

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.,  
Petitioner,

v.

MASIMO CORPORATION,  
Patent Owner

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IPR2024-00290  
Patent 8,190,223

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**PETITIONER'S REPLY  
TO PATENT OWNER'S RESPONSE**

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**LIST OF EXHIBITS**

|            |                                                  |
|------------|--------------------------------------------------|
| APPLE-1001 | U.S. Patent No. 8,190,223 (“the ’223 Patent”)    |
| APPLE-1002 | U.S. Patent No. 8,190,223 File History           |
| APPLE-1003 | Declaration of Dr. Cockburn                      |
| APPLE-1004 | U.S. Patent No. 6,707,476 (“Hochstedler”)        |
| APPLE-1005 | U.S. Patent Pub. No. 2002/0184055 (“Naghavi”)    |
| APPLE-1006 | U.S. Patent Pub. No. 2006/0064020 (“Burnes”)     |
| APPLE-1007 | U.S. Patent No. 6,151,518 (“Hayashi”)            |
| APPLE-1008 | U.S. Patent No. 5,842,979 (“Jarman”)             |
| APPLE-1009 | U.S. Patent No. 6,385,471 (“Mortz”)              |
| APPLE-1010 | U.S. Patent No. 6,584,336 (“Al-Ali-336”)         |
| APPLE-1011 | U.S. Patent Pub. No. 2003/0181798 (“Al-Ali-798”) |
| APPLE-1012 | U.S. Patent Pub. No. 2003/0009119 (“Kamm”)       |
| APPLE-1013 | U.S. Patent Pub. No. 2003/0145852 (“Schmidt”)    |
| APPLE-1014 | U.S. Patent Pub. No. 2004/0204637 (“Diab-637”)   |
| APPLE-1015 | U.S. Patent No. 6,654,624 (“Diab”)               |
| APPLE-1016 | U.S. Patent No. 5,331,549 (“Crawford”)           |
| APPLE-1017 | U.S. Patent Pub. No. 2003/0092974 (“Santoso”)    |

|                 |                                                                                                                                                                                                                                                                                                                |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| APPLE-1018      | U.S. Patent No. 6,912,413 (“Rantala”)                                                                                                                                                                                                                                                                          |
| APPLE-1019      | U.S. Patent No. 6,658,276 (“Kianl”)                                                                                                                                                                                                                                                                            |
| APPLE-1020      | U.S. Re-examination No. 90/012,559 File History                                                                                                                                                                                                                                                                |
| APPLE-1021      | U.S. Patent Pub. No. 2002/0015034 (“Malmborg”)                                                                                                                                                                                                                                                                 |
| APPLE-1022      | Second Declaration of Dr. Cockburn                                                                                                                                                                                                                                                                             |
| APPLE-1023      | Excerpt from Wiley Electrical and Electronics Engineering Dictionary, John Wiley & Sons, Inc. (2004)                                                                                                                                                                                                           |
| APPLE-1024      | Excerpt from Merriam-Webster’s Collegiate Dictionary, Merriam-Webster, Incorporated (2005)                                                                                                                                                                                                                     |
| APPLE-1025      | Transcript of Remote Deposition of R. James Duckworth, Ph.D.                                                                                                                                                                                                                                                   |
| APPLE-1026-1059 | RESERVED                                                                                                                                                                                                                                                                                                       |
| APPLE-1060      | Combined Civil and Criminal Federal Court Management Statistics (Sep. 30, 2023)   United States Courts (uscourts.gov), available at: <a href="https://www.uscourts.gov/sites/default/files/fcms_na_distprofile0930.2023.pdf">https://www.uscourts.gov/sites/default/files/fcms_na_distprofile0930.2023.pdf</a> |
| APPLE-1061      | Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (USPTO June 21, 2022) (“ <i>Director’s Guidance</i> ”)                                                                                                                           |
| APPLE-1062      | Apple’s Complaint for Patent Infringement (Design), <i>Apple Inc., v Masimo Corporation, et al.</i> , Case No. 1-22-cv-01377 (D. Del. Oct. 20, 2022)                                                                                                                                                           |
| APPLE-1063      | Apple’s Complaint for Patent Infringement (Utility), <i>Apple Inc., v Masimo Corporation, et al.</i> , Case No. 1-22-cv-01378 (D. Del. Oct. 20, 2022)                                                                                                                                                          |

- APPLE-1064 Defendant Masimo Corporation's Answer to Complaint and Counterclaims, *Apple Inc., v Masimo Corporation, et al.*, Case No. 1-22-cv-01378 (D. Del. Dec. 12, 2022)
- APPLE-1065 Order Granting Joint Motion to Amend the Case Schedule, *Apple Inc., v Masimo Corporation, et al.*, Case No. 1-22-cv-01378 (D. Del. Sep. 21, 2023)
- APPLE-1066 Stipulation by Apple Inc.
- APPLE-1067 Email Identifying Masimo's District Court Invalidity Grounds (Nov. 16, 2023)
- APPLE-1068 Excerpt of Apple's District Court Expert Invalidity Report, *Apple Inc., v Masimo Corporation, et al.*, Case No. 1-22-cv-01378 (Nov. 22, 2023)
- APPLE-1069 Order Granting Unopposed Motion to Stay Certain Patent Counterclaims, *Apple Inc., v Masimo Corporation, et al.*, Case No. 1-22-cv-01378 (Jan. 10, 2023)
- APPLE-1070 – 1074 [RESERVED]
- APPLE-1075 Joint Letter for March 20, 2024 Case Management Conference, *Apple Inc., v Masimo Corporation, et al.*, Case No. 1-22-cv-01378 (Mar. 16, 2024)
- APPLE-1076 Combined Civil and Criminal Federal Court Management Statistics (Dec. 31, 2023) | United States Courts (uscourts.gov), available at: [https://www.uscourts.gov/sites/default/files/fcms\\_na\\_distprofile1231.2023\\_0.pdf](https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf)
- APPLE-1077 Median Time to Disposition in Cases Terminated After Hearing or Submission | United States Court of Appeals for the Federal Circuit (Sep. 30, 2023), available at: [MedDispTimeMERITS-Table-FY23.pdf \(uscourts.gov\)](#)
- APPLE-1078 *Sotera* Stipulation by Apple Inc.

## CLAIM LISTING

| Limitation | Claim Language                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [1pre]     | A patient monitor capable of measuring at least two physiological parameters,                                                                                                                                                                                                                                                                                                                                                         |
| [1a]       | the patient monitor comprising a display capable of displaying a measured value of a first physiological parameter of body tissue of a monitored patient in a first display area or displaying a measured value of a second physiological parameter of the body tissue in a second display area where the first display area and the second display area comprise at least some common display area capable of displaying information |
| [1b]       | wherein in the common display area, the display of one of the measured values of the first or second physiological parameter is replaced with the other of the measured values based on an occurrence of an event,                                                                                                                                                                                                                    |
| [1c]       | the event being the measured value of one of the first or second physiological parameters approaching one or more threshold values indicative of a worsening state of a patient.                                                                                                                                                                                                                                                      |
| [2]        | The patient monitor of claim 1, wherein the first display area and the second display area comprise the common display area.                                                                                                                                                                                                                                                                                                          |
| [3]        | The patient monitor of claim 1, wherein activation of a user input causes the common display area to replace one of the measured value of the first or second physiological parameter with the other of the measured value of the first or second physiological parameter.                                                                                                                                                            |
| [4]        | The patient monitor of claim 1, wherein the common display area is configured to default to displaying one of the measured values of the first or second physiological parameters.                                                                                                                                                                                                                                                    |
| [6]        | The patient monitor of claim 1, wherein the measured value of the first physiological parameter comprises a non-invasively measured value.                                                                                                                                                                                                                                                                                            |
| [11]       | The patient monitor of claim 1, wherein an aspect of the display changes to illustrate a change in the severity of one of the measured values of the first or second physiological parameters.                                                                                                                                                                                                                                        |

| Limitation | Claim Language                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [12]       | The patient monitor of claim 11, wherein the aspect that changes comprises a display color.                                                                                                                                                                                                                                                                                                                                            |
| [13pre]    | A patient monitor capable of measuring at least two physiological parameters,                                                                                                                                                                                                                                                                                                                                                          |
| [13a]      | the patient monitor comprising a display capable of displaying a measured value of a first physiological parameter of body tissue of a monitored patient in a first display area or displaying a measured value of a second physiological parameter of the body tissue in a second display area where the first display area and the second display area comprise at least some common display area capable of displaying information, |
| [13b]      | wherein the common display area changes from displaying one of the measured values of the first or second physiological parameter to displaying the other of the measured values based on an occurrence of an event,                                                                                                                                                                                                                   |
| [13c]      | the event being the measured value of one of the first or second physiological parameters approaching one or more threshold values indicative of a worsening state of a patient,                                                                                                                                                                                                                                                       |
| [13d]      | wherein an aspect of the display changes to illustrate a change in the severity of one of the measured values of the first or second physiological parameters, wherein the aspect that changes comprises a display size.                                                                                                                                                                                                               |
| [14]       | The patient monitor of claim 11, wherein the aspect that changes comprises a display intensity.                                                                                                                                                                                                                                                                                                                                        |
| [15pre]    | A patient monitor capable of measuring at least two physiological parameters,                                                                                                                                                                                                                                                                                                                                                          |
| [15a]      | the patient monitor comprising a display capable of displaying a measured value of a first physiological parameter of body tissue of a monitored patient in a first display area or displaying a measured value of a second physiological parameter of the body tissue in a second display area where the first display area and the second display area comprise at least some common display area capable of displaying information, |

| <b>Limitation</b> | <b>Claim Language</b>                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [15b]             | where in the common display area, the display of one of the measured values of the first or second physiological parameter is replaced with the other of the measured values of the first or second physiological parameters based on an occurrence of an event,                                                                                                                                                                       |
| [15c]             | the event being one of the measured values of the first or second physiological parameters alarming.                                                                                                                                                                                                                                                                                                                                   |
| [16]              | The patient monitor of claim 15, wherein an aspect of an alarm changes when the common display area changes from displaying one of the measured values of the first or second physiological parameters.                                                                                                                                                                                                                                |
| [17]              | The patient monitor of claim 16, wherein the aspect that changes comprises a display color.                                                                                                                                                                                                                                                                                                                                            |
| [18pre]           | A patient monitor capable of measuring at least two physiological parameters,                                                                                                                                                                                                                                                                                                                                                          |
| [18a]             | the patient monitor comprising a display capable of displaying a measured value of a first physiological parameter of body tissue of a monitored patient in a first display area or displaying a measured value of a second physiological parameter of the body tissue in a second display area where the first display area and the second display area comprise at least some common display area capable of displaying information, |
| [18b]             | wherein in the common display area, the display of one of the measured values of the first or second physiological parameters is replaced with the other of the measured values of the first or second physiological parameters automatically based on which is a more critical one of the measured values of the first or second physiological parameters.                                                                            |
| [19]              | The patient monitor of claim 18, wherein measured values of the first and second physiological parameters are determined using an output signal of a light sensitive detector capable of detecting light attenuated by the body tissue.                                                                                                                                                                                                |
| [20]              | The patient monitor of claim 18, wherein at least one of measured physiological parameters is determined noninvasively.                                                                                                                                                                                                                                                                                                                |

| Limitation | Claim Language                                                                                                                                                                                                                                                                                     |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [21pre]    | A method of displaying two physiological parameter measurements using a display location of a display of a patient monitoring device, the display location being generally capable of displaying a single physiological parameter measurement, the method comprising:                              |
| [21a]      | displaying a measured value of a first physiological parameter in a display location of an electronic display; and                                                                                                                                                                                 |
| [21b]      | replacing the display of the measured value of the first physiological parameter with a display of a measured value of a second physiological parameter in the display location when a change in the measurement of the second physiological parameter indicates a worsening state of the patient. |
| [22]       | The method of claim 21, wherein the indication of the worsening state comprises an alarm condition.                                                                                                                                                                                                |
| [27pre]    | A patient monitor capable of determining a plurality of physiological parameters from an output signal of a light sensitive detector capable of detecting light attenuated by body tissue, the patient monitor comprising:                                                                         |
| [27a]      | a display capable of displaying a measured value of a first blood parameter of body tissue of a monitored patient or displaying a measured value of a second blood parameter of the body tissue; and                                                                                               |
| [27b]      | a user input button, the activation of which replaces the display of the measured value of the first blood parameter with the measured value of the second blood parameter,                                                                                                                        |
| [27c]      | wherein the display of the measured value of the first blood parameter is replaced by the measured value of the second blood parameter when the second blood parameter passes an alarm threshold,                                                                                                  |
| [27d]      | wherein the measured values of the first and second blood parameters are determined using an output signal of a noninvasive light sensitive detector capable of detecting light attenuated by the body tissue.                                                                                     |

| Limitation | Claim Language                                                                                                                                                                                                             |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [28pre]    | A patient monitor capable of determining a plurality of physiological parameters from an output signal of a light sensitive detector capable of detecting light attenuated by body tissue, the patient monitor comprising: |
| [28a]      | a display capable of displaying a measured value of a first blood parameter of body tissue of a monitored patient or displaying a measured value of a second blood parameter of the body tissue, and                       |
| [28b]      | a user input button, the activation of which causes the display to change from displaying the measured value of the first blood parameter to displaying the measured value of the second blood parameter,                  |
| [28c]      | wherein the display also changes from displaying the measured value of the first blood parameter to displaying the measured value of the second blood parameter when the second blood parameter passes an alarm threshold, |
| [28d]      | wherein the measured values of the first and second blood parameters are determined using an output signal of a noninvasive light sensitive detector capable of detecting light attenuated by the body tissue,             |
| [28e]      | wherein the display shifts a positioning of the display of the second blood parameter with respect to a positioning of the display of the first blood parameter.                                                           |
| [32]       | The patient monitor of claim 27, wherein the attached sensor can provide data through the output signal and through a memory device.                                                                                       |
| [34]       | The patient monitor of claim 27, further comprising a memory for storing trend data on one or more of the first and second blood parameters.                                                                               |
| [36]       | The patient monitor of claim 27, further comprising an alarm corresponding to either of the measured values of the first and second blood parameters falling below predetermined associated threshold values.              |
| [37]       | The patient monitor of claim 36, wherein the alarm comprises at least one of an audio or visual alarm.                                                                                                                     |

| Limitation | Claim Language                                                                                                                                                                                                        |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [42]       | The patient monitor of claim 27, wherein the display comprises a first display and the patient monitor further comprises a second display capable of displaying a pulse rate.                                         |
| [43]       | The patient monitor of claim 42, wherein the second display is capable of displaying the pulse rate when the first display displays the measured value of the first blood parameter.                                  |
| [44]       | The patient monitor of claim 42, wherein the second display is capable of displaying indicia identifying the second blood parameter when the first display displays the measured value of the second blood parameter. |

## **I. INTRODUCTION**

The Patent Owner's Response ("POR") fails to rebut the Petition's showing that the Challenged Claims are unpatentable as obvious over prior art combinations including Naghavi, Hochstedler, and Burnes. Patent Owner's ("PO") arguments are fundamentally flawed in their reliance on a mischaracterization of the '223 Patent's objective, and on related unjustifiably narrow claim constructions. Yet, as explained in this Reply, the Petition's applied prior art combinations demonstrate obviousness of the Challenged Claims both as properly understood, and under PO's improper constructions. APPLE-1022, ¶¶1-22.

## **II. PATENT OWNER MISCHARACTERIZES THE '223 PATENT**

PO attempts to distinguish the Challenged Claims from the Naghavi-Hochstedler-Burnes combination based on an inappropriately narrow characterization of the '223 Patent. Specifically, PO argues that "the problem that the inventors of the '223 Patent faced [] was how to display parameters in a display area too small to show all measured parameters simultaneously" (POR, 37), and attacks the suitability of the advanced Naghavi-Hochstedler-Burnes combination on the grounds that the approaches of these references "differs significantly" from that problem.

That the Naghavi-Hochstedler-Burnes combination may not have recognized the problem purportedly addressed by the '223 Patent is immaterial given the

applicability of the teachings of this art to the Challenged Claims, as set forth in the Petition. *See Cross Med. Prod., Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1323 (Fed. Cir. 2005) (“One of ordinary skill in the art need not see the identical problem addressed in a prior art reference to be motivated to apply its teachings”).

But regardless, PO’s characterization of the ’223 Patent is too restrictive. This problem—“enabling more parameter data to be displayed than the available physical display area or real estate”—is pertinent only “[i]n an embodiment” of the ’223 Patent. APPLE-1001, 3:10-14; *see* 4:57-60.<sup>1</sup> The scope of the ’223 Patent is broader: it “relates to monitors displaying measurements derived using signals from optical sensors.” *Id.*, 1:55-57. And while some implementations described in the ’223 Patent do address this display area problem (such as the “exemplary” patient monitor of FIGS. 2-6), these once again are just examples. Other implementations, such as another “exemplary” patient monitor of FIGS. 11A-11H, do not suffer from these real estate constraints and instead are capable of “showing a plurality of parameter data.” *Id.*, 17:20-22.

PO’s claim constructions—also unreasonably narrow, as discussed in the next section—are emblematic of this mischaracterization. And notably, all of PO’s

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<sup>1</sup> Throughout this Reply, emphasis is added except where otherwise indicated.

arguments attempting to distinguish over the Naghavi-Hochstedler-Burnes combination rely not only on these unjustified claim constructions, but also on further assumptions founded on this mischaracterization of the '223 Patent's scope.

### **III. CLAIM CONSTRUCTION**

PO presents various claim constructions in an attempt to distinguish the Challenged Claims from the Naghavi-Hochstedler-Burnes combination. But the attempted distinctions fail for at least two reasons. First, as demonstrated in this section, PO's constructions of "replace" and "measured value" unsupported by the '223 Patent's specification, and overly narrow when considered against related disclosures. Second, as demonstrated in §VI, even if any or all of PO's constructions are adopted, the applied prior art combinations nevertheless render obvious the Challenged Claims.

#### **A. "Replace," "Replaces," and "Replacing" (Independent Claims 1, 15, 18, 21, 27)**

##### ***1. PO's construction should not be adopted***

PO's proposed construction for "replace" (and similar terms) is overly narrow and should not be adopted. As Patent Owner earlier asserted, the claims "require no construction." Prelim. Resp. 15. And, although the relevant claim language supports that "when a measured value of a first parameter is 'replaced' by the measured value of a second parameter, ... the measured value of the second

parameter is displayed in place of the measured value of the first parameter” (POR, 18), PO’s attempt to read further restriction into that language—namely, that “the measured value of the first parameter is removed from display” (*id.*)—is unjustified for at least the following reasons.

First, PO’s construction is improper because it renders other claim language meaningless. *See Power Mosfet Techs., L.L.C. v. Siemens AG*, 378 F.3d 1396, 1410 (Fed.Cir.2004) (“interpretations that render some portion of the claim language superfluous are disfavored”); *Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed.Cir.2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.” (citations omitted)).

Claim 1, for instance, specifies that the replacement occurs “in the common display area.” The common display area does not necessarily occupy the entire area of the patient monitor display.<sup>2</sup> PO’s construction of “replace,” which requires the replaced parameter to be “removed from display” (POR, 18), does not allow for the possibility that the common display area may be less than the entire display area, and thus its construction effectively gives no meaning to the

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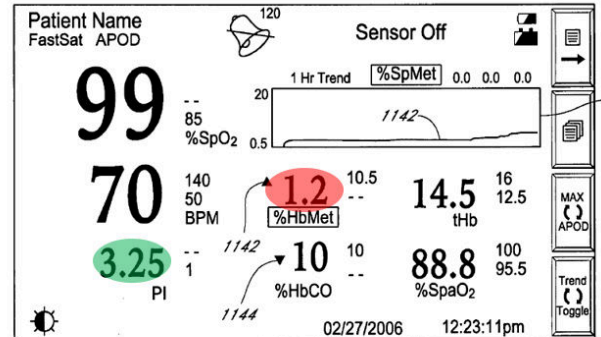
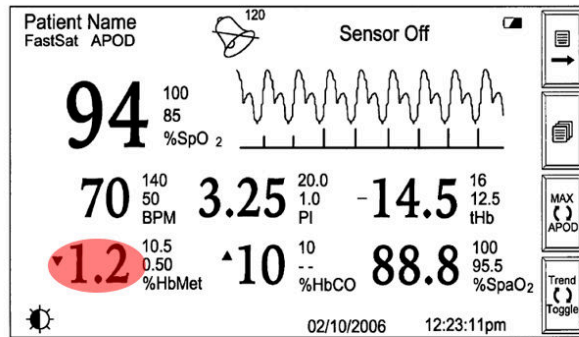
<sup>2</sup> Notably, PO did not contest the Petition’s mapping of portions of the entire display area to the claimed “common display area.” *See, e.g.*, Petition, 23-24.

limitation “in the common display area.” To be sure, replacement as recited in the claims encompasses removal from the display entirely, but it also encompasses instances where the replaced parameter is displayed elsewhere on the display (*e.g.*, outside of the common display area) following the replacement.

Second, PO’s construction unjustifiably attempts to import a limitation from an exemplary specification embodiment into broader claim language. *See Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004) (“a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment”); *E-Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003). While PO cites Figures 4 and 5 as “illustrat[ing] how a patient monitor display replaces one measured value ... with a second measured value” (POR, 12) these figures merely illustrate “an ***exemplary display***,” *i.e.*, a non-limiting example implementation that does not define the scope of the claims. APPLE-1001, 4:15-21.

Indeed, far from offering clear lexicography or disclaimer that might arguably justify importing an unrecited limitation into the claims, the ’223 specification discloses alternative examples in which replaced parameters are *not* fully removed. *See, e.g.*, Figs. 11B-11C (illustrating other “exemplary display screens” in which the 1.2 value for HbMet (circled in red) is replaced with the 3.25 value for Pl (circled in green), with the 1.2 value displayed elsewhere on the

display following the replacement); *Retractable Techs. v. Becton, Dickinson & Co.*, 659 F.3d 1369, 1372-73 (Fed. Cir. 2011); APPLE-1001, 17:18-20.

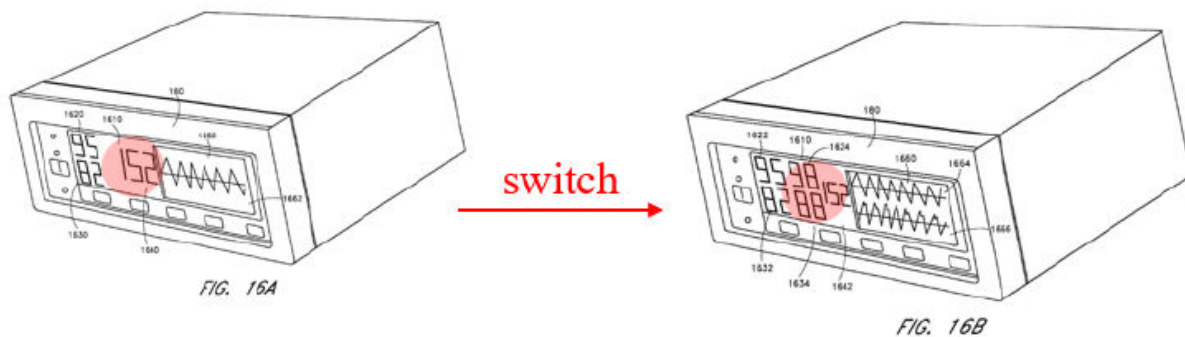


A construction that excludes disclosed embodiments—such as PO’s advanced construction for “replace”—is inappropriate and should not be adopted. Indeed, “[e]ven when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction’.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (citation omitted).

Third, PO’s arguments that the *ex parte* reexamination file history supports its construction (*see* POR, 14) also do not withstand scrutiny. PO points to Al-Ali’s Figs. 16A and 16B as purportedly illustrating “the difference between the ‘switching’ disclosed in the prior art considered by the Examiner and ‘replacing’ the measured values recited in the ’223 Patent claims.” POR 16. Yet these

figures, reproduced *infra*, do not support PO's contention that a replaced value must be fully removed from the display. While it is true that the "152" value remains displayed after the display "switch" (*id.*, 17) in these figures, it also still occupies some of the same area it previously occupied and thus was not fully replaced by the newly displayed "98/88" values.

Importantly, PO also mischaracterizes the Examiner's reasons for issuing the reexamination certification, asserting incorrectly that the Examiner "reaffirm[ed] that a measured value *is no longer displayed* after it is replaced by another measured value." POR, 15; *compare* to APPLE-1020, 6 (Examiner saying nothing about whether or not the replaced value remains displayed).



**2. The claims do not require removal of a replaced parameter from the display**

As discussed *supra*, the term "replace" does not require that the replaced parameter (*e.g.*, the first parameter) be removed from display entirely. Rather, display of a first parameter value being replaced with display of a second

parameter value indicates only that the second parameter value is displayed in the place previously occupied by the first parameter, and imposes no requirement on whether the first parameter is removed from display (it can, but does not have to), or whether the first parameter instead is displayed elsewhere on the display. To be sure, replacement encompasses removal from the display entirely, but it is not so limited: it also encompasses instances where the parameter that is replaced is moved elsewhere on the display, outside of the common display area.

That the claims encompass the possibility that the replaced (*e.g.*, first) parameter remains on the display, albeit in a different display area, is supported by the '223 Patent specification. *See, e.g.*, Figs. 11A-11B, discussed *supra* (illustrating that when the 3.25 Pl value replaces the 1.2 HbMet value (*i.e.*, occupies the space previously occupied by the 1.2), the 1.2 remains displayed). The continued display of the first parameter also breathes life into the “in the common display area” claim limitation: replacement “in the common display area” allows for the possibility of continued display of the replaced parameter elsewhere on the display in an area outside of that common display area.

**3. *PO's position implicitly relies upon an unexplained and unsupported further narrowing of “replace”***

Claims 1, 15, 18, 21, and 27 are silent as to the display of the replacing parameter value (*e.g.*, the measured value of the second parameter) prior to the

replacement. And importantly, PO, in its construction of “replace,” does not attempt to impose any requirement on the display of the second value prior to the replacement. Yet inexplicably, PO assumes such a limitation to be present, characterizing the claims narrowly as requiring “displaying the measured value of the first parameter and then replacing the value with a second measured value of a second parameter that the device is currently monitoring, *but not displaying.*” POR, 27; *see* 26 (“[t]he proper construction of the claim elements requires the device to measure two parameters, *one of which is not currently being displayed*”).

This implicit addition to PO’s proposed claim construction should be rejected. PO has provided no explanation or evidence for why the claims should be read in this way. In fact, in advancing its reasoning purporting to demonstrate that “the claims require currently monitoring two parameters, one of which is not displayed,” PO instead presents unrelated analysis of the claims followed by a wholly unsupported conclusion. Specifically, PO first points out that the claims “require[] currently measuring at least two different parameters.” POR, 27. PO then refers to its explicit construction of “replace” to argue that claims require that “the measured value of the first parameter is removed from display and the measured value of the second parameter is displayed in its place.” *Id.* Neither of these positions indicates any demand on the display of the second parameter value

prior to the replacement. Yet inexplicably, in the next paragraph, PO baldly asserts that “[t]aking the limitations together,” the claims require “displaying the measured value of the first parameter and then replacing the value with a second measured value of a second parameter that the device is currently monitoring, **but not displaying.**” *Id.* This is a mere conclusory statement that does not follow from PO’s earlier discussion. And nowhere does PO present evidence, or even logic, to bolster the credibility of this implicit construction.

And indeed, they could not have: nothing in the claims or in the ’223 Patent itself indicates the suitability of such a requirement. While this is surely the case for some embodiments of the ’223 Patent (*see* Figs. 4-5), it is not for others. For instance, Figs. 11B-11C (*infra*) show the 1.2 value (red) being replaced by the 3.25 value (green), which **is displayed** elsewhere on the display prior to the replacement.

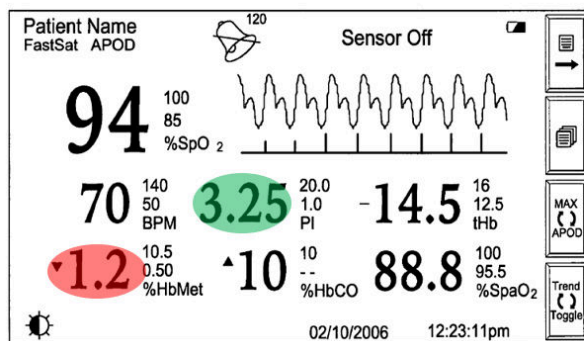


FIG. 11B

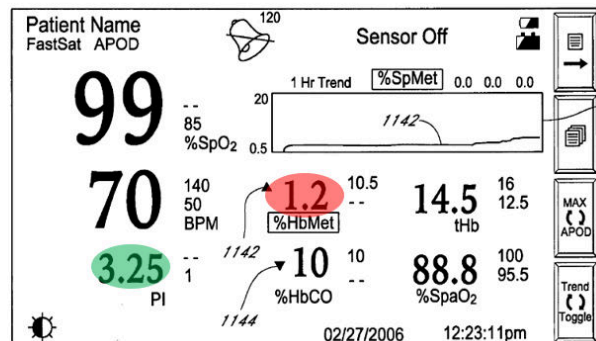


FIG. 11C

Moreover, while it is true that some of the motivations Petitioner provided for the Naghavi-Hochstedler-Burnes combination relate to instances in which the second value is not displayed prior to the replacement (*see* Petition, 25-27), the combination is motivated even in the case where the second value is displayed before it replaces display of the first value (*see* §V).

**B. “Changes” (Independent Claims 13, 28)**

PO argues that in the context of the '223 Patent, “‘changes’ should be interpreted the same way as ‘replaced.’” POR, 18. Claims 13 and 28 thus suffer the same deficiencies as claims 1, 15, 18, 21, 27 that recite “replaced,” as discussed herein.

**C. “Measured value” (All Claims)**

PO’s proposed construction of the term “measured value” as a “value of a parameter currently detected and determined by the monitor” (POR, 10) should be rejected because it is both ambiguous and unsupported by the '223 Patent.

First, what it means to be “currently detected and determined” (POR, 10) is unspecified, rendering PO’s construction unclear. Must a parameter be continuously detected, and its value determined, in order to qualify as “currently detected and determined,” or is the periodic detection and determination of parameter values sufficient? If the latter, PO provides no guidance on what

frequency of monitoring falls within the realm of “current,” merely stating that a measured value is “based on data being currently collected by the monitor.” POR.

10. Is a once per hour data collection, or even a once per day collection, frequent enough for the resulting parameter value to be considered “currently detected and determined”? PO provides no guidance, and nor could Dr. Duckworth provide clarification. *See* APPLE-1025, 35:9-48:10.

Moreover, PO’s insistence that the parameter values be “currently detected and determined” fails to specify when, relative to the elements of the claims, the detection and determination must occur. Is a parameter value that was detected and determined while displayed, but not at the time of its replacement with display of another value, a “currently detected and determined” value? Or must the parameter value actively be “detected and determined” at the moment of the replacement? Once again, PO does not explain.

Neither the POR nor the ’223 Patent address these issues, leaving PO’s proffered construction of this term untenably ambiguous.

Second, the claim language and portions of the ’223 Patent specification that PO identifies as purportedly supporting its construction do not explicitly provide a temporal requirement associated with determination of the claimed “measured value” for all parameters. PO argues that “[f]or the claimed patient monitors and methods to make these determinations,” *e.g.*, of whether a parameter value

approaches or crosses a threshold or other such changes in behavior, “the monitors must be currently monitoring the parameters.” POR, 8. While this may be the case for one of the parameters, the claims certainly do not demand any such determination of *both* parameters.

Rather, claim 1 requires only that “the measured value of *one of the first or second physiological parameters*” approaches a threshold, and similar requirements are imposed by the other claims. Even assuming that PO is correct in arguing that “the monitors must be currently monitoring” a parameter to determine, *e.g.*, whether its value approaches a threshold, this at most would imply that a single one of the two parameters must be currently monitored—not both.

Moreover, PO’s own cites to the ’223 Patent do not support its assertion that “[t]he specification also confirms this interpretation.” POR, 9. PO points to the ’223 Patent’s description of a sensor that produces data used to determine various parameter values. *See id.* But this description merely lists parameters that can be monitored. None of these citations impose any temporal requirement on either the sensor operation or the determination of parameter values based on those data, nor do they specify how these actions temporally relate to the display of the resulting values or the replacement of one displayed value with another.

#### **IV. THE CLAIMS AS PROPERLY UNDERSTOOD ARE OBVIOUS OVER THE NAGHAVI-HOCHSTEDLER-BURNES COMBINATION**

Properly read without adoption of PO's unjustified constructions, the Challenged Claims require merely that in the area where the first value is originally displayed, the first value is removed and the second value is displayed in its place. No requirement for where the first value goes after the replacement is imposed by the claims, and neither is any requirement for where (if anywhere) the second value was displayed prior to the replacement. With this context, the advanced combinations based on Naghavi-Hochstedler-Burnes render the claims obvious.

##### **A. The Naghavi-Hochstedler-Burnes Combination Provides Display of Measured Values of Parameters**

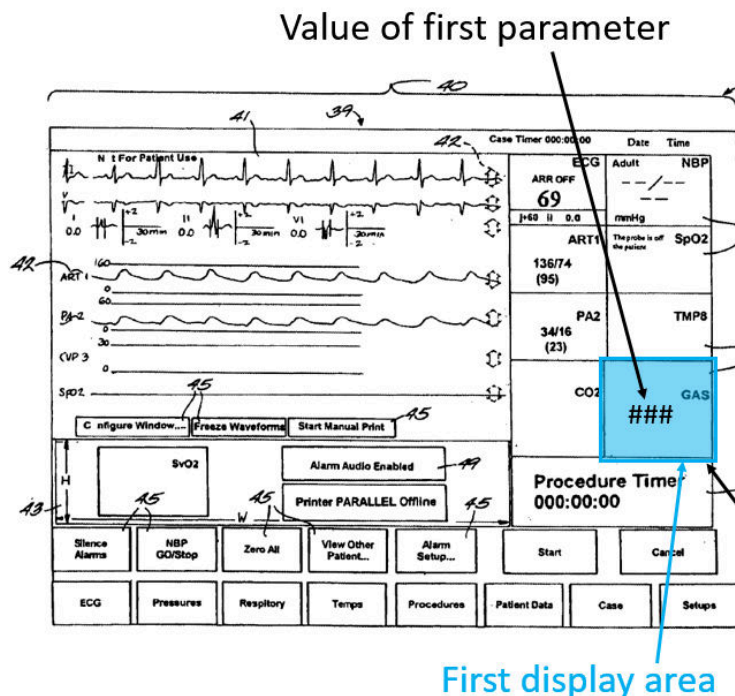
PO's argument that "nothing about the combination suggests using the same display area to show two currently measured parameters" (POR, 41) improperly addresses each reference individually, ignoring the Petition's demonstration of obviousness to a POSITA of display of measured values of parameters over the Naghavi-Hochstedler-Burnes combination.

##### ***1. Measured values of parameters are displayed on the combination display***

As set forth in the Petition, in the combination, "icons and health objects" are displayed on a GUI, as taught by Naghavi, and are instantiated based on Hochstedler's teachings as, *e.g.*, "information about patient vital signs" measured

by sensors of the combination system. APPLE-1005, [0059]; APPLE-1004, 3:40-41; *see* Petition, 10-11, 18-20, 27. PO does not dispute that the icons/health objects displaying “information from the sensors” (Petition, 20) can display **measured values of physiological parameters**, but nevertheless takes issue with the Petition’s illustration of the display of this information. PO’s argument is fundamentally flawed in that it addresses each reference individually, failing to consider the combination as a whole.

One example of the Naghavi-Hochstedler-Burnes combination display is shown as an annotated version of Hochstedler’s FIG. 2, *infra*. *See* Petition, 23.



Based on Hochstedler’s FIG. 2 (*see* Petition, 23)

Pointing to this figure, PO argues that “there is no disclosure in Hochstedler that the “GAS” shown in Figure 2 is a currently measured value of a parameter being monitored,” both because of the Petition’s annotation of this figure “to add ‘###’” although “no such number is actually displayed,” and because of the nature of the GAS parameter itself. POR, 34. But this argument assumes the Petition’s reliance on only Hochstedler for the recited parameter display, ignoring that Hochstedler is merely one reference in the Naghavi-Hochstedler-Burnes combination. *See Bradium Tech. v. Iancu*, Case Nos. 2017-2579, 2017-2580 (Fed. Cir. 2019) (“A finding of obviousness, however, cannot be overcome by attacking references individually where the rejection is based upon the teachings of a combination of references.”)(quoting *In re Merck*, 800 F.2d 1091, 1097 (Fed. Cir. 1986)).

As previously explained by Dr. Cockburn, Hochstedler’s display layouts are presented as example arrangements of the display of vital signs parameters, but Hochstedler “can display information about *parameters other than those specifically illustrated.*” APPLE-1003, ¶71; Petition, 24-25. That is, PO fails to grasp that the Petition contemplates display of **measured values of physiological parameters** that are not limited to those parameters illustrated in Hochstedler’s layouts, but instead are parameters that are measured by those sensors that are implemented in the combination system, and that are displayed (as depicted by the

“###”) in in arrangements as illustrated by Hochstedler (*e.g.*, in the blue-highlighted block *supra*). *Id.*

**2.     *The displayed values in the combination are of parameters that are actively monitored***

PO argues that “nothing about the combination suggests using the same display area to show two currently measured parameters.” POR, 41. Even accepting PO’s demand that the parameters be “currently measured” (and to the extent its construction is definite), this attack falls flat: PO once again fails to appreciate the nature of the combination.

In the combination, Naghavi’s icons/health objects are arranged in a display layout as taught by Hochstedler. *See* Petition, 9-12. These icons/health objects are implemented as measured values of parameters monitored by the system, as illustrated by Hochstedler—*i.e.*, values of ***currently measured*** parameters. *See id.*, 21-25. When the icons/health objects are rearranged, *e.g.*, into another layout as illustrated by Hochstedler, this places one icon/health object (*e.g.*, the value of one monitored parameter) into a location previously occupied by another (*e.g.*, the value of another monitored parameter), thus in fact “using the same display area to show two currently measured parameters,” despite PO’s insistence otherwise. POR, 41.

PO's apparent inability to recognize this aspect of the combination stems from a failure to appreciate how the Petition relies on Hochstedler and Burnes. PO argues that "Hochstedler switches its display to show a new parameter but does so by removing from display a parameter that is no longer measured at all." POR, 28. But this argument improperly attempts to constrain the combination to implementation of Hochstedler's teaching of switching the display layout responsive to the addition or removal of a sensor. This is not the ground advanced in the Petition. Instead, incorporating Burnes's teaching of a change in a parameter value that triggering an alert, the combination system changes its display layout not responsive to a change in available sensors (as PO contends), but responsive to a detected change in a parameter value. *See* Petition, 12-13; APPLE-1006, [0038]-[0039].

It is common sense that for a change in a parameter value to trigger a display change (as is the case in the Naghavi-Hochstedler-Burnes combination), the system must be actively monitoring that parameter. *See* Petition, 9-13; APPLE-1003, ¶¶72-74; APPLE-1022, ¶¶6-9. That is, without a doubt, at least the replacing parameter (*e.g.*, the second parameter) is actively monitored in the combination system. APPLE-1022, ¶¶6-9. This monitoring of the replacing (*e.g.*, second) parameter is sufficient to satisfy any active monitoring demand imposed by the

claims, which at most impose an active monitoring requirement on only one of the parameters. *See* §III.A, *supra*.

Nevertheless, the combination also encompasses active monitoring of both the replaced parameter and the replacing parameter. Consistent with the Board’s proper understanding (*see* Institution Decision, 18), the displayed values reflect “*real-time information* about patient vital signs” (APPLE-1004, 1:20-21; *see* Petition, 11) obtained from sensors employed by the combination system (*see* Petition, 20), and thus constitute values of actively monitored parameters. One such parameter value is initially displayed in a block of one of Hochstedler’s layouts; and when the objects are rearranged (as indicated by Naghavi), a value of a different parameter, also monitored by the system, is displayed in that same block—thus displaying values of two actively monitored parameters in the same display area. *See* Petition, 25-27.

**B. The Naghavi-Hochstedler-Burnes Combination Provides Replacement of Values**

PO’s objections to the teachings of the references focus on the purported failure of the references to disclose that the first parameter value is removed from display after the replacement (*see, e.g.*, POR, 2-3) or that the second parameter value is not displayed prior to the replacement (*see, e.g., id.*, 3). These alleged distinctions (even if true, which Petitioner does not concede; *see* §VI, *infra*) are not

relevant when the claims are read properly. The combination demonstrates exactly what the claims require: replacement of one parameter value with another in a specific portion of the display—*e.g.*, the “common display area” of claims 1, 13, 15, and 18 or the “display location” in claim 21.

Specifically, Naghavi provides that the icons/health objects are “rearrange[d] ... to best suit the condition of [the] patient,” *e.g.*, to “show different types of icons and health objects according to different ... physical conditions of the patient.” APPLE-1005, [0059], [0063]; *see* Petition, 18, 27. A rearrangement of displayed icons/health objects involves moving displayed objects around such that one object is displayed in the place previously occupied by another—*i.e.*, **replacement** of one health object with another. *See* Petition, 25-27. Yet tellingly, PO does not engage with this disclosure of Naghavi, instead making the irrelevant assertions that “Naghavi does not disclose monitoring *a parameter that is not displayed*” and “Nor does Naghavi disclose replacing, and thus, *removing, a monitored parameter from a display*”—neither of which is applicable to any limitation of the Challenged Claims.<sup>3</sup> POR, 40.

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<sup>3</sup> PO asserts that “‘changes should be interpreted the same way as ‘replaced.’”

POR, 18. As such, the arguments presented here regarding “replace” apply equally to “change” as recited in claim 28.

The Petition acknowledges that Naghavi provides little detail about its GUI, or about the rearrangement of its icons/health objects, and turns to Hochstedler for a specific implementation. *See* Petition, 9-12. Consistent with Naghavi's rearrangement of icons/health objects, Hochstedler describes rearranging display layouts of parameter values, and specifically illustrates rearrangements in which one parameter value is displayed in the place previously occupied by another—that is, **replacement** of one displayed value with another. *See id.*, 25-27. Yet here, too, PO fails to engage with the substance of the Petition's reliance on Hochstedler, instead advancing an argument that focuses on Hochstedler's alleged failure to disclose features that are not required by the claims. *See* POR, 30 (“there are no measured but undisplayed parameters”).

PO also attacks Burnes for “not disclos[ing] measuring a parameter that is not displayed.” POR, 38. This is simply obfuscation. The Petition did not rely on Burnes for display of parameter values. *See* Petition, 18-25.

The combination renders claims 27 and 28 unpatentable for similar reasons. Regarding claim 27, in the Naghavi-Hochstedler-Burnes combination, display of one value is replaced with display of another (*see* elements [27b] and [27c]), *e.g.*, the display area previously occupied by one value is later occupied by another. Similarly, regarding claim 28, the Naghavi-Hochstedler-Burnes combination renders obvious that “the display [] changes” from displaying one value to

displaying another, *e.g.*, a first value is initially displayed in an area of display, and following a display layout change, another value is displayed in that same area.

**V. A POSITA WOULD HAVE BEEN MOTIVATED TO COMBINE NAGHAVI-HOCHSTEDLER-BURNES**

As an initial matter, PO’s statement that “Apple presented two arguments each with three supposed motivations to combine *either*: (1) Naghavi and Hochstedler [], *or* (2) Naghavi, Hochstedler, and Burnes []” mischaracterizes the structure of the motivations presented in the Petition. POR, 44. The Petition did not present a Naghavi-Hochstedler combination as an alternative to a Naghavi-Hochstedler-Burnes combination, as PO contends. Instead, the Petition elaborated *both* (1) reasons for display of icons/health objects in layouts, based on Hochstedler (*see* Petition, 13-14) *and* (2) reasons for change of severity of a parameter triggering a display change, based on Burnes (*see id.*, 14-15). And these reasons together—not in the alternative—motivate the combination.

Moreover, PO’s arguments that the articulated motivations are insufficient to motivate the combination do not withstand scrutiny, both because they are untethered from the properly interpreted claims and because they fail to appreciate the relevance of the proffered motivations to the combination.

First, PO argues that “ensuring the display of clinically relevant information”—the first reason for the combination provided in the Petition—

“would caution against not displaying a monitored parameter because the system could simply display all currently measured clinically relevant parameters.” POR, 46. PO is incorrect. This argument distorts the scope of the claims: “not displaying a monitored parameter” (*id.*) is not a limitation of the claims, and thus even if this motivation does caution against displaying fewer than all monitored parameters (it does not), such concern is irrelevant. In fact, the rearrangement of parameters, as already suggested by Naghavi and implemented according to Hochstedler, advantageously ensures an easy-to-use user interface, *e.g.*, by highlighting information that has changed to warrant user attention. *See* Petition, 13-14; APPLE-1003, ¶¶42-43. To the extent that these changes do involve removing a monitored parameter from display, this is nevertheless consistent with this proffered motivation, *e.g.*, in that not displaying parameters that are monitored but may not be of particular importance to current patient care can help avoid presentation of an overwhelming amount of information on a single interface.

Second, PO argues that “prioritizing display”—the second reason presented in the Petition—“does not provide a reason to replace, and thereby remove, a second monitored parameter from display.” POR, 46. Again, PO’s argument is not true to the scope of the claims: removing a monitored parameter from display is not required by the claims. And again, as contemplated by Naghavi and implemented based on Hochstedler, rearrangement of parameter values

advantageously allows for key information to be made more prominent on a display, *e.g.*, in position, size, color, etc. *See* Petition, 13-14; APPLE-1003, ¶44; APPLE-1005, [0059] (“The icons and health objects may change in color, shape, order, or other mutable attribute”). Moreover, again to the extent that removal of a parameter from display is one such change, the prioritization of information still motivates this implementation, *e.g.*, in that removing a parameter that is not clinically relevant, or that indicates a stable patient condition, can focus the user’s attention on other, more immediately applicable, parameters.

Notably, PO here once again fails to contend with the demonstration of obviousness over the applied prior art combination, and instead improperly attacks the references individually. For example, PO argues that “Hochstedler continues to show other blocks without any measured values being displayed.” POR, 47. But, as explained in the Petition and *supra*, the specific contents (or lack thereof) of the blocks in Hochstedler’s layouts are not at issue in the combination. *See* Petition, 24-25. What is contemplated in the combination, and motivated by a POSITA’s desire for a user-friendly and easily understandable user interface, is the display of values of parameters monitored by sensors of the combination system, in layouts such as Hochstedler’s. *See id.*, 9-14.

## VI. EVEN UNDER PO'S CONSTRUCTIONS, THE CLAIMS ARE UNPATENTABLE

PO relies on both its explicit claim construction (that the first parameter value “is *removed from display*” (POR, 18)) and its implicit further claim interpretation (that “the device is *currently monitoring, but not displaying*” the second parameter value (POR, 27-28)) in arguing that the claims are not obvious. These interpretations are not justified for many reasons, as discussed above. But even if all of PO's constructions—both explicit and implicit—are adopted, the art still renders the claims obvious. APPLE-1022, ¶¶10-18.

First, PO's understanding of Naghavi and its contribution to the combination is fundamentally incorrect. PO argues that “Naghavi does not disclose monitoring a parameter that is not displayed,” “[n]or does Naghavi disclose replacing, and thus removing, a monitored parameter from a display.” POR, 40. But Naghavi is relied upon (in part) in the combination for its disclosure that “changes are made automatically to the display responsive to changes in patient health status.” Petition, 10 (citing APPLE-1005, [0059], [0099]). These changes include “show[ing] *different types of icons and health objects* according to different diseases and/or physical conditions of patient 1,” *i.e.*, changing which icons/health objects are displayed. APPLE-1005, [0059]; *see* Petition, 27. A change in which

objects are displayed entails **removal** of an already-displayed object, **new display** of a previously undisplayed object, or both. APPLE-1022, ¶¶11-12.

In the combination, the displayed health objects are parameter values reflecting “real-time information about patient vital signs,” *e.g.*, currently measured values (APPLE-1004, 1:20-21; Petition, 20), and the display changes indicated by Naghavi are instantiated according to Hochstedler’s disclosed layouts, which likewise show changes in which objects are displayed: for instance, a removal of one parameter value from the display, and the introduction of a newly displayed value in its place. *See, e.g.*, the removal of one parameter from display and the new display of another in its place in the change between Hochstedler’s FIG. 2 and FIG. 9 layouts, and similarly in the change between Hochstedler’s FIG. 2 and FIG. 13 layouts. APPLE-1022, ¶¶13-14. Indeed, complete removal of one parameter value from a display, and introduction of a newly displayed parameter value in its place, was well-known. *See* APPLE-1021, [0067]-[0068], FIG. 6; APPLE-1022, ¶¶15-18.

That is, although PO’s constructions (both explicit and implicit) should not be adopted, the Naghavi-Hochstedler-Burnes nevertheless satisfies even PO’s narrow read: it shows display configurations in which one currently measured

parameter value is removed fully from the display and a different currently measured parameter value is introduced onto the display in its place.<sup>4</sup>

## VII. CLAIM 4 IS UNPATENTABLE

PO argues that “Hochstedler selects layouts to match the system, rather than using a default layout,” and therefore “does not describe a default *layout*.” POR, 58-59. This argument is deficient because PO improperly attacks Hochstedler individually, failing to address that the *combination* provides a GUI with a default layout. APPLE-1004, 8:36-38; APPLE-1003, ¶86; *Bradium Tech. v. Iancu*, Case Nos. 2017-2579, 2017-2580 (Fed. Cir. 2019). Consistent with arguments provided above, Hochstedler’s GUI provides an example of a default layout: a dialog box with a “default selection button” (APPLE-1004, 8:38), but the combination is not solely limited to this embodiment.

But even assuming *arguendo* that the combination were so limited (it is not), a default layout does not exclude recommended layouts created by Hochstedler’s

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<sup>4</sup> To the extent PO attempts to characterize this as new argument (it is not), Petitioner is nevertheless entitled to presentation of such arguments responsive to new claim construction arguments for the first time in the POR. *See Axonics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374, 1384 (Fed. Cir. 2023).

“weighted algorithm,” as PO suggests it does. POR, 59. To the contrary, a POSITA would have understood a default layout to be inclusive of “a selection automatically used by a program in the absence of a choice made by the user.” APPLE-1024, 3; *see* APPLE-1023, 3; APPLE-1022, ¶¶19-22. That is, a recommended layout automatically created and selected by a system is yet another example of a default layout. APPLE-1022, ¶¶19-22.

### VIII. CONCLUSION

Petitioner has established that the Challenged Claims are unpatentable and respectfully requests that the Board find the same.

Respectfully submitted,

Date: December 6, 2024

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**CERTIFICATION UNDER 37 C.F.R. § 42.24**

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petitioner Reply to Patent Owner Response totals 5,594 words, which is less than the 5,600 allowed under 37 CFR § 42.24(c)(1).

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**CERTIFICATE OF SERVICE**

Pursuant to 37 CFR § 42.6(e)(4), the undersigned certifies that on December 6, 2024, a complete and entire copy of this Petitioner's Reply to Patent Owner's Response was provided by email to Patent Owner by serving the email correspondence addresses of record as follows:

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