(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
6 November 2003 (06.11.2003)

PCT

(10) International Publication Number
WO 2003/092116 A3

(51) International Patent Classification[7]: H01Q 13/10, 13/18, 1/22, 1/44, 1/24, G06K 19/077

(21) International Application Number: PCT/IB2003/002252

(22) International Filing Date: 24 April 2003 (24.04.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/375,258 24 April 2002 (24.04.2002) US

(71) Applicant: **MARCONI INTELLECTUAL PROPERTY (US) INC** [US/US]; 333 Pierce Road, Suite 370, Itasca, IL 60143 (US).

(72) Inventors: **FORSTER, Ian, James**; 31 Great Cob, Springfield, Chelmsford, Essex CM1 5LA (GB). **KING, Patrick, E.**; 418 North Park Boulevard, Glen Ellyn, IL 60137 (US). **GINN, Michael, G.**; Ramor, Riffhams Lane, Danbury, Chelmsford, Essex CM3 4DS (GB).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.

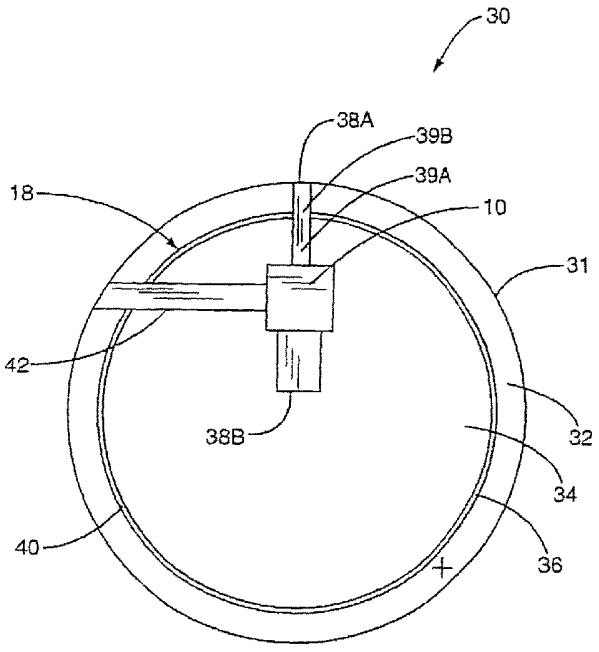
(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

(88) Date of publication of the international search report: 1 July 2004

[Continued on next page]

(54) Title: ENERGY SOURCE WITH A SLOT ANTENNA FORMED IN THE BODY



(57) Abstract: The invention relates to a wireless communication device that is coupled to an energy source, such as a battery (30), capacitor, or solar cell. The wireless communication device is coupled to a slot (40) in the energy source to form a slot antenna for wireless communication. The slot antenna can receive communication signals from an interrogation reader or other communication device. The wireless communication device may be attached to a device or container for purposes such as communicating information regarding identification, manufacturing, tracking, and the like. The wireless communication device may also be coupled to the energy source for power.

WO 2003/092116 A3

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

Interr al Application No
PCT/IB 03/02252

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01Q13/10 H01Q13/18 H01Q1/22 H01Q1/44 H01Q1/24
G06K19/077

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 7 H01Q G06K

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 806 198 A (SAGEM) 14 September 2001 (2001-09-14) page 3, line 1 - line 11; figure 1 ---	1-34
X	GB 2 334 624 A (MOTOROLA ISRAEL LTD) 25 August 1999 (1999-08-25) page 2, line 29 -page 3, line 34; figure 1 -----	1-34

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"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)

"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

"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

"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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
17 October 2003	27.02.04

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Dollinger, F

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

In tional application No.
PCT/IB 03/02252

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-34

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-34

   energy source with a body that has a slot antenna formed therein which in turn is coupled to a wireless communication device.

2. Claim : 35

   a method for attaching a wireless communication device to the body of a battery

INTERNATIONAL SEARCH REPORT

...formation on patent family members

Inter nal Application No
PCT/IB 03/02252

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2806198 A	14-09-2001	FR 2806198 A1	14-09-2001
GB 2334624 A	25-08-1999	NONE	