

Patent Owner Masimo Co Demonstratives For Trial

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Apple Inc. v. Masimo Corporation
IPR2020-01716 (Patent 10,702,194)
IPR2020-01733 (Patent 10,702,195)
IPR2020-01737 (Patent 10,709,366)
IPR2020-01713 (Patent 10,624,564)

Patents-At-Issue

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Poeze et al.

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(12) **United States Patent**
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Poeze et al.

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Poeze et al.

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(54) MULTISTREAM DATA COLLECTION SYSTEM FOR NONINVASIVE MEASUREMENT OF BLOOD CONSTITUENTS

(71) Applicant: **Massimo Corporation**, Irvine, CA (US)

(72) Inventors: **Jerome Poeze**, Rancho Santa Margarita, CA (US); **Marcelo Lamego**, Cupertino, CA (US); **Sean Merritt**, Lake Forest, CA (US); **Christiano Dabli**, Lake Forest, CA (US); **Hung Vu**, Fountain Valley, CA (US); **Johannes Brulsma**, Oppende (NL); **Ferryvan Lesmana**, Irvine, CA (US); **Massi Joe E. Kiani**, Laguna Niguel, CA (US); **Greg Olsen**, Lake Forest, CA (US)

(73) Assignee: **Massimo Corporation**, Irvine, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer.

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(63) Continuation of application No. 16,725,292, filed on Dec. 23, 2019, now Pat. No. 10,624,564, which is a (Continued)

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A61B 5/145 (2006.01)
A61B 5/00 (2006.01)

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(54) MULTISTREAM DATA COLLECTION SYSTEM FOR NONINVASIVE MEASUREMENT OF BLOOD CONSTITUENTS

(58) Field of Classification Search
CPC A61B 5/1455; A61B 5/14551; A61B 5/14552; A61B 5/14553; A61B 5/14546; (Continued)

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Primary Examiner — Eric F Wisniewski
Assistant Examiner — Chu Chuan Liu
(74) Attorney, Agent, or Firm — Knobbe Martens Olson & Bear LLP

(57) ABSTRACT
The present disclosure relates to noninvasive methods, devices, and systems for measuring various blood constituents or analytes, such as glucose. In an embodiment, a light source comprises LEDs and superluminescent LEDs. The light source emits light at at least wavelengths of about 1610 nm, about 1640 nm, and about 1665 nm. In an embodiment, the detector comprises a plurality of photodetectors arranged in a special geometry comprising one of a substantially linear substantially equal spaced geometry, a substantially linear substantially non-equal spaced geometry, and a substantially grid geometry.

30 Claims, 65 Drawing Sheets

- ⊙ U.S. Pat
- IPR2
- ⊙ U.S. Pat
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'194 Patent Claim 1

1. A physiological measurement system comprising:
a physiological sensor device comprising:
one or more emitters configured to emit light into tissue of a user;
a first set of photodiodes, wherein:
the first set of photodiodes comprises at least four photodiodes,
the photodiodes of the first set of photodiodes are connected to one another in parallel to provide a first signal stream, and
each of the photodiodes of the first set of photodiodes has a corresponding window that allows light to pass through to the photodiode;
a second set of photodiodes, wherein:
the second set of photodiodes comprises at least four photodiodes,
the photodiodes of the second set of photodiodes are connected to one another in parallel to provide a second signal stream, and
each of the photodiodes of the second set of photodiodes has a corresponding window that allows light to pass through to the photodiode;

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'194 Patent Claims 13, 17, 29

13. The physiological measurement system wherein the protruding convex surface protrudes between 1 millimeter and 3 millimeters.

17. The physiological measurement system wherein the protruding convex surface protrudes greater than 2 millimeters and less than 3 millimeters.

29. The physiological measurement system wherein the protruding convex surface protrudes greater than 2 millimeters and less than 3 millimeters.

'195 Patent Claim 1

1. A user-worn physiological measurement device that defines a plurality of optical paths, the physiological measurement device comprising:

one or more emitters configured to emit light into tissue of a user;

a first set of photodiodes positioned on a first surface and surrounded by a wall that is operably connected to the first surface, wherein:

the first set of photodiodes comprises at least four photodiodes, and

the photodiodes of the first set of photodiodes are connected to one another in parallel to provide a first signal stream;

a second set of photodiodes positioned on the first surface and surrounded by the wall, wherein:

the second set of photodiodes comprises at least four photodiodes, and

the photodiodes of the second set of photodiodes are connected to one another in parallel to provide a second signal stream; and

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