

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
6 February 2003 (06.02.2003)

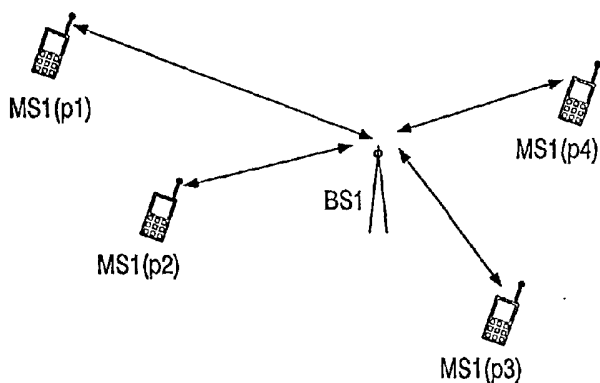
PCT

(10) International Publication Number
WO 03/010552 A3

- (51) International Patent Classification⁷: **G01S 5/14**
- (21) International Application Number: PCT/IB02/03158
- (22) International Filing Date: 22 July 2002 (22.07.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
0117951.4 24 July 2001 (24.07.2001) GB
- (71) Applicant: **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventor: **MERGLER, Iwo-Martin**; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agent: **WHITE, Andrew, G.**; Internationaal Octrooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (*national*): CN, JP, KR.
- (84) Designated States (*regional*): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR).
- Published:**
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report:
5 June 2003

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.

(54) Title: METHODS AND APPARATUS FOR DETERMINING THE POSITION OF A TRANSMITTER AND A MOBILE COMMUNICATIONS DEVICE



(57) Abstract: A method of determining the position of a transmitter (BS1) located in the vicinity of a mobile communications device (MS1) which is able to determine its position is disclosed. The method comprising the steps of: (i) moving the mobile communications device (MS1) to a plurality of reference locations (pn); (ii) determining the position of the mobile communications device (MS1) and the range from the mobile communications device (MS1) to the transmitter (BS1) at each reference location (pn); and (iii) determining the position of the transmitter (BS1) using the positions and corresponding ranges determined in step (ii). Also disclosed is a method of determining the position of a mobile communications device (MS1) which utilises the above method.

WO 03/010552 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 02/03158A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01S5/14

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 G01S

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, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 02 23215 A (MOTOROLA) 21 March 2002 (2002-03-21) page 2, line 12 - line 20 page 3, line 21 - page 4, line 26 page 5, line 11 - line 15 ---	1-13
X	WO 98 10307 A (DUPRAY DENNIS JAY ;KARR CHARLES L (US)) 12 March 1998 (1998-03-12) page 28, line 9 - line 20 page 52, line 26 - page 53, line 9 page 105, line 20 - line 30 ---	1-3,9
A	US 6 166 685 A (SOLIMAN SAMIR S) 26 December 2000 (2000-12-26) abstract --- -/--	1-13



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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

18 March 2003

Date of mailing of the international search report

25/03/2003

Name and mailing address of the ISA

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

Authorized officer

Ó Donnabháin, C

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 02/03158

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 526 001 A (DANGLE KURT M ET AL) 11 June 1996 (1996-06-11) Summary of the Invention -----	1-13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 02/03158

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0223215	A	21-03-2002	US 6445927 B1	03-09-2002
			AU 9104201 A	26-03-2002
			WO 0223215 A1	21-03-2002
WO 9810307	A	12-03-1998	AU 4338597 A	26-03-1998
			AU 4479697 A	26-03-1998
			GB 2354129 A , B	14-03-2001
			GB 2354387 A , B	21-03-2001
			GB 2337386 A , B	17-11-1999
			WO 9810307 A1	12-03-1998
			WO 9810538 A1	12-03-1998
			US 6236365 B1	22-05-2001
			US 2001022558 A1	20-09-2001
US 6166685	A	26-12-2000	AU 1917800 A	05-06-2000
			BR 9915466 A	05-02-2002
			CA 2351407 A1	25-05-2000
			CN 1333879 T	30-01-2002
			EP 1131650 A1	12-09-2001
			JP 2002530654 T	17-09-2002
			WO 0029868 A1	25-05-2000
US 5526001	A	11-06-1996	NONE	