



- (51) **International Patent Classification:**
A61B 5/04 (2006.01)
- (21) **International Application Number:**
PCT/US2013/035996
- (22) **International Filing Date:**
10 April 2013 (10.04.2013)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/622,566 11 April 2012 (11.04.2012) US
- (71) **Applicant:** IMPAK HEALTH, LLC [—/US]; 1350 Campus Parkway, Neptune, NJ 07753 (US).
- (72) **Inventors:** INCIARDI, Salvatore Richard; 13 Eastwood Boulevard, Manalapan, New Jersey 07726 (US). ELLIOTT, Sandra D.; 1560 West Bay Avenue, Barnegat, New Jersey 08005 (US). EINBERG, Fredrik; Klyftvagen 8, S-141441 Huddinge (SE). SVENSSON, Kristian; Borens-vagen 31, S-12052 Arsta (SE).
- (74) **Agent:** ZIELINSKI, Robert, F.; Law Offices Of Robert F. Zielinski, One South Broad Street, Suite 1600, Philadelphia, PA 19107 (US).
- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(88) **Date of publication of the international search report:**

16 October 2014

(54) **Title:** ECARD ECG MONITOR

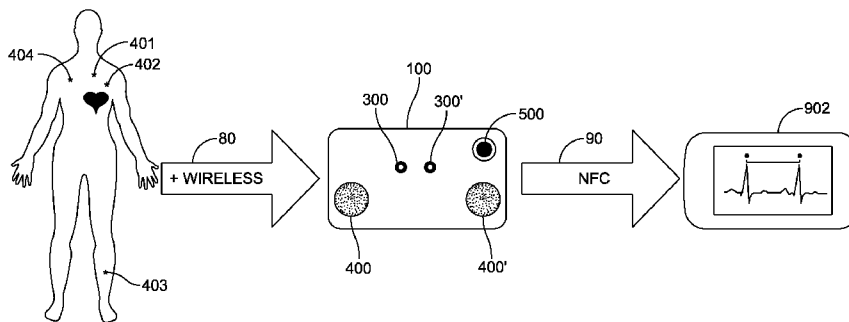


FIG. 8

(57) **Abstract:** Portable ECG (electrocardiograph) monitoring device combinations that records, transmits and displays sampled ECG data from handheld devices having sensors and integrated electronics housed in a card-like member for determining and displaying a user's processed ECG for medical diagnostic and informational purposes. The monitoring device of the present invention records and wirelessly transmits raw sampled ECG data from the handheld sampling device and optionally additional wireless ECG sensors to a remotely associated display device for processing and analyzing the raw data thereby shifting processing overhead from the handheld device to the display device.

WO 2013/155196 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US13/35996

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61B 5/04 (2013.01)

USPC - 600/300, 546, 509, 508, 481, 523

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8): A61B 5/04 (2013.01)

USPC: 600/300, 546, 509, 508, 481, 523

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); Google/Googe Scholar; IP.com; PubMed/MEDLINE: Card, ECG, EKG, Electrocardiogram, Microprocessor, Processor, Wireless, Portable, Hand held, Electrode

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- Y	US 6454708 B1 (FERGUSON, P et al.) September 24, 2002; figures 1, 5A-5D; column 8, lines 29-67; column 9, lines 1-3; column 10, lines 41-67; column 11, lines 1-5, 29-41; column 15, lines 18-21	1, 2, 4, 7 ----- 3, 5, 6
Y	US 8133176 B2 (PORGES, C et al.) March 13, 2012; figure 7; column 4, lines 45-61; column 10, lines 35-46; claim 18	3
Y	US 7881765 B2 (MERTZ, JC et al.) February 1, 2011; column 8, lines 24-29	5-6
Y	US 6496715 B1 (LEE, BB et al.) December 17, 2002; figure 11; column 11, lines 52-67; column 12, lines 1-27	6

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 24 June 2013 (24.06.2013)	Date of mailing of the international search report 05 JUL 2013
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Shane Thomas PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774