



US009410916B2

(12) **United States Patent**
Yoshioka

(10) **Patent No.:** **US 9,410,916 B2**
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **BIOLOGICAL INFORMATION MEASUREMENT DEVICE AND BIOLOGICAL INFORMATION MEASUREMENT METHOD USING SAME**

(56) **References Cited**

U.S. PATENT DOCUMENTS

2004/0157337 A1 8/2004 Burke et al.
2004/0259264 A1 12/2004 Morita et al.

(Continued)

FOREIGN PATENT DOCUMENTS

CN 1575415 2/2005
CN 101393200 3/2009

(Continued)

OTHER PUBLICATIONS

Office Action issued in corresponding Chinese Patent Application No. 201380029808.6, Oct. 9, 2015, 7 pages.

(Continued)

Primary Examiner — Jennifer Dieterle

(74) *Attorney, Agent, or Firm* — Hamre, Schumann, Mueller & Larson, P.C.

(71) Applicant: **Panasonic Healthcare Holdings Co., Ltd.**, Tokyo (JP)

(72) Inventor: **Eriko Yoshioka**, Ehime (JP)

(73) Assignee: **Panasonic Healthcare Holdings Co., Ltd.**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 61 days.

(21) Appl. No.: **14/406,039**

(22) PCT Filed: **Apr. 23, 2013**

(86) PCT No.: **PCT/JP2013/002743**

§ 371 (c)(1),
(2) Date: **Dec. 5, 2014**

(87) PCT Pub. No.: **WO2013/183215**

PCT Pub. Date: **Dec. 12, 2013**

(65) **Prior Publication Data**

US 2015/0153301 A1 Jun. 4, 2015

(30) **Foreign Application Priority Data**

Jun. 6, 2012 (JP) 2012-128576

(51) **Int. Cl.**
G01N 27/327 (2006.01)

(52) **U.S. Cl.**
CPC **G01N 27/327** (2013.01); **G01N 27/3274** (2013.01)

(58) **Field of Classification Search**
CPC C12Q 1/00; C12Q 1/02; C12Q 1/34; C12Q 1/54; G01N 27/327; G01N 27/3272
See application file for complete search history.

(57) **ABSTRACT**

In a biological information measurement device for measuring, for example, a blood glucose level, it is intended to improve measurement accuracy. In a voltage sweep mode A (a biological information characteristic detection mode), different voltage values are applied between a first input terminal and a second input terminal from a voltage applying unit 15 in a first period and a second period, a plurality of various factors that affect variation in the measurement of biological information are considered as changes in the current value in the voltage sweep mode A (the biological information characteristic detection mode), thereby a biological information correction value is calculated from the changes in the current value, and the biological information measurement value measured during the biological information measurement mode C is corrected by the biological information correction value. Thus, the measurement accuracy can be improved.

9 Claims, 20 Drawing Sheets

