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[Continued on next page]

(54) Title: CELL SELECTION AND RESELECTION IN DEPLOYMENTS WITH HOME NodeBs

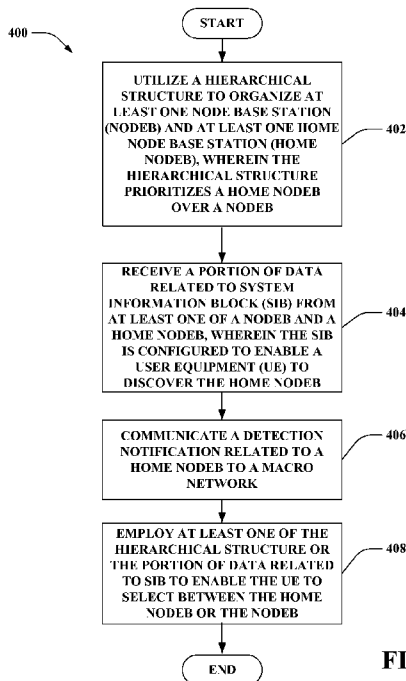


FIG. 4

(57) Abstract: Systems and methodologies are described that facilitate cell search, selection, and reselection within a wireless communication network that includes a home node base station (home nodeB). A user equipment (UE) can detect a home node B and communicate its identification to a macro network that includes at least one node base station (nodeB). The detected home node B and node B can be hierarchically structured in order to prioritize connectivity with the home node B over the node B. Such prioritization can be implemented by broadcasting home node B parameters and macro node B parameters having identification information therewith (using SIB, system information blocks).



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- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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**INTERNATIONAL SEARCH REPORT**

International application No  
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**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. H04W48/20

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**

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**

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>MOTOROLA: "Identification and Measurement of CSG cells" 3GPP DRAFT; R2-081114, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, vol. RAN WG2, no. Sorrento, Italy; 20080211, 4 February 2008 (2008-02-04), XP050138898 the whole document</p> <p align="center">----- -/--</p>	1-8

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)
- \*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

**17 November 2009**

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## INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	QUALCOMM EUROPE: "Measurement and mobility issues for home (e)Node Bs" 3GPP DRAFT; R2-074117, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, vol. RAN WG2, no. Shanghai, China; 20071008, 1 October 2007 (2007-10-01), XPO50136747 the whole document	1
Y	"Universal Mobile Telecommunications System (UMTS); User Equipment (UE) procedures in idle mode and procedures for cell reselection in connected mode (3GPP TS 25.304 version 7.4.0 Release 7); ETSI TS 125 304" ETSI STANDARDS, LIS, SOPHIA ANTIPOLIS CEDEX, FRANCE, vol. 3-R2, no. V7.4.0, 1 January 2008 (2008-01-01), XPO14040625 ISSN: 0000-0001 paragraphs 4.1, 5.1.1, 5.2.6.1.2 and 5.2.6.1.4	2-8
A	US 2007/123265 A1 (MOON SUNG JUN [KR]) 31 May 2007 (2007-05-31) abstract paragraphs [0005] - [0016], [0046] - [0048], [0056] - [0058]	1-8
Y	"Universal Mobile Telecommunications System (UMTS); Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access (E-UTRAN); Overall description; Stage 2 (3GPP TS 36.300 version 8.3.0 Release 8); ETSI TS 136 300" ETSI STANDARDS, LIS, SOPHIA ANTIPOLIS CEDEX, FRANCE, vol. 3-R2, no. V8.3.0, 1 January 2008 (2008-01-01), XPO14040735 ISSN: 0000-0001 paragraphs 5.1.7.3, 7.4, 8.2, 10, 10.1.1.1, 10.1.2.1.1, 10.1.3, 10.5.1.1, 10.5.1.2, 22.2, C.1, C.1.1, C.1.2, C.1.3, C.2.1, E.1.5, E.1.7 and F.2	9-11, 19-21
Y	US 2007/270152 A1 (NYLANDER TOMAS [SE] ET AL) 22 November 2007 (2007-11-22) abstract paragraphs [0025] - [0029], [0033] figure 3	9-11, 19-21

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## INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/037876

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>QUALCOMM EUROPE: "Restricted Association for HNBs"            3GPP DRAFT; R2-074406, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE,            vol. RAN WG2, no. Shanghai, China;            20071008, 1 October 2007 (2007-10-01),            XP050136972            the whole document</p>	9-11, 19-21
X	<p>US 2002/111166 A1 (MONROE ROBERT L [US])            15 August 2002 (2002-08-15)            paragraphs [0003] - [0009], [0029],            [0033], [0034], [0036], [0043],            [0044], [0047], [0049], [0052] - [0054]            figure 4</p>	12-18
Y	<p>US 2008/057948 A1 (MITTAL VINEET [US] ET AL) 6 March 2008 (2008-03-06)            0008, 0033, 0035-0042, 0053, 0055-0058, 0064, 0069, 0074            paragraphs [0008], [0033], [0035] - [0042], [0053], [0055] - [0058], [0064], [0069], [0074]            figure 8</p>	22,23
Y	<p>US 2008/057912 A1 (DEPRUN JEAN-FRANCOIS [FR]) 6 March 2008 (2008-03-06)            0006, 0018, 0027, 0033, 0035, 0037-0039 and 0043; Figure 3            paragraphs [0006], [0018], [0027], [0033], [0035], [0037] - [0039], [0043]            figure 3</p>	22,23
Y	<p>US 6 094 581 A (FRIED TOMAS [SE] ET AL)            25 July 2000 (2000-07-25)            column 4, line 29 - line 62            column 8, line 61 - column 9, line 38            column 11, line 21 - line 64</p>	24-29, 37,38
Y	<p>MOTOROLA: "SCH identity assignment of CSG cells"            3GPP DRAFT; R2-074438, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE,            vol. RAN WG2, no. Shanghai, China;            20071008, 2 October 2007 (2007-10-02),            XP050136992            page 1, line 9 - line 13</p>	24-29, 37,38

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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2009/037876

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 2007/140163 A1 (MEIER ROBERT C [US] ET AL) 21 June 2007 (2007-06-21)	30
Y	abstract paragraphs [0008], [0009], [0012], [0020], [0022], [0023], [0025], [0026], [0028], [0029], [0031], [0033], [0039], [0041], [0042], [0045] - [0048]	31-36
Y	----- US 2007/097938 A1 (NYLANDER TOMAS [SE] ET AL) 3 May 2007 (2007-05-03) abstract paragraphs [0075], [0083], [0086]	31-36
Y	----- WO 2008/001452 A (FUJITSU LTD [JP]; WATANABE KEIZO [JP]; HASEGAWA HAJIME [JP]) 3 January 2008 (2008-01-03) abstract paragraphs [0001] - [0006], [0009] - [0016], [0019] - [0026] figures 1-6	39,40
P,A	& EP 2 034 750 A (FUJITSU LTD [JP]) 11 March 2009 (2009-03-11) abstract paragraphs [0001] - [0006], [0009] - [0016], [0019] - [0026]	39,40
Y	----- PANASONIC: "CSG cell handover" 3GPP DRAFT; R2-080884_CSG CELL HANDOVER, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, vol. RAN WG2, no. Sorrento, Italy; 20080211, 5 February 2008 (2008-02-05), XP050138693 the whole document	39,40

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2009/037876

## 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.

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

1. claims: 1-8

Employing at least one of a hierarchical structure (utilized to organize at least one nodeB and at least one home nodeB and which prioritizes the home nodeB over the nodeB), or a portion of data (related to a received system information block, SIB) to enable a user equipment, UE, to select between a home nodeB and a nodeB.

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2. claims: 9-11 and 19-21

Employing at least one of a hierarchical structure (into which at least one of a nodeB and at least a home nodeB are organized and which prioritizes the home nodeB over the nodeB), a portion of data (related to received system information block, SIB), a PLMN ID (evaluated to identify at least one of the home nodeB or the nodeB), a manual search (utilized with the UE to discover the home nodeB), or a LAC assignment (to distinguish an authorized home nodeB from an unauthorized home nodeB) to enable a user equipment, UE, to select between a home nodeB and a nodeB.

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3. claims: 12-18

Selecting a home nodeB for UE connectivity over a nodeB based upon an evaluation of a portion of data (related to at least one of a home nodeB or a nodeB associated with a macro network) to identify a priority between a home nodeB and a nodeB.

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4. claim: 22 and 23

Identifying at least one of a home nodeB or a nodeB for connectivity (base on a received portion of data) and discovering at least one home nodeB based upon a user initial manual request (wherein the discovery leverages the portion of data).

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5. claims: 24-29, 37 and 38

Establishing connectivity between a UE and at least one of a home nodeB or a nodeB based upon a hierarchical structure that prioritizes connectivity for a UE to the home nodeB over the nodeB.

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6. claims: 30-36

Enabling a UE to connect to at least one of a home nodeB or a nodeB based upon a portion of data related to a detected home nodeB and leveraged to distinguish the home nodeB from a nodeB.

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7. claim: 39 and 40

Receiving a detected home nodeB (to a UE), utilizing a hierarchical structure to organize at least a nodeB and a home nodeB (wherein the hierarchical structure prioritizes the detected home nodeB over a nodeB), and transmitting a portion of data (to the UE).

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## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2009/037876

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