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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/173,858	06/30/2011	Lei Wang	IDC-10699US02	9868
24374	7590	12/16/2013	EXAMINER	
VOLPE AND KOENIG, P.C. DEPT. ICC UNITED PLAZA 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103			ANSARI, NAJEEBUDDIN	
			ART UNIT	PAPER NUMBER
			2468	
			NOTIFICATION DATE	DELIVERY MODE
			12/16/2013	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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eoffice@volpe-koenig.com

<b>Office Action Summary</b>	<b>Application No.</b> 13/173,858	<b>Applicant(s)</b> WANG ET AL.	
	<b>Examiner</b> NAJEEB ANSARI	<b>Art Unit</b> 2468	<b>AIA (First Inventor to File) Status</b> No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1)  Responsive to communication(s) filed on 08/13/2013.  
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.
- 2a)  This action is **FINAL**.                      2b)  This action is non-final.
- 3)  An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5)  Claim(s) 5-8 and 14-20 is/are pending in the application.  
5a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 6)  Claim(s) \_\_\_\_\_ is/are allowed.
- 7)  Claim(s) 5-8 and 14-20 is/are rejected.
- 8)  Claim(s) \_\_\_\_\_ is/are objected to.
- 9)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

\* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

### Application Papers

- 10)  The specification is objected to by the Examiner.
- 11)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

### Priority under 35 U.S.C. § 119

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

#### Certified copies:

- a)  All    b)  Some \*    c)  None of the:
1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1)  Notice of References Cited (PTO-892)
- 2)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 3)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 4)  Other: \_\_\_\_\_.

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### DETAILED ACTION

In response to Amendment filed 08/13/2013 of which:

Claims 5 and 14 have been amended.

Claims 1-4 and 9-13 have been cancelled.

Claims 5-8 and 14-20 are pending for examination.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-8 and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over IEEE: "IEEE P802.16m/D6 May 2010 Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access System," in view of PARK et al. (US 2011/0194420 A1) hereinafter "IEEE" and "Park" respectively.

**Regarding Claim 5, IEEE teaches A method for wireless communications** (IEEE: chapter 16.2.26.1, i.e. communication between an advanced mobile station and an advanced base station), **comprising:**

**monitoring air link status** (IEEE: chapter 16.2.26.1, first paragraph, where For each AMS, the ABS shall maintain a timer. The timer starts upon the completion of the initial network entry and is reset whenever the ABS receives any data (e.g., MAC PDU or feedback information) from the AMS) **between a Subscriber Station (SS)** (IEEE: chapter 16.2.26.1, i.e. said AMS) **and a Base Station (BS)** (IEEE: chapter 16.2.26.1, i.e. advanced base station (ABS));

**maintaining air link downlink (DL) and uplink (UL) synchronization between the BS and SS according to an air link up/down protocol (ALUDP)** (IEEE: chapter 16.2.3.3, i.e. periodic ranging where the ABS sends a AAI-RNG-ACK to the AMS; chapter 16.2.16, paragraphs c) & d), where When an AMS receives an unsolicited AAI\_RNG-ACK message, it shall reset the periodic ranging timer and adjust its PHY

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parameters as notified in the AAI\_RNG-ACK message; chapter 16.2.26.1, second paragraph, where the ABS shall grant UL burst to the AMS));

**detecting an air link timeout between the SS and BS** (IEEE: chapter 16.2.26.1, second paragraph, where Upon each expiration of the active\_ABS\_timer; see also chapter 16.2.16);

**determining whether the timeout occurred during a scheduled SS absence** (IEEE: chapter 16.2.16, paragraph c) where The AAI\_RNG-ACK message provides responses to all the successfully received and decoded periodic ranging preamble codes in all the ranging opportunities in the previous periodic ranging region); **and on a condition that the timeout occurred during a scheduled SS absence, adjusting the ALUDP** (IEEE: chapter 16.2.3.3, where the ABS sends a AAI-RNG-ACK to the AMS; chapter 16.2.16, paragraphs c) & d), where When an AMS receives an unsolicited AAI\_RNG-ACK message, it shall reset the periodic ranging timer and adjust its PHY parameters as notified in the AAI\_RNG-ACK message); **and**

**providing a timer for coverage loss detection** (IEEE: chapter 16.2.26.1, first paragraph, where For each advanced mobile station (AMS), the ABS shall maintain a timer called active\_ABS\_timer), **wherein the timer for coverage loss detection is reset on a condition that an uplink is received from the SS with its identification information known to the BS** (IEEE: chapter 16.2.26.1, where The timer is reset whenever the ABS receives any data (e.g., MAC PDU or feedback information) from the AMS)...

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IEEE fails to explicitly teach **a periodic timer for periodic ranging is reset using an AAI-RNG-ACK signal on a condition that the BS confirms that the SS is still connected to the BS during coverage loss detection.** In the same field of endeavor, Park teaches a method and system for detecting coverage loss at a base station (Park: paragraph 0033) which can start a timer that indicates standby time for receiving a message for ranging confirmation. The base station transmits a ranging acknowledgement (AAI\_RNG-ACK) message to a mobile station in response to a ranging code. If the base station receives the ranging confirmation message transmitted from the mobile station, it updates the active base station timer (Park: paragraphs 0088-0095 & Fig. 2; see also 0077-0086).

Accordingly, it would have been obvious at the time of the invention to have incorporated the teachings of Park with the standards provided in IEEE to teach the present application. IEEE provides motivation by teaching a periodic ranging timer is reset when an AMS receives a AAI\_RNG-ACK message. Thus a person of ordinary skill in the art would have been motivated to combine the teaching of Park with the standards presented in IEEE to further reset the timer while the mobile station is still connected to the base station as in the present application.

**Regarding Claim 6,** IEEE-Park teaches the respective claim as presented above and further teaches **wherein one of the BS and SS acts as a slave to a master within the ALUDP** (IEEE: chapter 16.2.3.3, where The AAI\_RNG-ACK message is sent by the ABS in response to the CDMA ranging request during initial ranging, period

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ranging and HO ranging in order to provide PHY-level adjustment (e.g., timing offset, power level and frequency offset).

**Regarding Claim 7**, IEEE-Park teaches the respective claim as presented above and further teaches **wherein the SS is the slave and the BS is the master, and the BS provides link status information and UL transmission parameter adjustments** (IEEE: chapter 16.2.3.3, where The AAI\_RNG-ACK message is sent by the ABS in response to the CDMA ranging request during initial ranging, period ranging and HO ranging in order to provide PHY-level adjustment (e.g., timing offset, power level and frequency offset).

**Regarding Claim 8**, IEEE-Park teaches the respective claim as presented above and further teaches **comprising the SS sending a follow-up UL transmission to the BS** (IEEE: chapter 16.2.3.3, where When the AMS receives an unsolicited AAI\_RNG-ACK message, it shall reset the periodic ranging timer and adjust its PHY parameters as notified in the AAI\_RNG-ACK message. Upon reception of ranging preamble codes, the broadcast AAI\_RNG-ACK provides responses to all the successfully received and detected ranging preamble codes in all the ranging opportunities).

**Regarding Claim 15**, IEEE-Park teaches the respective claim as presented above and further teaches **comprising starting at least one timer, and wherein subsequent to the timer's start, the at least one timer expires** (IEEE: chapter

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16.2.26.1, first paragraph, where The timer is reset whenever the ABS receives any data (e.g., MAC PDU or feedback information) from the AMS).

**Regarding Claim 16**, IEEE-Park teaches the respective claim as presented above and further teaches **wherein the at least one timer expires during a scanning interval, and wherein on a condition that the at least one timer expires, the ALUDP grants an uplink burst for coverage loss detection in a next interval** (IEEE: chapter 16.2.26.1, where Upon each expiration of the active\_ABS\_timer, to check whether an AMS is still alive in active mode, the ABS shall grant UL burst to the AMS and the AMS shall transmit a MAC PDU with data or just with padding bytes on the UL grant).

**Regarding Claim 17**, IEEE-Park teaches the respective claim as presented above and further teaches **wherein the timer is a periodic ranging timer** (IEEE: chapter 16.2.3.3, where the ABS sends a AAI-RNG-ACK to the AMS; chapter 16.2.16, paragraphs c) & d), where When an AMS receives an unsolicited AAI\_RNG-ACK message, it shall reset the periodic ranging timer and adjust its PHY parameters as notified in the AAI\_RNG-ACK message).

**Regarding Claim 18**, IEEE-Park teaches the respective claim as presented above and further teaches **wherein the scheduled SS absence takes place during on a condition that the SS is in an idle mode** (IEEE: chapter 16.2.18 idle mode



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initiation, where In the event that the ABS-initiated request (i.e., Unsolicited AAI\_DREG-RSP) and an AMS-initiated request for Idle Mode entry is being handled concurrently, the ABS-initiated request shall take precedence over the AMS-initiated Request).

**Regarding Claim 19**, IEEE-Park teaches the respective claim as presented above and further teaches **wherein on a condition that the SS is in idle mode, the BS suspends monitoring the air link status to the SS in idle mode** (IEEE: chapter 16.2.18.1.1, AMS initiated, where an AMS may signal intent to begin idle mode by sending a AAI\_DREG-REQ message with the De-registration\_Request\_Code).

**Regarding Claim 20**, IEEE-Park teaches the respective claim as presented above and further teaches **wherein the ALUDP temporarily suspends coverage loss detection and periodic ranging on a condition that the SS is in the scheduled SS absence** (IEEE: chapter 16.2.16, paragraph iv), where If the AMS receives a periodic ranging response in the AAI\_RNG-ACK message and the ranging status is "abort", the AMS shall abort the periodic ranging process).

**REMARKS:** Examiner has cited particular chapters and/or paragraphs in the reference as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested of the applicant, in preparing responses, to fully

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consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

### ***Response to Arguments***

Applicant's arguments have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of IEEE-Park as presented above.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NAJEEB ANSARI whose telephone number is (571)270-5446. The examiner can normally be reached on IFP Monday thru Thursday 10:00 - 2:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ASAD NAWAZ can be reached on (571) 272-3988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NAJEEB ANSARI/  
Examiner, Art Unit 2468

/ASAD NAWAZ/

Supervisory Patent Examiner, Art Unit 2468