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(54) Title: METHOD AND APPARATUS FOR ROUTING MESSAGES OF A POSITIONING PROTOCOL IN A WIRELESS NETWORK

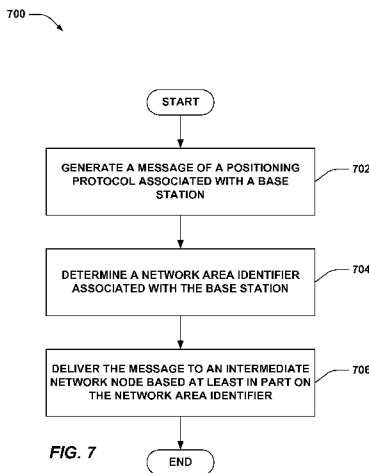


FIG. 7

(57) Abstract: Methods and apparatuses are provided that facilitate routing of messages of a positioning protocol, such as long term evolution (LTE) positioning protocol annex (LPPa). A positioning server can determine a network area identifier of one or more messages based at least in part on an identifier of a base station associated with the one or more messages. Based at least in part on the network area identifier, the positioning server can provide the one or more messages to an intermediate network node corresponding to the one or more base stations, such as a mobility management entity (MME). MME can similarly provide the one or more messages to an optional gateway between it and the one or more base stations based at least in part on receiving the network area identifier in the one or more messages. In addition, a base station can update positioning information with the positioning server.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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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)
H04W H04L

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,P	WO 2010/022010 A1 (QUALCOMM INC [US]; EDGE STEPHEN W [US]; BURROUGHS KIRK ALLAN [US]) 25 February 2010 (2010-02-25) figures 4b, 5 paragraphs [0040], [0045] ----- -/--	1,6,7, 12,13, 18,19, 24,25,30

Further documents are listed in the continuation of Box C.

See patent family 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)
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- "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

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INTERNATIONAL SEARCH REPORT

International application No.
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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: 1-30

Method and apparatus for determining an identifier of a base station in dependency of a network area identifier

2. claims: 31-50

Method and apparatus for determining for routing purposes whether a gateway is present

3. claims: 51-55

A method and apparatus for updating positioning information

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2011/020598

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	"3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Stage 2 functional specification of User Equipment (UE) positioning in E-UTRAN (Release 9)", 3GPP STANDARD; 3GPP TS 36.305, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, no. V9.1.0, 28 December 2009 (2009-12-28), pages 1-52, XP050401613, [retrieved on 2009-12-28]	1,6,7, 12,13, 18,19, 24,25,30
Y	paragraph [6.5.3]; figures 6.5.3-1	2-5, 8-11, 14-17, 20-23, 26-29
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Y	paragraph [0002]	2-5, 8-11, 14-17, 20-23, 26-29
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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/020598

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	"3rd Generation Partnership Project; Technical Specification Group Radio Access Network Evolved Universal Terrestrial Radio Access (E-UTRA); LTE Positioning Protocol A (LPPa) (Release 9)", 3GPP STANDARD; 3GPP TS 36.455, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, no. V9.0.0, 18 December 2009 (2009-12-18), pages 1-47, XP050401367, [retrieved on 2009-12-18] paragraphs [05.1], [8.2.1.2], [8.2.5] paragraphs [9.1.1.1] - [9.1.1.8] -----	1,7,13, 19,25
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International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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Y	paragraphs [002a] - [002c]	34, 38, 42, 46, 50
Y	----- ALCATEL-LUCENT ET AL: "LPPa Transfer through the MME", 3GPP DRAFT; C1-095149, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, no. Beijing; 20091109, 9 November 2009 (2009-11-09), XP050384015, [retrieved on 2009-11-15] abstract	34, 38, 42, 46, 50
A	----- US 2008/205399 A1 (DELESALLE CHRISTOPHE [FR] ET AL) 28 August 2008 (2008-08-28) paragraph [0020] - paragraph [0022]	31-50
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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