berger concluded that a POSITA would have been motivated to embed the pad on the inner surface of the enclosure to simultaneously (1) create an electrically conductive connection between the pad and the outer surface of the enclosure; (2) while ensuring that the pad is accessible to the wiring inside the enclosure that is necessary to complete the electrical circuit (Ex. 1021, ¶63; Ex. 1023, ¶36). This testimony deserves substantial weight because it was supported by documentary evidence and is *unrebutted* by Apple’s expert. *See Philip Morris Products, S.A. v. Rai Strategic Holdings, Inc.*, IPR2020-00920, Paper 21 at 22 (PTAB Nov. 15, 2021).

Fourth, the Board should reject Apple’s argument about purportedly

“conflict[ing]” rationales, which applies to claim 24 but not claim 25 (because it does not require a “metal” bezel) (Reply, 9-10). Dr. Berger testified that a POSITA would have constructed a bezel from metal because of its aesthetically pleasing properties and the protective barrier that it would provide (Ex. 1021, ¶87; Ex. 1023, ¶36). This is consistent with *Nissilä*, which teaches that some metals have similar conductive properties to conductive plastics (Ex. 1021, ¶88 (citing Ex. 1006, 5:33-38); Ex. 1023, ¶36). This is also consistent with testimony from Apple’s expert that a POSITA would have understood how to select different materials when designing an electrode system (Ex. 1022, 45:3-46:5 (“[T]he heart sensor leads can be constructed from materials that have superior conductivity relative to the other elements of the system, and that makes the design relatively easy.”), 46:6-48:14). Thus, a modification to include a metal bezel would *not* conflict with the rationale conveyed by AliveCor for a “dual layered electrode” in *Markel*.

C. Apple failed to show non-obviousness of claim 26

Apple incorporates arguments regarding the “bezel” in claims 24 and 25 (*see* Reply, 10). However, the “bezel” element is not new to claim 12 or claim 13—regardless of whether substitute claim 26 is a substitute for claim 12 or 13 (*see* Opp. Proposed Substitute Claims Appendix). Thus, if the Board finds claims 12 and/or 13 unpatentable for any reason, the Board can find the same with respect to the “bezel” element here. *See Nike, Inc. v. Adidas AG*, 955 F.3d 45, 51 (Fed. Cir. 2020).

Apple also suggests that *Markel* includes no support for “hand placement” (Reply, 10), but *Markel* discloses “contact[ing] both the first and second electrodes simultaneously (e.g., with different hands or different fingers)” (Ex. 1005, [0049]). Apple relies on a similar disclosure for written description support (Reply, 5 (citing APPLE-2016, [0043])). Dr. Berger further testified it would have been obvious to contact the claimed second and third pads with the same hand because they are embedded in the same “portion” of the enclosure (Ex. 1021, ¶75; Ex. 1023, ¶36).

D. Apple failed to show non-obviousness of claim 27

First, the Board should reject Apple’s argument that *Markel* does not disclose an electrocardiogram (“ECG”) signal or processor (Reply, 11). Dr. Berger testified that a POSITA would have at once understood that the device of *Markel* is used to detect an ECG (Ex. 1023, ¶56 (citing Ex. 1005, Abstract, [0051], [0058], Fig. 10)). Further, Apple does not dispute that the *Markel* disclosure of “ST-segment” is a term of art used to describe an ECG (Ex. 1023, ¶57 (citing Ex. 1005, [0115]; Ex. 1009, at 19-21)). Moreover, Apple does not address the combination of *Markel* and *Nissilä*, which discloses ECG (Opp. 22; Ex. 1023, ¶58 (citing Ex. 1006, Abstract, 2:17-57)).

Second, Apple attempts to distinguish between identification and authentication in the context of *Markel* (Reply, 11). Although unclear, the claim requires “authentica[tion],” and *Markel* discloses a cardiac acquisition module configured to authenticate users (Ex. 1005, [0097]). Moreover, Petitioner relied on

a combination of references. Dr. Berger testified that a POSITA would have looked to *Engstrom* for additional detail on authentication technology (Ex. 1021, ¶94; Ex. 1023, ¶36). Apple does not dispute that *Engstrom* discloses authentication.

Finally, the Board should reject Apple’s argument that *Engstrom* does not disclose the “makeup” of the “heart beat profile” (Reply, 11-12). Dr. Berger testified that “*Engstrom* is providing a methodology for doing [authentication] for many different types of heartbeat profiles and need not be specific to any one type of heartbeat profile” (APPLE-2018, 15:10-16:15). Dr. Berger confirmed that *Engstrom* was able to acquire an ECG, which was well-known at the time of *Engstrom* (APPLE-2018, 11:9-12:11, 12:12-13:15, 15:10-16:15). Dr. Berger also testified that a POSITA would have had a reasonable expectation of success in using the authentication system of *Engstrom* with the ECG collected in *Markel* alone and/or with *Nissilä* (Ex. 1023, ¶59). Dr. Berger is corroborated by *Nissilä*, which describes extracting characteristics from an ECG (Ex. 1023, ¶59 (citing Ex. 1006, 3:56-62)).

Apple also tries to limit the disclosures of *Engstrom* based on an earlier patent application incorporated by reference (Reply, 12 (citing APPLE-2019)). The Board can reject this as irrelevant because Petitioner relies on a combination of references.

IV. SUBSTITUTE CLAIM 24 IS INDEFINITE

Apple does not dispute that claim 24 is indefinite (*see* Opp., 24-25).

Date: October 29, 2024

By: /Christopher TL Douglas /
Christopher TL Douglas (Reg. 56,950)

CLAIMS APPENDIX

<u>Claim</u>	<u>Recitation</u>
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, the heart sensor comprising:
1.c.i	a first lead comprising a first pad that is embedded in a first portion of the enclosure,
1.c.ii	wherein an exterior surface of the enclosure comprises an exterior surface of the first portion, wherein the first pad is positioned underneath the exterior surface of the first portion, and
1.c.iii	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.d.i	a second lead comprising a second pad that is embedded in a second portion of the enclosure,
1.d.ii	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; and
1.e	a processor coupled to the heart sensor and configured to receive and process the detected cardiac signal, 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, 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.pre	The electronic device of Claim 1,

<u>Claim</u>	<u>Recitation</u>
2.a	wherein the first portion and the second portion are located on opposite sides of the electronic device.
3.pre	The electronic device of Claim 1,
3.a	wherein the first portion is electrically isolated from the second portion.
4.pre	The electronic device of Claim 1, wherein:
4.a	the first portion is separated from the second portion by a third portion of the enclosure;
4.b	at least the third portion is constructed from a material having a first conductivity; and
4.c	the first conductivity is insufficient to transmit the first electrical signal from the first pad to the second pad via the third portion.
5.pre	The electronic device of Claim 4, wherein:
5.a	the material having the first conductivity comprises one of aluminum and steel; and
5.b	the second pad is constructed from a silver based compound.
6.pre	The electronic device of Claim 4, wherein:
6.a	the exterior surface of the enclosure further comprises an exterior surface of the second portion;
6.b	the second pad is configured to detect the second electrical signal of the user's cardiac signal via the user's contact with the exterior surface of the second portion;
6.c	the second pad is positioned from the exterior surface of the second portion by a thickness of the second portion;
6.d	at least the thickness of the second portion is constructed from material having a second conductivity; and

<u>Claim</u>	<u>Recitation</u>
6.e	the second conductivity is defined such that the second electrical signal is not able to be transmitted through material having the second conductivity over a distance larger than the thickness of the second portion.
7.pre	The electronic device of Claim 6,
7.a	wherein the first pad and the second pad are positioned apart from one another at a distance larger than the thickness of the second portion by material having the second conductivity.
8.pre	The electronic device of Claim 1, wherein:
8.a	the enclosure further comprises at least one pocket underneath the exterior surface of the enclosure; and
8.b	at least one of the first pad and the second pad is placed within the at least one pocket.
9.pre	The electronic device of Claim 1, further comprising:
9.a	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
9.b	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.pre	The electronic device of Claim 1,
10.a	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.pre	The electronic device of Claim 1,

<u>Claim</u>	<u>Recitation</u>
11.a	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.pre	The electronic device of Claim 1,
12.a	wherein the first portion of the enclosure is a bezel.
13.pre	The electronic device of Claim 1,
13.a	wherein the second portion of the enclosure is a bezel.
14.pre	The electronic device of Claim 1,
14.a	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.d.i	a first lead embedded in a first portion of the enclosure of the electronic device,
15.d.ii	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.e.i	a second lead embedded in the display screen of the electronic device,

<u>Claim</u>	<u>Recitation</u>
15.e.ii	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.f	a processor coupled to the heart sensor and configured to process the first and second electrical signals of the user's cardiac signal.
16.pre	The electronic device of Claim 15,
16.a	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.pre	The electronic device of Claim 16,
17.a	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.pre	The electronic device of Claim 16,
18.a	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.pre	The electronic device of Claim 15, wherein:
19.a	the first portion of the electronic device comprises a bezel of the enclosure;
19.b	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.pre	The electronic device of Claim 15,
20.a	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.

<u>Claim</u>	<u>Recitation</u>
21.pre	The electronic device of Claim 20,
21.a	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.pre	The electronic device of Claim 20,
22.a	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.

PROPOSED SUBSTITUTE CLAIMS

<u>Claim</u>	<u>Recitation</u>
23.pre	The electronic device of claim 1,
23.a	wherein the first portion is electrically isolated from the second portion by an electrically isolating component inserted between the first and second pads;
23.b	wherein the exterior surface of the enclosure comprises an exterior surface of the second portion, wherein the second pad is positioned underneath the exterior surface of the second portion of the enclosure;
23.c	wherein the first and second pads are adjacent pads.
24.pre	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;
24.a	wherein the first pad is embedded in an inner surface of an electrically conductive metal bezel that forms a portion of an exterior surface of the electronic device; and
24.b	wherein the second pad is exposed on the exterior surface of the electronic device for direct contact from a user.

<u>Claim</u>	<u>Recitation</u>
25.pre	The electronic device of claim 1,
25.a	further comprising a touch screen display,
25.b	wherein the first portion of the enclosure is a bezel; wherein the bezel extends around the touch screen display; and
25.c	wherein the first pad is embedded in an inner surface of the bezel.
26.pre	The electronic device of claim 1, wherein the first portion of the enclosure is a bezel, the electronic device further comprising:
26.a	a third lead comprising a third pad that is embedded in the second portion of the enclosure, wherein the third pad is configured to detect a third electrical signal of the user's cardiac signal via the user's skin's contact with the third pad; and
26.b	wherein the second pad is configured to detect the second electrical signal of the user's cardiac signal via the user's skin's contact with the second pad;
26.c	wherein the first pad detects signals through a first hand, and the second and third pads detect signals through a second hand.
27.pre	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 inner surface of the first portion;
27.a	wherein the detected cardiac signal is an electrocardiogram signal;
27.b	wherein the processor is further configured to extract one or more characteristics of the electrocardiogram signal and compare the extracted one or more characteristics with one or more characteristics previously stored in memory that were associated with an authorized user; and
27.c	wherein if the extracted one or more characteristics match those of an authorized user, the electronic device authenticates the user.

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6(e), 42.105, the undersigned hereby certifies that true and correct copies of the above-captioned PETITIONER'S SUR-REPLY IN OPPOSITION TO PATENT OWNER'S REVISED MOTION TO was served via electronic mail to the following attorneys of record for Patent Owner:

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