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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

MASIMO CORPORATION,
Patent Owner.

Case IPR2024-00290
U.S. Patent 8,190,223

PATENT OWNER RESPONSE

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2003	Commission Opinion (Public), <i>Certain Light-Based Physiological Measurement Devices and Components Thereof</i> , Inv. No. 337-TA-1276, EDIS No. 808521 (ITC Oct. 26, 2023)
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I. INTRODUCTION

In 1989, Masimo was a small startup run out of an inventor's condo. Today, Masimo is a publicly traded company that employs 6,300 people worldwide and has annual revenues exceeding one billion dollars for its medical devices. Over the years, Masimo developed a range of technologies that revolutionized the field of noninvasive monitoring. In 2005, Masimo released its rainbow[®] technology, which used eight wavelengths of light to noninvasively measure physiological parameters that were previously only available to clinicians via invasive measurements, such as arterial carbon monoxide saturation ("HbCO") or methemoglobin saturation ("HbMet").

Masimo's technological breakthroughs, which enabled the measurement of new noninvasive parameters, also presented a dilemma—how to display the measured values on portable patient monitors that do not have enough display real estate to show all of them at once. Masimo's previous monitors measured and displayed fewer parameters and had been designed accordingly. To introduce Masimo's new parameters, Masimo needed to be able to use screens sized for fewer parameters. Masimo's engineers devised solutions to that problem, such as using a common display area to display the measured values of a physiological parameter (*e.g.*, oxygen saturation or SpO₂) and replacing the display of those measured values

with those of another physiological parameter (*e.g.*, HbCO), particularly when the patient's condition changed.

U.S. Patent No. 8,190,223 (“’223 Patent”) discloses and claims those solutions. The ’223 Patent claims recite ways to display a measured value of a parameter and then replaced the measured value with the measured value of another parameter when an event occurs. Event can include one of the parameters approaching or exceeding a threshold or other indications that the state of a patient is worsening.

Apple challenges these claims as obvious over a core combination of three references—Naghavi, Hochstedler, and Burnes. But Apple's combination does not disclose the claimed replacement of a measured value of a parameter with the measured value of another parameter based on an event. As the Board noted in the Institution Decision, Apple relied on a single reference, Hochstedler, to allegedly disclose the claimed replacement of a measured value. But Hochstedler discloses no such thing. Instead, Hochstedler updates its display layout to show all monitored parameters when it detects a new parameter being monitored (*e.g.*, a new sensor is plugged in). Hochstedler never suggests that a currently monitored parameter may be replaced, and thus removed from display, in favor of a different currently monitored parameter.

Moreover, there would have been no motivation, other than improper hindsight, to combine Naghavi, Hochstedler, and Burnes. Apple argued that its three references would be combined so that the system could automatically display a previously undisplayed parameter when the measurement value changes in severity. But none of the references disclose a measured but undisplayed parameter. Rather, Apple relies on multiparameter patient monitors that display all monitored parameters without the need to pick and choose which parameters to display. Because the references teach displaying all monitored parameters, a POSITA would not be motivated to modify those references to remove a monitored parameter.

Moreover, Apple's combination relies on the ability of the system to monitor parameters that are not displayed to identify when an undisplayed parameter changes in severity. But none of Apple's references disclose that feature, and Apple and its expert did not identify any such disclosure. A POSITA therefore would not have been motivated to combine the references as Apple proposed.

Apple's arguments are very similar to the arguments that the Patent Office already considered and rejected during reexamination of the '223 Patent. As the Examiner stated then, "there would be no motivation to simply replace the first parameter with the second, as it would contradict the direct teaching in the reference

of allowing the user to *see the entirety of the patient's condition.*” EX1020, 6-7¹.

Apple’s obviousness arguments here likewise contradict its references’ teachings that emphasizes the display of all monitored parameters. Nothing about the combination of references suggests otherwise. The Petition offers no reason to depart from the Office’s prior findings.

II. MASIMO’S PIONEERING TECHNOLOGY

A. Masimo And Its rainbow[®] Technology Leads To The ’223 Patent

Masimo revolutionized non-invasive monitoring of physiological parameters, such as pulse rate, arterial oxygen saturation (SpO₂), and many others. Before Masimo, non-invasive measurements from the photoplethysmograph (PPG) were plagued by unreliability, often when the measurement was needed most, due to the person moving or having low peripheral blood flow (known as “low perfusion”). The industry had essentially given up on solving these problems, concluding they were largely unsolvable. Pulse oximeters, which measured SpO₂, falsely alarmed 70% to 90% of the time. Masimo’s pioneering technology, known as Masimo Signal Extraction Technology (“Masimo SET”), solved these problems and dramatically improved the reliability of monitoring and reporting physiological signals derived

¹ All emphasis added unless noted otherwise.

from the PPG. Masimo SET reduced false alarms by 97% and improved detection of true events.

The innovation of Masimo SET also permitted Masimo to expand its technology to develop many other parameters from the rich data it was able to extract from the PPG using its revolutionary technology. Following its initial success with Masimo SET, Masimo invested heavily in developing additional breakthrough measurement technologies. In 2005, Masimo released its rainbow[®] technology, which used eight wavelengths of light to noninvasively measure parameters that were previously only available to clinicians with invasive measurements. EX2030, 12-13. For example, today Masimo's rainbow[®] technology can measure total hemoglobin (SpHb), carboxyhemoglobin (SpCO), and methemoglobin (SpMet). EX2031.

In 2005, as Masimo was developing its revolutionary rainbow[®] technology, Masimo's engineers needed to address how to display these new parameters. Masimo understood that for caregivers to properly assess a patient's condition, they would benefit from understanding multiple parameters in addition to SpO₂, PPG waveforms, or pulse rate, including the revolutionary new rainbow[®] parameters. EX1001, 2:50-59. However, some device displays are constrained in size, limiting what parameters can be displayed. *See, e.g.*, EX1001, Abstract, 2:42-47, 3:10-14, 4:57-60, Fig. 2. A display may not be able to display all measured parameters at one

time. *See, e.g.*, EX1001, Abstract, 3:10-14, 4:57-60. Because Masimo's technology could monitor additional parameters, the inventors of the '223 Patent sought a way to show multiple parameters with limited display real estate, without sacrificing patient safety. *See* EX1001, Abstract, 2:51-3:9, 4:48-50.

For example, the inventors determined that one way of displaying multiple parameters with a small display would be to replace one parameter with a second parameter if the second parameter met certain conditions, such as indicating a worsening state of the patient, "alarming," or being above or below a designated range. *See* EX1001, 3:44-62, 5:16-30, 14:12-15. By replacing a parameter with another parameter that is near or exceeding a threshold value, a clinician or other healthcare provider could monitor a patient using a device with a small display yet be promptly notified of any important changes in the health status of the patient. *See* EX1001, 3:44-62, 5:16-30, 14:12-15.

The '223 Patent issued on May 29, 2012. EX1001, 1. On September 13, 2012, a third-party requested *ex parte* reexamination of the '223 Patent. EX1020, 734. On April 24, 2013, a reexamination certificate issued with various amendments to the claims of the '223 Patent. EX1020, 1.

B. The '223 Patent Claims

The '223 Patent includes seven independent claims: Claims 1, 13, 15, 18, 21, 27, and 28. Claim 1 is illustrative (but not representative) of features claimed in the '223 Patent²:

[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.

Like Claim 1, the other independent claims require **replacing** ([1b], [15b], [18b], [21b], [27b]) or **changing** ([13b], [28c]) the display of a first measured value with a second measured value. Further, the independent claims of the '223 Patent require that the **replacing** or **changing** is based on a certain event, including one of the measured values: (1) approaching a threshold or changing indicating a worsening state of the patient ([1c], [13c], [21b]); (2) alarming ([15c]); (3) being

² Masimo does not necessarily agree with Apple's proposed limitation numbering but uses the numbering system for convenience only.

more critical than the other measured value ([18b]); or (4) passing an alarm threshold ([27c], [28c]).

III. CLAIM CONSTRUCTION

A. “Measured Value” (All Claims)

Each '223 Patent claim recites the display of “measured value[s]” of a first physiological or blood *parameter*, and a second physiological or blood *parameter*. EX2042, ¶54.

The language of each claim shows that the “measured value” must be currently detected and determined by the monitor. EX2042, ¶55. Each claim recites replacing or changing the display of a measured value based on an “event” or other occurrence. *See* Limitations [1b], [13b], [15b], [18b], [21b], [27c], [28c]. The claimed events or occurrences involve determining whether a parameter approaches or crosses a threshold ([1c], [13c], [27c], [28c]), is alarming ([15c]), is more critical than the other ([18b]), or otherwise indicating a worsening state of a patient ([21b]). *See* Limitations [1c], [13c], [15c], [18b], [21b], [27c], [28c]. For the claimed patient monitors and methods to make these determinations, the monitors must be currently monitoring the parameters. EX2042, ¶55. Thus, the “measured values” of the first and second physiological parameters in each claim must be measured currently. *Id.*

Other language in the claims further confirms this interpretation. EX2042, ¶56. For example, Claim 19 recites “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.” This shows that measured value is based on an output signal that is actually being measured by the device. *Id.* Other claims also use the limit the term measured value in a way that is consistent with this interpretation:

- “an invasively measured value” (Claims 5, 23);
- “a non-invasively measured value” (Claim 6); and
- “glucose” (Claim 7).

See EX2042, ¶57.

The specification also confirms this interpretation. EX2042, ¶58. The specification describes a device that includes a “sensor” which “produces sufficient data for the determination of HbCO, HbMet, Hbt and SpO₂, SpO₂ only, SpO₂ and HbMet, any combination of the foregoing or other parameters, or the like.” EX1001, 9:55-59. Using this data, the device obtains and determines “the many parameters capable of being measured by the monitor 200.” EX1001, 10:6-9. Thus, the specification describes calculating the measured parameters from the data collected by the monitor. EX2042, ¶58.

The specification further explains that the device has a display for displaying these values as they are measured, including displaying: “measured pulse rate in beats per minute (“BPM”)” (*Id.*, 11:12-14), “measured HbCO values” (*Id.*, 11:32-

33), “measured values of SpO₂ to HbCO” (*Id.*, 11:41-42), “one or more of the measured parameters” (*Id.*, 11:59-60), “measured values of perfusion over time” (*Id.*, 13:59), “measured values of SpO₂, HbCO, BPM, perfusion” (*Id.*, 15:22-23), “measured values of SpO₂” (*Id.* 14:46), and “measured values of additional parameters, such as, HbCO” (*Id.*, 14:54-55).

From these repeated uses of “measured values” throughout the specification, a POSITA would understand that a “measured value” refers to a parameter being detected and determined by a patient monitor, for example, from sensor data. EX2042, ¶59. Accordingly, a POSITA also would have understood a “measured value” is based on data being currently collected by the monitor. EX2032, 59.

Based on this intrinsic evidence, a POSITA would understand that each “measured value” refers to a “value of a parameter currently detected and determined by the monitor.” EX2042, ¶60.

B. “First” And “Second” (All Claims)

Each ’223 Patent claim recites the display of a *first* physiological or blood parameter, and a *second* physiological or blood parameter. *See* Limitations [1a], [13a], [15a], [18a], [21b], [27a], [28a]. Because each claim recites both a *first* parameter and a *second* parameter, a POSITA would have understood that each claim requires at least two “measured value[s],” each of different a parameter. EX2042, ¶61. Indeed, certain claims confirm this by specifically reciting that the

first parameter is a particular parameter like oxygen saturation and the second parameter is a different parameter like carbon monoxide:

- “the measured value of the first physiological parameter comprises an indication of oxygen saturation and the measured value of the second physiological parameter comprises an indication of carbon monoxide saturation” (Claims 8, 24);
- “the measured value of the first physiological parameter comprises an indication of oxygen saturation and the measured value of the second physiological parameter comprises an indication of methemoglobin saturation” (Claims 9, 25);
- “the measured value of the first physiological parameter comprises an indication of carbon monoxide saturation and the measured value of the second physiological parameter comprises an indication of methemoglobin saturation” (Claim 10, 26).

Thus, the *first* parameter refers to a different measured value than the measured value for a *second* parameter. EX2042, ¶¶62-63.

C. “Replace,” “Replaces,” And “Replacing” (Claims 1, 15, 18, 21, 27)

Claims 1, 15, 18, 21, and 27 each recite an element in which the display of one measured value of a physiological parameter is “replaced” (“replacing” in Claim

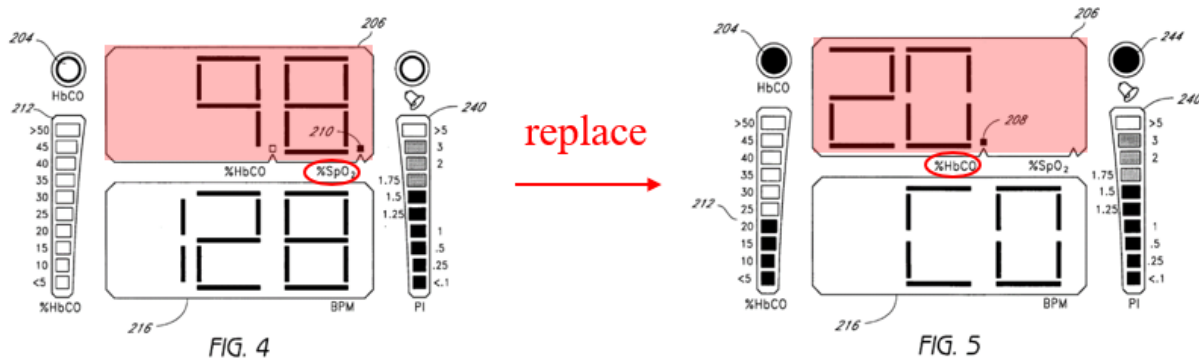
21 or “replaces” in Claim 27) with a measured value of a different parameter. EX2042, ¶64.

The meaning of “replaced” in the English language refers to “take the place of.” *See, e.g.* EX2039, 1056 (“to take the place of especially as a substitute or successor”); EX2040, 1058 (“to take the place of something, or to put something or someone in the place of something or someone else”); EX2042, ¶65. For example, when a person “replaces” a windshield on a car, the old windshield does not remain on the car. *Id.* As another example, when a person “replaces” a bad habit with a good one, the person is no longer keeping the bad habit. *Id.*

The ’223 Patent uses the term “replace” consistent with this meaning. For example, in one instance the specification refers to “replace the batteries.” EX1001 at 12:62-65. In another example, it refers to “data indicating whether some or all sensor components have expired and should be replaced.” *Id.* at 8:1-2. In both instances, a POSITA would understand that the old batteries or the expired sensors do not remain after they have been replaced. EX2042, ¶66. Likewise, when a measured value of a first parameter is “replaced” with a measured value of a second parameter, the measured value of the first parameter is no longer displayed, and instead, the measured value of the second parameter is displayed in its place. *Id.*

Figures 4 and 5 of the ’223 Patent illustrate how a patient monitor display replaces one measured value (*e.g.*, SpO₂ in Fig. 4), with a second measured value

(e.g., HbCO in Fig. 5). *See id.* at 4:15-21, 14:45-46 (explaining that the display of Fig. 4 shows SpO₂), 14:66-15:2 (explaining that the display in Fig. 5 “has shifted the data to the left to quickly and efficiently indicate that the displayed parameter is *other than SpO₂*”).



EX2042, ¶67 (annotating FIGS. 4 and 5).

This is also consistent with the purpose of the '223 Patent, which “enabl[es] more parameter data to be displayed than the available physical display real estate” allows for. EX1001, Abstract; *see also id.*, 3:10-14, 10:6-9; EX2042, ¶68. The patent accomplishes this by removing the measured value of a parameter from the display and displaying the measured value of a different parameter in its place. EX2042, ¶68. “For example, a patient monitor may be displaying a first parameter, such as a plethysmograph, and upon determining measurements indicating that HBMet is trending toward an alarm condition, the monitor may automatically switch from displaying the first parameter to the alarming parameter....” EX1001, 5:20-25; *see also id.* at 10:6-12 (explaining that in a display with “insufficient space,” the

display “cycle[s] through two or more measured parameters in an area common to both parameters.”); EX2042, ¶68.

The *ex parte* reexamination history of the ’223 Patent also confirms that a measured value is no longer displayed once it has been replaced by a different measured value. EX2042, ¶69. In the reexamination request, the requester argued that various claims of the ’223 Patent were unpatentable as anticipated by U.S. Pat. App. Pub. No. 2002/0082488 to Al-Ali (“Al-Ali”) or obvious over Al-Ali in combination with other references. EX1020, 734-739, 746; EX2042, ¶69. The requester argued Al-Ali disclosed “chang[ing] 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.” EX1020, 755; EX2042, ¶70. The requester argued the display of Al-Ali changed from showing a first set of physiological parameters to displaying a first and a second set of physiological parameters. EX1020, 755; *see also* EX2042, ¶¶69-70.

The requester further argued Al-Ali rendered obvious Claim 21 of the ’223 Patent, which recited, in part, “replacing the display of the measured value of the first physiological parameter with a display of a measured value of a second physiological parameter.” EX1020, 767-68; EX2042, ¶71. The requester admitted Al-Ali did not disclose *replacing* the first measured value with the measured value of the second physiological parameter, but argued the difference was nothing more

than “a trivial and obvious substitution of design elements.” EX1020, 768-769; EX2042, ¶71.

In the first office action during reexamination, the Examiner determined Claims 21-26 were patentable over the prior art. The Examiner explained:

Claims 21-26 define over the art in that none of the art replaces the display of a first measured value with a second measured value when a change in the measurement of the second value indicates a worsening of the patient's condition. *As noted above, Al-Ali does not replace the first value, but switches from displaying the first value to displaying first and second values.* [T]he request asserts that while Al-Ali does not replace the value, this is nothing more than trivial and obvious substitution of design elements. The examiner disagrees, noting that there is not sufficient evidence to support this position. The only support is a statement by the requester. Bald assertions are insufficient to establish obviousness. As such, claim 21, and its dependent claims 22-26, define over Al-Ali alone, as presented in the request.

APPLE1020, 99. The Examiner distinguished (a) replacing the first value with a second value from (b) switching the display from showing a first value to showing both a first and a second value simultaneously. EX2042, ¶74.

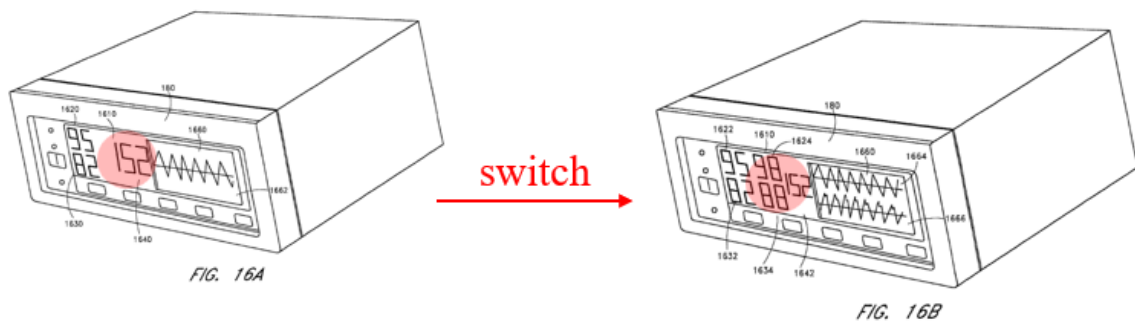
In response, Masimo agreed with the Examiner’s statements regarding the patentability of Claims 21-26. EX1020, 56-74; EX2042, ¶74. Further, in view of the Examiner’s comments, Masimo amended independent Claims 1, 15, 18, and 27 to “more specifically claim a first display element [that] is being replaced by a second display element,” similar to Claim 21 of the ’223 Patent. EX1020, 56-74; *see also* EX2042, ¶74.

After Masimo amended Claims 1, 15, 18, and 27 to recite replacement of a measured value, the Examiner issued a Notice of Intent to Issue a Reexamination Certificate, reaffirming that a measured value is no longer displayed after it is replaced by another measured value. EX1020, 6; EX2042, ¶75. The Examiner explained that “Al-Ali does not replace the first value, but switches from displaying the first value to displaying the first and second values.” EX1020, 6-7. Thus, the Examiner again distinguished (a) replacing the first value with a second value from (b) switching the display from showing a first value to showing both a first and a second value simultaneously. EX2042, ¶75.

Moreover, the Examiner also found, “when an alarm condition is detected, Al-Ali switches from displaying one parameter to displaying all of the parameters to allow the user to better view the conditions that caused the alarm,” and therefore, “there would be no motivation to simply replace the first parameter with the second, as it would contradict the direct teaching in the reference of allowing the user to see the entirety of the patient’s condition.” EX1020, 6-7; EX2042, ¶76. Thus, the Examiner understood that the replacement of a measured value involves removing it from the display. EX2042, ¶76.

Al-Ali’s disclosure further evidences 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. EX2042, ¶77. Al-Ali discloses a device

with “[a] push button, menu selection allows the user to manually switch between the single site display (**FIG. 16A**) and the multi-site display (**FIG. 16B**).” EX2038, ¶95; EX2042, ¶77. Annotated versions of Fig. 15A and Fig. 16B, reproduced below, illustrate how the device switches from displaying one parameter, to displaying additional parameters, thereby allowing a clinician to view the more of a patient’s condition.



EX2042, ¶77 (annotating EX2038, Figs. 16A, 16B).

The Examiner allowed Claims 1, 15, 18, 21, and 27 after distinguishing Al-Ali’s switching from the ’223 Patent claims because Ali disclosed switching between displaying a measured value of a first parameter to displaying measured values of a first and second parameter. From this file history, a POSITA would understand that the ’223 Patent claims require replacement of a measured value of a parameter with a measured value of another parameter. EX2042, ¶78. As the Examiner explained, Al-Ali does not disclose replacing, but instead discloses

“switch[ing] from displaying the first value to displaying first *and second* values.”

EX1020, 6; EX2042, ¶78.

Accordingly, a POSITA would have understood that when a measured value of a first parameter is “replaced” by the measured value of a second parameter, the measured value of the first parameter is removed from display and the measured value of the second parameter is displayed in its place. EX2042, ¶79.

D. “Changes” (Claims 13 And 28)

Claims 13 and 28 recite a display that “changes” from displaying one measured value to another measured value. EX2042, ¶80.

The plain language of the claims confirms that “changes” should be interpreted the same way as “replaced.” EX2042, ¶80. For example, Claim 13 states that the claimed patient monitor has a display with a “common display area” that can display either a first measured value *or* a second measured value. EX1001, 40; EX2042, ¶81. Limitation 13[b] explains that 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.” EX1001, 40; EX2042, ¶81. A POSITA would have understood that the “changes from displaying ... to displaying ...” language means that the original measured value is no longer displayed because the common display area has changed to displaying a different measured value. EX2042, ¶81.

Similarly, Claim 28 recites “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.” EX1001, 40. As with Claim 13, a POSITA would understand the claim terms “change from . . .to” to be consistent with the “replaced” limitations because the claim recites *changing from* displaying one measured value *to* displaying another measured value. EX2042, ¶82.

This understanding of “change,” is consistent with the plain and ordinary meaning of “change” in the English language. *See, e.g.* EX2039, 206 (“to replace with another”); EX2041, 146 (“to replace with another.”); *see also* EX2042, ¶83. For example, when a flat tire is “changed” on a car, the original tire does not remain on the car. EX2042, ¶84. Similarly, when a lightbulb is “changed,” the original lightbulb does not stay in the socket. *Id.*

In view of the claim language of Claims 13 and 28, a POSITA would have understood “changes” or “change” to have a similar meaning as the “replaced,” “replacing,” and “replaces” terms of Claims 1, 15, 18, 21, and 27. EX2042, ¶85.

IV. LEVEL OF ORDINARY SKILL IN THE ART

The Institution Decision adopted Masimo’s proposed definition of the level of ordinary skill in the art. Institution Decision (“Inst.”), 9-11. For reference, Masimo’s definition is below:

A POSITA at the time of the '223 Patent would be a person with a Bachelor of Science degree in an academic discipline emphasizing the design of software or user interfaces, in combination with training or at least one to two years of related work experience with the design of user interfaces. Alternatively, the person could have also had a Master of Science degree in a relevant academic discipline with less than a year of related work experience in the same discipline. A POSITA would also include persons with a working knowledge of physiological monitoring technologies and/or optical sensors used in physiological monitoring technologies. The person would have had a Bachelor of Science degree in an academic discipline emphasizing the design of electrical, computer, software, or optical technologies, in combination with training or at least one to two years of related work experience with capture and processing of data or information, or designing and using optical sensors or systems, including but not limited to physiological monitoring technologies. Alternatively, the person also could have had a Master of Science degree in a relevant academic discipline with less than a year of related work experience in the same discipline.

See EX2042, ¶¶48-53.

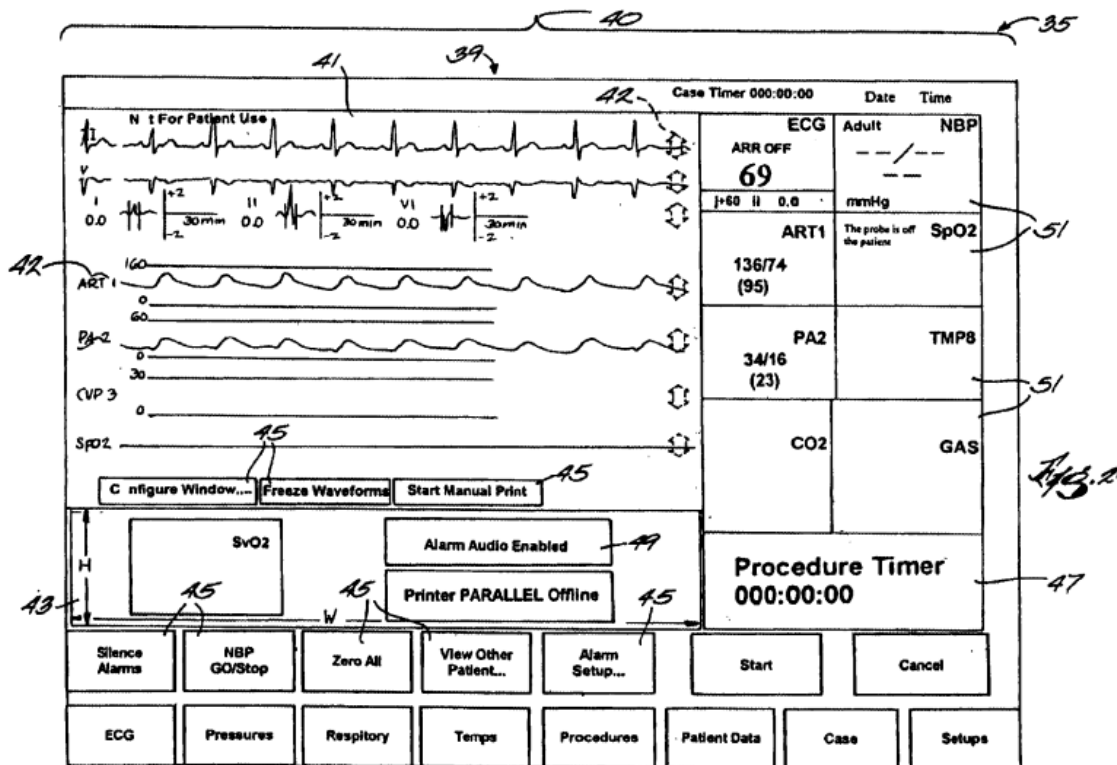
V. APPLE'S PRIOR ART AND PROPOSED COMBINATIONS

All Apple's obviousness grounds rely on the combination of Naghavi (EX1005), Hochstedler (EX1004), and Burnes (EX1006) presented in Ground 1A. Pet., 1; EX2043, 45:10-16, 46:2-12 (confirming that the explanation of how Naghavi, Hochstedler, and Burnes are combined applies to Grounds 1A, 1B, and

1C). Ground 1B adds Hayashi (EX1007) (*i.e.*, Naghavi, Hochstedler, Burnes, and Hayashi). Pet., 1. Ground 1C further adds Mortz (EX1009) (*i.e.*, Naghavi, Hochstedler, Burnes, Hayashi, and Mortz). *Id.*

A. Hochstedler (EX1004)

U.S. Patent No. 6,707,476 to Hochstedler is titled “Automatic Layout Selection For Information Monitoring System.” EX1004. Hochstedler describes a graphical user interface (GUI) of a patient monitoring system. EX1004, 1:49-55, 3:6-11; EX2042, ¶43. An example of Hochstedler’s GUI is shown below:



EX1004, Fig. 2.

The patient monitoring system “detect[s] changes in the system’s capabilities (e.g., an additional sensor is added) or changes in the system’s environment (e.g., a switch is made from one medical procedure to another).” EX1004, 1:55-60; EX2042, ¶43. If Hochstedler’s patient monitoring system determines there has been a change in the system’s capabilities or environment, “the system reviews a group of available layouts and determines which, if any, more closely matches the system as changed.” EX1004, 1:61-63; EX2042, ¶43. The system makes this determination by using “[a] best guess algorithm to pick or select one layout from the layout group that most closely matches the current or active capabilities of the system.” EX1004, 5:61-65. “The algorithm assigns a perfect score to a layout set that monitors exactly the parameters monitored by the system.” *Id.*, 6:64-66. “If the layout set contains extra parameters, the layout set is given a lesser score than that which matches perfectly, but it is given a higher score than any layout set that is missing parameters.” *Id.*, 6:66-7:2. If the system determines “an available layout more closely matches the changed system, then the system may implement an automatic change or switch of the layout or prompt the user to change the layout by presenting a selection of layout options.” EX1004, 1:63-67.

Hochstedler further discloses that a user may specify a “threshold” for the system to compare the score of its layout. *Id.*, 8:11-20. However, Hochstedler teaches that “[t]he user may set the threshold such that no switching will occur if the

current layout set contains all of the parameters needed for the current set of system capabilities, but as soon as the current layout set is missing one, the system will make a layout switch using one of the layout switch algorithms.” *Id.*, 8:19-24.

B. Naghavi (EX1005)

U.S. Patent Pub. No. 2002/0184055 to Naghavi et al. is titled “System And Method For Healthcare Specific Operating System.” EX1005. Naghavi describes a “personal healthcare management system 10” comprising “components that work together to provide an out-of-hospital, affordable, real time, automated intelligent system for early managing and risks stratifying of patients 1 based on their symptoms, physiologic data (ECG, BP) and their past medical history.” EX1005, ¶24. The system includes a computer, medical diagnostic software, and one or more home-based medical devices. *Id.*, ¶¶25-26. The home-based medical device or devices may comprise an “electrocardiograph device, a blood pressure measurement device, thermometers, digital biochemical devices, glucometers, and physiological laboratory kits, digital biomechanical monitoring devices, peak-flow meter, and the like, or combinations thereof.” *Id.*, ¶32.

Naghavi’s personal healthcare management system has “a single visual display of displayed items comprising menus, health objects, icons, and options.” *Id.*, ¶58. The icons and health objects on the display “may change in color, shape, order, or other mutable attribute according to different time schedules and severity

or degree of some of findings, e.g. the shape, size, color, and relative position of each icon can change according to a current health status and health plan” of the patient. *Id.*, ¶59.

C. Burnes (EX1006)

U.S. Patent Pub. No. 2006/0064020 to Burnes et al. is titled “Clinic Dashboard Monitor,” and published on March 23, 2006. Burnes describes a “remote patient monitoring system including a graphical user interface (GUI) that displays a summary table of categorized parameter values for multiple patients simultaneously.” EX1006, Abstract. Figure 7 illustrates Burnes’s GUI:

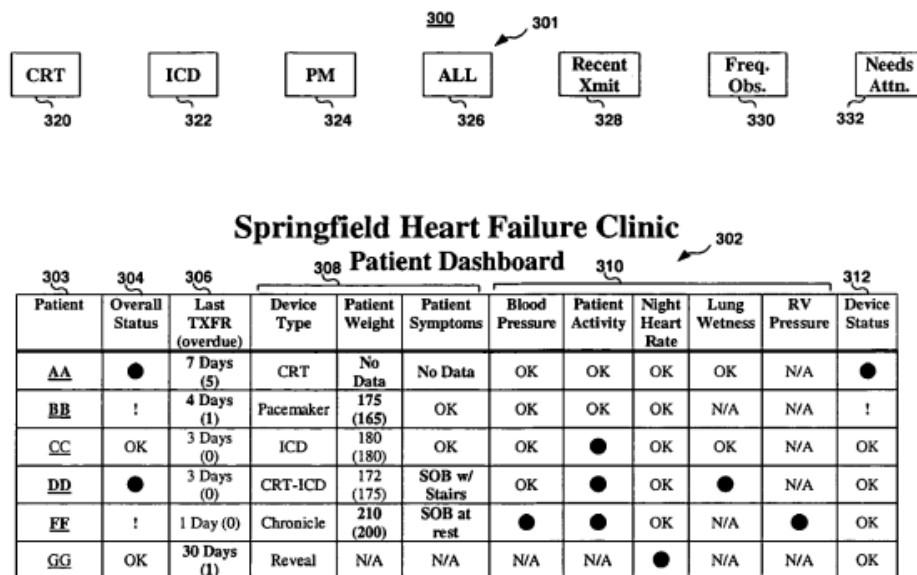


FIG. 7

Id., Fig. 7.

Burnes analyzes data received from patient-monitoring devices and displays summary parameter values “for multiple patients simultaneously allowing a

clinician to easily scan summary data for a given patient group.” *Id.*, ¶¶[0005], [0031]. Burnes describes using icons to indicate the status of the patient or parameter, such as an exclamation point for an alert indicating a need for clinical attention, a solid circle as a warning symbol, and an “OK” as a normal symbol. *Id.*, ¶[0050].

D. Hayashi (EX1007)

U.S. Patent No. 6,151,518 to Hayashi is titled “Instrument For Measuring Concentrations Of Constituent Parts Of Blood,” and issued on November 21, 2000. Hayashi describes a device that purports to noninvasively measure blood constituent concentrations. EX1007, 3:19-28.

E. Mortz (EX1009)

U.S. Patent No. 6,385,471 to Mortz is titled “System For Pulse Oximetry SpO2 Determination,” and issued on May 7, 2002. Mortz describes a system for noninvasively calculating pulse rate and the oxygenation of hemoglobin in arterial blood. EX1009, 2:25-28, 5:16-21.

VI. GROUND 1A FAILS TO DEMONSTRATE OBVIOUSNESS

Ground 1A presented the combination of Naghavi (EX1005), Hochstedler (EX1004), and Burnes (EX1006). Pet., 3-17 (describing the combination); EX2043, 45:10-16, 46:2-12; EX2042, ¶89. Apple relied on this three-way combination as allegedly disclosing the claimed requirement that “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, 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.” *See* Pet., 9-15, 25-30. In this Response, consistent with the Institution Decision, Masimo refers to this Claim 1 limitation as the “Replacing Limitation.” *See* Inst., 19.

However, Apple’s combination does not teach or suggest the claim requirements. The proper construction of the claim elements requires the device to measure two parameters, one of which is not currently being displayed. *See infra* Section VI.A. All of Apple’s references, Naghavi, Hochstedler, and Burnes, alone or in combination, do not disclose monitoring any parameter that is not displayed. *Infra*, Section VI.B; EX2042, §§IX.A-B. Apple attempted to rely on Hochstedler. But when Hochstedler switches its display to show a previously undisplayed parameter, it does not replace a parameter that is still measured with the newly added parameter. EX2042, ¶¶93-111. Instead, Hochstedler continues to display all measured parameters on its display screen. *Id.* Apple’s combination allows only one measurement at a time to use the same display area. *Id.* That was the problem the Masimo inventors faced, not the solution. Thus, nothing in the combination teaches or suggests the Replacing Limitation. EX2042, §§IX.A-B. In contrast, the ’223

Patent recites concurrently sharing the same display area for two currently measured parameters.

A. The Claims Require Currently Monitoring Two Parameters, One Of Which Is Not Displayed

As discussed, all claims require “measured value[s]” of a “first” and “second” physiological or blood parameter. *See* Sections III.A-B. Each “measured value” refers to a “value of a parameter currently detected and determined by the monitor.” *Supra* Section III.A. Additionally, because the claim recites a “first” and a “second” parameter, a POSITA would have understood that each claim requires currently measuring at least two different parameters. *Supra* Section III.B; EX2042, ¶90.

The claims also recite “replac[ing]” one measured value with the measured value of the other parameter, or otherwise “chang[ing]” from displaying one measured value to the other. *See* Limitations [1b], [13b], [15b], [18b], [21b], [27c], [28c]; EX2042, ¶91. As discussed, a POSITA would understand that when a measured value of a first parameter is “replace[d]” by the measured value of a second parameter, the measured value of the first parameter is removed from display and the measured value of the second parameter is displayed in its place. *Supra* Section III.C-D.

Taking the limitations together, a POSITA would understand that 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. EX2042, ¶92. Accordingly, the claims require a device that is monitoring both a displayed parameter and an undisplayed parameter so that this switch could occur. *Id.*

B. The Naghavi-Hochstedler-Burnes Combination Does Not Disclose Replacing On The Display One Measured Value With Another Measured Value (Claim 1 and Dependent Claims 2-4, 6, 11, 12, 14)

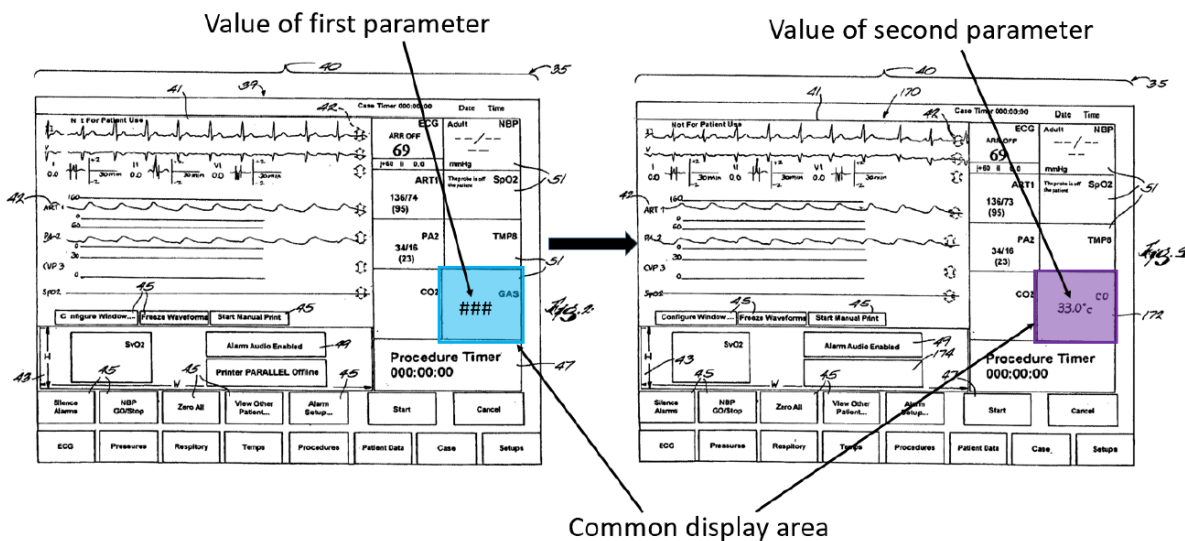
1. Hochstedler Adjusts Its Display To Show Every Parameter That The Device Is Currently Measuring

The Board recognized that Apple “relies on Hochstedler for the specific GUI changes that show replacement of *one measured value of a parameter for another*, not Naghavi or Burnes.” Inst., 21 (emphasis added). Apple argued that Hochstedler shows a replacement based on comparing (a) Figures 2 and 9 and (b) Figures 2 and 13. Pet., 25-27. But Hochstedler does not replace one measured value of a parameter with another measured value of another parameter. EX2042, ¶94. Rather, 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. *Id.* Furthermore, while the Board found Apple’s argument sufficient to institute this review, it invited Masimo to provide a claim construction to further refute Apple’s argument. Inst., 21.

Because the proper construction of Claim 1 requires the device to obtain “measured values” for both the first parameter and the second parameter, Hochstedler’s does not disclose the Replacing Limitation of Claim 1. EX2042, ¶94.

And nothing in the combination of Hochstedler, Naghavi, and Burnes teaches or suggests the replacement of one measured parameter with another measured parameter. EX2042, ¶¶93-124.

Apple argued the layout transition from Figure 2 to Figure 9 shows the “GAS” parameter block has been replaced with the “CO” parameter block. Pet., 25-26. Apple’s annotations to Figs. 2 and 9 are reproduced below.



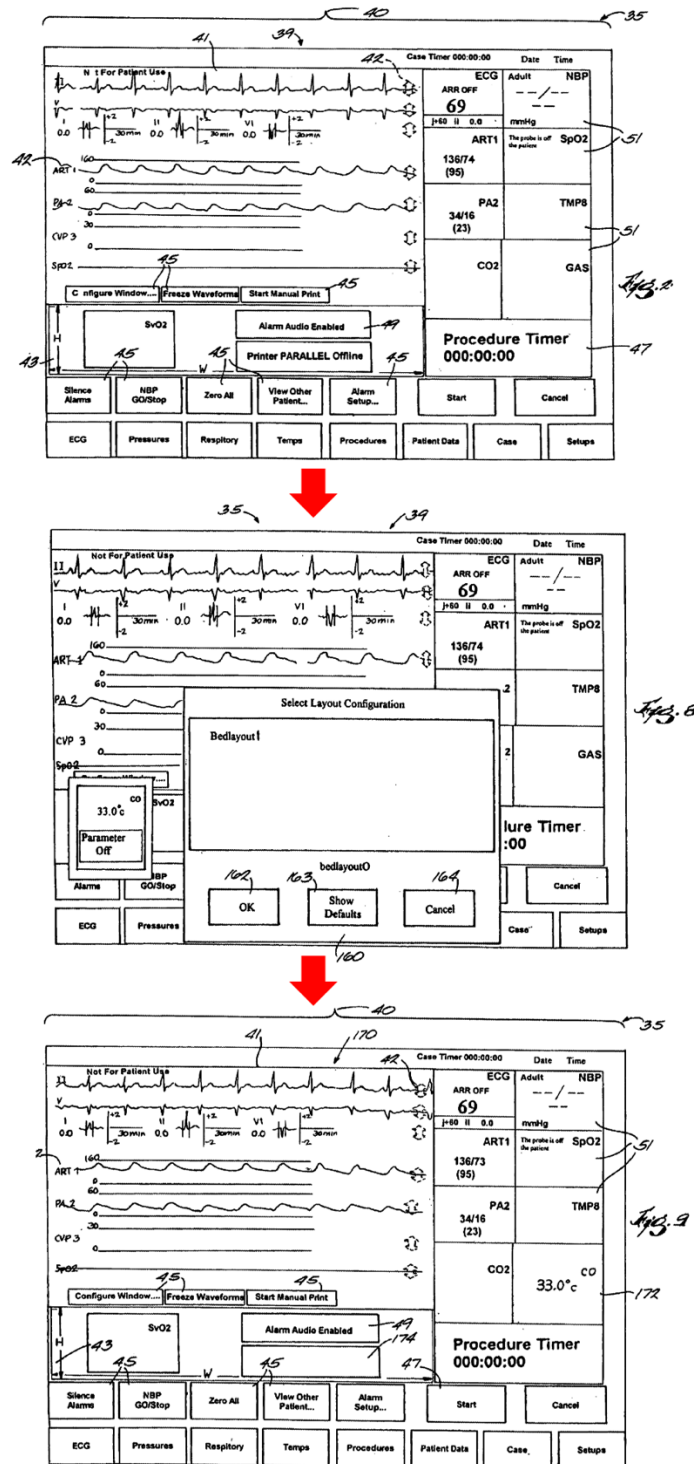
Pet., 26 (annotating EX1004, Figs. 2, 9); EX1003, ¶69. But, in Apple’s annotated figures, Apple added “###” to the “GAS” block in the figure. EX2042, ¶103. The addition of “###” to Figure 2 “GAS” is misleading because GAS is not measured when the display changes to Figure 9. EX2042, ¶103.³

³ The Board’s Institution Decision invited Masimo to further rebut Apple’s addition of “###” to Hochstedler’s figures. Inst., 22-24.

Instead, in both Figures 2 and 9, Hochstedler's system displays *all the parameters measured at each time*. EX2042, ¶¶96-101. Thus, there are no measured but *undisplayed* parameters. EX2042, ¶96. The disclosure of Hochstedler makes this clear. Hochstedler explains that the display layout of Fig. 2 switches to the display layout of Fig. 9 when there is a change in the system *capabilities*. EX1004, 5:24-38; EX2042, ¶¶97-100. The change in the system *capabilities* occurs when sensors have been added or removed in the system, such as a blood sensor being added or removed. *See, e.g.*, EX1004, 5:27-28, 3:46-54; EX2042, ¶¶97-100. Importantly, "CO" is not measured in the system shown in Figure 2, and "GAS" is not measured in the system shown in Figure 9. EX2042, ¶96. While the display in Figure 2 does not match the display from Figure 9, that does not show the Replacing Limitation. EX2042, ¶96. Apple pointed to no teaching or suggestion from the combination that suggested replacing one currently measured parameter with another currently measured parameter. Rather, that teaching came from the '223 Patent viewed in hindsight.

The layout switch shown between Hochstedler's Figs. 2 and 9 occurs when the system's capabilities have changed. EX2042, ¶¶95-103. Hochstetler explains that "Figure 9 is an illustration of second layout displayed on the monitor of the patient monitoring system once selection from the dialog box *shown in FIG. 8* has

been made.” EX1004, 2:43-45. Hochstedler’s progression from Figures 2 to 8 to 9 is shown below.



EX1004, Figs. 2, 8, 9.

The specification explains that “FIG. 8 illustrates an implementation of Option 3 where a pop-up list or dialog box 160 is presented to the user showing the user that the overall layout is about to be changed to a new bed layout, Bedlayout1.” *Id.*, 8:30-33. To generate the list of potential layouts using Option 3, “the system uses the best guest algorithm to pick or select one layout from the layout group that most closely matches the *current or active capabilities* of the system 10.” *Id.*, 5:61:65; EX2042, ¶98. The system switches from Figure 2 to Figure 9 only “once a selection from the dialog box shown in FIG. 8 has been made.” EX1004, 2:43-45; EX2042, ¶99. Thus, Hochstedler explains that its system changes its display because the active capabilities (*e.g.*, the parameters that Hochstedler is currently measuring) have changed. EX2042, ¶99. When it is switching between Figure 2 and Figure 9, Hochstedler is not switching from one currently measured parameter to a previously undisplayed measured parameter. *Id.*

Indeed, Figure 8 confirms this. EX2042, ¶100. The illustration of Figure 8 shows that the layout is switching to include measurement of “CO” because CO previously was “Parameter Off.”



EX2042, ¶102.



Figures 2 and 9, Hochstedler discloses displaying each currently measured

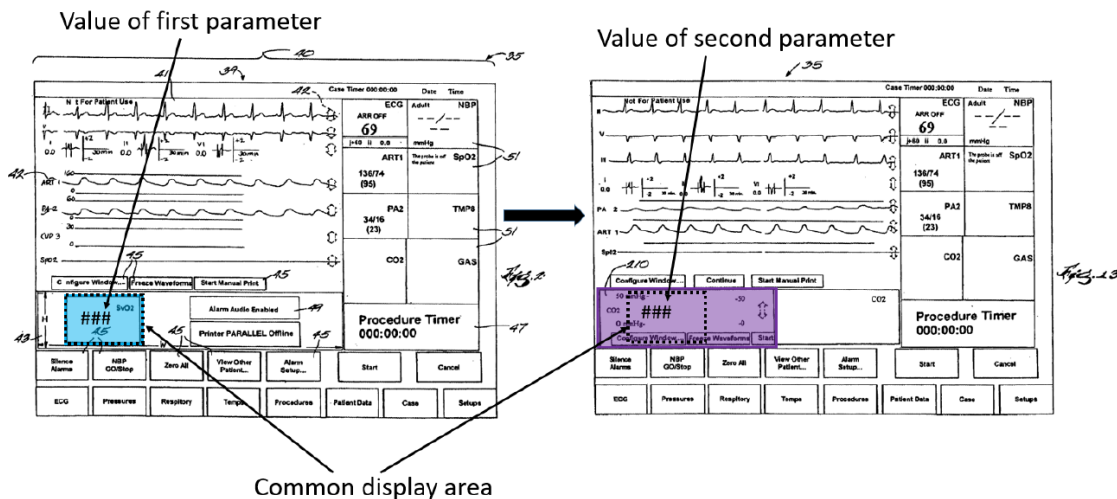
parameter and not switching between displaying two different measured parameters.

EX2042, ¶102.

Moreover, there is no disclosure in Hochstedler that the “GAS” shown in Figure 2 is a currently measured value of a parameter being monitored. There is no value being displayed in the GAS portion of the display. EX2042, ¶103. Apple annotated Figure 2 to add “###” but no such number is actually displayed in Figure 2. *Id.*; EX1004, Fig. 2. Apple’s added “###” improperly suggests that Hochstedler’s system replaces a currently measured value with another measured value, when no such disclosure exists. EX2042, ¶103. In contrast, other windows do display actual values such as ECG or ART1. *Id.* Thus, the more reasonable understanding of the blank “GAS” is that no value is being measured. *Id.*

In addition to the lack of a value, Hochstedler also does not disclose that GAS is a “physiological parameter of body tissue of a monitored patient” as required by the “first” and “second” measured values claimed in the ’223 Patent. EX 2042, ¶103 n.3. GAS could simply be something else associated with the system, like the “Procedure Timer” window. *Id.* “GAS” more likely refers to anesthetic gases used to keep a patient unconscious during surgery, not the measurement of a parameter. *Id.*

Apple also relied on Hochstedler's Figures 2 and 13 to allegedly disclose a replacement of SvO2 in Figure 2 with CO2 in Figure 13. *See* Pet., 26-27, EX2042, ¶¶104-111. Apple's annotations of Figures 2 and 13 are reproduced below.



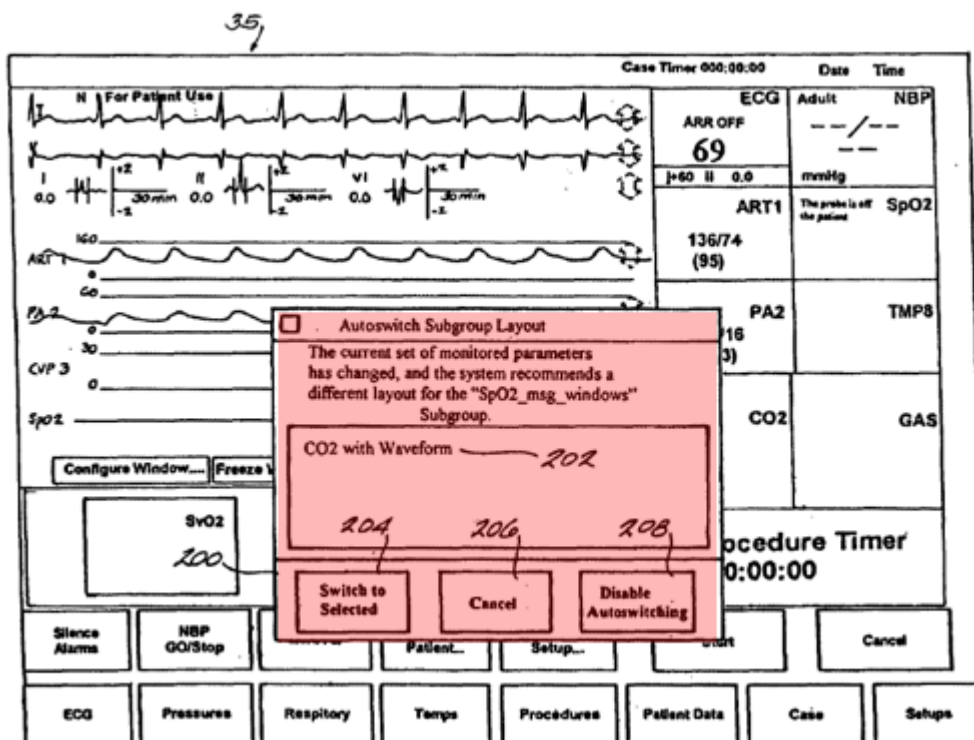
Pet., 27 (Apple's annotations to Hochstedler's Figs. 2 and 13). Again, Apple misleadingly inserted "###" into both parameters when no such numbers are actually included. Pet., 27; EX2042, ¶104. Hochstedler does not show either parameter as a "measured value." EX2042, ¶104. Indeed, "CO2" is blank in multiple locations in both figures. Pet., 27; EX1004, FIGS. 2, 13; EX2042, ¶104. As previously explained, when Hochstedler intended to show a numerical value, it shows such a value, such as for the parameters "ECG," "ART1," and "PA2," and for "Procedure Timer" in both figures. *See* EX1004, Figs. 2, 9; EX2042, ¶104.

For reasons similar to those explained with respect to Figures 2 and 9, Figures 2 and 13 also do not show a replacement of a *measured value* of SvO2 with a *measured value* of CO2. EX2042, ¶105. Instead, what has happened is that

Hochstedler's system detected that SvO2 is no longer being monitored, and thus switched its layout. EX2042, ¶¶106-107. Again, Hochstedler does not disclose or suggested switching from displaying the measured value of one parameter to a previously undisplayed measured value of different parameter. EX2042, ¶105.

Hochstedler explains that the layout shown in Fig. 2 switches to the layout shown in Fig. 13 after “a selection from the dialog box shown in FIG. 12 has been made.” EX1004, 2:57-60; EX2042, ¶¶106-107.

Figure 12 shows the monitor is switching layouts because “[t]he current set of monitored parameters has changed.” EX1004, Fig. 12; EX2042, ¶106.



EX1004, Fig. 12 (highlighted). Because Hochstedler only changes its display when the monitored parameters have changed (e.g., parameters are added or removed),

Hochstedler does not show a replacement of a *measured value* of SvO₂ with a *measured value* of CO₂. EX2042, ¶108.

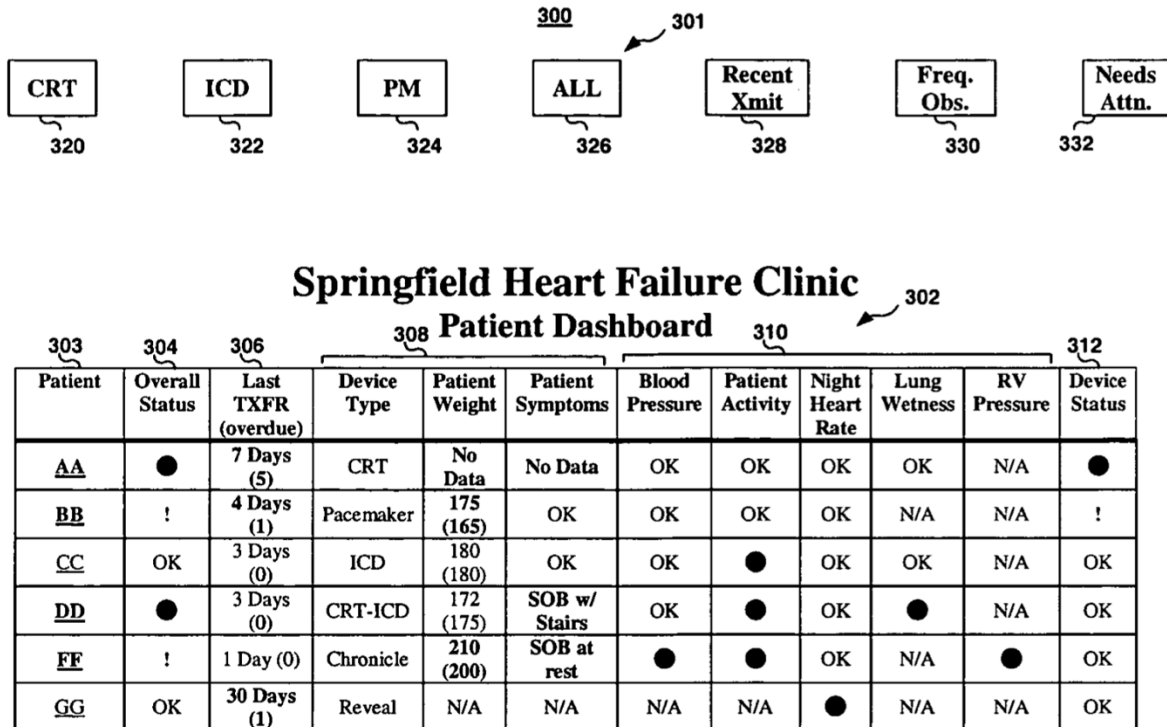
Hochstedler simply does not disclose a device that displays two measured values in the same display area. EX2042, ¶109. Indeed, Hochstedler discusses a GUI for a patient monitor that uses a “CRT display, flat panel display, or similar device.” EX1004, 1:8-10; EX2042, ¶109. These sorts of displays have large screens with ample screen real estate to display all measured parameters, not pick and choose between them. EX2042, ¶109. This differs significantly from the problem that the inventors of the ’223 Patent faced, which was how to display parameters in a display area too small to show all measured parameters simultaneously. *Id.*

Indeed, Hochstedler teaches that its system performs an algorithm to choose display layouts that show *all* monitored parameters. EX1004, 6:64-7:2; EX2042, ¶110. Moreover, Hochstedler teaches that its system may be set such that “no switching will occur if the current layout set contains all of the parameters needed for the current set of system capabilities, but as soon as the current layout set is missing one, the system will make a layout switch using one of the layout switch algorithms.” EX1004, 8:19-24; EX2042, ¶110. And Apple’s expert admitted that he did not even consider these teachings in Hochstedler and that these teachings would call for a “new opinion.” EX2043, 87:5-88:10.

Accordingly, the only reference that Apple relied on to supposedly disclose “replacement of one measured value of a parameter for another” does not use the same screen area to display two currently measured parameters. EX2042, ¶¶109-111. Nothing in the other references or combination of them teaches or suggests that replacement of one measured value for another measured value. *See supra* Sections VI.B.2-3.

2. **Burnes Displays Every Parameter That The Device Is Currently Measuring**

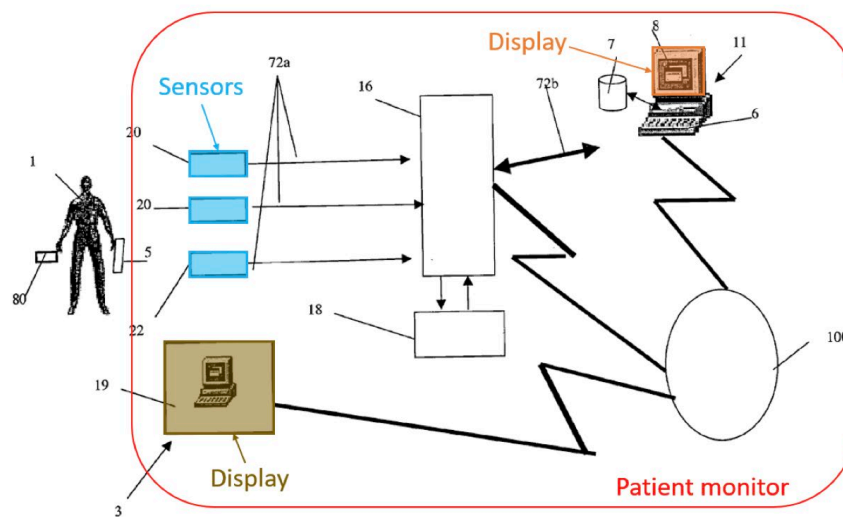
Burnes also does not disclose measuring a parameter that is not displayed. *See generally* EX1006; EX2042, ¶112. Nor does it disclose replacing, and thus, removing, a currently measured value from display. EX2042, ¶¶112-113. Rather, a POSITA would have understood Burnes displays all its monitored parameters. *Id.* Burnes describes a remote patient monitoring system with a display (that displays “summary data for multiple patients simultaneously.” EX1006, Abstract, ¶¶5, 33, 36; EX2042, ¶112. Figure 7, reproduced below, shows this display:

**FIG. 7**

EX1006, Fig. 7. As shown above, Burnes discloses displaying all monitored parameters simultaneously. EX2042, ¶112. Indeed, Burnes even displays parameters that are *not* monitored for some patients, labeling them with “N/A” or “No Data.” *Id.*, Fig. 7, ¶55; EX2042, ¶112. And rather than suggesting that any measured values can be replaced, and thus, removed from display, Burnes teaches a way of presenting *more* information from multiple patients simultaneously. EX2042, ¶¶112-113.

3. Naghavi Displays Every Parameter That The Device Is Currently Measuring

Naghavi does not disclose monitoring a parameter that is not displayed. *See generally* EX1005; EX2042. Nor does Naghavi disclose replacing, and thus, removing, a monitored parameter from a display. *See generally* EX1005; EX2042. Instead, as Apple itself highlighted, Naghavi uses a large display, such as a computer monitor, with sufficient real estate to display all monitored parameters simultaneously. EX1005, Abstract, Fig. 1, ¶¶11, ¶58; EX2042, ¶114. As shown below, Apple relied on the computer monitors in Naghavi.



Pet., 18 (Apple’s annotations of EX1005, Fig. 1).

Naghavi further explains that its system uses an “easy-to-access” and “user friendly GUI” with “a *single* visual display of displayed items comprising menus, health objects, icons, and options.” EX1005, ¶58; EX2042, ¶116. Thus, Naghavi confirms that it displays all monitored parameters. EX2042, ¶116.

4. **The Combination of Hochstedler, Burnes, And Naghavi Does Not Teach Or Suggest Replacing On The Display One Measured Value With Another Measured Value**

As explained above, Hochstedler, Burnes, and Naghvi individually do not teach or suggest replacing on the display one measured value with another measured value. *See supra* Sections VI.B.1-3. The Institution Decision faulted Masimo for not addressing the combination of all three references. Inst., 19, 22. But nothing about the combination suggests using the same display area to show two currently measured parameters. *See supra* Sections VI.B.1-3; EX2042, ¶¶93-118. For the reasons explained in detail above, the only reference that the Institution Decision found suggested “replacement of one measured value of a parameter for another” (Inst. 21-22), Hochstedler, does not disclose or suggest using the same display area to show two currently measured parameters. *See supra* Section VI.B.1; EX2043. ¶¶95-111. Because no reference discloses using the same display area to show two currently measured parameters, the references cannot be combined to teach this feature. *See Par Pharm., Inc. v. TWii Pharms., Inc.*, 773 F.3d 1186, 1194 (Fed. Cir. 2014) (“we consider motivation to combine and reasonable expectation of success only if all the elements of an invention are found in a combination of prior art references”) (cleaned up).

Moreover, as explained, each of the references are about devices with large screens with ample screen real estate. *See supra* Sections IX.B.1-3; EX2042, ¶¶93-

117. Such screens can display all measured parameters, not pick and choose between them. *See supra* Sections IX.B.1-3; EX2042, ¶¶93-117. These references do not suggest a solution to the problem that the inventors of the '223 Patent faced—how to display parameters on a display with limited display real estate. EX2042, ¶118.

5. **Apple Cited No Evidence Of Replacing On The Display One Measured Value With Another Measured Value**

Apple argued that the Naghavi-Hochstedler-Burnes combination satisfies the Replacing Limitation because “[w]hen a parameter that is not displayed in that initial layout (*e.g.*, the second parameter) changes in severity, the layout changes such that the value of that second parameter is displayed.” Pet., 28-29; *see also id.*, 12; EX2042, ¶119. By “changes in severity,” Apple referred to a parameter that “become[s] (near) out of range.” Pet., 28-29; EX2042, ¶119. But for a device to determine that a parameter “changes in severity” or “is out of range,” that parameter must be currently measured. EX2042, ¶¶119-122.

Apple also relied on currently measuring two parameters, including an undisplayed parameter, to supply a motivation to combine the three references. EX2042, ¶¶119-122. For example, Apple argued that “automatic layout switching would enable caregiver monitoring of changing parameters even if they are *not displayed* on a main screen.” Pet., 14; *see also id.*, 15 (“A POSITA would have recognized that *not all parameters must be displayed* on a main layout, nor should they crowd a single layout, so long as those parameters that change in severity can

be displayed/highlighted to the clinician.... By *displaying* certain parameters *only when necessary*, the amount of displayed information is maintained at a manageable level....”); EX2042, ¶¶120-121. Accordingly, Apple appears to agree that the proper construction of the claims requires monitoring an undisplayed parameter. *See* Pet. 14, 15; EX2042, ¶¶120-122.

But *none* of the references, alone or in combination, disclose using the same display area to show two currently measured parameters. EX2042, ¶122. Both the Petition and Apple’s expert declaration did not identify *any such* disclosure in Naghavi, Hochstedler, or Burnes. *See* Pet., 12, 14, 15; EX1003, ¶¶38, 44, 49, 50, 78; EX2042, ¶122 (citing EX2042, Sections IX.1-5). Further, at his deposition, Apple’s expert could not identify any disclosure in any of Naghavi, Hochstedler, or Burnes of currently monitoring a parameter that is not displayed. EX2043, 61:21-62:14, 62:15-18, 62:19-64:6; EX2042, ¶123. Apple’s expert admitted that he did not rely on Burnes for monitoring a parameter that is not displayed. EX2043, 62:11-14. EX2042, ¶123. Apple’s expert also could not provide any examples from Hochstedler of monitoring a parameter that is not displayed. EX2043, 62:15-18; EX2042, ¶123. And Apple’s expert could not identify any disclosure in Naghavi of monitoring an undisplayed parameter. EX2043., 62:19-64:6; EX2042, ¶123. Thus, Apple and its expert simply assumed, without evidence, the combination would use the same display area to show two currently measured parameters. EX2042, ¶123.

But assumptions are not evidence and thus Apple failed to carry its burden to demonstrate obviousness.

Accordingly, Apple fails to demonstrate that Claim 1 and its dependent Claims 2-4, 6, 11, 12, 14 would have been obvious.

C. **A POSITA Would Not Have Been Motivated To Combine Naghavi, Hochstedler and Burnes**

Naghavi, Hochstedler and Burnes do not disclose using the same screen area to display two currently measured parameters. EX2042, ¶125. Furthermore, a POSITA would not have been motivated to combine the references to replace a measured value of one parameter with the measured value of another parameter. *Id.*

Apple presented two arguments each with three supposed motivations to combine either: (1) Naghavi and Hochstedler (Pet., 13-14), or (2) Naghavi, Hochstedler, and Burnes (Pet., 14-15). EX2042, ¶125. Because the motivations to combine address different limitations of the claims, Apple must prevail on both arguments to show the claims are obvious. But, neither of those arguments or motivations teach or suggest modifying any reference or combination of references to result in the claimed inventions. EX2042, ¶125.

1. **Combining Naghavi And Hochstedler Would Not Result In Replacing A Measured Value Of A Parameter With A Measured Value Of Another Parameter**

Apple argued a POSITA would have been motivated to combine Naghavi's display icons and health objects with Hochstedler's layouts. Pet., 13-14; EX1003,

¶¶41-46; EX2042, ¶126. But Apple did not address why a POSITA would have *replaced* a currently measured value of a parameter with a currently measured value of another parameter in the same screen area. EX2042, ¶126. Moreover, these motivations address Naghavi and Hochstedler only, and not Burnes. EX2042, ¶126. None of Apple’s grounds relied on the combination of Naghavi and Hochstedler without Burnes. *Id.*

To combine Naghavi and Hochstedler (without Burnes), Apple argued that the combination would result in automatic replacement of a layout that would: (1) allow the GUI to “change[] with the needs of users and the stage of medical treatment” and “ensure display of clinically relevant information,” (2) provide “prioritized display of important information rather than other, less relevant information,” and (3) have been a mere application of known techniques by a known system to yield predictable results (citing *KSR*). Pet., 13-14; EX2042, ¶127.

But these arguments about the combination of Naghavi and Hochstedler, even if they were true, would not render obvious the replacement of a measured value of a parameter with the measured value of another parameter, as recited by the claims. EX2042, ¶¶127-128. Apple’s first argument that the combination would allow the GUI to change with the needs of users and the stage of medical treatment does not result in the replacement of a currently measured value of a parameter with the currently measured value of another parameter. EX2042, ¶128; *see supra* Sections

VI.B.1-4. Allowing the GUI to “change[] with the needs of users and the stage of medical treatment” and “ensure display of clinically relevant information,” does not provide a reason to continue monitoring a parameter that is no longer displayed. Pet., 13; EX2042, ¶128. Indeed, ensuring the display of clinically relevant information would caution against not displaying a monitored parameter because the system could simply display all currently measured clinically relevant parameters. EX2042, ¶128. Thus, Apple’s first reason does not provide any reason to arrive at the claimed invention.

Apple’s second argument—that automatic replacement would provide “prioritized display of important information rather than other, less relevant information”—is also unsupported by any reference. EX2042, ¶129. Apple and its expert cited Hochstedler at 1:49-50 and Naghavi at [0063], but neither reference teaches that any parameters are “less relevant” such that they can be removed from display, as the claims require. Pet., 14; EX1003, ¶44; EX2042, ¶129. Prioritizing display of important information might suggest a reason to show a parameter. However, similar to Apple’s first argument, prioritizing display does not provide a reason to replace, and thereby remove, a second monitored parameter from display. EX2042, ¶129. Indeed, Hochstedler continues to show other blocks without any measured values being displayed. *Id.*; see EX1004, Fig. 2. Thus, Hochstedler shows

“information” that is even “less relevant” than “information” that would remain on the display. EX2042, ¶129.

And third, Apple relied on *KSR* to argue the combination is “merely the application of known techniques (multiparameter display) by a known system (a medical monitoring system) to yield predictable results (multiparameter display in a medical monitoring system).” Pet., 14, EX2042, ¶130. But, Apple’s “predictable” result of a “multiparameter display in a medical monitoring system” would actually motivate displaying all parameters, not replacing any parameters. EX2042, ¶130. And it did not address the claim limitation of replacing a currently measured value of a parameter with the currently measured value of another parameter. *Id.* Apple’s *KSR* argument did not set forth a motivation to combine Naghavi and Hochstedler to somehow result in replacing, in the same display area, a currently measured value of a parameter with a currently measured value of another parameter. *Id.*

Furthermore, neither reference discloses replacing, in the same display area, a currently measured value of a parameter with a currently measured value of another parameter. *Id.*, ¶131. Thus, even if Apple had established some motivation to combine, the combination would not yield the claim. *Id.* Worse, Apple’s argument is untethered to any specific teachings of Naghavi or Hochstedler. Apple did not identify which reference provides the “multiparameter display” or which provides the “medical monitoring system.” *Id.* Elsewhere in its Petition, Apple argued that

both Naghavi and Hochstedler have both features. *See* Pet., 3-5, 10; EX2042, ¶131.

Because Apple alleged both references teach both features, a POSITA would not combine the references to teach features already fully disclosed by one or the other.

EX2042, ¶¶131-132.

2. **Apple’s Hindsight Motivations To Combine Naghavi, Hochstedler, And Burnes Are Contrary To The Teachings Of Those References**

Apple also alleged a POSITA would have been motivated to combine Naghavi, Hochstedler, and Burnes to replace a measured value based on an event for three reasons. Pet., 14-15; EX2042, ¶133. Apple relied on Burnes to disclose a specific type of event (*e.g.*, “a parameter value changing to become (near or) out of range.”). Pet., 14. Apple relied on its expert’s hindsight explanations. But his explanations and Apple’s arguments are contrary to the teachings of the references. EX2042, ¶¶125, 133.

a) **There Would Have Been No Motivation To Replace A Currently Measured Parameter Because Apple’s References Teach Displaying All Currently Measured Parameters**

Apple argued that a POSITA would have combined the references because it “would provide a display that best suits the condition of the patient.” Pet., 14 (internal quotations and punctuation omitted); EX1003, ¶48; EX2042, ¶134. Apple further argued that “automatic layout switching would enable caregiver monitoring of changing parameters even if they are *not displayed* on a main screen.” Pet., 14;

see also EX1003, ¶49 (“A POSITA would have been motivated to implement the system to be able to automatically display a previously **undisplayed** parameter that changes to become out of range”); EX2042, ¶134. But, as already explained, none of the references alone or in combination discloses using the same screen area to display two currently measured parameters. *See supra* Section VI.A-B; EX2042, ¶134. Instead, as discussed, Apple’s references all disclose displaying all measured values on the screen at the same time. *See supra* VI.A-B; EX2042, ¶134 (citing EX2042, Sections IX.B.1-4). There would have been no motivation to alter them to display some other currently measured value. EX2042, ¶134.

Further, as explained, Hochstedler teaches that its algorithm attempts to optimize its layout to display all measured parameters and not leave parameters undisplayed. *See supra* Section VI.B.1; *see also* EX2042, ¶135. Apple’s expert admitted that the did not consider these teachings in Hochstedler and that these teachings would call for a “new opinion.” EX2043, 87:5-88:10; EX2042, ¶136. Apple did not explain a reason why a POSITA would modify Hochstedler to leave a currently measured parameter undisplayed in light of this teaching. EX2042, ¶136. Instead, Apple’s expert speculated that a supposed combination “does not necessarily display all parameters on a single screen, at least in cases when more parameters are being monitored than there are spaces to display those parameters.” EX1003, ¶49; EX2042, ¶137. But he identified no such disclosure from any of the

references that they would be unable to display measured parameters. This is insufficient. *See Par Pharm., Inc. v. TWii Pharms., Inc.*, 773 F.3d 1186, 1194 (Fed. Cir. 2014)

Indeed, the Patent Office rejected a similar argument during reexamination of the '223 Patent. EX2042, ¶138 (citing EX1020, 6-7). There, the Examiner found, “there would be no motivation to simply replace the first parameter with the second, as it would contradict the direct teaching in the reference of allowing the user to see the entirety of the patient’s condition.” EX1020, 6-7. The Examiner concluded, “No other art of record teaches this feature.” *Id.* Likewise, replacing a measured value of a parameter with that of another parameter contradicts Hochstedler’s teaching that all parameters should be displayed and that its system will immediately switch layouts if it detects a potentially missing parameter. EX2042, ¶¶93-111, 139; EX1004, 8:19-24. And neither Naghavi nor Burnes teaches that the replacement of a parameter would have been desirable. EX2042, ¶¶112-116, 139. Apple’s Petition provides no reason to depart from the Examiner’s reasoned decision. EX2042, ¶¶138-139.

Apple’s argument also assumed that a POSITA would understand what parameters a patient caregiver would consider clinically relevant in order to modify the display to suit the condition of the patient. Pet., 15; EX2042, ¶140. Apple’s only evidence of this is its expert declaration. EX1003, ¶50; EX2042, ¶140. But

Apple's expert admitted he has *never* designed a user interface for a medical device, let alone for a patient monitor. EX2043, 18:4-19:13. Further, he cites no evidence for his claims that a POSITA would have thought some types of parameters were "less relevant" to a clinician. EX1003, ¶¶38, 43, 44, 49, 50; EX2042, ¶141.

Apple is incorrect about what a POSITA would understand. EX2042, ¶141. A POSITA would have understood that a clinician would select which parameters to measure based on what parameters were clinically relevant. EX2042, ¶141. When a clinician selected a parameter to monitor, the clinician would have expected that parameter to be displayed on the monitor. EX2042, ¶141. That is consistent with Hochstedler, which teaches that its system will switch to another layout displaying all measured parameters as soon as it detects that a parameter is added. EX1004, 8:19-24; EX2042, ¶141. Thus, a POSITA would have been motivated to create a monitor that can display all parameters, and not only selectively display parameters. EX2042, ¶141.

b) **Replacing a Currently Measured Parameter To "Relieve" The "Data Analysis Burden" Is Not Supported By Any Reference**

Apple quoted Burnes to argue that a POSITA would be motivated to combine the references to "relieve the data analysis burden placed on the clinician while enabling the clinician to maintain thorough patient care." Pet., 15; EX1003, ¶50; EX2042, ¶142. Apple then argued that "POSITA would have recognized that not

all parameters must be displayed on a main layout ... so long as those parameters that change in severity can be displayed/highlighted to the clinician” when necessary. Pet., 15; EX1003, ¶50; EX2042, ¶142.

Burnes teaches a chart that displays a multitude of information from multiple patients simultaneously as shown below:

Springfield Heart Failure Clinic

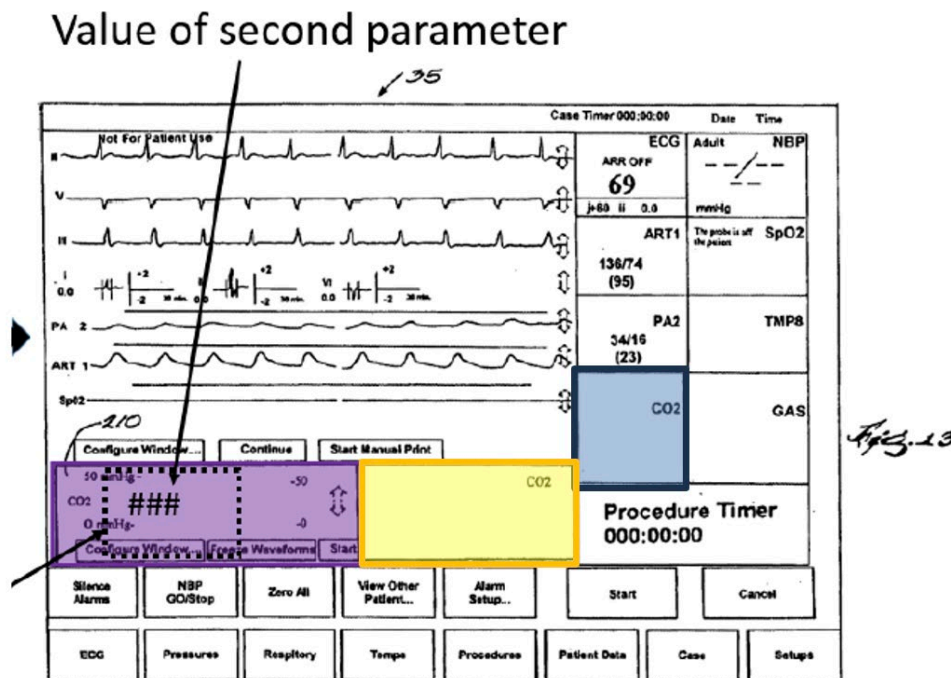
308 Patient Dashboard

302

303 Patient	304 Overall Status	306 Last TXFR (overdue)	308 Device Type	Patient Weight	Patient Symptoms	Blood Pressure	Patient Activity	Night Heart Rate	Lung Wetness	RV Pressure	312 Device Status
<u>AA</u>	●	7 Days (5)	CRT	No Data	No Data	OK	OK	OK	OK	N/A	●
<u>BB</u>	!	4 Days (1)	Pacemaker	175 (165)	OK	OK	OK	OK	N/A	N/A	!
<u>CC</u>	OK	3 Days (0)	ICD	180 (180)	OK	OK	●	OK	OK	N/A	OK
<u>DD</u>	●	3 Days (0)	CRT-ICD	172 (175)	SOB w/ Stairs	OK	●	OK	●	N/A	OK
<u>FF</u>	!	1 Day (0)	Chronicle	210 (200)	SOB at rest	●	●	OK	N/A	●	OK
<u>GG</u>	OK	30 Days (1)	Reveal	N/A	N/A	N/A	N/A	●	N/A	N/A	OK

EX1006, Fig. 7, ¶5; EX2042, ¶143. Burnes explains that this chart allows “a clinician to easily scan summary data for a patient group,” which reduces the burden of data analysis on the physician. EX1006, ¶5; EX2042, ¶143. Thus, rather than disclosing reducing the burden of data analysis by displaying only certain parameters at certain time, Burnes discloses simultaneously displaying all data using a well-organized and easy-to-understand chart. EX2042, ¶143. Rather than suggesting leaving any parameter undisplayed, Burnes shows keeping the parameter on the screen with entries “No Data” or “N/A.” EX2042, ¶143.

Apple's expert further argued that "avoiding display of redundant information is a key aspect of Hochstedler's objective." EX1003, ¶50; EX2042, ¶144. Apple's Petition did not raise this argument. Pet., 15. But Hochstedler never discusses "redundant information," let alone that it should be avoided. See EX1004; EX2042, ¶144. Apple's expert admitted that Hochstedler does not discuss "redundant" information. EX2043, 86:10-19; EX2042, ¶144. Rather, Hochstedler discloses *displaying* redundant information. EX2042 ¶¶144-145. In Figure 13, one of the figures Apple relied upon, "CO2" is shown repeatedly on the display:



EX1004, Fig. 13.

Hochstedler also teaches that it would rather use a layout that displays extra unused parameters over using a layout that is potentially missing a parameter.

EX1004, 6:61-7:5; EX2042, ¶145. These teachings would motivate a POSITA to include more information on a display, not less. EX2042, ¶145. And Apple’s expert admits that he ignored Hochstedler’s contrary teaching in his analysis. EX2043, 87:5-88:10. Hochstedler does not support Apple’s argument. EX2042, ¶145.

Apple’s second motivation—that undisplayed parameters reduce the data analysis burden—also assumes that there are currently monitored but undisplayed parameters. EX2042, ¶146. As discussed above, none of the references disclose monitoring but not displaying a parameter. *See supra* Sections VI.A.2, VI.B.2.a.; EX2042, ¶146 (citing EX2042, Section IX.B).

c) **Apple’s KSR Argument Does Not Explain Why A POSITA Would Combine Any Specific Teachings Of The References**

Relying on *KSR*, Apple argued that the combination is “merely the application of known techniques (changing a parameter display responsive to a change in parameter status) by a known system (a multiparameter monitoring and display system) to yield predictable results (a multiparameter monitoring and display system in which the parameter display changes responsive to a parameter change).” Pet., 15; EX1003, ¶51, EX2042, ¶147. Even if any of these “motivations” were correct, none of them suggest any reason to use the same display area to show two different currently measured parameters. EX2042, ¶147.

Apple’s passing mention of *KSR* does not set forth a reason to combine the references to use the same display area to show two different currently measured

parameters. *See* EX2042, ¶148. Apple argued the combination involves “the application of known techniques (changing a parameter display responsive to a change in parameter status).” Pet., 15; EX1003, ¶51; EX2042, ¶¶148-148. But Apple’s characterization of “changing a parameter display responsive to a change in parameter status” is so generic that it would capture a mere change in color for a parameter display or the numerical change of a parameter display, such as when pulse rate changes from 60 to 85 beats per minute. EX2042, ¶148. The references, including Hochstedler alone, teach that type of change responsive to parameter status. *See supra* Section V.A; *see also* EX2042, ¶¶43-44. Thus, Apple’s argument does not provide any reason to turn to another teaching from another reference. EX2042, ¶¶147-151. Indeed, what Apple argues is a “predictable result” that “the parameter display changes responsive to a parameter change” does not address anything specific to the claims of the ’223 Patent. *Id.*

The Federal Circuit has repeatedly held that such generic motivations are insufficient. *See e.g., ActiveVideo Networks, Inc. v. Verizon Communications, Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012) (rejected expert testimony regarding motivation to combine as “generic and bear[ing] no relation to any specific combination of prior art elements” and for failing “to explain why a person of ordinary skill in the art would have combined elements from specific references in the way the claimed invention does”); *DDS Technology Management, Inc. v. Apple*

Inc., 885 F.3d 1367, 1376 (Fed. Cir. 2018) (reversing the Board’s finding that the challenged claims were obvious because Apple’s expert made “conclusory statements” regarding motivations to combine that were “insufficient to support the Board’s findings”).

Apple characterizes “changing a parameter display responsive to a change in parameter status” as a “known technique.” Pet., 15; EX2042, ¶149. But this is not what Claim 1 requires. Claim 1 recites “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.” That *replacement* for two currently measured parameters based on an event was not disclosed in any reference. EX2042, ¶149.

Apple’s generic motivation also does not address the reason why the *three* references would have been combined. EX2042, ¶150. Apple’s argument at best attempts to argue that *two* references would be combined. *Id.* Supposedly, one reference discloses the “known technique” of “changing a parameter display responsive to a change in parameter status” and the other reference discloses the “known system” of a “multiparameter monitoring and display system.” Pet. 50; EX2042, ¶147. But Apple does not even identify which reference is which, leaving its generic argument untethered to any specific disclosures in the prior art. EX2042, ¶150.

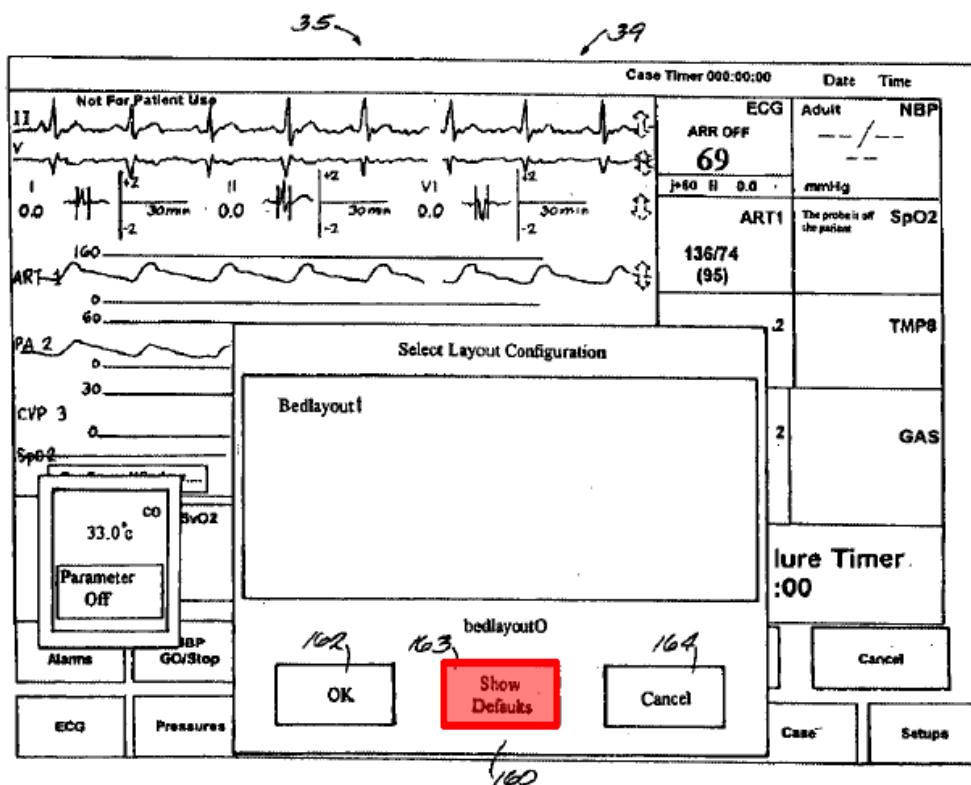
Even if Hochstedler had disclosed the replacement of one currently measured value with another currently measured value—and it does not—Hochstedler did so because there was a change in the system’s capabilities (*e.g.*, a sensor being added/removed). EX2042, ¶151. And even if Burnes and Naghavi disclosed making certain types of display changes based on a parameter approaching or exceeding a threshold, neither of them suggest *replacement* of a measured value as a result of such an event. EX2042, ¶151. Such a replacement is contrary to the references’ teachings and Apple’s generic argument does not explain why a POSITA would have connected *replacement* of a measured value in Hochstedler with a parameter approaching or exceeding a threshold. *Id.*

D. Claim 4 Would Not Have Been Obvious

Claim 4 recites “the common display area is configured to default to displaying one of the measured values of the first or second physiological parameters.” Apple incorrectly argued that Hochstedler describes this limitation. Pet., 32; EX2042, ¶152.

Apple argued that a POSITA would have understood or found it obvious that Hochstedler’s “GUI has a default layout” because Hochstedler “includes ‘a default selection button.’” Pet., 32. But Hochstedler does not describe default *layouts*, it describes default *settings*. EX2042, ¶¶153-154; EX1004, 5:39-42, 7:63-8:3, 8:30-38, Fig. 8 (showing “show defaults” as an option).

Hochstedler makes clear that default *settings* are not the same as default *layouts*. EX2042, ¶154. Hochstedler uses an algorithm to recommend layouts using weights assigned to the components in the system. EX1004, 6:50-8:9; EX2042, ¶¶153-154. For example, Hochstedler describes *default weights* for different components. EX1004, 7:66-8:2; EX2042, ¶¶153-154. Hochstedler selects the “layout with the highest weighted score.” EX1004, 7:7-14; EX2042, ¶154. Hochstedler also describes that it has a default setting that will not change the layout if the system changes (e.g., a parameter is removed or added). EX1004, 5:39-42; EX2042, ¶154. As shown in Fig. 8, a user can select “Show Defaults” to view these system defaults. EX1004, Fig. 8, 8:36-38.



EX2042, ¶153 (annotating EX1004, Fig. 8).

Hochstedler does not describe a default *layout*. EX2042, ¶¶154-155. Rather Hochstedler teaches against using a default layout, instead discussing a system which uses a weighted algorithm to recommend layouts based on the system. EX1004, 6:50-8:9. EX2042, ¶155. Hochstedler selects layouts to match the system, rather than using a default layout. EX1004, 6:50-8:9; EX2042, ¶155. Hochstedler, therefore, does not teach, suggest, or render obvious “the common display area is configured to default to displaying one of the measured values of the first or second physiological parameters.” EX2042, ¶155.

E. Claim 13 Would Not Have Been Obvious

Claim 13 recites “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, 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.” EX2042, ¶156.

Apple’s argument for this limitation (which it referred to as Limitations [13b] and [13c]) relied upon its argument that Naghavi-Hochstedler-Burnes replaces a first parameter value with a second parameter value based on an event. Pet., 35-36; EX1003, ¶¶95-96; *see also* Section III.B (“changes” should be interpreted similarly as “replaced”); EX2042, ¶¶156-157. Apple’s Petition therefore did not treat the term

“change[s]” differently than the term “replaced” in Claim 1. EX2042, ¶157. For at least the reasons discussed above with respect to Claim 1, Apple failed to show Claim 13 would have been obvious. *See supra* Sections VI.A, VI.B; EX2042, ¶157.

F. Claims 15-17 Would Not Have Been Obvious

Claim 15 recites “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 of the first or second physiological parameters based on an occurrence of an event, the event being one of the measured values of the first or second physiological parameters alarming.” Apple referred to this as Limitations [15b] and [15c]. Apple’s argument for [15b] relied on a cross-reference to its [1b] argument. Pet., 37; EX1003, ¶101; EX2042, ¶158. For [15c], Apple also relied on its [1c] argument and argued that a second parameter value becoming “out of range” or “near out of range” also constitutes alarming. EX2042, ¶158. For at least the reasons discussed above with respect to Claim 1, Apple failed to show that Claim 15 and dependent Claims 16 and 17 would have been obvious. *See supra* Sections VI.A., VI.B; EX2042, ¶¶158-159.

G. Claims 18-20 Would Not Have Been Obvious

Claim 18 recites “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.” EX2042, ¶106. Apple referred to this as Limitation [18b].

For the “the display of one of the measured values ... is replaced with the other of the measured values” portion of this limitation, Apple relied on its Limitation [1b] and [1c] arguments. Pet., 39; EX1003, ¶109. Thus, for at least the reasons discussed for Claim 1, Apple failed to show that Claim 18 and dependent Claims 19 and 20 would have been obvious. *See supra* Sections VI.A, VI.B; EX2042, ¶¶160-161.

Furthermore, Apple also failed to show that the Naghavi-Hochstedler-Burnes combination discloses replacing a parameter “based on which is [the] more critical” parameter. EX2042, ¶162. Apple argued that a “parameter (e.g., the second parameter) becoming (near) out of range indicates that the second parameter is a more critical one of the parameters, e.g., compared to a parameter that has not changed.” Pet., 39 (citing EX1003 at ¶109); EX2042, ¶162. But the fact that one parameter becomes out-of-range or near-out-of-range does not indicate whether that parameter is “more critical” than another parameter. For example, if the currently displayed parameter is already out-of-range when the undisplayed parameter also becomes near-out-of-range, the undisplayed parameter could still be less critical. EX2042, ¶162. A particular parameter could also be critical for a particular medical

procedure, regardless of whether other parameters go out of range. *Id.* For example, respiratory rate or heart rate may be critical for a patient undergoing anesthesia, regardless of whether other parameters are near out of range. *Id.* None of the references disclose a comparison between two different parameters to determine which of the two parameters is more “critical” than the other. *Id.* Thus, the references do not disclose this limitation.

Additionally, because the references describe the display of all monitored parameters, their systems do not need to determine which parameter is more “critical.” EX2042, ¶¶162-163. Accordingly, Apple’s obviousness arguments for Claim 18, 19, and 20 also fail for these additional reasons.⁴ *Id.*

H. Claims 21 And 22 Would Not Have Been Obvious

Claim 21 recites, in part, “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.” Apple referred to this as Limitation [21b]. EX2042, ¶164. Thus, similar to Claim 1, Claim 21 requires monitoring the second physiological parameter to determine when

⁴ Dependent Claim 19 is addressed in Apple’s Ground 1B. Pet., 47-49. Apple’s Ground 1B arguments do not resolve the deficiency with the base independent Claim 18. [EXPERT DECL], ¶151.

it “indicates a worsening state of the patient,” even though it is not displayed in the display location when the first physiological parameter is displayed. EX2042, ¶¶164-165.

Apple’s argument for this limitation relies on its arguments for Limitation [1b] and [1c]. Pet., 42; EX1003, ¶115-116. Thus, for at least the reasons discussed above with respect to Claim 1, Apple failed to show Claim 21 and dependent Claim 22 would have been obvious. *See supra* Sections VI.A, VI.B; EX2042, ¶164-165.

VII. GROUND 1B FAILS TO DEMONSTRATE OBVIOUSNESS

Apple’s Ground 1B adds Hayashi to the Naghavi-Hochstedler-Burnes combination to address claim limitations regarding optical sensors and blood parameters. *See* Pet., 43-46; *see also* EX2042, ¶166. However, as Apple’s expert confirmed, Hayashi was not added to address the replacement of one measured value with another. EX2043, 99:14-100:14; EX2042, ¶166. Instead, for Ground 1B, Apple still relies on its core combination of Naghavi-Hochstedler-Burnes to allegedly disclose the replacement of a measured value of a parameter with the measured value of another parameter. EX2043, 99:14-100:14; EX2042, ¶166. Accordingly, Apple’s Ground 1B arguments fail for the same reasons its Ground 1A arguments fail. EX2042, ¶166.

A. Claims 27, 32, 34, 36, 37, 42-44 Would Not Have Been Obvious

Claim 27 recites a “display capable of displaying a measured value of a first blood parameter ... or displaying a measured value of a second blood parameter.” Apple referred to this limitation as Limitation [27a]. EX2042, ¶167. The claim further recites “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.” Apple referred to this limitation as Limitation [27c]. EX2042, ¶167. Thus, similar to Claim 1, Claim 27 requires monitoring the second blood parameter to determine when it “passes an alarm threshold” even if it is not displayed when the first blood parameter is displayed. EX2042, ¶167.

Although Apple relies on Hayashi for the “blood parameter” aspect of this claim, Apple does not rely on Hayashi to disclose the replacement of a measured value with another. EX2043, 99:17-100:14; EX2042, ¶168. Thus, for at least the same reasons as discussed for Claim 1, Apple fails to show that Claim 27 and its dependents, Claims 32, 34, 36, 37, 42-44 would have been obvious. EX2042, ¶168.

B. Claim 28 Would Not Have Been Obvious

Claim 28 recites “a display capable of displaying a measured value of a first blood parameter ... or displaying a measured value of a second blood parameter.” Apple referred to this limitation as Limitation [28a]. EX2042, ¶169. The claim

further recites “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.” *Id.* Apple referred to this limitation as Limitation [28c]. *Id.* Thus, similar to Claim 1, Claim 28 requires monitoring the second blood parameter to determine when it “passes an alarm threshold” even if it is not displayed when the first blood parameter is displayed. EX2042, ¶169.

Regardless of how “changes” is interpreted, Apple’s argument for Claim 28 fails. EX2042, ¶170. Apple’s argument for the how the display “changes from displaying the measured value of the first blood parameter to displaying the measured value of the second blood parameter” relied on its argument that Naghavi-Hochstedler-Burnes discloses a replacement of a measured value. *See* Pet., 57; EX1003, ¶157, EX2042, ¶170. Apple’s Petition therefore did not treat the term “changes” differently than the term “replaced” in Claim 1. EX2042, ¶170. And as discussed above, Apple’s expert confirmed that the obviousness argument does not rely on Hayashi for the alleged replacement of a measured value. EX2043, 99:17-100:14. EX2042, ¶170. Thus, for the same reasons as discussed for Claim 1, Apple failed to show that Claim 28 would have been obvious. EX2042, ¶170.

VIII. GROUND 1C FAILS TO DEMONSTRATE OBVIOUSNESS

Apple's Ground 1C adds Mortz to the Naghavi-Hochstedler-Burnes-Hayashi to challenge Claims 42-44.⁵ Pet., 69-75. Claims 42-44 depend from Claim 27, which was addressed in Ground 1B. *See supra* Section VII.A. Claims 42-44 add additional limitations unrelated to the replacement of a measured value of a parameter with a measured value of another parameter. Moreover, Apple's expert confirmed that he did not rely on Mortz to disclose the replacement of a measured value with another. EX2043, 101:7-13. Thus, Apple's Ground 1C does not address the deficiency with respect to Claim 27, from which Claims 42-44 depend. Accordingly, for at least the reasons discussed above for Claims 1 and 27, Apple fails to show that Claims 42-44 would have been obvious. *See supra* Sections VI.A, VI.B, VII.A; EX2042, ¶171.

IX. CONCLUSION

For the foregoing reasons, Masimo respectfully requests the Board uphold the validity of the challenged '223 Patent claims.

⁵ Apple lists Claim 32 in its heading for Ground 1C (Pet., 69), but did not present any argument about Claim 32 in Ground 1C. *See id.*, 69-75.

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Respectfully submitted,

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Dated: September 16, 2024

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), Counsel for Patent Owner Masimo Corporation hereby certifies that this document complies with the type-volume limitation of 37 C.F.R. § 42.24(b). According to Microsoft Office Word 2010's word count, this document contains approximately 13,207 words, including any statement of material facts to be admitted or denied in support, and excluding the table of contents, table of authorities, mandatory notices under § 42.8, exhibit list, certificate of service or word count, or appendix of exhibits or claim listing.

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: September 16, 2024

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CERTIFICATE OF SERVICE

I hereby certify that, pursuant to 37 C.F.R. § 42.6(e) and with the agreement of counsel for Petitioner, a true and correct copy of **PATENT OWNER RESPONSE AND EXHIBITS 2038-2043** is being served electronically on September 16, 2024, to the e-mail addresses shown below:

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