

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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IPR2024-00293  
Patent 10,736,507 B2

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Before RICHARD H. MARSCHALL, DAVID COTTA, and  
ALYSSA A. FINAMORE, *Administrative Patent Judges*.

COTTA, *Administrative Patent Judge*.

DECISION  
Denying Institution of *Inter Partes* Review  
35 U.S.C. § 314

## I. INTRODUCTION

On December 12, 2023, Apple Inc. (“Petitioner”)<sup>1</sup> filed a Petition to institute *inter partes* review of claims 1–20 of U.S. Patent No. 10,736,507 B2 (Ex. 1001, “the ’507 patent”). Paper 3 (“Pet.” or “Petition”). Masimo Corporation (“Patent Owner”)<sup>2</sup> filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). With our authorization, Petitioner filed a Preliminary Reply to Patent Owner’s Preliminary Response, and Patent Owner Filed a Preliminary Sur-reply. Paper 9; Paper 10.

Under 35 U.S.C. § 314(a), *inter partes* review may not be instituted unless the Petition “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Petitioner has not established a reasonable likelihood of prevailing on its assertion that the challenged claims are unpatentable based on the grounds advanced here. Thus, for reasons explained below, we deny institution of *inter partes* review of claims 1–20 of the ’507 patent.

### A. Related Matters

The parties identify *Apple Inc. v. Masimo Corp. et al.*, No. 1-22-cv-01378 (D. Del.) (“the Delaware Litigation”), in which Patent Owner asserts a counterclaim of infringement of the ’507 patent, as a related matter. Pet. 89; Paper 5, 1.

The parties identify IPR2024-00294 as a parallel *inter partes* review proceeding in which Petitioner filed another petition challenging the ’507

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<sup>1</sup> Petitioner identifies itself as the real party-in-interest. Pet. 89.

<sup>2</sup> Patent Owner identifies itself as the real party-in-interest. Paper 5, 1.

patent. Paper 2, 1; Paper 8, 1. In a concurrently issued decision, we grant review in that case.

Patent Owner also identifies as related matters the following *inter partes* review proceedings involving patents asserted by Patent Owner in the Delaware Litigation:

| <b>Petitioner</b> | <b>Case No.</b> | <b>Patent No.</b> |
|-------------------|-----------------|-------------------|
| Apple Inc.        | IPR2024-00290   | 8,190,223         |
| Apple Inc.        | IPR2024-00296   | 10,984,911        |
| Apple Inc.        | IPR2024-00243   | 10,722,159        |
| Apple Inc.        | IPR2024-00244   | 10,722,159        |
| Apple Inc.        | IPR2024-00294   | 10,736,507        |
| Apple Inc.        | IPR2024-00241   | 10,687,743        |
| Apple Inc.        | IPR2024-00242   | 10,687,743        |

Paper 5, 2.

*B. The '507 Patent*

The '507 patent relates to “patient monitors capable of connectivity to a mobile computing device.” Ex. 1001, 1:22–24. The '507 patent describes “a physiological monitoring system,” which includes “a sensor and cable assembly with a processing board or card,” and is “connectable to a mobile computing device, such as a smartphone, such that display of the monitored physiological data can occur on the computing device.” *Id.* at 2:24–29.

Figure 1A of the '507 patent, reproduced below, shows physiological monitoring system 100, including “sensor 110, first cable 120, processing module 130, second cable 140, connection port 150, and a mobile computing

device, illustrated here as smartphone 160.” *Id.* at 3:58–62.

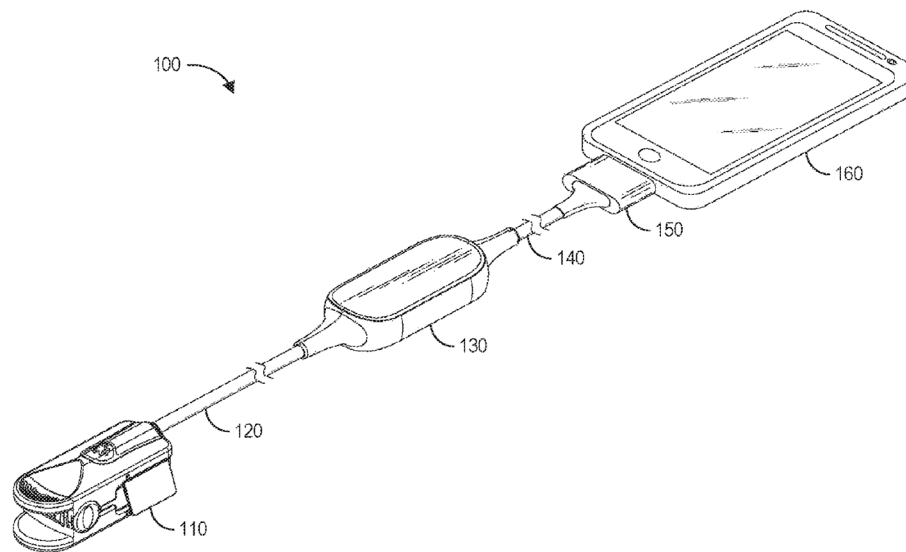


**FIG. 1A**

As shown in Figure 1A, “[s]martphone 160 can be coupled to the processing module 130 by a second cable 140 and connection port 150.” *Id.* at 5:9–11. Sensor 110 may be “a pulse oximeter capable of being secured to a digit such as a finger.” *Id.* at 4:9–13. According to the ’507 patent, “the sensor data is transmitted from sensor 110 along the first cable 120 to the processing module 130, which can apply noise filtering and signal processing techniques . . . to provide output data for display on the smartphone 160.” *Id.* at 4:67–5:4. The Specification describes that “[t]he smartphone 160 can include software such as an application configured to manage output measurement data from the processing module 130.” *Id.* at 5:25–27.

Figure 4A of the ’507 patent, reproduced below, shows an

embodiment of an application for display and management of physiological monitoring data. *Id.* at 13:10–12.

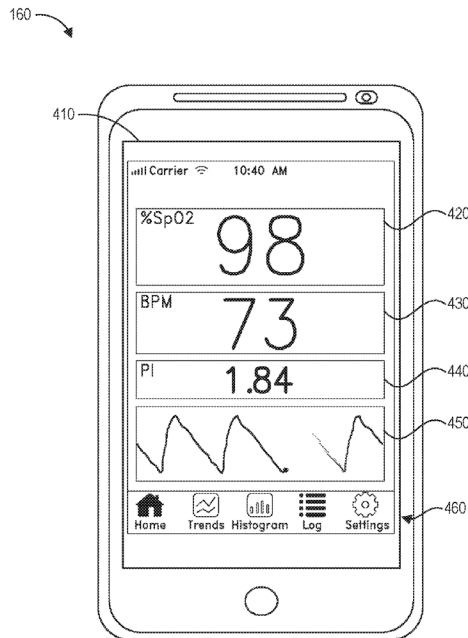


**FIG. 4A**

Figure 4A depicts smartphone 160 with display 410, “which can be used to generate a user interface for the software application.” *Id.* at 13:25–27. According to the Specification, the application may include “a plurality of display portions in which a plurality of physiological parameters can be displayed, such as SpO<sub>2</sub> display 420, heart rate display 430, perfusion index display 450, or plethysmographic waveform display 450.” *Id.* at 13:27–31.

### *C. Challenged Claims*

The ’507 patent includes 20 claims, all of which are challenged in the Petition. Claims 1 and 13 are independent claims and read as follows:

1. A mobile pulse oximetry system for informing a user of mobile measurement of oxygen saturation (“SpO2”), the mobile pulse oximetry system comprising:

an SpO2 measurement system including:

an optical sensor configured to output one or more signals responsive to light from a light source attenuated by tissue of the user at a measurement site, said one or more signals responsive to an oxygen saturation of said tissue; and

**a processing board** in data communication with the optical sensor and a mobile computing device including a display and cellular communication, wherein the processing board is **configured to**:

receive said one or more signals from the optical sensor;

**process said one or more signals to generate SpO2 measurement values**; and

output the SpO2 measurement values to the mobile computing device; and

**one or more hardware processors of the mobile computing device configured to execute an application, the application configured to execute commands to**:

generate a graphical user interface having a plurality of display portions;

**display, in at least one portion of the plurality of display portions**, a representation of a physiological parameter of a plurality of physiological parameters comprising **at least the SpO2 measurement values**; and

display, in a different portion of the plurality of display portions, a plurality of user inputs configured to allow the user to interact with at least one of the plurality of display portions or the application;

wherein the processing of the one or more signals to generate SpO2 measurement values is performed only on the processing board, thereby freeing up memory available to the mobile computing device; and

wherein the processing board is configured to draw power for operation from the mobile computing device.

13. A computer-implemented method of informing a user of mobile measurement of oxygen saturation (“SpO2”), the computer-implemented method comprising:

outputting, from an optical sensor of an SpO2 measurement system, one or more signals responsive to light from a light source attenuated by tissue of the user at a measurement site, said one or more signals responsive to an oxygen saturation of said tissue; and

*via a processing board* of the SpO2 measurement system, the processing board in data communication with the optical sensor and a mobile computing device including a display:

receiving said one or more signals from the optical sensor;

*processing said one or more signals to generate the SpO2 measurement values*; and

outputting the SpO2 measurement values to the mobile computing device; and

via an application configured to execute commands on the mobile computing device:

generating a graphical user interface having a plurality of display portions;

*displaying, in at least one portion of the plurality of display portions*, a representation of a physiological parameter of a plurality of physiological parameters comprising *at least the SpO2 measurement values*; and

displaying, in a different portion of the plurality of portions, a plurality of user inputs configured to allow the user to interact with at least one of the plurality of display portions or the application.

Ex. 1001, 20:26–63, 21:42–22:20 (emphasis added to reflect claim language relating to issues in dispute).

*D. Asserted Ground of Unpatentability*

Petitioner asserts the following grounds of unpatentability in this Petition (Pet. 1–2):

| <b>Claim(s) Challenged</b>   | <b>35 U.S.C. §</b>  | <b>Reference(s)/Basis</b>                |
|------------------------------|---------------------|------------------------------------------|
| 13–15, 19                    | 103(a) <sup>3</sup> | Bailey <sup>4</sup>                      |
| 16, 18, 20                   | 103(a)              | Bailey, Tran <sup>5</sup>                |
| 14, 17                       | 103(a)              | Bailey, Kianl <sup>6</sup>               |
| 1, 2, 5, 7, 9, 12–15, 17, 19 | 103(a)              | Bailey, D’Angelo <sup>7</sup>            |
| 3                            | 103(a)              | Bailey, D’Angelo, Ording <sup>8</sup>    |
| 4–6, 8, 16, 18, 20           | 103(a)              | Bailey, D’Angelo, Tran                   |
| 2, 7, 14, 17                 | 103(a)              | Bailey, D’Angelo, Kianl                  |
| 3                            | 103(a)              | Bailey, D’Angelo, Kianl, Ording          |
| 10, 11                       | 103(a)              | Bailey, D’Angelo, Goldsmith <sup>9</sup> |

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<sup>3</sup> The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Based on the earliest possible effective filing date of the ’507 patent, i.e., September 20, 2012, we apply the pre-AIA versions of §§ 102 and 103. *See* Ex. 1001, code (60).

<sup>4</sup> Brian Bailey et al., *Development of a Remote Pulse Oximeter* (May 2010) (unpublished B.S. thesis, The University of Arizona) (Ex. 1004, “Bailey”).

<sup>5</sup> Tran, U.S. Patent Application Publication No. 2008/0004904 A1, published Jan. 3, 2008 (Ex. 1005, “Tran”).

<sup>6</sup> Kianl et. al., U.S. Patent No. 6,658,276 B2, issued Dec. 2, 2003 (Ex. 1006, “Kianl”).

<sup>7</sup> Lorenzo T. D’Angelo et al., *A Sensor Network to iPhone Interface Separating Continuous and Sporadic Processes in Mobile Telemedicine*, Proceedings of the 33rd Annual International Conference of the IEEE EMBS, pp. 1528–1531 (Aug. 30–Sept. 3, 2011) (Boston, MA) (Ex. 1007, “D’Angelo”).

<sup>8</sup> Ording et al., U.S. Patent No. 7,812,826 B2, issued Oct. 12, 2010 (Ex. 1008, “Ording”).

<sup>9</sup> Goldsmith et al., U.S. Patent Application Publication No. 2007/0093786 A1, published Apr. 26, 2007 (Ex. 1009, “Goldsmith”).

| Claim(s) Challenged          | 35 U.S.C. § | Reference(s)/Basis                    |
|------------------------------|-------------|---------------------------------------|
| 13–15, 19                    | 103(a)      | Bailey, Moon <sup>10</sup>            |
| 16, 18, 20                   | 103(a)      | Bailey, Moon, Tran                    |
| 14, 17                       | 103(a)      | Bailey, Moon, Kianl                   |
| 1, 2, 5, 7, 9, 12–15, 17, 19 | 103(a)      | Bailey, Moon, D’Angelo                |
| 3                            | 103(a)      | Bailey, Moon, D’Angelo, Ording        |
| 4–6, 8, 16, 18, 20           | 103(a)      | Bailey, Moon, D’Angelo, Tran          |
| 2, 7, 14, 17                 | 103(a)      | Bailey, Moon, D’Angelo, Kianl         |
| 3                            | 103(a)      | Bailey, Moon, D’Angelo, Kianl, Ording |
| 10, 11                       | 103(a)      | Bailey, Moon, D’Angelo, Goldsmith     |

Petitioner relies on the declaration of Dr. Thomas W. Kenny, among other evidence. Ex. 1003. Patent Owner relies upon the declaration of Dr. R. James Duckworth, among other evidence. Ex. 2002.

## II. ANALYSIS OF GROUNDS

### *A. Principles of Law*

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)).

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<sup>10</sup> Moon et al., U.S. Patent Application Publication No. 2010/0324387 A1, published Dec. 23, 2010 (Ex. 1010, “Moon”).

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which that subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary considerations of nonobviousness when presented. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

*B. Level of Skill in the Art*

In determining the level of skill in the art, we consider the problems encountered in the art, the art's solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986).

Petitioner refers to Dr. Kenny's declaration testimony for the definition of a person of ordinary skill in the art ("POSA" or "POSITA"). *See* Pet. 11–12 n.2 (citing Ex. 1003 ¶¶ 24–25). Dr. Kenny testifies:

In my opinion, a person of ordinary skill in the art as of the Critical Date of the '507 Patent (hereinafter a "POSITA") would have been a person with a working knowledge of physiological monitoring technologies. The person would have had at least a bachelor's degree in electrical engineering, mechanical engineering, biomedical engineering, computer engineering, physics, or a related field, and would have had at

least two years of relevant work experience with physiological monitoring technologies and devices, including user interfaces and capture and processing of physiological information, or equivalents thereof. Alternatively, the person could have also had a Master of Science degree in a relevant academic discipline to compensate for less related work experience in the same discipline or vice versa.

Ex. 1003 ¶ 24.

Patent Owner contends:

A POSITA at the time of the '507 Patent would be a person with a working knowledge of physiological monitoring technologies and/or optical sensors used in physiological monitoring technologies. EX2002, ¶35. 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. *Id.* Alternatively, the person 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. *Id.*

Prelim. Resp. 6.

The main difference between the parties' definitions of the POSA appears to be that Patent Owner specifies that the POSA's knowledge and experience may include optical sensors and that the POSA may have a degree emphasizing software. On the present record, we do not deem these differences material, particularly because the optical sensors and technologies at issue are those used in physiological monitoring technologies and both parties agree that the POSA would have a working knowledge of

physiological monitoring technologies. Ex. 1003 ¶ 24; Prelim. Resp. 6. We find the additional specificity of Patent Owner’s definition to be helpful. In addition, Patent Owner’s definition appears to be consistent with the level of skill in the art reflected in the prior art of record and the disclosure of the ’507 patent. Accordingly, for purposes of this Decision, we adopt Patent Owner’s proposed definition of the person of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (“the prior art itself [may] reflect[] an appropriate level” as evidence of the ordinary level of skill in the art) (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985)). We note that we would reach the same outcome under either definition of the POSA.

### *C. Claim Construction*

We interpret a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2023). Under this standard, we construe the claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*

Petitioner does not identify any claim terms as needing formal construction. Pet. 3 (citing *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011)). Patent Owner asserts that “the claims have

their plain meaning and thus require no construction,” noting that this is the same position it took in the Delaware Litigation. Prelim. Resp. 12.<sup>11</sup>

We determine that no terms require express construction at this stage. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

#### *D. Analysis*

The challenged claims include two independent claims. Both of the challenged independent claims require that a “processing board” “generate[s] SpO2 measurements values” and that an application of a “mobile device” causes “the SpO2 measurement values” to be displayed. Ex. 1001, 20:35–53 (claim 1, reciting: “a processing board . . . configured to: . . . process said one or more signals to generate SpO2 measurement values; and . . . one or more hardware processors of the mobile computing device configured to execute an application, the application configured to execute commands to: . . . display, in at least one portion of the plurality of display portions, . . . at least the SpO2 measurement values”), 21:50–22:20 (claim 13, reciting: “via a processing board of the SpO2 measurement system . . . processing said one or more signals to generate the SpO2 measurement values; and . . . via an application configured to execute commands on the

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<sup>11</sup> Patent Owner asserts that Petitioner “presents inconsistent claim construction positions in the parallel proceedings” that “warrant denying institution.” Prelim. Resp. 12. We decline to address this issue as it is not necessary to resolve this case.

mobile computing device: . . . displaying, in at least one portion of the plurality of display portions, . . . at least the SpO<sub>2</sub> measurement values.”). The use of the definite article “the” in connection with displaying “the SpO<sub>2</sub> measurement values” indicates that those SpO<sub>2</sub> measurement values are the same SpO<sub>2</sub> measurement values generated by the processing board. *Id.*

In each of the asserted grounds, Petitioner relies on Bailey as meeting the claim requirement for a processing board that generates SpO<sub>2</sub> measurement values as well as for the requirement that an application cause those SpO<sub>2</sub> measurement values to be displayed. Our decision turns on whether Petitioner has carried its burden to establish a reasonable likelihood of prevailing on its assertion that Bailey discloses these limitations. For the reasons discussed below, we find that Petitioner has not carried its burden.

#### 1. Overview of Bailey

Bailey is a thesis submitted in May of 2010 in partial fulfillment of a Bachelor’s degree at The University of Arizona. Ex. 1004, 2.<sup>12</sup> Petitioner contends that Bailey is prior art under pre-AIA 35 U.S.C. § 102(a). Pet. 3. Bailey discloses that the goal of the thesis was “to design a pulse oximeter geared toward consumer use that could wirelessly transmit data to a portable device, such as a smartphone, for convenient, remote monitoring of oxygen saturation.” Ex. 1004, 3.

Figure 1 of Bailey is reproduced below.

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<sup>12</sup> Citations to the pages of Bailey are to the native pagination rather than the page numbering added by Petitioner.

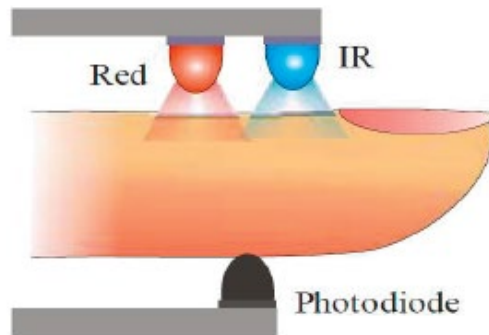
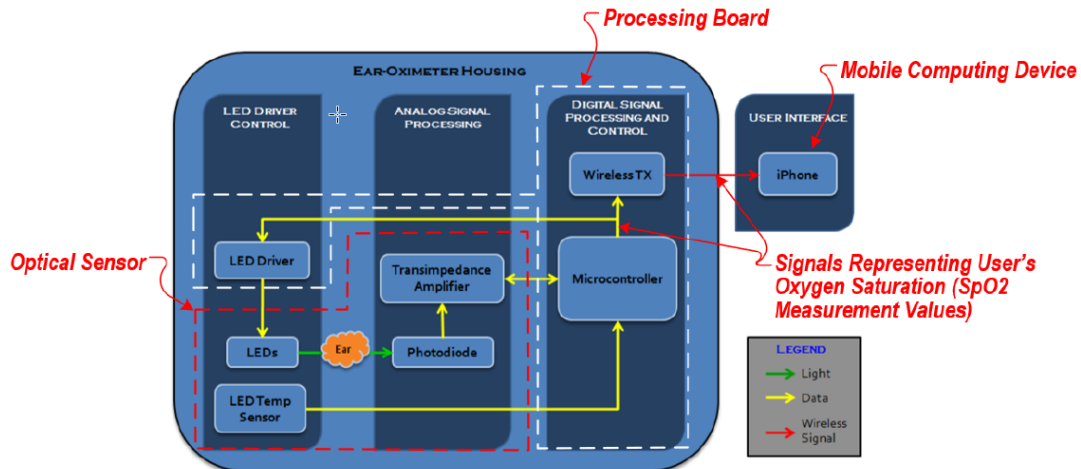


Figure 1: Typical pulse oximeter configuration [4]

Figure 1, shows a “[t]ypical pulse oximeter configuration,” where “two light emitting diodes (LEDs), one red and one infrared,” are “positioned on one side of an extremity of the body,” in Figure 1, a finger, and “a photodetector is placed on the opposite side” to “measure relative levels of HbO<sub>2</sub> [oxyhemoglobin] and Hb [hemoglobin] as blood is pumped through the body.” *Id.* at 10.

Bailey describes the design of “an ear-mounted pulse oximeter,” in which “the LEDs would be pulsed” and “[l]ight would reach the photodiode, causing it to output a signal, which would then be amplified, processed, and the ratio of the two signals would be mathematically related to the actual oxygen saturation of the user.” *Id.* at 22. “Afterward, the device would transmit the oxygen saturation as well as the pulsatile signal to an iPhone or iPod Touch and be displayed on a user interface that would allow the data to be monitored and stored.” *Id.* Bailey discloses that “the design of the remote pulse oximeter included a unique feature, the ability to transmit information wirelessly to a portable device such as an iPod or iPhone.” *Id.* at 14.

The components of Bailey's pulse oximeter are shown in Figure 7, which is reproduced below (as annotated by Petitioner).



Pet. 19. Figure 7 is a "block diagram" showing "the subsystems [of Bailey's pulse oximeter] and their interactions." Ex. 1004, 22. Petitioner annotated Figure 7 by drawing a dashed red line around the "LEDs," "LED Temp Sensor," "Transimpedance Amplifier," and "Photodiode" and labeling these components "Optical Sensor." Pet. 19. Petitioner also drew a dashed white line around the "LED Driver," the "Microcontroller," and the "Wireless TX [transmitter]" in Figure 7, and labeled them "Processing Board." *Id.* As shown in Figure 7, a green arrow extends from the LEDs through an ear to a photodiode. A yellow arrow extends from the photodiode to the transimpedance amplifier, and a bi-directional yellow arrow extends between the transimpedance amplifier and the microcontroller. Another yellow arrow extends from the microcontroller to the wireless TX, and a red arrow extends from the wireless TX to the "iPhone," which Petitioner labeled as "Mobile Computing Device."

In Bailey's system, LEDs positioned on one side of an earlobe emit light (depicted as a green arrow in Figure 7), and a photodiode positioned on the other side of the earlobe detects the light after it has passed through the earlobe. Ex. 1004, 23. The photodiode produces an electrical current (depicted as a yellow arrow in Figure 7), which is then "sent to a transimpedance amplifier[,] where it is converted to voltage and amplified." *Id.* "The amplified signal is sent to a microcontroller" where it is "processed and then sent to [a] wireless transmitter." *Id.* "The transmitter wirelessly communicates with [an] application on [an] iPhone to send and display the data on a user interface." *Id.*

Figure 32 of Bailey, reproduced below, shows "the completed GUI [graphical user interface] for the user interface with test data visible." *Id.* at 48.



Figure 32: Final user interface GUI implemented on iPod Touch

As reflected in Figure 32, Bailey’s user interface can display SpO<sub>2</sub> percentage and heart rate, among other information. *Id.* Bailey discloses that “[t]he required functions of the user interface were: to display the SpO<sub>2</sub> and heart rate, to sound an alert for low SpO<sub>2</sub> levels, and to perform data logging.” *Id.* at 62.

## 2. Petitioner’s Contentions

Petitioner contends that Bailey’s “Processing Board”—which it identifies as comprising Bailey’s microcontroller, wireless transmitter, and LED driver—generates SpO<sub>2</sub> measurement values. Pet. 19. Petitioner explains its position as follows:

Referring to Figure 7, Bailey describes that “[t]he amplified signal is sent to the microcontroller where the signal data is processed and then sent to the wireless transmitter.” APPLE-1004, 23. This [sic] amplified and processed signals, which were generated from the LEDs, are “mathematically related to the actual oxygen saturation of the user.” *Id.*, 22. As such, Bailey’s digital signal processing system (***processing board***) ***processes the signals***, which were output from the sensor housing (***optical sensor***, [13a]), such that the processed signals represent the actual oxygen saturation of the user (***generate the SpO2 measurement values***). APPLE-1003, [57].

*Id.*; see also *id.* (showing annotated Figure 7 of Bailey, reproduced *supra* § II.D.1, where Petitioner has labeled arrows extending from the “Microcontroller” to the “WirelessTX” and from the “WirelessTX” to the “iPhone” as “Signals Representing User’s Oxygen Saturation (SpO<sub>2</sub> Measurement Values)”).

### 3. Patent Owner’s Arguments

Patent Owner argues that “Bailey does not disclose a processing board processing one or more signals from an optical sensor to generate SpO<sub>2</sub> measurement values.” Prelim. Resp. 32. Rather, according to Patent Owner, Bailey’s microcontroller “sampled the voltage from the transimpedance amplifier and calculates a voltage for the photodiode signal.” *Id.* at 33 (citing Ex. 1004, 49–50). As a result, Patent Owner argues, the only data sent from Bailey’s processing board to the iPhone was “the voltage level and its corresponding LED.” *Id.* Patent Owner asserts that “[t]hese voltage levels are not SpO<sub>2</sub> measurement values.” *Id.*

4. Discussion

We agree with Patent Owner that Petitioner's showing with respect to the claim requirements relating to SpO<sub>2</sub> measurement values is deficient. In particular, Petitioner maps the "SpO<sub>2</sub> measurement values" "generat[ed]" by the "processing board" to the voltage level signals sent from the microcontroller to the wireless transmitter and then from the wireless transmitter to the mobile device. Pet. 19; Ex. 1004, 47 ("The only data that was actually sent from the digital interface to the user interface [i.e., the mobile device] was the voltage level and its corresponding LED, which was sent over in a 2-bit array of data."). And Petitioner maps "the SpO<sub>2</sub> measurement values" "display[ed]" in a "display portion[]" of the mobile device to a displayed SpO<sub>2</sub> percentage. Pet. 21 (relying on Figure 32 of Bailey (reproduced *supra* § II.D.1), an image of the user interface of Bailey's mobile device displaying an SpO<sub>2</sub> percentage but not a voltage); *see also id.* at 22 ("As shown in Figure 32 below, Bailey's mobile device displays at least a SpO<sub>2</sub> value and a heart rate (***a plurality of physiological parameters comprising at least the SpO<sub>2</sub> measurement values***)."). Thus, the data generated by the microprocessor (a voltage level) is not the data displayed by the mobile device (an SpO<sub>2</sub> percentage). Consistent with this, Bailey indicates that its "User Interface," i.e., its mobile device, is the system component that calculates the SpO<sub>2</sub> level. Ex. 1004, 50 (explaining, in a discussion of the "User Interface," that blood oxygen saturation was calculated using a "peak detection algorithm").

In its discussion of the "Theory of Operation," Bailey states that its "device would transmit the oxygen saturation as well as the pulsatile signal

to an iPhone or iPod Touch.” Ex. 1004, 22. Absent evidence to the contrary, this statement would provide some support for the notion that Bailey’s processing board transmits SpO<sub>2</sub> values. However, in view of Bailey’s unambiguous teaching that “[t]he only data that was actually sent from the digital interface to the user interface was the voltage level and its corresponding LED” (*id.* at 47) and Bailey’s description of its mobile device as calculating SpO<sub>2</sub> values (*id.* at 50), we do not find Bailey’s statement that its “device would transmit the oxygen saturation” sufficient to create a triable issue as to whether Bailey’s processing board transmits SpO<sub>2</sub> values.

Petitioner points to Bailey’s teaching that the signal generated by the microprocessor is “mathematically related to the actual oxygen saturation of the user.” Pet. 19. That is likely true. But absent further explanation, the mere existence of a mathematical relationship does not establish that Bailey’s processing board generates an SpO<sub>2</sub> measurement value, as required by the challenged claims. Nor does it address how a voltage level and an SpO<sub>2</sub> percentage can both be “the SpO<sub>2</sub> measurement value,” as posited by Petitioner’s mapping. Accordingly, for each of the asserted grounds, Petitioner has not carried its burden to establish a reasonable likelihood of prevailing on its assertion that the challenged claims are unpatentable as obvious over Bailey.

### III. CONCLUSION

We determine that Petitioner has not established a reasonable likelihood that it will prevail with respect to at least one of the claims challenged in the Petition. We, therefore, deny institution of *inter partes* review.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is denied, and an *inter partes* review of the challenged claims is not instituted in this proceeding.

IPR2024-00293  
Patent 10,736,507 B2

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