



(51) International Patent Classification:
H04W 24/08 (2009.01)

(21) International Application Number:
PCT/CN20 10/074 128

(22) International Filing Date:
21 June 2010 (21.06.2010)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US) **NOKIA SIEMENS NETWORKS OY** [FI/FI]; Karaportti 3, FIN-02610 Espoo (FI).

(72) Inventors; and

(75) Inventors/ Applicants (for US only): **ZHOU, Weihua** [CN/CN]; Zaojunmiao Jie #16, Haidian District, Beijing 100081 (CN). **ZHANG, Yi** [CN/CN]; Nanshan 2#, Chaoyang District, Beijing 100101 (CN). **TOMALA, Malgorzata** [PL/PL]; Klonowa 7, PL 26-420 Nowe Miasto nad Pilica (PL).

(74) Agent: **KING & WOOD PRC LAWYERS**; 31st Floor, Tower A, Jianwai SOHO, 39 Dongsanhuan Zhonglu, Chaoyang District, Beijing 100022 (CN).

(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, 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 :

— of inventorship (Rule 4.17(iv))

Published:

— with international search report (Art. 21(3))

(54) Title: METHODS AND APPARATUS FOR REPORTING MEASUREMENT INFORMATION

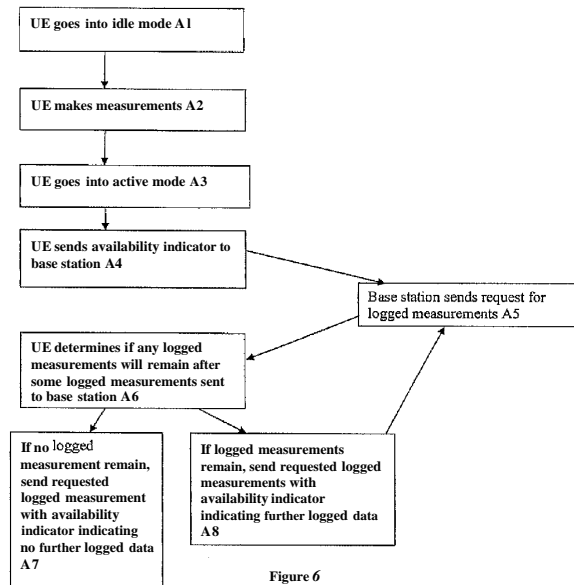


Figure 6

(57) Abstract: A method comprising causing a plurality of measurements to be performed by a user equipment to provide measurement information; causing a message to be sent from the user equipment to a network element indicating that measurement information is available; and responsive to a message from said network element requesting said measurement information, causing a response to be sent from the user equipment to said network with only some of said measurement information and information indicating that further measurement information is available.

WO 2011/160274 A1

METHODS AND APPARATUS FOR REPORTING MEASUREMENT
INFORMATION

5 Some embodiments of the present invention relate to methods and apparatus and in particular but not exclusively to methods and apparatus for the reporting of measurement information.

A communication system can be seen as a facility that enables
10 communication sessions between two or more entities such as user terminals, base stations and/or other nodes by providing carriers between the various entities involved in the communications path. A communication system can be provided for example by means of a communication network and one or more compatible communication
15 devices. The communications may comprise, for example, communication of data for carrying communications such as voice, electronic mail (email), text message, multimedia and/or content data and so on. Non-limiting examples of services provided include two-way or multi-way calls, data communication or
20 multimedia services and access to a data network system, such as the Internet.

In a wireless communication system at least a part of communications between at least two stations occurs over a wireless
25 link. Examples of wireless systems include public land mobile networks (PLMN), satellite based communication systems and different wireless local networks, for example wireless local area networks (WLAN). The wireless systems can typically be divided into cells, and are therefore often referred to as
30 cellular systems.

A user can access the communication system by means of an appropriate communication device or terminal. A communication device of a user is often referred to as user equipment (UE). A
35 communication device is provided with an appropriate signal

receiving and transmitting apparatus for enabling communications, for example enabling access to a communication network or communications directly with other users. The communication device may access a carrier provided by a station, for example
5 a base station of a cell, and transmit and/or receive communications on the carrier.

The communication system and associated devices typically operate in accordance with a given standard or specification
10 which sets out what the various entities associated with the system are permitted to do and how that should be achieved. For example, it can be defined if carrier aggregation is used. Communication protocols and/or parameters which shall be used for the connection are also typically defined. An example of attempts
15 to solve the problems associated with the increased demands for capacity is an architecture that is known as the long-term evolution (LTE) of the Universal Mobile Telecommunications System (UMTS) radio-access technology. The LTE is being standardized by the 3rd Generation Partnership Project (3GPP).
20 The various development stages of the 3GPP LTE specifications are referred to as releases. The aim of the standardization is to achieve a communication system with, inter alia, reduced latency, higher user data rates, improved system capacity and coverage, and reduced cost for the operator. A further development of the
25 LTE is referred to as LTE-Advanced (LTE-A). The LTE-Advanced aims to provide further enhanced services by means of even higher data rates and lower latency with reduced cost.

According to an embodiment, there is provided a method comprising
30 causing a plurality of measurements to be performed by a user equipment to provide measurement information; causing a message to be sent from the user equipment to a network element indicating that measurement information is available; and responsive to a message from said network element requesting said measurement
35 information, causing a response to be sent from the user equipment

to said network element with only some of said measurement information and information indicating that further measurement information is available.

5 According to another embodiment, there is provided a method comprising receiving a message from a user equipment at a network element indicating that measurement information is available; responsive to said message, sending a request for at least some measurement information; and receiving a further message from
10 said user equipment with only some of said measurement information and information indicating that further measurement information is available.

According to a further embodiment, there is provided an
15 apparatus comprising at least one processor and at least one memory comprising computer program code, the at least one memory and the computer program code configured, with the at least one processor to cause the apparatus to: cause a plurality of measurements to be performed by a user equipment to provide
20 measurement information; cause a message to be sent from the user equipment to a network element indicating that measurement information is available; and responsive to a message from said network element requesting said measurement information, cause a response to be sent from the user equipment to said network
25 element with only some of said measurement information and information indicating that further measurement information is available .

According to a further embodiment, there is provided an apparatus
30 comprising at least one processor and at least one memory comprising computer program code, the at least one memory and the computer program code configured, with the at least one processor to cause the apparatus to: receive a message from a user equipment at a network element indicating that measurement information is
35 available; responsive to said message, send a request for at least

some measurement information; and receive a further message from said user equipment with only some of said measurement information and information indicating that further measurement information is available.

5

According to another embodiment, there is provided an apparatus comprising means for receiving a message from a user equipment at a network element indicating that measurement information is available; responsive to said message, means for sending a request for at least some measurement information; and means for receiving a further message from said user equipment with only some of said measurement information and information indicating that further measurement information is available.

10

According to another embodiment, there is provided an apparatus comprising means for causing a plurality of measurements to be performed by a user equipment to provide measurement information; means for causing a message to be sent from the user equipment to a network element indicating that measurement information is available; and means, responsive to a message from said network element requesting said measurement information, for causing a response to be sent from the user equipment to said network element with only some of said measurement information and information indicating that further measurement information is available .

20

25

Some embodiments will now be described, by way of example only, with reference to the following examples and accompanying drawings in which:

30

Figure 1 shows an example of a communication system in which some embodiments of the present invention may be implemented;

Figure 2 shows an example of a communication device;

Figure 3 shows a first signal flow between a UE and a base station embodying the present invention;

35

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.