

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 February 2008 (14.02.2008)

PCT

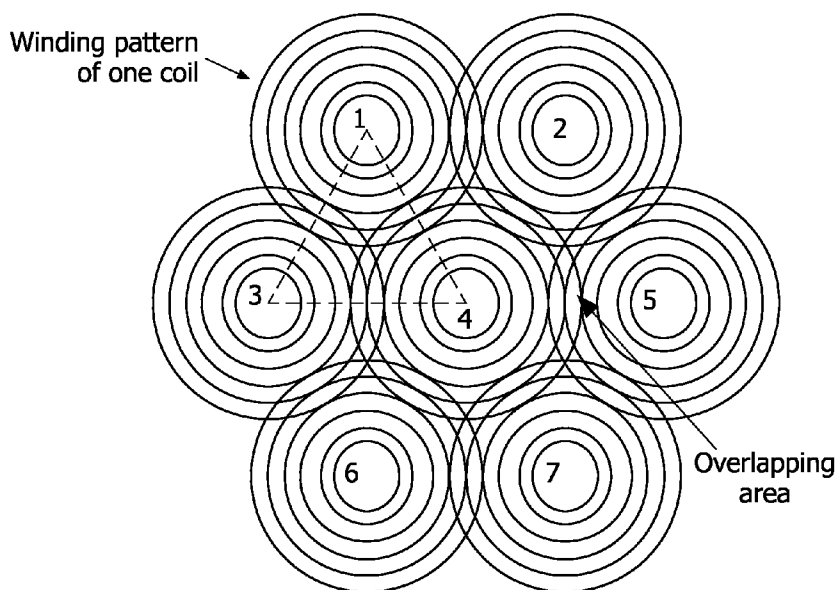
(10) International Publication Number
WO 2008/018018 A3

- (51) International Patent Classification:
G01R 33/3415 (2006.01)
- (21) International Application Number:
PCT/IB2007/053107
- (22) International Filing Date: 7 August 2007 (07.08.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
06118774.6 11 August 2006 (11.08.2006) EP
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- (81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH,
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, PG, PH, PL,
PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY,
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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

[Continued on next page]

(54) Title: SENSOR COIL ARRAY FOR MAGNETIC INDUCTANCE TOMOGRAPHY WITH REDUCED MUTUAL COIL COUPLING



(57) Abstract: This invention relates to magnetic inductance tomography, and in particular, to coils of a sensor/driver coil array for use in a magnetic inductance tomography apparatus, in which driver/sensor coils are used to measure the induced flux in a conductive, dielectric and permittivity body, such as the human body. The sensor/driver coil array comprises at least one layer of thin coils whose centres are arranged on a regular grid, with adjacent coils overlapped by a suitable distance to cancel inductive neighbour coupling between them.

WO 2008/018018 A3



(88) Date of publication of the international search report:
5 June 2008

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2007/053107

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01R33/3415

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)
G01R A61B

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 practical, search terms used)

EPO-Internal, COMPENDEX, INSPEC, BIOSIS, EMBASE, MEDLINE, IBM-TDB, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 89/05115 A (GEN ELECTRIC [US]) 15 June 1989 (1989-06-15) page 8, line 25 - page 13, line 12 figures 1-4A	1-5,7-9
Y	-----	10
X	WO 2005/124380 A (KONINKL PHILIPS ELECTRONICS NV [NL]; LEUSSLER CHRISTOPH G [NL]; GRAESS) 29 December 2005 (2005-12-29) cited in the application page 3, line 28 - page 10, line 5 figures 1-4	1-9
Y	-----	10
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* & * document member of the same patent family

Date of the actual completion of the international search

12 March 2008

Date of mailing of the international search report

20/03/2008

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INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2007/053107

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/253582 A1 (GIAQUINTO RANDY OTTO J [US] ET AL GIAQUINTO RANDY OTTO JOHN [US] ET AL) 17 November 2005 (2005-11-17) paragraph [0017] - paragraph [0027] figures 1-3	1-5,7-9
Y	-----	10
X	EP 1 521 094 A (GORE ENTERPRISE HOLDINGS INC [US]) 6 April 2005 (2005-04-06) the whole document	1-5,7-9
Y	-----	10
Y	US 5 825 164 A (WILLIAMS HAROLD RICHARD [US]) 20 October 1998 (1998-10-20) column 3, line 13 - column 4, line 55 figures 2-4	10
A	----- WATSON S ET AL: "A comparison of sensors for minimizing the primary signal in planar-array magnetic induction tomography; Comparison of sensors for minimizing the primary signal in planar-array MIT" PHYSIOLOGICAL MEASUREMENT, INSTITUTE OF PHYSICS PUBLISHING, BRISTOL, GB, vol. 26, no. 2, 1 April 2005 (2005-04-01), pages S319-S331, XP020092171 ISSN: 0967-3334 the whole document	1-10
A	----- YU Z Z ET AL: "Electromagnetic inductance tomography (EMT): sensor, electronics and image reconstruction algorithm for a system with a rotatable parallel excitation field" IEE PROCEEDINGS; SCIENCE, MEASUREMENT AND TECHNOLOGY, IEE, STEVENAGE, HERTS, GB, vol. 145, no. 1, 6 January 1998 (1998-01-06), pages 20-25, XP006011490 ISSN: 1350-2344 the whole document	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2007/053107

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
WO 8905115	A	15-06-1989	DE 3853356 D1 DE 3853356 T2 EP 0344293 A1 EP 0696744 A2	20-04-1995 26-10-1995 06-12-1989 14-02-1996
WO 2005124380	A	29-12-2005	CN 1969195 A EP 1761792 A2	23-05-2007 14-03-2007
US 2005253582	A1	17-11-2005	DE 102005020025 A1 JP 2005324028 A NL 1029029 A1	01-12-2005 24-11-2005 21-11-2005
EP 1521094	A	06-04-2005	JP 2005103308 A US 2005073309 A1	21-04-2005 07-04-2005
US 5825164	A	20-10-1998	NONE	