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Paper No. 14
Filed: October 17, 2019

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

OMNI MEDSCI, INC.,
Patent Owner.

Case IPR2019-00917
Patent 9,757,040 B2

Before GRACE KARAFFA OBERMANN, JOHN F. HORVATH, and SHARON FENICK, *Administrative Patent Judges.*

FENICK, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
35 U.S.C. § 314(a)

I. INTRODUCTION

Apple Inc. ("Petitioner") filed a Petition requesting *inter partes* review of claims 1–4 ("the challenged claims") of U.S. Patent No. 9,757,040 B2 (Ex. 1001, "the '040 patent"). Paper 1 ("Pet."). Patent Owner Omni

MedSci, Inc. ("Patent Owner") filed a Preliminary Response. Paper 9 ("PO Prelim. Resp."). We have authority under 35 U.S.C. § 314.

Upon consideration of the Petition and Preliminary Response, Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of at least one challenged claim of the '040 patent. We institute *inter partes* review.

II. BACKGROUND

A. Related Matters and Real Parties in Interest

Petitioner and Patent Owner each state that the '040 patent is also the subject of another *inter partes* review petition filed by Petitioner, IPR2019-00917. Pet. x; Paper 7 (Patent Owner's Mandatory Notices) 2. Petitioner and Patent Owner additionally note that Petitioner filed two other petitions for *inter partes* review on related Patent 9,861,286 B2: IPR2019-00911 and IPR2019-00914. Pet. x; Paper 7, 2.

Petitioner and Patent Owner state that the '040 patent was asserted in *Omni MedSci, Inc. v. Apple Inc.*, Action No. 2-18-cv-00134-RWS (E.D. Tex.). Pet. x; Paper 7, 1. Petitioner and Patent Owner state that the Eastern District of Texas has granted a motion to transfer the case to the Northern District of California. Paper 11, 1; Paper 13, 1. See *infra* Section I.1.

Petitioner identifies only itself as the real party in interest. Pet. x. Patent Owner also identifies only itself as the real party in interest. Paper 7, 1.

B. Overview of the '040 Patent

The '040 patent relates to "[a] wearable device for use with a smart phone or tablet [which] includes a measurement device having a plurality of [light emitting diodes] generating a near-infrared input optical beam that

measures physiological parameters." Ex. 1001, code (57). "The wearable device is configured to wirelessly communicate with the smart phone or tablet which receives and processes the output signal." *Id.*

The Specification of the '040 patent teaches that near-infrared light, that is, light in the spectrum between approximately 700 nanometers to about 2500 nanometers, may be used in order to provide non-invasive and non-contact detection of dental caries in teeth. *Id.* at 2:61–3:13, 6:31–43. The Specification also describes the use of a light to determine blood flow and blood constituents in blood vessels. *Id.* at 7:12–19; *see also id.* at 3:52–54. This light is provided in an input beam generated by a plurality of light emitting diodes [LEDs]. *Id.* at code (57), 14:18–26, 14:55–60. Light is reflected off of tissue, such as skin or teeth, and a receiver receives the reflected beam. *Id.* at code (57), 3:37–46, 7:12–14.

Figure 1, reproduced below, is an illustration of the structure of a tooth, light sources, and a spectrometer, receiver, or camera detecting reflected light. *Id.* at 5:30, 7:4–14, 11:26–50.

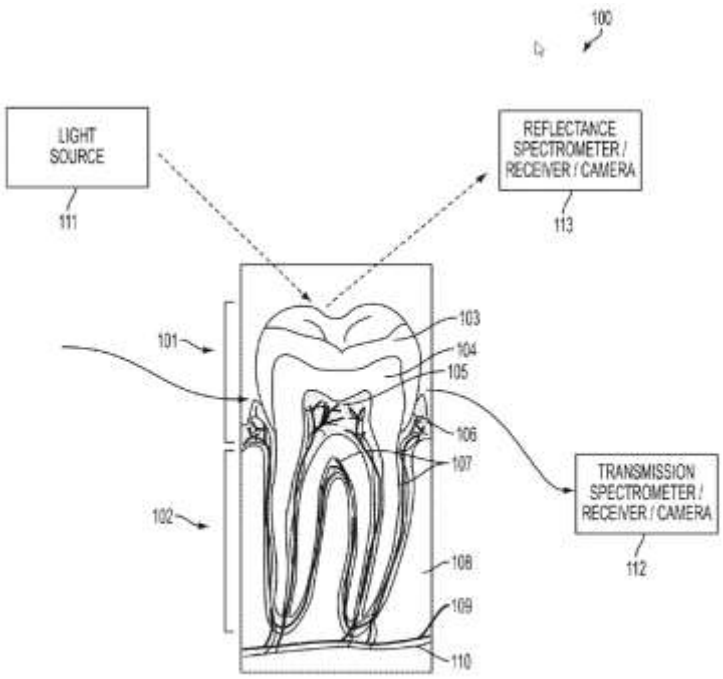

FIG. 1

As shown in Figure 1, light from light source 111 is directed towards tooth 100 with crown 101 and root 102. *Id.* at 7:4–7; 11:26–46. A reflectance measurement is taken by detecting the reflectance at reflectance spectrometer/receiver/camera 113. *Id.* at 11:41–45.

An output signal includes a measurement on blood contained within the tissue. *Id.* at code (57), 3:52–54. The wearable device communicates with a smart phone or tablet which receives, processes, stores, and displays the output signal. *Id.* at 22:5–63.

The signal-to-noise ratio of the measurement may be improved by increasing the light intensity of the light source from an initial light intensity to an increased light intensity. *Id.* at 3:46–52, 14:32–60. Additionally, "change detection schemes may be used, where the detection system captures the signal with the light source on and with the light source off. . . . Then, the signal with and without the light source is differenced.

This may enable the sun light changes to be subtracted out." *Id.* at 21:11–16.

C. Illustrative Claim

Of the challenged claims, claim 1 is independent. Claim 1 is reproduced below, with bracketed notations, corresponding to notations in the Petition, added for reference.

> 1. [a] A wearable device for use with a smart phone or tablet, the wearable device comprising:
>
> [b] a measurement device including a light source comprising a plurality of light emitting diodes (LEDs) for measuring one or more physiological parameters, [c] the measurement device configured to generate, by modulating at least one of the LEDs having an initial light intensity, an input optical beam [d] having one or more optical wavelengths, wherein at least a portion of the one or more optical wavelengths is a near-infrared wavelength between 700 nanometers and 2500 nanometers;
>
> [e] the measurement device comprising one or more lenses configured to receive and to deliver a portion of the input optical beam to tissue, wherein the tissue reflects at least a portion of the input optical beam delivered to the tissue;
>
> [f] the measurement device further comprising a reflective surface configured to receive and redirect at least a portion of light reflected from the tissue;
>
> [g] the measurement device further comprising a receiver configured to:

> capture light while the LEDs are off and convert the captured light into a first signal and
>
> capture light while at least one of the LEDs is on and convert the captured light into a second signal, the captured light including at least a portion of the input optical beam reflected from the tissue;
>
> [h] the measurement device configured to improve a signal-to-noise ratio of the input optical beam reflected from the tissue by differencing the first signal and the second signal;
>
> [i] the light source configured to further improve the signal-to-noise ratio of the input optical beam reflected from the tissue by increasing the light intensity relative to the initial light intensity from at least one of the LEDs;
>
> [j] the measurement device further configured to generate an output signal representing at least in part a non-invasive measurement on blood contained within the tissue; and
>
> [k] the wearable device configured to communicate with the smart phone or tablet, the smart phone or tablet comprising a wireless receiver, a wireless transmitter, a display, a voice input module, a speaker, and a touch screen, the smart phone or tablet configured to receive and to process at least a portion of the output signal, wherein the smart phone or tablet is configured to store and display the processed output signal, wherein at least a portion of the processed output signal is configured to be transmitted over a wireless transmission link.

Ex. 1001, 24:10–59. Each of challenged claims 2–4 depend from claim 1.

D. Evidence Relied Upon

Reference		Date	Exhibit
Park et al. ("Park")	US 9,596,990 B2	Mar. 21, 2017	1010
Lisogurski et al. ("Lisogurski")	US 9,241,676 B2	Jan. 26, 2016	1011
Hanna et al. ("Hanna")	US 6,505,133 B1	Jan. 3, 2003	1007
Mannheimer	US 5,746,206	May 5, 1998	1008

Petitioner also relies upon the Declaration of Brian W. Anthony, PhD. (Ex. 1003).

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Claims Challenged	**35 U.S.C. §**	**References/Basis**
1–3	103	Park and Lisogurski
1–3	103	Park, Lisogurski, and Hanna
4	103	Park and Lisogurski, alone or in combination with Hanna, and Mannheimer

III. DISCUSSION

A. Person of Ordinary Skill in the Art

Petitioner asserts that:

> A person of ordinary skill in the art ("skilled person") would have a good working knowledge of optical sensing techniques and their applications, and familiarity with optical system design and signal processing techniques. That knowledge would have been gained via an undergraduate education in engineering (electrical, mechanical, biomedical or optical) or a related field of study, along with relevant experience in studying or developing physiological monitoring

> devices (e.g., non-invasive optical biosensors) in industry or academia.

Pet. 16 (citing Ex. 1003, ¶ 36). Petitioner further asserts that "[t]his description is approximate; varying combinations of education and practical experience also would be sufficient." *Id.* (citing Ex. 1003, ¶ 36). Patent Owner does not contest or discuss this description in the Preliminary Response.

For purposes of this Decision, we adopt Petitioner's provided definition for the level of skill of a person of ordinary skill in the art as reasonable and consistent with the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art may reflect an appropriate level of skill in the art).

B. Principles of Law

A claim is unpatentable as obvious if "the differences between" the claimed subject matter "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 said subject matter pertains." 35 U.S.C. § 103(a) (2012). 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 skill in the art; and (4) objective evidence of nonobviousness[1]. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966).

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[1] Petitioner contends that no secondary considerations regarding nonobviousness exist. Pet. 75. Patent Owner does not discuss or dispute this contention.

Even if prior art references disclose all claim limitations when combined, there must be evidence to explain why a person of ordinary skill in the art would have combined the references to arrive at the claimed invention. *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1366–67 (Fed. Cir. 2012) (citing *Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1374 (Fed. Cir. 2008) (holding that "some kind of motivation must be shown from some source, so that the [trier of fact] can understand why a person of ordinary skill would have thought of either combining two or more references or modifying one to achieve the patented [invention]")). An invention "composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Rather, "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *Id.*

An obviousness determination "cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.* (*quoting In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); *see In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

We apply the same claim construction standard that is applied in civil actions under 35 U.S.C. § 282(b), which is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51340 (Oct. 11, 2018)

(applicable to *inter partes* reviews filed on or after November 13, 2018). Under *Phillips*, claim terms are afforded "their ordinary and customary meaning." *Phillips*, 415 F.3d at 1312 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996)). "[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. . . ." *Id.* at 1313. "Claim construction begins with the words of the claim, which 'must be read in view of the specification, of which they are a part.'" *Wi-Lan, Inc. v. Apple, Inc.*, 811 F.3d 455, 462 (Fed. Cir. 2016) (quoting *Phillips*, 415 F.3d at 1312–15).

C. Claim Construction

Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). Petitioner and Patent Owner discuss possible claim constructions for the terms "beam" (Pet. 18; PO Prelim. Resp. 10–11); "optical beam" (PO Prelim. Resp. 10–11); "one or more lenses" (Pet. 19; PO Prelim. Resp. 11–13); and "modulating at least one of the LEDs" (Pet. 19–20; PO Prelim. Resp. 13–14).

With respect to the term "modulating at least one of the LEDs," Petitioner and Patent Owner both propose that we use the construction adopted by the District Court in the Eastern District of Texas, namely "varying the amplitude, frequency, or phase of the light produced by at least one of the LEDs to include information." Pet. 19–20; PO Prelim Resp. 13–14. In analyzing this term, the District Court found "modulation includes information about the source of the light" because the Specification discloses "[t]he 'optical light' and or 'optical beam' and or 'light beam' may

be modulated or unmodulated, which also means that they may or may not contain information." Ex. 2007, 15 (quoting Ex 1001, 8:27–29). Thus, according to the District Court, "under the customary meaning of 'modulating,' pulsing may add information by turning the light on and off." *Id*. at 16. We accept this construction as proposed by both parties, because the construction is consistent with the Specification and, as explained by the District Court, includes pulsing a light source to turn it on and off.

We determine at this time that no other terms require construction in order to complete our analysis.

D. Overview of the Prior Art

1. Park

Park describes a portable biometric monitoring device, worn by a user, which collects physiological or environmental data. Ex. 1010, code (57), 1:34–43. The device includes sensors which can detect physiological metrics such as the user's heart rate. *Id*. at 1:40–43.

Figure 3 of Park, reproduced below, is a portable biometric monitoring device which may be secured to the user through the use of a band. *Id*. at 2:26–28, 2:37–39.

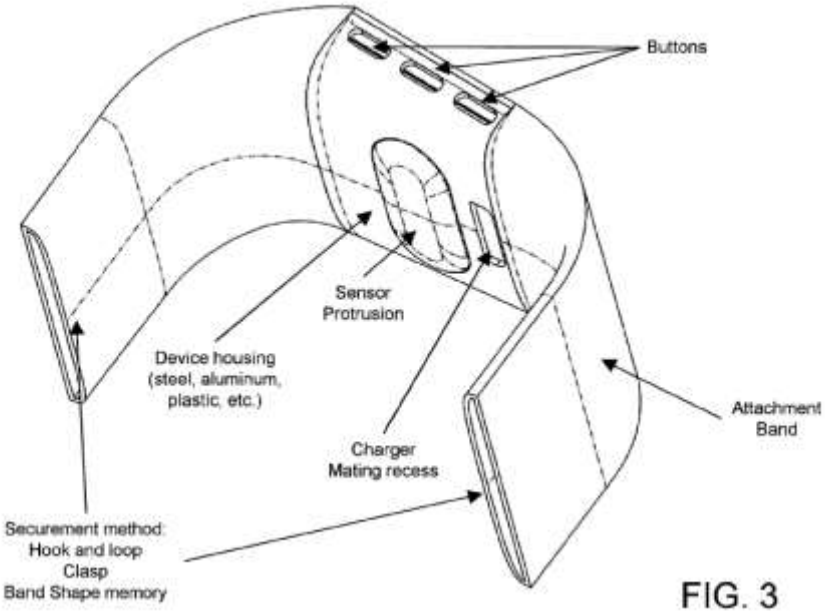

Figure 3 shows a device including an attachment band with securement method, and a sensor protrusion that "more firmly maintain[s] the sensor in contact with the skin of the user." *Id.* at 2:39–44. Sensors may include a light source including one or more light sources (e.g., LEDs) to emit light into the user's body, and light detectors to "sample, measure and/or detect" a physiological condition and provide data regarding that condition. *Id.* at 6:42–55; 11:17–31.

Figure 10 of Park, reproduced below with annotations, illustrates an exemplary photoplethysmography (PPG) detector. *Id.* at 3:28–45.

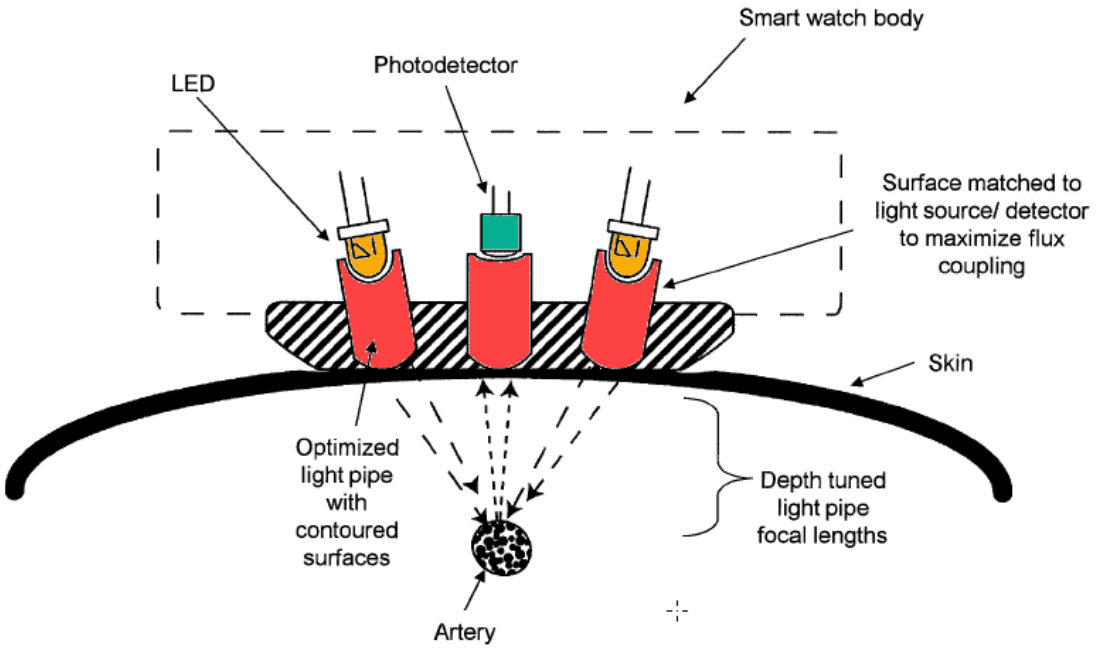

FIG. 10

As shown in Figure 10, light pipes (shown in red) connect the LEDs (shown in orange) and the photodetector (shown in green) to the user's skin. *Id.* at 3:33–45. Light is directed by the light pipes from the light source to the skin of the user, and then reflected light (e.g. from the artery shown in Figure 10) is detected by the photodetector. *Id.* at 11:32–39. Additionally, material on the side of the device facing the skin may have "a high reflectivity characteristic" in order to reflect light off the skin side of the device back into the skin and improve the signal-to-noise ratio of the physiological data. *Id.* at 15:49–16:7.

Park also discloses that sensors may be disposed on sides of the device, rather than a surface facing the user's skin, and that these sensors are exposed to the ambient environment. *Id.* at 10:22–33. Such sensors may obtain data related to the ambient light conditions of the environment. *Id.* Monitoring of a user's heart rate or related metrics may also be provided by external-side sensors when a user touches optical windows. *Id.* at 13:27–37. This monitoring may be triggered by (a) the detection of a drop in light on the photodiode of the side sensor (indicating a user's finger being placed over the optical window); (b) a proximity detector such as an IR-based or capacitive touch detector; and (c) the actuation of a button. *Id.* at 13:37–64.

Park describes that "[t]he intensity of the light source may be modified . . . to maintain a desirable scattered/reflected intensity signal." *Id.* at 16:12–15. Thus, the light source intensity may be decreased to prevent "saturation of the output signal from the light detector." *Id.* at 16:15–18. The light source intensity may also be increased "to maintain the output signal from the light detector within a desired range of output values." *Id.* at 16:18–20.

Park relates that "if the ambient light is of sufficient brightness to obtain a heart rate signal, the light source may be reduced in brightness and/or turned off completely." *Id.* at 17:39–41. However, Park also teaches that where little or no optical shielding from ambient light exists, the device may operate "by amplitude modulating the intensity of the light source and demodulating the output of the light detector." *Id.* at 17:34–38.

2. Lisogurski

Lisogurski discloses an "optical physiological monitoring system" including a light source and photosensitive detector. Ex. 1011, 1:10–11,

3:44–48. The light sensor may be placed on the fingertip, toe, forehead, earlobe, or foot of a patient. *Id.* at 4:6–8. A lights source "pass[es] light through blood perfused tissue" and the light sensor is used to determine "the absorption of the light in the tissue." *Id.* at 4:8–10.

Lisogurski teaches the use of LED lights in a light source and that "[t]he system may vary parameters related to the light drive signal including drive current or light brightness, duty cycle, firing rate, . . . [and] other suitable parameters." *Id.* at 10:52–55, 25:52–55, 27:44–52.

Figure 3 of Lisogurski, reproduced below, is a perspective view of a physiological monitoring system. *Id.* at 2:23–25.

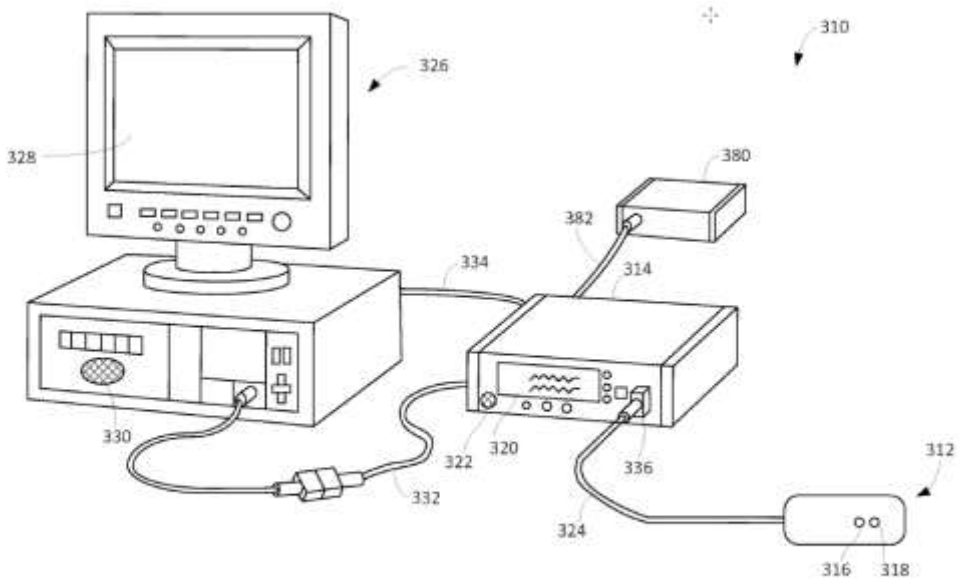

FIG. 3

As shown in Figure 3, monitoring unit 310 includes sensor unit 312, which incorporates light source 316 and detector 318. *Id.* at 17:37–45. While one light source 316 and detector 318 is shown, multiple light sources or detectors may be included in sensor unit 312. *Id.* at 17:36–37, 17:43–45.

Sensor unit 312 is communicatively coupled to monitor 314, and monitor 314 may include a sensor interface to receive physiological signals from sensor unit 312 and provide signals and power to unit 312. *Id.* at 18:16–31. This communicative coupling may be via cable 324 or via a wireless connection. *Id.* at 17:57–59, 18:16–28.

Multi-parameter physiological monitor 326 is provided to provide a display 328 for information from monitor 314 and other medical monitoring devices. *Id.* at 18:44–57. Monitor 314 or multi-parameter physiological monitor 326 may also share information with other servers or workstations. *Id.* at 18:62–65.

Lisogurski additionally teaches removing ambient and background signals by subtracting a signal detected during periods in which light sources are off from signal values when these light sources are on. *Id.* at 6:7–19, 13:60–14:10, 16:46–54.

3. Hanna

Hanna discloses a pulse oximeter that can be worn on a user's earlobe, finger, or nasal septum to measure oxygen saturation or other properties of blood. Ex. 1007, code (57), 1:33–39, 4:29–43. Hanna's oximeter includes multiple light sources, which may be LEDs, and one or more detectors, which detect the reflected light. *Id.* at 4:36–40, 4:66–5:1.

Hanna discloses that the signals from the light sources or emitters "are modulated using different code sequences." *Id.* at 4:43–51, 6:12–23. This allows the determination of "the contribution of each source" to the detected light. *Id.* at 6:19–23.

4. Mannheimer

Mannheimer discloses a pulse oximetry device that "non-invasively measure[s] oxygen saturation of arterial blood in vivo." Ex. 1008, 1:10–13. Mannheimer's device performs a "pulsed oximetry measurement [that] isolates arterial saturation levels for particular ranges of tissue layers . . . by utilizing multiple spaced detectors and/or emitters." *Id*. at 2:1–6. Figure 1A of Mannheimer is reproduced below.

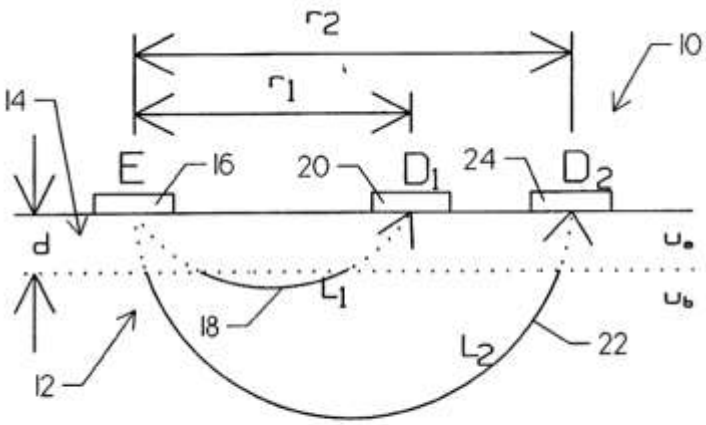

FIG. 1 A

Figure 1A of Mannheimer is a schematic diagram of a first embodiment of a pulse oximeter having one emitter 16 (E) and two detectors 20 and 24 (D_1 and D_2). *Id*. at 2:40–42. Emitter 16 can be a single LED or multiple LEDs collocated to simulate a single point source. *Id*. at 3:13–18. Emitter 16 is separated from detector 20 by a first distance r_1, and is separated from detector 24 by a second distance r_2. *Id*. at 3:23–24. Light from emitter 16 is scattered by skin layer 14 and deeper skin layer 12, and reaches detectors 20/24 via respective paths 18/22. *Id*. at 3:18–20. Mannheimer calculates the blood oxygen concentration in skin layer 12 from the intensity of light

detected at detectors 20/24 at two different times and two different wavelengths. *Id*. at 3:35–4:63.

In addition to the embodiment shown in Figure 1A, Mannheimer discloses a second embodiment of a pulse oximeter in Figure 1B, reproduced below.

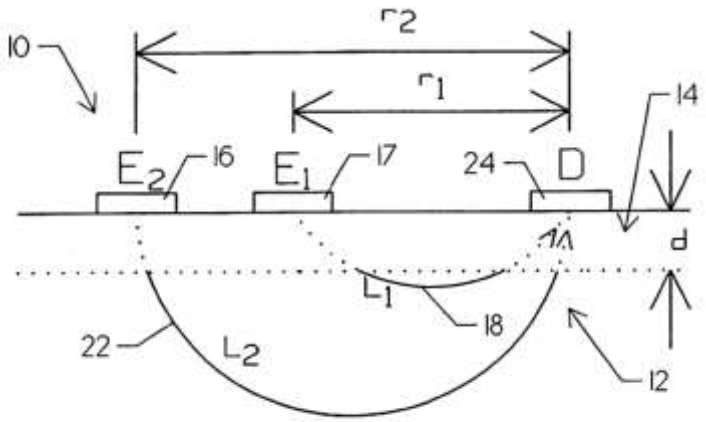

FIG. 1 B

Figure 1B of Mannheimer is a schematic diagram of a second embodiment of a pulse oximeter having two emitters 16/17 and one detector 24. *Id*. at 2:43–44, 3:37–39. As shown in Figure 1B, emitter 17 is separated from detector 24 by a first distance r_1, and emitter 16 is separated from detector 24 by a second distance r_2. Mannheimer discloses that "[t]hose of skill in the art will appreciate that the operation" of the second embodiment shown in Figure 1B "is similar to that described above" in reference to the first embodiment shown in Figure 1A. *Id*. at 5:58–62.

E. Alleged Unpatentability of Claim 1 over Park and Lisogurski

Petitioner argues that claim 1 is unpatentable as obvious over a combination of Park and Lisogurski. Pet. 27–58. Petitioner also argues that one of ordinary skill in the art would have had motivation to combine these

references, and a reasonable expectation of success in the combination. *Id.* at 24–26.

1. Combination of Park and Lisogurski

Petitioner argues that Park recognizes that a wearable wireless device with an optical sensor faced problems including "acquiring accurate data in the presence of noise caused by user motion" and minimizing power consumption, and that Park teaches techniques for addressing these challenges. Pet. 24–25 (citing *inter alia* Ex. 1010 4:4–16, 14:20–27, 14:58–65; Ex. 1003 ¶¶ 83–85, 88). Dr. Anthony testifies that, in light of these teachings, one of ordinary skill in the art would be motivated to look for other techniques to address these problems, and that the similar system of Lisogurski, in which techniques to optimize power consumption and address noise, motion, and ambient light were provided. Pet. 25–26 (citing Ex. 1011 1:4–6, 3:50–53, 4:63–67, 9:57–59); Ex. 1003 ¶¶ 88–89.

Patent Owner argues that, with respect to Petitioner's arguments relating to limitations [g] and [h], Petitioner's proposed combination would conflict with the intended operation of Park and would not have been obvious to one of ordinary skill in the art. PO Prelim. Resp. 22–29. We address these arguments *infra* at Section III.E.8.

2. Claim 1 –limitation [a] - "A wearable device for use with a smart phone or tablet"

Petitioner asserts Park teaches a wearable wristband including biometric monitoring which is equipped with Bluetooth in order to communicate with external devices, such as a smart phone or tablet. Pet. 27 (citing Ex. 1010 9:8-13 (describing communication with a "personal

computer, mobile phone, tablet"); Ex. 1003, ¶¶ 93–94). Patent Owner does not present any arguments regarding this limitation.

On the present record and for the purposes of institution, Petitioner has shown sufficiently that Park teaches this limitation.

3. Claim 1 –limitation [b] - "a measurement device including a light source comprising a plurality of light emitting diodes (LEDs) for measuring one or more physiological parameters"

Petitioner asserts that Park's biometric monitoring device includes a plurality of LEDs acting as a light source for measuring physiological parameters (oxygen saturation), thus teaching limitation [b] of claim 1. Pet. 28–29 (citing Ex. 1010 10:50–11:16, Fig. 10). Patent Owner does not present any arguments regarding this limitation.

On the present record and for the purposes of institution, Petitioner has shown sufficiently that Park teaches this limitation.

4. Claim 1 –limitation [c] - "the measurement device configured to generate, by modulating at least one of the LEDs having an initial light intensity, an input optical beam"

Petitioner argues that limitation [c] is taught by amplitude modulation in Park, or, alternatively, in Lisogurski's teachings regarding frequency modulation of the light sources.

Petitioner's arguments relating to amplitude modulation in Park are relevant to the question of whether Park teaches "modulating at least one of the LEDs" by teaching "varying the amplitude . . . of the light produced by at least one of the LEDs to include information." Petitioner argues that Park teaches varying amplitude in its discussion of varying the intensity of the light source, including using amplitude modulation to provide synchronous

detection by the light detector. Pet. 29–30 (citing Ex. 1010 17:26–41; Ex. 1003 ¶¶ 101, 103). Petitioner further contends that one of ordinary skill would have considered it obvious to include information in a beam of light that is modulated. *Id*. at 31–32 (citing Ex. 1003 ¶ 106). For example, Petitioner contends that it would have been obvious to modulate the beam of light. *Id*. at 33 (citing Ex. 1007, 2:26–29; Ex. 1003 ¶¶ 107–108).

Alternatively, Petitioner argues that Lisogurski teaches changing the frequency (firing rate) of the LEDs in Lisogurski's light source. Pet. 29–30 (citing Ex. 1011 7:38–40, 33:47–49; Ex. 1003 ¶ 102). Petitioner contends that one of ordinary skill would have modified the Park device to use Lisogurski's frequency modulation to enable synchronous detection by the detector. *Id*. at 30 (citing Ex. 1003 ¶ 103). Petitioner argues that Park and Lisogurski both teach synchronous detection. *Id*. Petitioner cites Lisogurski's teachings relating to the correlation of sampling rate with light source modulation, and argues that one of ordinary skill would have been motivated to modify the Park device to use the Lisogurski modulation for synchronous detection as a known and predictable alternative. *Id*. at 30–31 (citing Ex. 1011 33:47–49, 35:17–19; Ex. 1003 ¶ 102).

Patent Owner does not present any arguments regarding the teachings of the prior art references with respect to this limitation, or relating to the combination of Park and Lisogurski with respect to this limitation.

On the present record and for the purposes of institution, Petitioner has shown sufficiently that Park, and in the alternative, the combination of Park and Lisogurski, teaches this limitation.

5. *Claim 1 –limitation [d] - "the input optical beam" "having one or more optical wavelengths, wherein at least a portion of the one or more optical wavelengths is a near-infrared wavelength between 700 nanometers and 2500 nanometers"*

With respect to claim limitation [d], Petitioner asserts that Park describes including an LED with wavelengths in the red spectrum and an LED in the infrared spectrum, and that one of ordinary skill "would have understood that the infrared spectrum encompasses wavelengths from 700 nanometers to 1000 millimeters" and that Park, therefore, discloses wavelengths within the claimed range. *Id*. at 35–36 (citing Ex. 1010 10:65–11:1; Ex. 1003 ¶ 115). Additionally, Petitioner asserts that a skilled person would know to select a specific wavelength based on the desired application, and that because it was well-known that near-infrared light was suitable for collecting data regarding blood constituents, one of ordinary skill would have been motivated to select a near-infrared wavelength. *Id*. at 36–37 (citing Ex. 1010 10:50–53; Ex. 1003 ¶ 117). Patent Owner does not present any arguments regarding this limitation.

On the present record and for the purposes of institution, Petitioner has shown sufficiently that Park teaches this limitation.

6. *Claim 1 –limitation [e] - "the measurement device comprising one or more lenses configured to receive and to deliver a portion of the input optical beam to tissue, wherein the tissue reflects at least a portion of the input optical beam delivered to the tissue"*

Petitioner asserts that Park's light pipes for directing light from LEDs to a user's skin teach or suggest limitation [e]. Pet. 38–39. Petitioner argues that Park's lenses focus light from Park's light sources towards an artery in the user's skin. *Id*. (citing Ex. 1010 11:29–37, 11:39–42, Fig. 10; Ex. 1003

¶¶ 121–122). The light in Park is then reflected from the user tissue to which it has been delivered (e.g., in Fig. 10, the artery) and then detected by the photodetector. *Id.* at 39–40 (citing Ex. 1003 ¶¶ 123–124). Patent Owner does not present any arguments regarding this limitation.

On the present record and for the purposes of institution, Petitioner has shown sufficiently that Park teaches this limitation.

7. Claim 1 –limitation [f] - "the measurement device further comprising a reflective surface configured to receive and redirect at least a portion of light reflected from the tissue"

Petitioner asserts that Park teaches the reflective surface in the disclosure of the light pipe being comprised of a material "reflective to a specific wavelength range so as to more efficiently transport light" from the tissue to the photodetector. Pet. 40–41 (quoting Ex. 1010, 11:58–12:8). This discussion does not describe which part of the light pipe Petitioner asserts is the "reflective surface" of limitation [f].

Additionally, Petitioner notes that Park teaches that its wearable device "may include a material disposed on the skin or interior side" which includes a "high reflectivity characteristic" in order to improve the signal-to-noise ratio by redirecting light reflected from the tissue. Ex. 1010, 15:49–57 (cited at Pet. 40–41). Petitioner argues that this is a teaching of a reflective surface corresponding to limitation [f].

Patent Owner does not present any arguments regarding this limitation. On the present record and for the purposes of institution, Petitioner has shown sufficiently that Park teaches this limitation.

8. *Claim 1 –limitations [g] and [h] - "the measurement device further comprising a receiver configured to: capture light while the LEDs are off and convert the captured light into a first signal and capture light while at least one of the LEDs is on and convert the captured light into a second signal, the captured light including at least a portion of the input optical beam reflected from the tissue; the measurement device configured to improve a signal-to-noise ratio of the input optical beam reflected from the tissue by differencing the first signal and the second signal"*

Petitioner asserts that Park teaches the receiver of limitation [g] in its photodetector that acquires scattered light from the tissue of the user. Pet. 41–42 (citing Ex. 1010, 10:34–39, 6:42–55; Ex. 1003 ¶ 129). Additionally, Petitioner cites Park's teachings regarding the capability of the Park device to turn the LED light sources on and off. *Id.* at 42 (citing Ex. 1010, 4:37–40, 17:26–41; Ex. 1003 ¶ 130). Petitioner argues that the detector of Park can provide measurements based on captured light even when Park's light source is turned off, for example to obtain data regarding ambient light, in addition to providing measurements based on reflected light when the light source is on. *Id.* at 43–44 (citing Ex. 1010, 10:32–33; 17:38–41; Ex. 1003 ¶¶ 130–131).

Petitioner asserts that Lisogurski also teaches the receiver of limitation [g], because Lisogurski describes "dark subtraction" in which ambient light and background signals are removed from a signal by using measurements from periods in which Lisogurski's light sources are off and subtracting this "ambient contribution" from the signals received at the detector when the light sources are on. Pet. 44–48 (citing, *inter alia*, Ex. 1011, 6:12–15, 11:12–20, 13:60–14:10, 17:40–42, Ex. 1003 ¶¶ 132-137).

Petitioner contends that the "dark subtractor" of Lisogurski teaches the "differencing" of the first signal (converted from light captured while the light source LEDs are off) and the second signal (converted from light captured while at least one light source LED is on) as in limitation [h]. *Id.* at 49–50 (citing, *inter alia*, Ex. 1011, 13:60–14:10, 16:51–54; Ex. 1003 ¶¶ 141–142). Petitioner argues that one of ordinary skill in the art would have understood this to improve signal-to-noise ratio in the signal.

Petitioner, citing Dr. Anthony's declaration, argues that a skilled person would have been motivated to implement functionality of Lisogurski's dark subtractor in Park in order to improve the quality of a detected signal in the Park device, and that doing so would have predictably yielded the desired result. *Id.* at 48, 50 (citing Ex. 1003 ¶¶ 138, 139, 144).

Patent Owner argues that Park does not teach "light detectors configured to capture light both when the light sources are on and again when they are off to improve the signal-to-noise ratio of an input optical beam reflected from the tissue." PO Prelim. Resp. 20. Patent Owner argues that Park merely discloses that optical sensors may capture ambient light, and that Park's disclosure regarding the capture of ambient light is not relevant because it does not describe data related to "at least a portion of the input optical beam reflected from the tissue." *Id.* at 20–21. However, the claim limitation requires that the receiver is configured to "capture light while the LEDs are off and convert the captured light into a first signal" and to "capture light while at least one of the LEDs is on and convert the captured light into a second signal, the captured light including at least a portion of the input optical beam reflected from the tissue." Ex. 1001,

24:30–37. The captured light which includes at least a portion of the input optical beam is that light captured while at least one of the LEDs is on.

To the extent Patent Owner's argument is that "the captured light including at least a portion of the input optical beam reflected from the tissue" must relate to both the captured light converted into the first signal and the captured light converted into the second signal, this argument is not persuasive. According to claim 1, the input optical beam is generated by modulating the LEDs. *Id.* at 24:13–18. This is consistent with the disclosure of the '040 patent. *See id.* at 21:10–16. Patent Owner does not provide an explanation of how light captured when the LEDs are off, which is converted into the first signal, includes at least a portion of the input optical beam.

Patent Owner also disputes Petitioner's contention that one of ordinary skill in the art would have combined the dark subtraction of Lisogurski with Park's device. Patent Owner argues that Park discloses using ambient light in the measuring process, including reducing or turning off a light source if ambient light is sufficient to obtain the required measurement. PO Prelim. Resp. 23–24 (citing Ex. 1010 17:38–44). Patent Owner notes that Park discloses one embodiment using optical sensors on the side of the device where they are exposed to ambient light. *Id.* at 24–25 (quoting Ex. 1010, 10:22–33). Thus, Patent Owner argues, one of ordinary skill would not combine the differencing of Lisogurski with Park, so as not to "remove the very same ambient light the Park device[] uses to its benefit." *Id.* at 25–26. Patent Owner argues that Park's small biometric monitoring device would require power savings, which could be achieved by using ambient light in readings, while Lisogurski's clinical device does not face

the same power consumption issues as in Park. *Id.* at 25–27 (citing *inter alia*, Ex. 1010 25:59–65, 26:10–12; Ex. 1010, 3:43–44). Thus, Patent Owner concludes, an ordinary practitioner would not have had a reason to combine the teaching of the devices, as they are different and non-analogous. *Id.* at 28.

However, while the entire system of Lisogurski is not a small biometric monitoring device, as Petitioner points out, Lisogurski's sensor is a wearable sensor that can be wirelessly connected to the rest of Lisogurski's system, and describes optimizing power consumption for increased battery life and portability of this wirelessly connected sensor. Pet. 26 (citing Ex. 1011, 1:16–18, 4:15–20, 17:51–58). Additionally, while Park's device may utilize ambient light in certain of its sensors and in some embodiments, other sensors in other embodiments are disclosed as being disposed on an interior or skin side of the device, and "stray" light is described as an issue even with such sensors. Ex. 1010, 10:17–26, 12:40–44. Moreover, even in its embodiments that expose sensors to the ambient environment, Park discloses "the data from such optical sensors may be representative of physiological data and/*or* environmental data." *Id.* at 10:26–28, Fig. 13 (emphasis added). For example, Park discloses that when "the optical heart rate monitor is disposed or located on one or more external or environmental side surfaces," the user may nonetheless obtain a heart rate measurement by "touch[ing] an optical window (behind which optical elements of the optical heart rate monitor are located) with a finger on the opposing hand." *Id.* at 13:27–33, Fig. 13. Finally, Lisogurski discloses the use of "dark subtraction" for the removal not just of ambient light, but also of background signals. Pet. 44 (quoting Ex. 1011, 6:7–10).

On the present record and for the purposes of institution, Petitioner has shown sufficiently that Park teaches limitation [g], and that one of ordinary skill in the art would have combined Park and Lisogurski as proposed by the Petitioner, and that the combination of Park and Lisogurski teaches limitations [g] and [h].

9. *Claim 1 –limitation [i] - "the light source configured to further improve the signal-to-noise ratio of the input optical beam reflected from the tissue by increasing the light intensity relative to the initial light intensity from at least one of the LEDs"*

Petitioner asserts that Park teaches a light source with a light intensity control, in which the light source intensity may be increased in order to maintain the output signal within a desired range of values. Pet. 50–51 (citing Ex. 1010 9:50–10:2, 16:8–20). Petitioner argues that one of ordinary skill would have understood Park to disclose increasing the intensity to further improve signal-to-noise ratio of the reflected light. Pet. 51 (citing Ex. 1003 ¶ 148). Petitioner additionally asserts that it would have been obvious from Lisogurski's teaching that "[t]he system may increase the brightness of light sources in response to . . . noise [in order] to improve the signal-to-noise ratio." *Id.* at 51 (emphasis omitted) (quoting Ex. 1010 9:46–52; additionally citing 37:6–22, 6:3–6); Ex. 1003 ¶¶ 149–150).

Patent Owner does not present any arguments regarding this limitation. On the present record and for the purposes of institution, Petitioner has shown sufficiently that Park, and in the alternative, the combination of Park and Lisogurski, teaches this limitation.

10. Claim 1 –limitation [j] - "the measurement device further configured to generate an output signal representing at least in part a non-invasive measurement on blood contained within the tissue"

Petitioner argues that Park teaches the generation of an output signal representing a non-invasive measurement on blood by determining a physiological parameter of a user, such as blood oxygen saturation. Pet. 52–53 (citing Ex. 1010, 10:34–49, 10:52–56, 10:60–11:3; Ex. 1003 ¶¶ 153–154). Patent Owner does not present any arguments regarding this limitation.

On the present record and for the purposes of institution, Petitioner has shown sufficiently that Park teaches this limitation.

11. Claim 1 –limitation [k] - "the wearable device configured to communicate with the smart phone or tablet, the smart phone or tablet comprising a wireless receiver, a wireless transmitter, a display, a voice input module, a speaker, and a touch screen, the smart phone or tablet configured to receive and to process at least a portion of the output signal, wherein the smart phone or tablet is configured to store and display the processed output signal, wherein at least a portion of the processed output signal is configured to be transmitted over a wireless transmission link"

Petitioner argues that Park's device includes a wireless transceiver for communicating with an external device, such as a smart phone or tablet, including using Bluetooth. Pet. 53–54 (citing *inter alia* Ex. 1010 2:19–25, 8:60–64, 9:8–13, 22:32–47; Ex. 1003 ¶ 157). Petitioner argues that Park teaches an external device with a display, speaker, and touch screen. *Id.* at 55 (citing Ex. 1010 9:17, 9:36–37, 9:38). Petitioner further contends that communication via Bluetooth would have entailed a wireless transmitter and receiver, and that it was well known that such an external device would have

included a wireless receiver, a wireless transmitter, a display, a voice input module such as a microphone, a speaker, and a touch screen. Ex. 1003 ¶¶ 160–161; Pet 54–55.

Petitioner further argues that Park teaches that an output signal from a wearable device can be stored and processed by an external device to determine a physiological parameter (e.g., blood oxygen saturation), and that the external device can provide feedback relating to the physiological parameter to the user. Pet. 56–57 (citing Ex. 1010 9:13–15, 9:17–29, 23:22–25, 23:43–45, 27:38–43).

Lastly with respect to limitation [k], Petitioner argues that Park teaches that the external device can forward data to an external service or server, and that Park teaches transmissions over a wireless transmission link, such as Bluetooth or cellular. Pet. 58 (citing Ex. 1010 9:2–8).

Patent Owner does not present any arguments regarding this limitation. On the present record and for the purposes of institution, Petitioner has shown sufficiently that Park teaches this limitation.

12. Claim 1 – conclusion

For the reasons discussed above, and notwithstanding Patent Owner's arguments to the contrary, at this stage of the proceeding Petitioner demonstrates a reasonable likelihood of showing claim 1 is unpatentable over the combination of Park and Lisogurski.

F. Alleged Unpatentability of Claims 2 and 3 over Park and Lisogurski

Petitioner argues that claims 2 and 3 are also unpatentable as obvious over a combination of Park and Lisogurski. Pet. 58–65.

1. Claim 2

Petitioner argues that the additional limitations of claim 2, that the receiver be configured to be synchronized to the modulation of at least one of the LEDs, is taught in Park's teaching of "amplitude modulating the intensity of the light source and demodulating the output of the light detector" which Park terms "synchronous detection." Pet. 58 (citing Ex. 1010, 17:33–38; Ex. 1003 ¶ 173.

Patent Owner does not present any additional arguments with respect to claim 2. On the present record and for the purposes of institution, Petitioner demonstrates a reasonable likelihood of showing claim 2 is unpatentable over the combination of Park and Lisogurski.

2. Claim 3

Petitioner argues that Claim 3's remote device is taught or suggested by Park's disclosures regarding a remote device hosting an external service and communicating with Park's wireless device over a wireless transmission link, processing received data, storing historical data, and transmitting processed data to other locations. Pet. 59–65 (citing *inter alia* Ex. 1010 9:2–4, 9:2–15, 9:17–22, 23:22–25, 27:1–7, 27:13–55, 32:34–40; Ex. 1003 ¶¶ 176–180, 182–185).

Patent Owner does not present any additional arguments with respect to claim 3. On the present record and for the purposes of institution, Petitioner demonstrates a reasonable likelihood of showing claim 3 is unpatentable over the combination of Park and Lisogurski.

G. Alleged Unpatentability of Claims 1–3 over Park, Lisogurski, and Hanna

Petitioner argues that Hanna provides an additional teaching relating to the modulation of one or more LEDs to include information. Hanna describes a sensor with multiple emitters, wherein the signals from each emitter are modulated using a different code sequence, thereby allowing the contribution of each source (emitter) to the detector output to be determined. Pet. 66 (citing Ex. 1007 4:34–51, 6:13–8:33). Petitioner cites Dr. Anthony's declaration to support its statement that one of ordinary skill in the art would have incorporated Hanna's modulated coding techniques into the Park sensor in order to improve the performance of the Park device. *Id.* at 67 (citing Ex. 100, ¶¶ 190–195).

Patent Owner does not present any additional arguments with respect to Hanna or to the combination of Park, Lisogurski, and Hanna. On the present record and for the purposes of institution, Petitioner demonstrates a reasonable likelihood of showing claims 1–3 are unpatentable over the combination of Park, Lisogurski, and Hanna.

H. Alleged Unpatentability of Claim 4 over Park and Lisogurski, with or without Hanna, and Mannheimer

Claim 4 adds to the wearable device of claim 1 the limitation that "the receiver is located a first distance from a first one of the LEDs and a different distance from a second one of the LEDs such that the receiver can capture a third signal from the first LED and a fourth signal from the second LED, and wherein the output signal is generated in part by comparing the third and fourth signals."

Petitioner argues that Mannheimer teaches this limitation in its embodiment pictured in Figure 1B, in which two emitters are spaced at

different distances from a detector. Pet. 71–72 (citing Ex. 1008 Fig. 1B, 3:18–35). Petitioner argues that Mannheimer's two signals (I_1 and I_2) correspond to the claimed third and fourth signals, and that each of Mannheimer's two signals corresponds to light emitted by a different emitter. *Id.* at 72 (citing Ex. 1008 3:35–54, 4:15–20). With respect to the generation of an output signal, Petitioner argues that Mannheimer teaches calculating a ratio based on I_1 and I_2 to calculate "a result related only to the arterial blood saturation" of deeper tissue. *Id.* at 72–73 (citing Ex. 1008 3:55–5:9, 5:23–57; Ex. 1003 ¶ 201).

Petitioner cites Dr. Anthony's declaration and contends that one of ordinary skill would have found it obvious, with predictable results, to space the emitters in the Park sensor in the manner disclosed by Mannheimer in order to obtain the benefits from this arrangement, namely, to detect a signal of interest from a deeper tissue layer by removing the effects of light reflected by a surface layer of skin. *Id.* at 73–74 (citing Ex. 1008 3:25–35, 5:1–5; Ex. 1003 ¶¶ 202–204).

Patent Owner does not present any additional arguments with respect to Mannheimer or to the combination of Park, Lisogurski, and Mannheimer, with or without Hanna. On the present record and for the purposes of institution, Petitioner demonstrates a reasonable likelihood of showing claim 4 is unpatentable over the combination of Park, Lisogurski, and Mannheimer, with or without Hanna.

I. Discretionary Denial

The Director has discretion to institute *inter partes* review, and has delegated that discretion to the Board. *See* 35 U.S.C. § 314(a); *see also* 37 C.F.R. §42.4(a). When considering whether to institute *inter partes* review

under § 314(a), the Board's discretion is informed by 35 U.S.C. § 316(b), which requires consideration of the effect on the economy, the integrity of the patent system, the efficient administration of the Office, and the ability to timely complete proceedings. *See Trial Practice Guide Update*, 84 Fed. Reg. 33925, 23 (July 16, 2019).[2] Thus, the Board considers and weighs several factors in determining whether to exercise its discretion to deny institution, including whether a petitioner has filed two or more petitions against the same patent at or about the same time, and whether the petitioner has challenged the same patent in a related district court proceeding and the state of that proceeding. *See id.* at 25 n.2, 26*; see also NHK Spring Co., Ltd. v. Intri-Plex Techs., Inc.*, IPR2018-00752 (PTAB Sept. 12, 2018) (Paper 8) (precedential) ("*NHK*").

Patent Owner argues we should deny institution under § 314(a) because the District Court in the related district court proceeding "will resolve [Petitioner's] validity arguments before any IPR trial concludes," and because "the Petition contains significant overlap with Petitioner's parallel petition in IPR2019-00910." Prelim. Resp. 4. We address each of these arguments below.

1. Related District Court Proceeding

Patent Owner filed a complaint alleging infringement of the '040 patent in the District Court for the Eastern District of Texas, and served Petitioner with the complaint on April 10, 2018. Ex. 1004, 2. The District Court issued a Scheduling Order on June 19, 2018, scheduling a dispositive

[2] Available at https://www.uspto.gov/TrialPracticeGuide3

motion deadline of July 9, 2019 and commencement of a jury trial on February 18, 2020. Ex. 2002, 1–2.

This Petition was filed on April 10, 2019, within the one-year time period permitted by statute. *See* 35 U.S.C. § 315(b). If the Petition is granted by the statutory deadline of October 18, 2019, a Final Written Decision will be due by October 18, 2020. *See id*. §§ 314(b), 316(a)(11). Patent Owner served Petitioner with an Amended Final Election of Asserted Claims on May 7, 2019, asserting infringement of claims 1–4. Ex. 2011, 1, 3. Petitioner served Patent Owner with a Final Election of Asserted Prior Art on May 22, 2019, alleging the asserted claims are invalid over, *inter alia*, Park, Lisogurski, and Mannheimer, in combination with a fourth reference and a second combination including Mannheimer and Hanna. Ex. 2001, 2, 6.

Patent Owner argues we should exercise our discretion to deny the Petition because the Board "has found 'that the advanced state of [a]district court proceeding is an additional factor that weights in favor of denying the Petition under § 314(a),'" and "the facts here are similar to those in *NHK*." Prelim. Resp. 4 (citing *NHK* at 20). Patent Owner argues Petitioner is challenging the validity of claims 1–4 of the '040 patent as obvious over combinations including the same references here and in the District Court, and the District Court will determine the validity of the '040 patent using the same claim construction standard over the same prior art in February 2020, approximately eight months before we would issue a Final Written Decision in October 2020. *Id*. at 4–6 (citing *NHK* at 20).

Given these facts, we authorized Petitioner to file a Reply to Patent Owner's Preliminary Response, and Patent Owner to file a Sur-Reply, both

limited to discussing the facts and factors the Board should consider when deciding whether to exercise our discretion to deny institution under § 314(a). *See* Paper 10. Petitioner filed a Reply (Paper 11, "Pet. Reply"), and Patent Owner filed a Sur-Reply (Paper 13, "PO Sur-Reply").

In its Reply, Petitioner argues that Patent Owner's request to deny institution under § 314(a) "is now moot because there will not be a trial in the Eastern District of Texas in February 2020." Pet. Reply 1. Petitioner informs us that "the Eastern District of Texas [has] granted [Petitioner's] motion to transfer the district court case to the Northern District of California," and that as a result, "all pending deadlines in the Texas action were suspended and the February 2020 trial date was vacated." *Id.* (citing Ex. 1058). Petitioner informs us that it did not file any "dispositive motions involv[ing] invalidity based on prior art" in the district court proceeding. *Id.* at 7. Petitioner also argues that because its "challenges in the district court action include . . . the prior art used in the grounds of the Petition," we should institute this proceeding on the merits because doing so "would simplify and narrow the dispute in district court." *Id.* at 4.

Patent Owner, in its Sur-Reply, does not dispute Petitioner's contention that Petitioner did not file any dispositive motions challenging validity on the grounds of obviousness over prior art. PO Sur-Reply 7. Patent Owner also does not dispute that the district court case has been transferred to the Northern District of California, and stayed pending that transfer. *Id.* at 1. However, Patent Owner argues that transfer was completed on October 2, 2019 and that "the stay was lifted upon completion of the transfer." *Id.* at 1 (citing Ex. 1057, 1). Nonetheless, Patent Owner admits that although "[t]he parties have filed opening summary judgment

briefs," the assigned Judge in the Northern District of California "has not yet set a schedule for the remaining briefs or a trial date." *Id.* at 2. Still, Patent Owner argues that because the assigned Judge scheduled trial 3.5 months "after the deadline for summary judgement response briefs" in a different patent case, "it is likely that trial will be completed in the second quarter of 2020 and certainly no later than June 2020." *Id.* at 2–3.

Upon consideration of the evidence and arguments presented, we are not persuaded that we should exercise our discretion to deny institution under § 314(a). The related district court proceeding has been transferred from the Eastern District of Texas to the Northern District of California, mooting the February 2020 trial date in the Eastern District of Texas. Ex. 1057, 1. Petitioner has not filed any dispositive motions challenging the validity of the '040 patent on any prior art grounds. Pet. Reply 7; PO Sur-Reply 7; Ex. 1057, 1–3. Therefore, the validity of the claims challenged in the Petition over the art raised in the Petition will not be determined in the related district court proceeding until a jury makes that determination after a trial on the merits in the Northern District of California.

To date, as Patent Owner admits, no scheduling order has issued for the Northern District of California proceeding, and no trial date has been set. PO Sur-Reply 2. Although Patent Owner asserts that the Northern District of California proceeding is *likely* to go to trial "in the second quarter of 2020 and certainly no later than June 2020," Patent Owner's assertion, given the facts described above, is speculation. We decline to engage in such speculation to determine whether to proceed with an *inter partes* review in this Proceeding.

Accordingly, for the reasons discussed above, we decline to exercise our discretion to deny institution under 35 U.S.C. § 314(a) due to the pending litigation in the Northern District of California.

2. Related Inter Partes Review Proceeding

In this Proceeding, Petitioner challenges claims 1–3 as unpatentable over Park and Lisogurski, claims 1–3 as unpatentable over Park, Lisogurski, and Hanna, and claim 4 as unpatentable over Park, Lisogurski, and Mannheimer, with or without Hanna. Pet. 4. In *Apple Inc. v. Omni MedSci Inc.*, IPR2019-00910 (PTAB), Petitioner challenges claims 1–4 as unpatentable over Valencell-093[3] and Valencell-099[4], with or without Hanna, and claim 4 as unpatentable over Valencell-093, Valencell-099, Hanna, and Mannheimer. IPR2019-00910, Paper 1, 4–5.

Patent Owner argues we should exercise our discretion to deny institution of this Proceeding because "Petitioner filed parallel and substantially overlapping IPR petitions against the '040 patent but has not identified any material differences between them." Prelim. Resp. 6 (citing *Comcast Cable Comms. v. Rovi Guides, Inc.*, IPR2019-00232, slip op. at 12–13 (PTAB May 20, 2019) (Paper 14); *Trial Practice Guide Update* (July 15, 2019); 84 Fed. Reg. 33925). Patent Owner argues that in IPR2019-00910, Petitioner "challenge[s] the same claims as in this Petition, but merely replace[s] the combination of Park . . . and Lisogurski" with the combination of Valencell-093 and Valencell-099, without explaining "any material differences" between these references. *Id.* at 7–9. Patent Owner argues that

[3] U.S. Patent Publication No. 2012/0197093.

[4] U.S. Patent Publication No. 2010/0217099.

by "present[ing] six different grounds challenging the same claims without identifying any material differences in the references, Petitioner seeks review of redundant arguments, contrary to the purpose of IPR and the directive to ensure efficient use of the Board's resources." *Id.* at 9–10 (citing 35 U.S.C. § 314(a)).

We are not persuaded by Patent Owner's arguments, and decline to deny institution of the Petition under 35 U.S.C. § 314(a) due to the related petition filed in IPR2019-00910. In doing so, we are mindful of the following facts: (a) this Petition was filed on April 10, 2019 (Paper 3, 1), (b) the *Comcast* Decision issued on May 20, 2019, and (3) the latest Trial Practice Update was published on July 15, 2019. Thus, when the Petition was filed, Petitioner was not aware of the Board's guidance that, *subsequent* to the publication of the July 2019 Trial Practice Guide Update:

> If a petitioner files two or more petitions challenging the same patent, then the petitioner should, in its petitions or in a separate paper filed with the petitions, identify (1) a ranking of the petitions in the order it wishes the Board to consider the merits, if the Board uses its discretion to institute any of the petitions, and (2) a succinct explanation of the differences between the petitions, why the issues addressed by the differences are material, and why the Board should exercise its discretion to institute additional petitions if it identifies one petition that satisfies petitioner's burden under 35 U.S.C. § 314(a).

Trial Practice Guide Update (July 2019), 27; *see also id.* at 27 n.4 ("*After the publication of this guide*, it will be expected that petitioners will justify multiple petitions in the first instance in their petitions or in a separate paper with the petitions.") (emphasis added). For petitions filed prior to publication of the July 2019 Trial Practice Guide Update, the Board has discretion to authorize a petitioner to file a paper justifying the need to file

two or more petitions. *Id.* at 27 n.4 ("Prior to the issuance of this guide, a panel requested from the petitioner . . . an additional paper . . . to address these issues. Panels *may* continue to authorize such papers for *petitions submitted before* the publication of this guide.") (emphases added).

Although not expressly stated in the July 2019 Trial Practice Guide Update, the guidance provided suggests that the reason a petitioner should rank its petitions and identify the differences between them is to facilitate the Board's consideration of "why the Board should exercise its discretion to institute additional petitions *if it identifies one petition that satisfies petitioner's burden* under 35 U.S.C. § 314(a)." *Id.* at 27 (emphasis added); *see also Comcast*, slip op. at 8 (Paper 14) ("in light of the specific facts of this case, we exercise our discretion to deny institution of the present Petition under § 314(a) in light of IPR2019-00231, *which we are instituting*.") (emphasis added).

Here, in addition to not authorizing petitioner to file a paper ranking and explaining the differences between this Petition and the petition filed in IPR2019-00910, we have denied the petition filed in IPR2019-00910 on the merits. *See Apple Inc. v. Omni MedSci, Inc.*, IPR2019-00910, Decision on Institution (issued concurrently with this Decision). Thus, only this Petition will proceed on the merits, and Patent Owner's burden will be limited to defending the patentability of the claims challenged on the grounds raised in this Petition. These facts alleviate the concerns, also expressed in the July 2019 Trial Practice Guide Update, of "plac[ing] a substantial and unnecessary burden on the Board and the patent owner" and of raising "fairness, timing, and efficiency concerns." Trial Practice Guide Update (July 15, 2019), 26.

Accordingly, for the reasons discussed above, we decline to exercise our discretion to deny this Petition under 35 U.S.C. § 314(a) due to Petitioner's filing of a concurrent petition challenging the same claims of the '040 patent on different grounds in IPR2019-00910.

IV. CONCLUSION

We have reviewed the Petition and Preliminary Response and have considered all of the evidence and arguments presented by Petitioner and Patent Owner. We find, on this record, Petitioner has demonstrated a reasonable likelihood of showing claims 1–4 of the '040 patent are unpatentable. Accordingly, we institute *inter partes* review of all claims on all grounds raised in the Petition.

The Board has not yet made a final determination with respect to any claim construction issue or the patentability of any challenged claim.

V. ORDER

It is ORDERED that, pursuant to 35 U.S.C. § 314, an *inter partes* review is hereby instituted on all challenged claims on all grounds.

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial commencing on the entry date of this Decision.

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