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Paper 7
Date: April 14, 2021

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

MASIMO CORPORATION,
Patent Owner.

IPR2020-01523
Patent 8,457,703 B2

Before JOSIAH C. COCKS, ROBERT L. KINDER, and AMANDA F. WIEKER, *Administrative Patent Judges.*

COCKS, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

A. Background

Apple Inc. ("Petitioner") filed a Petition requesting an *inter partes* review of claims 1–7, 9–18, and 20–24 ("challenged claims") of U.S. Patent No. 8,457,703 B1 (Ex. 1001, "the '703 patent"). Paper 2 ("Pet."). Masimo Corporation ("Patent Owner") waived filing a preliminary response. Paper 6 ("PO Waiver").

We have authority to determine whether to institute an *inter partes* review, under 35 U.S.C. § 314 and 37 C.F.R. § 42.4. An *inter partes* review may not be instituted unless it is determined that "the information presented in the petition filed under section 311 and any response filed under section 313 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." 35 U.S.C. § 314 (2018); *see also* 37 C.F.R. § 42.4(a) ("The Board institutes the trial on behalf of the Director.").

For the reasons provided below and based on the record before us, we determine that Petitioner has demonstrated a reasonable likelihood that Petitioner would prevail in showing the unpatentability of at least one of the challenged claims. Accordingly, we institute an *inter partes* review on all grounds set forth in the Petition.

B. Related Matters

The parties identify the following matters related to the '703 patent:

Masimo Corporation v. Apple Inc., Civil Action No. 8:20-cv-00048 (C.D. Cal.) (filed Jan. 9, 2020);

Apple Inc. v. Masimo Corporation, IPR2020-01520 (PTAB Aug. 31, 2020) (challenging claims of U.S. Patent No. 10,258,265 B1);

Apple Inc. v. Masimo Corporation, IPR2020-01521 (PTAB Sept. 2, 2020) (challenging claims of U.S. Patent No. 10,292,628 B1);

Apple Inc. v. Masimo Corporation, IPR2020-01524 (PTAB Aug. 31, 2020) (challenging claims of U.S. Patent No. 10,433,776 B2);

Apple Inc. v. Masimo Corporation, IPR2020-01526 (PTAB Aug. 31, 2020) (challenging claims of U.S. Patent No. 6,771,994 B2);

Apple Inc. v. Masimo Corporation, IPR2020-01536 (PTAB Aug. 31, 2020) (challenging claims of U.S. Patent No. 10,588,553 B2);

Apple Inc. v. Masimo Corporation, IPR2020-01537 (PTAB Aug. 31, 2020) (challenging claims of U.S. Patent No. 10,588,553 B2);

Apple Inc. v. Masimo Corporation, IPR2020-01538 (PTAB Sept. 2, 2020) (challenging claims of U.S. Patent No. 10,588,554 B2); and

Apple Inc. v. Masimo Corporation, IPR2020-01539 (PTAB Sept. 2, 2020) (challenging claims of U.S. Patent No. 10,588,554 B2).

Pet. 75; Paper 3, 2.

C. The '703 Patent

The '703 patent is titled "Low Power Pulse Oximeter," and issued on June 4, 2013, from U.S. Patent Application No. 16/174,144, filed November 13, 2007. Ex. 1001, codes (21), (22), (45), (54). The '703 patent relates to a pulse oximeter that may reduce power consumption in the

absence of certain parameters that may be monitored to trigger or override the reduced power consumption state. *Id*. at code (57). "In this manner, a pulse oximeter can lower power consumption without sacrificing performance during, for example, high noise conditions or oxygen desaturations." *Id.*

As depicted below, the low power pulse oximeter has signal processor 340 that derives physiological measurements 342, including oxygen saturation, pulse rate, and plethysmograph, from input sensor signal 322. Ex.1001, 4:64–5:10, Figs. 3, 4.

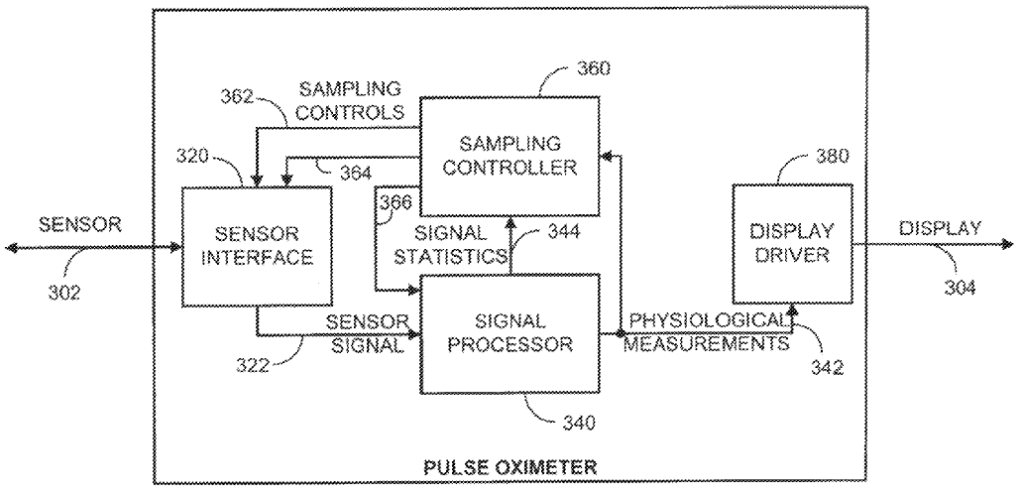

FIG. 3

Figure 3 above illustrates a top-level block diagram of a low power pulse oximeter. *Id.* at 4:40–41. Signal processor 340 may also derive signal statistics (344), such as signal strength, noise, and motion artifact. *Id.* at 5:14–15, Figs. 3, 4. Physiological measurements 342 and signal statistics 344 may be input into sampling controller 360, which outputs sampling controls 362 that in turn are used to regulate pulse oximeter power dissipation by causing sensor interface 320 to vary the sampling

characteristics of sensor port 302 and by causing signal processor 340 to vary its sample processing characteristics. *Id.* at 5:15–27, Figs. 3, 4. According to the '703 patent, power dissipation "is responsive not only to output parameters, such as the physiological measurements 342, but also to internal parameters, such as the signal statistics 344." *Id.* at 5:24–27.

The pulse oximeter uses the physiological measurements and signal statistics to determine "the occurrence of an event or low signal quality condition." Ex. 1001, 6:25–28. An event determination is based upon the physiological measurements and "may be any physiological-related indication that justifies the processing of more sensor samples and an associated higher power consumption level, such as an oxygen desaturation, a fast or irregular pulse rate or an unusual plethysmograph waveform." *Id.* at 6:28–34. A low signal quality condition is based upon the signal statistics and "may be any signal-related indication that justifies the processing or more sensor samples and an associated higher power consumption level, such as a low signal level, a high noise level or motion artifact." *Id.* at 6:34–41.

The pulse oximeter "utilizes multiple sampling mechanisms to alter power consumption." Ex. 1001, 5:59–61. One sampling mechanism is "an emitter duty cycle control" that "determines the duty cycle of the current supplied by the emitter drive outputs 482 to both red and IR sensor emitters." *Id.* at 5:61–66. The sampling mechanisms "modify power consumption by, in effect, increasing or decreasing the number of input samples received and processed." *Id.* at 6:9–11. "Sampling, including acquiring input signal samples and subsequent sample processing, can be reduced during high signal quality periods and increased during low signal

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