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#### (54) METHOD FOR REPORTING MDT LOG AND MOBILE COMMUNICATION DEVICE UTILIZING THE SAME

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(51) Int. Cl.

**H04W 24/00** (2009.01) **H04W 36/00** (2009.01) **H04W 4/00** (2009.01)

(52) U.S. Cl.

USPC ...... 455/423; 455/436; 455/464; 370/331

(58) Field of Classification Search

USPC ............ 455/423, 436, 437, 464, 455; 370/331 See application file for complete search history.

#### (56) References Cited

#### U.S. PATENT DOCUMENTS

2006/0276188 A1	* 12/2006	Pekonen et al 455/423
2007/0129088 A1	* 6/2007	Gao et al 455/464
2007/0207814 A1	<ul> <li>9/2007</li> </ul>	Usuda et al 455/455
2009/0144340 A1	6/2009	Ferguson et al.
2010/0003981 A1	* 1/2010	Ahluwalia 455/436
2010/0285806 A1	* 11/2010	Iwamura 455/437
2011/0116470 A1	* 5/2011	Arora et al 370/331

#### OTHER PUBLICATIONS

3GPP TS 37.320 V0.5.0 (May 2010).\*

3GPP TS 25.331 V9.1.0 (Dec. 2009), 3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Radio Resource Controll (RRC); Protocol specification (Release 9). 3GPP TS 36.331 V9.1.0 (Dec. 2009), 3rd Generation Partnership Project; Technical Specification Group Radio Access Network: Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification (Release 9).

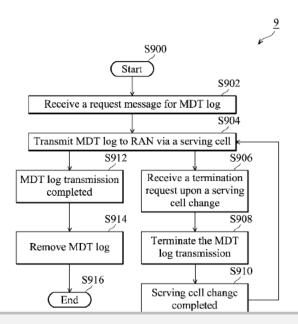
#### (Continued)

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#### (57) ABSTRACT

Methods and mobile communication devices for reporting an MDT log are provided. The method is used in a mobile communication device in a service network comprising a plurality of cells. The method comprises transmitting, by the mobile communication device, an MDT log to the service network via a serving cell upon receiving a request message for the MDT log; and terminating, by the mobile communication device, the transmission of the MDT log in response to a change of the serving cell from a first cell to a second cell in the service network.

#### 13 Claims, 13 Drawing Sheets





#### (56) References Cited

#### OTHER PUBLICATIONS

3GPP TS 37.320 V0.5.0 (May 2010), 3rd Generation Partnership Project; Techical Specification Group TSG RAN Universal Terrestrial Radio Access (UTRA) and evolved Universal Terrestrial Radio Access (E-UTRA); Radio measurement collection for Minimization of Drive Tests (MDT); Overall description; Stage 2 (Release 10). 3GPP TS 37.320, "3rd Generation Partnership Project; Technical Specification Group TSG RAN Universal Terrestrial Radio Access (UTRA) and Evolved Universal Terrestrial radio Access (E-UTRA); Radio Measurement Collection . . . "V0.5.0, May 2010, 13 pages, XP050423423.

Catt, "Handling of the Log Available Indication," 3GPP TSG WG2 Meeting #70, R2-102793, Montreal, Canada, May 10-14, 2010, 2 pages, XP050423135.

Nokia Corporation, Nokia Siemens Networks, "MDT Architecture for Connected Mode Reporting," 3GPP TSG-RAN WG2 Meeting #69, R2-100247, San Francisco, United States, Feb. 22-26, 2010, 3 pages, XP050421728.

Nokia Corporation, Nokia Siemens Networks, "MDT Architecture for Idle Mode Reporting," 3GPP TSG-RAN WG2 Meeting #69, R2-100245, San Francisco, United States, Feb. 22-26, 2010, 5 pages, XP050421727.

3GPP TSG RAN WG2 #70; May 10-14, 2010, Montreal, Canada: Samsung; "Configuration handling for logged MDT"; R2-102783; XP050423127; 3 pages.

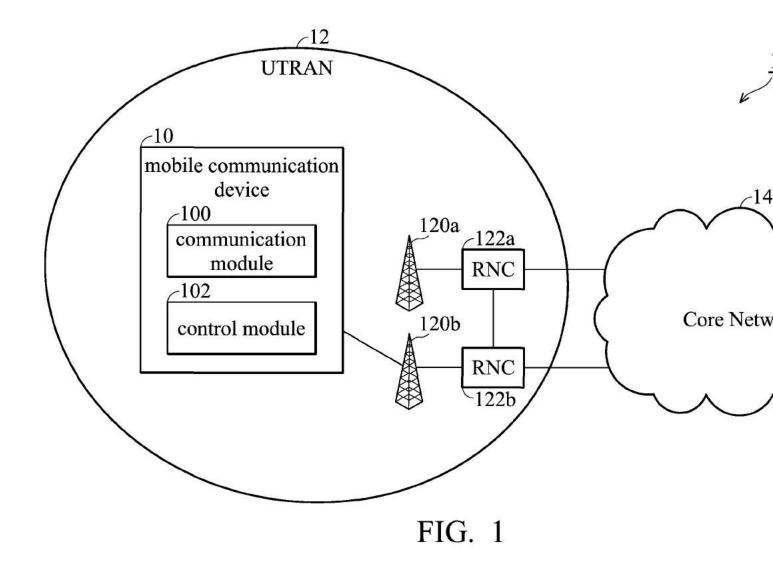
3GPP TSG-RAN WG2 #70; May 10-14, 2010, Montreal, Canada; R2-102997; NTT Docomo, Inc.; "MDT support for roaming and network sharing scenarios"; XP050423216; 4 pages.

3GPP TSG RAN WG2 #70; May 10-14, 2010, Montreal, Canada; 4.3.1; Samsung; Configuration handling for logged MDT; Discussion; pp. 1-3.

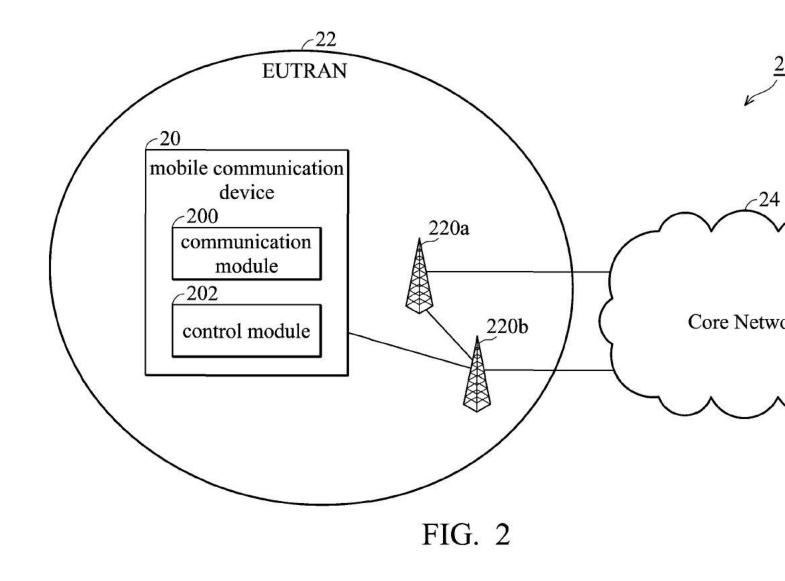
3GPP TSG-RAN WG2 #70; May 10-14, 2010, Montreal, Canada; NTT DOCOMO, Inc., MDT support for roaming and network sharing scenarios; Discussion; 4.3.1.4; pp. 1-4.

\* cited by examiner











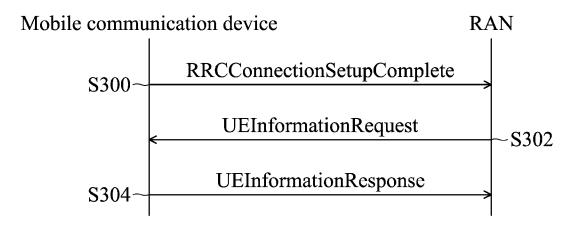


FIG. 3



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