



(43) International Publication Date
8 December 2011 (08.12.2011)

(51) International Patent Classification:
G01S 5/02 (2010.01) *G01S 19/49* (2010.01)
G01S 19/42 (2010.01)

(21) International Application Number:
PCT/US2011/038956

(22) International Filing Date:
2 June 2011 (02.06.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/792,548 2 June 2010 (02.06.2010) US

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[Continued on next page]

(54) Title: POSITION DETERMINATION USING MEASUREMENTS FROM PAST AND PRESENT EPOCHS

(57) Abstract: The subject matter disclosed herein relates to positioning systems and location determination using measurement stitching.

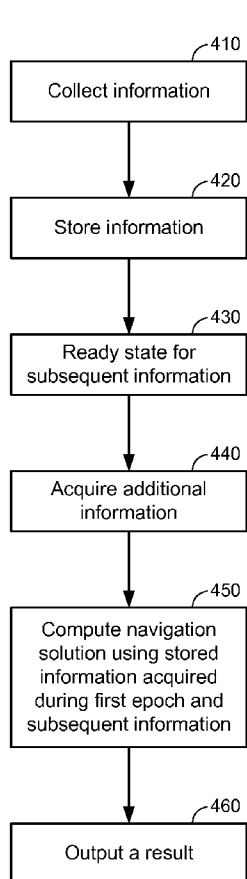
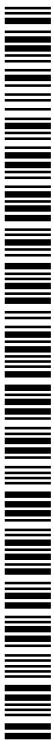


FIG. 4



WO 2011/153370 A3



(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, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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

4 April 2013

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/038956

A. CLASSIFICATION OF SUBJECT MATTER
INV. G01S5/02 G01S19/42 G01S19/49
ADD.
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)
G01S H04Q

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)
EPO-Internal, 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	EP 1 841 256 A1 (RESEARCH IN MOTION LTD [CA]) 3 October 2007 (2007-10-03) paragraph [0060] - paragraph [0063]; figure 12	1,4, 8-12, 19-23, 33,35-39
X	US 2005/090266 A1 (SHEYNBLAT LEONID [US]) 28 April 2005 (2005-04-28) paragraph [0050] - paragraph [0051]; figure 7 ----- -/--	1,4, 8-10, 19-23, 33,35-39

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 15 January 2013	Date of mailing of the international search report 22/01/2013
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Fanjul Caudevilla, J
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/038956

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 2007/004430 A1 (HYUN MOON-PIL [KR] ET AL) 4 January 2007 (2007-01-04) paragraph [0046] - paragraph [0050]; figure 3 -----	1,4, 8-10, 19-23, 33,35-39
X	US 5 883 594 A (LAU CHUNG Y [US]) 16 March 1999 (1999-03-16) column 7, line 48 - column 8, line 23; figures 5,6 -----	1,3,5-7, 13-18, 24,25, 33-36
X	US 2007/205941 A1 (RILEY WYATT T [US] ET AL) 6 September 2007 (2007-09-06) paragraphs [0037] - [0040], [0045] - [0046]; figure 4 -----	1-3,5-7, 13-18, 24,25, 33-36
X	EP 1 203 966 A2 (NOKIA CORP [FI]) 8 May 2002 (2002-05-08) paragraph [0012] - paragraph [0018]; figure 3 -----	19, 26-32, 37-39

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/038956

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 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 fees, this Authority did not invite payment of additional fees.

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.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- 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, 4, 8-12, 20-23, 33, 35-39

Positioning method, apparatus and computer program which uses information from base stations of a cellular network, acquired in two different epochs.

2. claims: 1-3, 5-7, 13-18, 24, 25, 33-39

Positioning method, apparatus and computer program which uses information from a satellite positioning system acquired in two different epochs.

3. claims: 1, 26-33, 35-39

Positioning method, apparatus and computer program which uses dead reckoning in a first epoch when GPS coverage is not available and calculates the starting position from GPS position obtained in a second epoch.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2011/038956

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1841256	A1	03-10-2007	EP 1841256 A1 03-10-2007 EP 2369360 A2 28-09-2011 WO 2007109880 A1 04-10-2007
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