



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/167,317	01/31/2017	9560559	1291-236.101	8112

106622 7590 01/11/2017
Blue Capital Law Firm, P.C.
650 Town Center Drive, Suite 1530
Costa Mesa, CA 92626

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

INNOVATIVE SONIC CORPORATION, Taipei City, TAIWAN;
Richard Lee-Chee Kuo, Taipei City, TAIWAN;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to : **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571) 273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

106622
Blue Capital Law Firm, P.C.
650 Town Center Drive, Suite 1530
Costa Mesa, CA 92626

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

_____	(Depositor's name)
_____	(Signature)
_____	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/167,317	01/29/2014	Richard Lee-Chee Kuo	1291-236.101	8112

TITLE OF INVENTION:

METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
Nonprovisional	UNDISCOUNTED	\$960	\$0	\$960	12/23/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
Allahyar Kasraian	2642	455-436000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 **Blue Capital Law Firm, P.C.**

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

INNOVATIVE SONIC CORPORATION

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Taipei City, Taiwan

Petitioners' Exhibit 1002, p. 2

AT&T et al v. Innovative Sonic & Celerity
IPR2024-01145

Please check the appropriate assignee category or categories (will not be printed on the patent) :

☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are enclosed:

- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☒ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), or credit any overpayment, to Deposit Account Number _____

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Sang N. Dang/

Date December 19, 2016

Typed or printed name Sang N. Dang

Registration No. 51,186

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lee-Chee Kuo
Title: METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
Serial No.: 14/167,317 Filed: January 29, 2014
Examiner: Allahyar Kasraian Group Art Unit: 2642
Attorney Docket No.: 1291-236.101 (IS1020060-US-D3)

**CERTIFICATE OF EFS-WEB TRANSMISSION
UNDER 37 CFR § 1.8**

I hereby certify that the enclosed 1 Page Issue Fee Transmittal; and Payment by Credit Card are being transmitted to the United States Patent and Trademark Office via EFS-Web on December 19, 2016.

Date: December 19, 2016

/Sandy Kim/

Sandy Kim

Mailing Address:

BLUE CAPITAL LAW FIRM, P.C. (Customer No.: 106622)
650 Town Center Drive, Suite 1530
Costa Mesa, California 92626
Tel: 714-839-3800
Fax: 714-795-2995

Electronic Patent Application Fee Transmittal				
Application Number:		14167317		
Filing Date:		29-Jan-2014		
Title of Invention:		METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM		
First Named Inventor/Applicant Name:		Richard Lee-Chee Kuo		
Filer:		Sang N. Dang/Sandy Kim		
Attorney Docket Number:		1291-236.101		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	960	960

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				960

Electronic Acknowledgement Receipt

EFS ID:	27830787
Application Number:	14167317
International Application Number:	
Confirmation Number:	8112
Title of Invention:	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
First Named Inventor/Applicant Name:	Richard Lee-Chee Kuo
Customer Number:	106622
Filer:	Sang N. Dang/Sandy Kim
Filer Authorized By:	Sang N. Dang
Attorney Docket Number:	1291-236.101
Receipt Date:	19-DEC-2016
Filing Date:	29-JAN-2014
Time Stamp:	14:12:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$960
RAM confirmation Number	122016INTEFSW14143100
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		1291-236-101-- IssueFeeasFiledv2.pdf	51884	yes	2
			d315ad1143c453a3ac2603565ab47ee0fdb bc7a7		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Issue Fee Payment (PTO-85B)		1	1	
	Miscellaneous Incoming Letter		2	2	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30628	no	2
			3636c786dd9897ebc01ac95663166155060 d99bf		
Warnings:					
Information:					
Total Files Size (in bytes):			82512		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



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www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

106622 7590 09/23/2016
Blue Capital Law Firm, P.C.
650 Town Center Drive, Suite 1530
Costa Mesa, CA 92626

EXAMINER

KASRAIAN, ALLAHYAR

ART UNIT

PAPER NUMBER

2642

DATE MAILED: 09/23/2016

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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14/167,317

01/29/2014

Richard Lee-Chee Kuo

1291-236.101

8112

TITLE OF INVENTION: METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	12/23/2016

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or **Fax** (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

106622 7590 09/23/2016
Blue Capital Law Firm, P.C.
650 Town Center Drive, Suite 1530
Costa Mesa, CA 92626

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/167,317	01/29/2014	Richard Lee-Chee Kuo	1291-236.101	8112

TITLE OF INVENTION: METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	12/23/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
KASRAIAN, ALLAHYAR	2642	455-436000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/167,317	01/29/2014	Richard Lee-Chee Kuo	1291-236.101	8112
106622 7590 09/23/2016 Blue Capital Law Firm, P.C. 650 Town Center Drive, Suite 1530 Costa Mesa, CA 92626			EXAMINER KASRAIAN, ALLAHYAR	
			ART UNIT	PAPER NUMBER
			2642	
DATE MAILED: 09/23/2016				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of the Patent Act.

Notice of Allowability	Application No. 14/167,317	Applicant(s) KUO, RICHARD LEE-CHEE	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	AIA (First Inventor to File) Status No

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 09/13/2016.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. ☐ 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.
3. ☒ The allowed claim(s) is/are 1-11. As a result of the allowed claim(s), 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 or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ 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)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. ☒ Notice of References Cited (PTO-892) | 5. ☐ Examiner's Amendment/Comment |
| 2. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 6. ☒ Examiner's Statement of Reasons for Allowance |
| 3. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 7. ☐ Other _____. |
| 4. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____. | |

/ALLAHYAR KASRAIAN/
Primary Examiner, Art Unit 2642

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Remarks

2. The present Office Action is based upon the Applicant's amendment filed on 09/13/2016. **Claims 1-11** are now pending in the present application.

Allowable Subject Matter

3. **Claims 1-11** are allowed.
4. The following is an examiner's statement of reasons for allowance:

Independent **claims 1, 4 and 7** are allowable in view of Applicant's amendments and arguments as filed on 09/13/2016 (see Applicant's remarks on pages 5 to 8 regarding the combinations of the teachings of prior arts, (Li (US Patent Application Publication # 20120315908 A1), Ji et al. (US Patent Application Publication # 20120088516 A1) and Ishii (US Patent Application Publication # 20150017993 A1)).

Therefore, **claims 1-11** are considered novel and non-obvious and are therefore allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

a. Iwamura et al. (US 20120165020 A1) disclose MOBILE COMMUNICATION METHOD, MOBILE STATION, AND RADIO BASE STATION.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez Gutierrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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.

Application/Control Number: 14/167,317
Art Unit: 2642

Page 4

/ALLAHYAR KASRAIAN/
Primary Examiner, Art Unit 2642

Notice of References Cited	Application/Control No. 14/167,317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2012/0165020 A1	06-2012	Iwamura; Mikio	H04W36/0094	455/436
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

CPC- SEARCHED		
Symbol	Date	Examiner
H04W84/045, H04W24/10, H04W48/16, H04W36/0083, H04W36/0094, H04W24/02, H04W36/0088, H04W48/08, H04W72/00, H04W36/04, H04W36/0066, H04W88/08, H04W36/00, H04W36/026, H04W36/14, H04W72/1273	8/12/2015	AK
H04J11/0069 OR H04L1/0027	8/12/2015	AK

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	436-444	2/23/2015	AK
370	331-333	2/23/2015	AK

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached search strategy)	2/23/2015	AK
Inventor name and Assignee search in PALM ExPo and EAST	2/23/2015	AK
(H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027)	2/23/2015	AK
(455/436-444.ccls. 370/331-333.ccls.)	2/23/2015	AK
updated search	8/12/2015	AK
updated search	12/21/2015	AK
updated search	3/22/2016	AK
updated search	6/13/2016	AK
updated search	9/19/2016	AK

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
see EAST search	see EAST search	9/19/2016	AK

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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Issue Classification 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	

CPC						
Symbol					Type	Version
H04W		36		0088	F	2013-01-01
H04W		24		10	I	2013-01-01
H04W		84		045	A	2013-01-01
H04W		72		04	I	2013-01-01
						
						
						
						
						
						
						
						
						
						
						

CPC Combination Sets					
Symbol		Type	Set	Ranking	Version
					
					

NONE		Total Claims Allowed:	
		11	
(Assistant Examiner)	(Date)		
/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642	09/19/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	5

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	0	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (shar\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/19 11:08
L3	0	(h04w\$/\$.opc.) and measurement near2 gap with (shar\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/19 11:09
L4	16	(h04w\$/\$.opc.) and measurement near2 gap with (shar\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/19 11:09
L5	12	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (shar\$3 transfer\$3 transmit\$4 send43) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico micro neighbour\$3 neighbor\$3) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/19 11:17
L6	2	(measurement near2 gap with (shar\$3 transfer\$3 transmit\$4 send43) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico micro neighbour\$3 neighbor\$3) and (serv\$3 (provid\$3 near2 service)) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico micro neighbour\$3 neighbor\$3)).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/19 11:24
L7	0	(measurement near2 gap with (shar\$3 transfer\$3 transmit\$4 send43) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico micro neighbour\$3 neighbor\$3) and (serv\$3 (provid\$3 near2 service)) with (both together) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico micro neighbour\$3 neighbor\$3)).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/19 11:26
S1	1	14/ 167317	US-PGPUB;	OR	ON	2015/02/20

			USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB			20:01
S4	392	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:46
S5	19	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:53
S6	0	"20120188907" with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S7	1	"20120188907" and (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S8	16	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:38
S9	5	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (femto micro pico) near3 (cell (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:55
S10	15	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (receiv\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:09
S11	0	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with target near3 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:13
S12	0	configuration near2 gap with target near3 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:14
S13	0	configuration near2 gap with shar\$3 with	US-PGPUB;	OR	ON	2015/02/22

		(node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB			19:15
S14	17	configuration near2 gap with (receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S15	24	configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:09
S16	0	measurment near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:19
S17	191	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:20
S18	3	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with target near2 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:21
S19	10	measurement near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:31
S20	220	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 00:48
S21	11	(pattern measurement configuration) near2 gap with (femto micro) and S20	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 01:01
S22	22	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 01:17
S23	25	(pattern measurement configuration) near2	US-PGPUB;	OR	ON	2015/02/23

		gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (cell) and (@ad<="20130208" @rlad<="20130208")	USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB			02:40
S24	18	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto)near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:50
S25	6	((pattern measurement configuration) near2 gap with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b)).ab. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 09:42
S26	232	((Richard) near2 (Kuo)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/23 10:48
S27	6	S26 and ((pattern measurement configuration) near2 gap) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
S28	2	S26 and ((pattern measurement configuration) near2 gap).clm. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
S29	11	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:52
S30	14	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (second target destiation) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:55
S31	61	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto second\$2 target destination) near4 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:58
S32	55	S31 AND ((H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 11:02

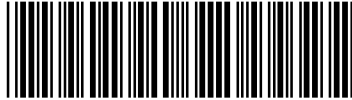
		H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027).CPC.)				
S33	125	macro with (request\$3 ask\$3 configur\$3) with femto with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:04
S34	4	S33 and macro with femto with (concurrent\$3 simultaneous\$4) with serv\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:07
S35	8	macro with femto with (concurrent\$3 simultaneous\$4) with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:12
S36	25	femto with (concurrent\$3 simultaneous\$4) with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 11:16
S37	76	femto with (concurrent\$3 simultaneous\$4) with macro with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 11:52
S38	2	"20130137434".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 14:29
S39	5	femto with (concurrent\$3 simultaneous\$4) with macro with (serv\$3 provid\$3) near5 (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/12/14 01:21
S40	176	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/03/21 19:01
S41	4	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (target second\$2) near2 (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/03/21 19:03
S42	16	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3	US-PGPUB; USPAT;	OR	ON	2016/06/12 20:06

		transmit\$3 send\$3) with (resource) with schedul\$3 and (@ad<="20130208" @rlad<="20130208")	USOCR; EPO; JPO; DERWENT; IBM_TDB			
S43	11	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) with between and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:11
S44	55	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:15
S45	2	S44 and measurement near2 gap with schedul\$3 with resource	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:17
S46	21	S44 and schedul\$3 with resource	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:19
S47	13	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:25

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L8	0	(measurement near2 gap with (shar\$3 transfer\$3 transmit\$4 send\$4) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico micro neighbour\$3 neighbor\$3) and (serv\$3 (provid\$3 near2 service)) with (both together) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico micro neighbour\$3 neighbor\$3)).clm.	US-PGPUB; USPAT	OR	ON	2016/09/19 11:26

9/ 19/ 2016 11:49:06 AM
C:\ Users\ akasraian\ Documents\ EAST\ Workspaces\ 14167317_01.wsp

<i>Index of Claims</i> 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	02/23/2015	08/12/2015	12/14/2015	03/22/2016	06/13/2016	09/19/2016			
	1	✓	✓	✓	✓	✓	=			
	2	✓	✓	✓	✓	✓	=			
	3	✓	✓	✓	✓	✓	=			
	4	✓	✓	✓	✓	✓	=			
	5	✓	✓	✓	✓	✓	=			
	6	✓	✓	✓	✓	✓	=			
	7	✓	✓	✓	✓	✓	=			
	8	✓	✓	✓	✓	✓	=			
	9	✓	✓	✓	✓	✓	=			
	10	✓	✓	✓	✓	✓	=			
	11	✓	✓	✓	✓	✓	=			

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/167,317	Filing Date 01/29/2014	☐ To be Mailed
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ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO**APPLICATION AS FILED – PART I**

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	09/13/2016	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 11	Minus	** 20	= 0	X \$80 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE						0	

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
LAVINIA JOHNSON

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Docket No. 1291-236.101 (IS 1020060-US-D3)
Appl. No. 14/167,317
Amdt. Dated September 13, 2016
Reply to Office Action of June 16, 2016

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 14/167,317
Confirmation No. : 8112
Applicant : Richard Lee-Chee Kuo
Filed : January 29, 2014
Title : METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
TC/A.U. : 2642
Examiner : Allahyar Kasrianian
Docket No. : 1291-236.101 (IS 1010082-US-D3)
Customer No. : 106622

Amendment to Office Action

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action mailed on June 16, 2016, having a three-month period for filing a response to **September 16, 2016**, Applicant submits the following remarks.

Claims begin on page 2.

Remarks begin on page 5.

IN THE CLAIMS:

1. (Previously Presented) A method for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, comprising:

a first eNB controls a first cell, wherein the first cell is serving a UE (User Equipment);
and

the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB;

the first eNB allocates a measurement gap configuration to the UE; and

the first eNB sends the measurement gap configuration to the second eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.

2. (Original) The method of claim 1, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

3. (Original) The method of claim 1, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

4. (Previously Presented) A communication device for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, the communication device comprising:

a control circuit;

a processor installed in the control circuit;

a memory installed in the control circuit and operatively coupled to the processor;

wherein the processor is configured to execute a program code stored in memory to implement small cell enhancements by:

controlling a first cell via a first eNB, wherein the first cell is serving a UE (User Equipment); and

configuring, via the first eNB, a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB;

allocating, via the first eNB, a measurement gap configuration to the UE; and

sending, from the first eNB, the measurement gap configuration to the second eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.

5. (Original) The communication device of claim 4, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

6. (Original) The communication device of claim 4, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

7. (Previously Presented) A method for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity and a UE (User Equipment) is served by a first cell controlled by a first eNB, comprising:

a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell; and

the second eNB receives a measurement gap configuration from the first eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE, wherein the measurement gap configuration was allocated by the first eNB to the UE.

8. (Original) The method of claim 7, further comprises:

the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE.

9. (Original) The method of claim 8, wherein the resources contain downlink assignments and/or uplink grants.

10. (Original) The method of claim 7, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

11. (Original) The method of claim 7, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

REMARKS

Claims 1-11 are pending in the application. In the Office Action, claims 1-11 stand rejected under 35 U.S.C. § 103 as being unpatentable over the combination of Li (U.S. Patent Publication No. 2012/0315908), Ji (U.S. Patent Publication No. 2012/0088516), and Ishii (U.S. Patent Publication No. 2015/0017993). *See* Office Action, Page 3. Applicant respectfully traverses the rejection.

I. Response to Applicant's Arguments

In Response to Applicant's arguments filed on May 25, 2016, the Office Action states:

On the bridging paragraph between pages 5 and 6 of the Applicant's remarks, Applicant argues, "the UE is served by base station A when base station A sends the measurement gap to base station B. In this situation, base station B does not schedule resources to the UE because the UE is not served by base station B." Examiner respectfully traverses. **Regardless of which of the base station is a serving base station**, Examiner considers the teachings of Ji as obviousness since the purpose of the Ji's invention is to determine a measurement gap associated with a the base stations for an inter-frequency or an inter-RAT radio resource measurement, and designating at least one subframe for radio resource measurements associated with the one base station falls within the measurement gap associated with the other base station. Furthermore, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between base stations.

Applicant(s) is reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claim. The Examiner is not limited to Applicant's definition, which is not specifically set forth in the claims, *In re Tanaka et al.* 193 USPQ 139, (CCPA) 1977.

See Office Action, Pages 14-15, emphasis added.

Applicant respectfully disagrees. The claims clearly recites that the second eNB, which is the eNB that receives a measurement gap configuration, is a **serving** base station. In particular, claim 1 recites "the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB." Similarly, claim 4 recites "configuring, via the first eNB, a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB." Furthermore, claim 7 recites "a second eNB controls a second

cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell.”

Under the circumstances, Applicant respectfully submits that whether the base station receiving the measurement gap configuration is a serving base station or a non-serving base station is significant since the claims clearly recite that the second eNB is a serving base station. It is noted that a UE can obtain radio resources from a serving base station for downlink/uplink transmission, while the UE cannot obtain radio resources from a non-serving base station for downlink/uplink transmission.

II. Rejection Under 35 U.S.C. § 103

Claim 1 recites “the first eNB [(e.g., Base Station A)] sends the measurement gap configuration to the second eNB [(e.g., Base Station B)] so that the second eNB [(e.g., Base Station B)] could take measurement gaps into consideration when scheduling resources to the UE.” Similarly, claim 4 recites “sending, from the first eNB [(e.g., Base Station A)], the measurement gap configuration to the second eNB [(e.g., Base Station B)] so that the second eNB [(e.g., Base Station B)] could take measurement gaps into consideration when scheduling resources to the UE.” Furthermore, claim 7 recites “the second eNB [(e.g., Base Station B)] receives a measurement gap configuration from the first eNB [(e.g., Base Station A)] so that the second eNB [(e.g., Base Station B)] could take measurement gaps into consideration when scheduling resources to the UE.”

Furthermore, as discussed above, the claims clearly recites that the second eNB (e.g., Base Station B), which is the eNB that receives a measurement gap configuration, is a serving base station. In particular, claim 1 recites “the first eNB [(e.g., Base Station A)] configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB [(e.g., Base Station B)].” Similarly, claim 4 recites “configuring, via the first eNB [(e.g., Base Station A)], a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB [(e.g., Base Station B)].” Furthermore, claim 7 recites “a second eNB [(e.g., Base Station B)] controls a second cell, wherein the second cell is configured by the first eNB [(e.g., Base Station A)] to serve the UE together with the first cell.” Applicant respectfully submits that the combination of Li, Ji, and Ishii fails to disclose the noted limitations.

As described in Paragraph [0021] in Li, Li discloses a method for performing handover when a UE moves to a femto-cell from a macro-cell. FIG. 3 of Li shows an inbound handover procedure. Li clearly discloses that the UE is served by the macro-cell alone before the handover and is served by the femto-cell alone after handover.

Furthermore, Paragraph [0037] of Ji describes that in FIG. 1 of Ji, a solid line with double arrows indicates desired transmissions between a UE and a serving eNB, which is an eNB designated to serve the UE on the downlink and/or uplink, while a dashed line with double arrows indicates interfering transmissions between a UE and an eNB since each UE is only served by one eNB in FIG. 1 of Ji. Also, Paragraph [0047] of Ji states that a UE may be within the coverage of multiple eNBs and one of these eNBs may be selected to serve the UE. The serving eNB may be selected based on various criteria such as received power, pathloss, signal-to-noise ratio (SNR), etc. Paragraph [0089] of Ji further describes that during a measurement gap, communication with serving cell is temporarily suspended such that a UE may measure other non-serving cells for inter-frequency or inter-RAT handover. Therefore, it is clear that Ji also addresses a scenario of handover.

Paragraph [0085] of Ji describes a problem to be solved, which is “used for measuring cells for inter-frequency or inter- RAT handover, the current measurement gap (6 ms in LTE) may not be compatible with interlace-based semi-static partitioning (i.e., RPI). The 6 ms gap with a 40 ms periodicity may permanently miss the U interlace.” The corresponding solution is described below based on Paragraphs [0097], [0098], and [100] of Ji.

According to Paragraphs [0097] and [0100] of Ji, an indication of the measurement gap associated with a second base station (e.g., Base Station A) is received by the first base station (e.g., Base Station B) via a backhaul between the first base station (Base Station B) and the second base station (Base Station A). The first base station (Base Station B) receives the measurement gap from the second base station (Base Station A). The first base station (Base Station B) then generates resource partition information (RPI) by determining certain time and/or frequency resources to use for communicating with one or more UEs served by the first base station (Base Station B) as discussed in Paragraph [0098] of Ji. The RPI is generated such that at least one subframe designated for resource measurements associated with the first base station (Base Station B) falls within the measurement gap associated with the second base station (Base Station A).

After that, the first base station (Base Station B) transmits subframes according to the generated RPI; and these subframes include at least one subframe designated for radio resource measurements associated with the first base station (Base Station B) that falls within the measurement gap associated with the second base station (Base Station A), which means UEs served by the second base station (Base Station A) would be able to make radio resource measurements of signals from the first base station (Base Station B). **It is noted that Ji discloses a UE that is served by the second base station (Base Station A) and is not served by the first base station (Base Station B) at the same time.**

In contrast, claim 1 recites “the first eNB [or Base Station A] configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB [or Base Station B]”. Furthermore, the first eNB (or Base Station A) sends the measurement gap configuration to the second eNB (or Base Station B) “**so that the second eNB [or Base Station B] could take measurement gaps into consideration when scheduling resources to the UE**”. As recited in the claims, the claimed UE is served by both Base Stations A and B.

If a base station serves multiple UEs, the base station would need to schedule resources to these UEs for downlink/uplink transmission. This is well known to skill persons in this art. However, since the first base station (or Base Station B) disclosed in Ji does **not** serve the concerned UE, the first base station (or Base Station B) would not schedule resources to the UE. Therefore, Ji does **not** disclose “**so that the second eNB [or Base Station B (i.e., the first base station in Ji)] could take measurement gaps into consideration when scheduling resources to the UE**” as recited in claims 1, 4, and 7.

Furthermore, Ji addresses handover (i.e., a UE is served by single base station), while Ishii addresses dual connectivity (i.e., a UE is served by two base stations at the same time). As a result, Applicant respectfully submits that it is **improper** to combine Ji with Ishii to derive the claimed invention as recited in the claims.

Based on the foregoing, Applicant respectfully submits that claims 1-11 are patentable over any combination of Li, Ji, and/or Ishii.

In view of the foregoing it is respectfully submitted that the pending claims are in condition for allowance. Reconsideration of the rejections is requested. Allowance of the claims is solicited.

Docket No. 1291-236.101 (IS 1020060-US-D3)

Appl. No. 14/167,317

Amdt. Dated September 13, 2016

Reply to Office Action of June 16, 2016

The Examiner is invited to contact Applicant's undersigned counsel by telephone at (714) 839-3800 to expedite the prosecution of this case should there be any unresolved matters remaining.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made.

Respectfully submitted,

Sang N. Dang

BLUE CAPITAL LAW FIRM, P.C.

Dated: September 13, 2016

/Sang N. Dang/

Reg. No. 51,186

Tel.: (714) 839-3800

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lee-Chee Kuo
Title: METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
Serial No.: 14/167,317 Filed: January 29, 2014
Examiner: Allahyar Kasraian Group Art Unit: 2642
Attorney Docket No.: 1291-236.101 (IS1020060-US-D3)

**CERTIFICATE OF EFS-WEB TRANSMISSION
UNDER 37 CFR § 1.8**

I hereby certify that the enclosed 2 Page Amendment Transmittal; and 9 Page
Amendment are being transmitted to the United States Patent and Trademark Office via EFS-
Web on September 13, 2016.

Date: September 13, 2016

/Sandy Kim/

Sandy Kim

Mailing Address:

BLUE CAPITAL LAW FIRM, P.C. (Customer No.: 106622)
650 Town Center Drive, Suite 1530
Costa Mesa, California 92626
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Fax: 714-795-2995

Electronic Acknowledgement Receipt

EFS ID:	26908883
Application Number:	14167317
International Application Number:	
Confirmation Number:	8112
Title of Invention:	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
First Named Inventor/Applicant Name:	Richard Lee-Chee Kuo
Customer Number:	106622
Filer:	Sang N. Dang/Sandy Kim
Filer Authorized By:	Sang N. Dang
Attorney Docket Number:	1291-236.101
Receipt Date:	13-SEP-2016
Filing Date:	29-JAN-2014
Time Stamp:	14:09:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		1291-236-101-- ROAof06162016asFiled091320 16.pdf	155851 f445b9c851cf0d16f3cfe919755e4bbaba3d4ffe	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Transmittal Letter	1	2
	Amendment/Req. Reconsideration-After Non-Final Reject	3	3
	Claims	4	6
	Applicant Arguments/Remarks Made in an Amendment	7	11
	Miscellaneous Incoming Letter	12	12
Warnings:			
Information:			
Total Files Size (in bytes):		155851	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			

Amendment Transmittal Letter

Docket Number

1291-236.101

Address To
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Title of Invention

METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

First Named Inventor **Richard Lee-Chee Kuo**

Application No. **14/167,317**

Filing Date **January 29, 2014**

Examiner **Allahyar Kasraian**

Art Unit **2642**

Transmitted herewith is an amendment in the above-identified application.

The fee has been calculated and is transmitted as shown below.

☐ Applicant claims Small Entity Status. See 37 CFR 1.27.

Fee Calculation

Claims as Amended

For	#Filed	#Previously Paid For	#Extra	Rate	Fee
Total Claims	11	- 20 =		x 80 =	
Total Indep. Claims	3	- 3 =		x 420 =	
Multiple Dependent Claims (check if applicable) ☐					
TOTAL					\$0

Method of Payment

☐ Deposit Account ☐ Credit Card ☐ Check ☐ Money Order ☐ Other: _____

Deposit Account Number _____

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

- ☐ Charge the fee(s) set forth above
☐ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17
☐ Charge fee(s) indicated above, **except for the filing fee**
☐ Credit any overpayments

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Amount Grand Total _____ **\$0**

Amendment Transmittal Letter

Docket Number

1291-236.101

Correspondence Address

Customer Number 106622

-OR-

Name

Address

City

State

Country

Postal Code

Phone Number

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Attorney for Applicant(s)

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sdang@bluecapitallaw.com

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/167,317	01/29/2014	Richard Lee-Chee Kuo	1291-236.101	8112

106622 7590 06/16/2016
Blue Capital Law Firm, P.C.
650 Town Center Drive, Suite 1530
Costa Mesa, CA 92626

EXAMINER

KASRAIAN, ALLAHYAR

ART UNIT	PAPER NUMBER
----------	--------------

2642

NOTIFICATION DATE	DELIVERY MODE
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06/16/2016

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@bluecapitallaw.com

Office Action Summary	Application No. 14/167,317	Applicant(s) KUO, RICHARD LEE-CHEE	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	AIA (First Inventor to File) Status 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 MONTHS 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 05/25/2016.
☐ 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) 1-11 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) 1-11 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 or send an inquiry to 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) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____ | 4) ☐ Other: _____ |

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/25/2016 has been entered.

Remarks

3. The present Office Action is in response to Applicant's amendment filed on 05/25/2016. **Claims 1-11** are still pending in the present application.

Claim Rejections - 35 USC § 103

4. The following is a quotation of pre-AIA 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.

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5. 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 pre-AIA 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.

A. **Claims 1-11** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Li (US Patent Application Publication # 20120315908 A1)** in view of **Ji et al. (US Patent Application Publication # 20120088516 A1)** (hereinafter Ji) and further in view of **Ishii (US Patent Application Publication # 20150017993 A1)**.

Regarding **claim 1**, Li discloses a method in a wireless communication system (FIGS. 1 and 3), comprising:

a first eNB controls a first cell, wherein the first cell is serving a UE (User Equipment) (FIG. 1, par. 0026); and

the first eNB configures a second cell to serve the UE, wherein the second cell is controlled by a second eNB (FIG. 3, par. 0040-0041);

the first eNB allocates a measurement gap configuration to the UE (par. 0041).

However, Li fails to explicitly disclose the first eNB sends the measurement gap configuration to the second eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.

In the same field of endeavor, Ji discloses the first eNB sends the measurement gap configuration to the second eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”; and par. 0098-0100, for “*The RPI is generated such that at least one subframe designated for radio resource measurements associated with the first base station falls within the measurement gap associated with the second base station...* At block 906, the first base station may transmit subframes according to the generated RPI. *These subframes include the at least one subframe designated for radio resource measurements associated with the first base station that falls within the measurement gap associated with the second base station...* the first base station *uses a different RAT than the second base station*. For certain aspects, *the first base station uses a different frequency than the second base station*. For certain aspects, the at least one subframe comprises more than two subframes. For certain aspects, an indication of the measurement gap may be received by the first base station via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the

first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap between the first and second base stations and generating resource partitioning information (RPI) at a first base station such that at least one subframe designated for radio resource measurement falls within a measurement gap associated with the second base station.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and the first eNB configures a second cell to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

the first eNB configures a second cell to serve the UE together with the first cell. (par. 0071 for "The D2UE connections are controlled by the Macro base station. More specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE

and the Macro base station are maintained while the D2UE connections are configured.”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 2**, Li as modified by Ji as modified by Ishii discloses the claimed invention **as applied to claim 1 above**, and Li further discloses wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements (par. 0050).

Regarding **claim 3**, Li as modified by Ji as modified by Ishii discloses the claimed invention **as applied to claim 1 above**, and Li further discloses wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB (par. 0041).

Regarding **claim 4**, Li discloses a communication device in a wireless communication system (FIGS. 1 and 3 for any of eNB, MME or HeNB), the communication device comprising:

- a control circuit (for any inherent control circuit of eNB, MME or HeNB);
- a processor installed in the control circuit (for any inherent processor of eNB, MME or HeNB);

a memory installed in the control circuit and operatively coupled to the processor (for any inherent memory of eNB, MME or HeNB);

wherein the processor is configured to execute a program code stored in memory (for any inherent program code installed in inherent memory of (for any inherent control circuit of eNB, MME or HeNB)) to implement small cell enhancements by:

controlling a first cell via a first eNB, wherein the first cell is serving a UE (User Equipment) FIG. 1, par. 0026); and

configuring, via the first eNB, a second cell to serve the UE, wherein the second cell is controlled by a second eNB (FIG. 3, par. 0040-0041);

allocating, via the first eNB, a measurement gap configuration to the UE (par. 0041).

However, Li fails to disclose sending, from the first eNB, the measurement gap configuration to the second eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.

In the same field of endeavor, Ji discloses the first eNB sends the measurement gap configuration to the second eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”; and par. 0098-0100, for “*The RPI is generated such that at least one subframe designated for*

radio resource measurements associated with the first base station falls within the measurement gap associated with the second base station... At block 906, the first base station may transmit subframes according to the generated RPI. *These subframes include the at least one subframe designated for radio resource measurements associated with the first base station that falls within the measurement gap associated with the second base station...* the first base station uses a different RAT than the second base station. For certain aspects, *the first base station uses a different frequency than the second base station.* For certain aspects, the at least one subframe comprises more than two subframes. For certain aspects, an indication of the measurement gap may be received by the first base station via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap between the first and second base stations and generating resource partitioning information (RPI) at a first base station such that at least one subframe designated for radio resource measurement falls within a measurement gap associated with the second base station.

In the same field of endeavor, sending, from the first eNB, the measurement gap configuration to the second eNB (FIG. 9, par. 0097 for “a first base station may

determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and the first eNB configures a second cell to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

the first eNB configures a second cell to serve the UE together with the first cell. (par. 0071 for "The D2UE connections are controlled by the Macro base station. More

specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE and the Macro base station are maintained while the D2UE connections are configured.”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 5 as applied to claim 4 above**, the claim is rejected for the same reason(s) as set forth claim 2 above.

Regarding **claim 6 as applied to claim 4 above**, the claim is rejected for the same reason(s) as set forth claim 3 above.

Regarding **claim 7**, Li discloses a method in a wireless communication system, wherein a UE (User Equipment) is served by a first cell controlled by a first eNB (FIG. 1, par. 0026), comprising:

a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE (FIG. 3, par. 0040-0041).

However, Li fails to explicitly disclose the second eNB receives a measurement gap configuration from the first eNB so that the second eNB could take measurement

gaps into consideration when scheduling resources to the UE, wherein the measurement gap configuration was allocated by the first eNB to the UE.

In the same field of endeavor, Ji discloses the second eNB receives a measurement gap configuration from the first eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE, wherein the measurement gap configuration was allocated by the first eNB to the UE (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”; and par. 0098-0100, for “*The RPI is generated such that at least one subframe designated for radio resource measurements associated with the first base station falls within the measurement gap associated with the second base station...* At block 906, the first base station may transmit subframes according to the generated RPI. *These subframes include the at least one subframe designated for radio resource measurements associated with the first base station that falls within the measurement gap associated with the second base station...* the first base station *uses a different RAT than the second base station.* For certain aspects, *the first base station uses a different frequency than the second base station.* For certain aspects, the at least one subframe comprises more than two subframes. For certain aspects, an indication of the measurement gap may be received by the first base station via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap between the first and second base stations and generating resource partitioning information (RPI) at a first base station such that at least one subframe designated for radio resource measurement falls within a measurement gap associated with the second base station.

In the same field of endeavor, sending, from the first eNB, the measurement gap configuration to the second eNB (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and wherein the second cell is configured by the first eNB to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

wherein the second cell is configured by the first eNB to serve the UE together with the first cell (par. 0071 for "The D2UE connections are controlled by the Macro base station. More specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE and the Macro base station are maintained while the D2UE connections are configured.").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 8 as applied to claim 7 above**, and Ji further discloses the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE (par. 0090).

Regarding **claim 9 as applied to claim 8 above**, and Ji further discloses wherein the resources contain downlink assignments and/or uplink grants (par. 0041).

Regarding **claim 10 as applied to claim 7 above**, and Ji further discloses wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements (par. 0061).

Regarding **claim 11 as applied to claim 7 above**, the claim is rejected for the same reason(s) as set forth claim 3 above.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 4 and 7 have been considered but are moot in view of the new ground(s) of rejection necessitated by the new added limitation added to claims 1, 4 and 7. See the rejections above for claims 1, 4, and 7 for relevant citations found in disclosing the newly added limitations.

7. Applicant's arguments filed 05/25/2016 have been fully considered but they are not persuasive.

On the bridging paragraph between pages 5 and 6 of the Applicant's remarks, Applicant argues, "the UE is served by base station A when base station A sends the measurement gap to base station B. In this situation, base station B does not schedule resources to the UE because the UE is not served by base station B." Examiner

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respectfully traverses. Regardless of which of the base station is a serving base station, Examiner considers the teachings of Ji as obviousness since the purpose of the Ji's invention is to determine a measurement gap associated with a the base stations for an inter-frequency or an inter-RAT radio resource measurement, and designating at least one subframe for radio resource measurements associated with the one base station falls within the measurement gap associated with the other base station. Furthermore, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between base stations.

Applicant(s) is reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claim. The Examiner is not limited to Applicant's definition, which is not specifically set forth in the claims, *In re Tanaka et al.* 193 USPQ 139, (CCPA) 1977.

Conclusion

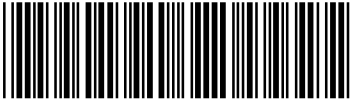
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez Gutierrez can be reached on 571-272-7915. 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.

/ALLAHYAR KASRAIAN/
Primary Examiner, Art Unit 2642

Search Notes 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

CPC- SEARCHED		
Symbol	Date	Examiner
H04W84/045, H04W24/10, H04W48/16, H04W36/0083, H04W36/0094, H04W24/02, H04W36/0088, H04W48/08, H04W72/00, H04W36/04, H04W36/0066, H04W88/08, H04W36/00, H04W36/026, H04W36/14, H04W72/1273	8/12/2015	AK
H04J11/0069 OR H04L1/0027	8/12/2015	AK

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	436-444	2/23/2015	AK
370	331-333	2/23/2015	AK

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached search strategy)	2/23/2015	AK
Inventor name and Assignee search in PALM ExPo and EAST	2/23/2015	AK
(H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027)	2/23/2015	AK
(455/436-444.ccls. 370/331-333.ccls.)	2/23/2015	AK
updated search	8/12/2015	AK
updated search	12/21/2015	AK
updated search	3/22/2016	AK
updated search	6/13/2016	AK

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	14/167317	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 20:01
S4	392	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:46
S5	19	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:53
S6	0	"20120188907" with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S7	1	"20120188907" and (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S8	16	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:38
S9	5	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (femto micro pico) near3 (cell (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:55
S10	15	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (receiv\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:09
S11	0	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with target near3	US-PGPUB; USPAT;	OR	ON	2015/02/22 19:13

		(node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	USOCR; EPO; JPO; DERWENT; IBM_TDB			
S12	0	configuration near2 gap with target near3 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:14
S13	0	configuration near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S14	17	configuration near2 gap with (receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S15	24	configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:09
S16	0	measurment near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:19
S17	191	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:20
S18	3	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with target near2 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:21
S19	10	measurement near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:31
S20	220	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 00:48
S21	11	(pattern measurement configuration) near2 gap with (femto micro) and S20	US-PGPUB; USPAT;	OR	ON	2015/02/23 01:01

			USOCR; EPO; JPO; DERWENT; IBM_TDB			
S22	22	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 01:17
S23	25	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:40
S24	18	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto)near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:50
S25	6	((pattern measurement configuration) near2 gap with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b)).ab. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 09:42
S26	232	((Richard) near2 (Kuo)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/23 10:48
S27	6	S26 and ((pattern measurement configuration) near2 gap) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
S28	2	S26 and ((pattern measurement configuration) near2 gap).clm. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
S29	11	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:52
S30	14	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (second target destiation) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:55
S31	61	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto	US-PGPUB; USPAT; USOCR;	OR	ON	2015/02/23 10:58

		second\$2 target destination) near4 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	EPO; JPO; DERWENT; IBM_TDB			
S32	55	S31 AND ((H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027).CPC.)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 11:02
S33	125	macro with (request\$3 ask\$3 configur\$3) with femto with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:04
S34	4	S33 and macro with femto with (concurrent\$3 simultaneous\$4) with serv\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:07
S35	8	macro with femto with (concurrent\$3 simultaneous\$4) with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:12
S36	25	femto with (concurrent\$3 simultaneous\$4) with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 11:16
S37	76	femto with (concurrent\$3 simultaneous\$4) with macro with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 11:52
S38	2	"20130137434".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 14:29
S39	5	femto with (concurrent\$3 simultaneous\$4) with macro with (serv\$3 provid\$3) near5 (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/12/14 01:21
S40	176	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b	US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	2016/03/21 19:01

		enb\$2 BS\$2 BTS\$2) and (@ad<="20130208" @rlad<="20130208")	DERWENT; IBM_TDB			
S41	4	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (target second\$2) near2 (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/03/21 19:03
S42	16	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (resource) with schedul\$3 and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:06
S43	11	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) with between and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:11
S44	55	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:15
S45	2	S44 and measurement near2 gap with schedul\$3 with resource	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:17
S46	21	S44 and schedul\$3 with resource	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:19
S47	13	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) near2 (first serving macro) with (target second\$2 pico) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/06/12 20:25

EAST Search History (Interference)

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6/ 13/ 2016 12:49:04 AM
C:\ Users\ akasraian\ Documents\ EAST\ Workspaces\ 14167317_01.wsp

<i>Index of Claims</i> 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant											☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE														
Final	Original	02/23/2015	08/12/2015	12/14/2015	03/22/2016	06/13/2016										
	1	✓	✓	✓	✓	✓										
	2	✓	✓	✓	✓	✓										
	3	✓	✓	✓	✓	✓										
	4	✓	✓	✓	✓	✓										
	5	✓	✓	✓	✓	✓										
	6	✓	✓	✓	✓	✓										
	7	✓	✓	✓	✓	✓										
	8	✓	✓	✓	✓	✓										
	9	✓	✓	✓	✓	✓										
	10	✓	✓	✓	✓	✓										
	11	✓	✓	✓	✓	✓										

Request for Continued Examination (RCE) Transmittal

Docket Number

1291-236.101

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Information

First Named Inventor	Richard Lee-Chee Kuo
Application No.	14/167,317
Filing Date	January 29, 2014
Examiner	Allahyar Kasraian
Art Unit	2642

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application. Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

- a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
- i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ii. ☐ Other _____
- b. ☒ Enclosed
- i. ☒ Amendment/Reply
- iii. ☐ Information Disclosure Statement
- ii. ☐ Affidavit(s)/Declaration
- iv. ☐ Other _____

2. Miscellaneous

- a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- b. ☐ Other _____

Request for Continued Examination (RCE) Transmittal

Docket Number

1291-236.101

Fee Calculation

Request for Continued Examination Fee

☐ Applicant Claims Small Entity Status *See 37 CFR 1.27*

TOTAL

\$1700

Method of Payment

☐ Deposit Account ☒ Credit Card ☐ Check ☐ Money Order ☐ Other: _____

Deposit Account Number _____

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

- ☐ Charge the fee(s) set forth above
- ☐ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17
- ☐ Charge fee(s) indicated above, **except for the filing fee**
- ☐ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on form PTO-2038.

Amount Grand Total **\$1700**

Request for Continued Examination (RCE) Transmittal

Docket Number

1291-236.101

Correspondence Address

Customer Number 106622

-OR-

Name

Address

City

State

Country

Postal Code

Phone Number

E-mail Address

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I hereby certify that this Request for Continued Examination, accompanying documents, and fee are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on the date indicated below:

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(Signature of Person Mailing Correspondence)

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(Name of Person Transmitting Correspondence)

(Signature of Person Transmitting Correspondence)

Signature Instructions

Select the name of the person who will electronically sign the Request for Continued Examination from the drop-down box below.

If a practitioner is not present in the drop-down list, you must close this form and select 'Add Practitioner...' in the Form Manager's Utility menu.

Verify that the signatory information is correct and press the 'eSign' button to electronically sign the submission. If you prefer to sign the form manually, simply do not click the 'eSign' button; just print and manually sign.

Signatory Drop-Down Box

Sang N. Dang

Name	Sang N. Dang	Registration Number	51,186
Signatory Capacity	Attorney for Applicant(s)	E-mail Address	sdang@bluecapitallaw.com
	/Sang N. Dang/	Date Signed	05/25/2016

Amendment Transmittal Letter

Docket Number

1291-236.101

Address To
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Title of Invention

METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

First Named Inventor **Richard Lee-Chee Kuo**

Application No. **14/167,317**

Filing Date **January 29, 2014**

Examiner **Allahyar Kasraian**

Art Unit **2642**

Transmitted herewith is an amendment in the above-identified application.

The fee has been calculated and is transmitted as shown below.

☐ Applicant claims Small Entity Status. See 37 CFR 1.27.

Fee Calculation

Claims as Amended

For	#Filed	#Previously Paid For	#Extra	Rate	Fee
Total Claims	11	- 20 =		x 80 =	
Total Indep. Claims	3	- 3 =		x 420 =	
Multiple Dependent Claims (check if applicable) ☐					
TOTAL					\$0

Method of Payment

☐ Deposit Account ☐ Credit Card ☐ Check ☐ Money Order ☐ Other: _____

Deposit Account Number _____

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

- ☐ Charge the fee(s) set forth above
☐ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17
☐ Charge fee(s) indicated above, **except for the filing fee**
☐ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on form PTO-2038.

Amount Grand Total _____ **\$0**

Amendment Transmittal Letter

Docket Number

1291-236.101

Correspondence Address

Customer Number 106622

-OR-

Name

Address

City

State

Country

Postal Code

Phone Number

E-mail Address

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I hereby certify that this Amendment, accompanying documents, and fee (if appropriate) are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on the date indicated below:

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("Express Mail" Mailing Label Number)

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(Signature of Person Transmitting Correspondence)

Signature Instructions

Select the name of the person who will electronically sign the Amendment from the drop-down box below.

If a practitioner is not present in the drop-down list, you must close this form and select 'Add Practitioner...' in the Form Manager's Utility menu.

Verify that the signatory information is correct and press the 'eSign' button to electronically sign the submission. If you prefer to sign the form manually, simply do not click the 'eSign' button; just print and manually sign.

Signatory Drop-Down Box

Sang N. Dang

Name

Sang N. Dang

Registration Number

51,186

Signatory Capacity

Attorney for Applicant(s)

E-mail Address

sdang@bluecapitallaw.com

eSign

/Sang N. Dang/

Date Signed

05/25/2016

Docket No. 1291-236.101 (IS 1020060-US-D3)
Appl. No. 14/167,317
Amdt. Dated May 25, 2016
Reply to final Office Action of March 29, 2016

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 14/167,317
Confirmation No. : 8112
Applicant : Richard Lee-Chee Kuo
Filed : January 29, 2014
Title : METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
TC/A.U. : 2642
Examiner : Allahyar Kasrianian
Docket No. : 1291-236.101 (IS 1010082-US-D3)
Customer No. : 106622

Amendment to Final Office Action

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action mailed on March 29, 2016, having a three-month period for filing a response to **June 29, 2016**, Applicant submits the following remarks along with an RCE.

Claims begin on page 2.

Remarks begin on page 5.

IN THE CLAIMS:

1. (Currently Amended) A method for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, comprising:

a first eNB controls a first cell, wherein the first cell is serving a UE (User Equipment);
and

the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB;

the first eNB allocates a measurement gap configuration to the UE; and

the first eNB sends the measurement gap configuration to the second eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.

2. (Original) The method of claim 1, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

3. (Original) The method of claim 1, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

4. (Currently Amended) A communication device for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, the communication device comprising:

a control circuit;

a processor installed in the control circuit;

a memory installed in the control circuit and operatively coupled to the processor;

wherein the processor is configured to execute a program code stored in memory to implement small cell enhancements by:

controlling a first cell via a first eNB, wherein the first cell is serving a UE (User Equipment); and

configuring, via the first eNB, a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB;

allocating, via the first eNB, a measurement gap configuration to the UE; and

sending, from the first eNB, the measurement gap configuration to the second eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.

5. (Original) The communication device of claim 4, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

6. (Original) The communication device of claim 4, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

7. (Currently Amended) A method for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity and a UE (User Equipment) is served by a first cell controlled by a first eNB, comprising:

a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell; and

the second eNB receives a measurement gap configuration from the first eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE, wherein the measurement gap configuration was allocated by the first eNB to the UE.

8. (Original) The method of claim 7, further comprises:
the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE.

9. (Original) The method of claim 8, wherein the resources contain downlink assignments and/or uplink grants.

10. (Original) The method of claim 7, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

11. (Original) The method of claim 7, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

REMARKS

Claims 1-11 are pending in the application. In the Office Action, claims 1-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Li (U.S. Patent Publication No. 2012/0315908), Ji (U.S. Patent Publication No. 2012/0088516), and Ishii (U.S. Patent Publication No. 2015/0017993). *See* Office Action, ¶ 4A. Claims 1, 4, and 7 have been amended. The claim amendments are supported by at least Paragraph [0036] of the present application. Applicant respectfully requests reconsideration of the claims as amended.

Claim 1 recites “the first eNB sends the measurement gap configuration to the second eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.” Similarly, claim 4 recites “sending, from the first eNB, the measurement gap configuration to the second eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.” Furthermore, claim 7 recites “the second eNB receives a measurement gap configuration from the first eNB so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.” Applicant respectfully submits that the combination of Li, Ji, and Ishii does not disclose the noted limitations.

The Office Action admits that “Li fails to disclose sending, from the first eNB, the measurement gap configuration to the second eNB.” *See* Office Action, Pages 3, 6, and 8. Nevertheless, the Office Action cites to FIG. 9 and Paragraph [0097] of Ji and alleges that Ji discloses the noted limitations. *See* Office Action, Pages 3-4, 6, and 8-9. Applicant respectfully disagrees.

Paragraph [0047] of Ji states that a UE may be within the coverage of multiple eNBs and one of these eNBs may be selected to serve the UE. The serving eNB may be selected based on various criteria such as received power, pathloss, signal-to-noise ratio (SNR), etc. Furthermore, Paragraph [0089] of Ji describes that during a measurement gap, communication with serving cell is temporarily suspended such that a UE may measure other non-serving cells **for inter-frequency or inter-RAT handover**. Such description implies that the measurement gap disclosed in Ji is sent from a serving cell (e.g., base station A) to a non-serving cell (e.g., base station B) **before an inter-frequency or inter-RAT handover is performed**. In other words, the UE is served by base station A when base station A sends the measurement gap to base station B. In this situation, base

Docket No. 1291-236.101 (IS 1020060-US-D3)
Appl. No. 14/167,317
Amdt. Dated May 25, 2016
Reply to final Office Action of March 29, 2016

station B does not schedule resources to the UE because the UE is not served by base station B. Therefore, Applicant respectfully submits that Ji does not disclose “the first eNB sends the measurement gap configuration to the second eNB **so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE**” as recited in claim 1, “sending, from the first eNB, the measurement gap configuration to the second eNB **so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE**” as recited in claim 4, or “the second eNB receives a measurement gap configuration from the first eNB **so that the second eNB could take measurement gaps into consideration when scheduling resources to the UE.**”

Based on the foregoing, Applicant respectfully submits that claims 1-11 are patentable over any combination of Li, Ji, and/or Ishii.

In view of the foregoing it is respectfully submitted that the pending claims are in condition for allowance. Reconsideration of the rejections is requested. Allowance of the claims at an early date is solicited. The Examiner is invited to contact Applicant’s undersigned counsel by telephone at (714) 839-3800 to expedite the prosecution of this case should there be any unresolved matters remaining.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made.

Respectfully submitted,
Sang N. Dang
BLUE CAPITAL LAW FIRM, P.C.

Dated: May 25, 2016

/Sang N. Dang/
Reg. No. 51,186
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lee-Chee Kuo
Title: METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
Serial No.: 14/167,317 Filed: January 29, 2014
Examiner: Allahyar Kasraian Group Art Unit: 2642
Attorney Docket No.: 1291-236.101 (IS1020060-US-D3)

**CERTIFICATE OF EFS-WEB TRANSMISSION
UNDER 37 CFR § 1.8**

I hereby certify that the enclosed 3 Page Request for Continued Examination; 2 Page
Amendment Transmittal; and 6 Page Amendment are being transmitted to the United States
Patent and Trademark Office via EFS-Web on May 25, 2016.

Date: May 25, 2016

/Sandy Kim/
Sandy Kim

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Electronic Patent Application Fee Transmittal

Application Number:	14167317			
Filing Date:	29-Jan-2014			
Title of Invention:	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM			
First Named Inventor/Applicant Name:	Richard Lee-Chee Kuo			
Filer:	Sang N. Dang/Sandy Kim			
Attorney Docket Number:	1291-236.101			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
RCE- 2nd and Subsequent Request	1820	1	1700	1700
Total in USD (\$)				1700

Electronic Acknowledgement Receipt

EFS ID:	25881961
Application Number:	14167317
International Application Number:	
Confirmation Number:	8112
Title of Invention:	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
First Named Inventor/Applicant Name:	Richard Lee-Chee Kuo
Customer Number:	106622
Filer:	Sang N. Dang/Sandy Kim
Filer Authorized By:	Sang N. Dang
Attorney Docket Number:	1291-236.101
Receipt Date:	25-MAY-2016
Filing Date:	29-JAN-2014
Time Stamp:	14:09:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 1700
RAM confirmation Number	398
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		1291-236-101-- RFOAwRCEasfiled05252016.pdf	128994	yes	12
			eb34cd08137c8fcb3e2252960d5d23d479326681		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Request for Continued Examination (RCE)		1	3	
	Transmittal Letter		4	5	
	Amendment Submitted/Entered with Filing of CPA/RCE		6	6	
	Claims		7	9	
	Applicant Arguments/Remarks Made in an Amendment		10	11	
	Miscellaneous Incoming Letter		12	12	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30667	no	2
			a7bfb37fd6c1f510f3e5e06f4d0bd422c679c9		
Warnings:					
Information:					
Total Files Size (in bytes):			159661		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/167,317	Filing Date 01/29/2014	☐ To be Mailed
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ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

(Column 1)		(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	05/25/2016	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 11	Minus	** 20	= 0	X \$80 = 0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$420 = 0
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
					TOTAL ADD'L FEE	0
(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/VINCENT BUTLER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/167,317	01/29/2014	Richard Lee-Chee Kuo	1291-236.101	8112

106622 7590 03/29/2016
Blue Capital Law Firm, P.C.
611 Anton Blvd., Suite 1050
Costa Mesa, CA 92626

EXAMINER

KASRAIAN, ALLAHYAR

ART UNIT	PAPER NUMBER
----------	--------------

2642

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

03/29/2016

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@bluecapitallaw.com

Office Action Summary	Application No. 14/167,317	Applicant(s) KUO, RICHARD LEE-CHEE	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	AIA (First Inventor to File) Status 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 MONTHS 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 03/16/2016.
☐ 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) 1-11 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) 1-11 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 or send an inquiry to 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) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____ | 4) ☐ Other: _____ |

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Remarks

2. The present Office Action is in response to Applicant's amendment filed on 03/16/2016. **Claims 1-11** are still pending in the present application. **This Action is made FINAL.**

Claim Rejections - 35 USC § 103

3. The following is a quotation of pre-AIA 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.

4. 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 pre-AIA 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.

- A. **Claims 1-11** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Li (US Patent Application Publication # 20120315908 A1)** in view of **Ji et al.**

(US Patent Application Publication # 20120088516 A1) (hereinafter Ji) and further in view of Ishii (US Patent Application Publication # 20150017993 A1).

Regarding **claim 1**, Li discloses a method in a wireless communication system (FIGS. 1 and 3), comprising:

a first eNB controls a first cell, wherein the first cell is serving a UE (User Equipment) (FIG. 1, par. 0026); and

the first eNB configures a second cell to serve the UE, wherein the second cell is controlled by a second eNB (FIG. 3, par. 0040-0041);

the first eNB allocates a measurement gap configuration to the UE (par. 0041).

However, Li fails to explicitly disclose the first eNB sends the measurement gap configuration to the second eNB.

In the same field of endeavor, Ji discloses the first eNB sends the measurement gap configuration to the second eNB (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing

an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and the first eNB configures a second cell to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

the first eNB configures a second cell to serve the UE together with the first cell. (par. 0071 for "The D2UE connections are controlled by the Macro base station. More specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE and the Macro base station are maintained while the D2UE connections are configured.").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as

disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 2**, Li as modified by Ji as modified by Ishii discloses the claimed invention **as applied to claim 1 above**, and Li further discloses wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements (par. 0050).

Regarding **claim 3**, Li as modified by Ji as modified by Ishii discloses the claimed invention **as applied to claim 1 above**, and Li further discloses wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB (par. 0041).

Regarding **claim 4**, Li discloses a communication device in a wireless communication system (FIGS. 1 and 3 for any of eNB, MME or HeNB), the communication device comprising:

- a control circuit (for any inherent control circuit of eNB, MME or HeNB);
 - a processor installed in the control circuit (for any inherent processor of eNB, MME or HeNB);
 - a memory installed in the control circuit and operatively coupled to the processor (for any inherent memory of eNB, MME or HeNB);
- wherein the processor is configured to execute a program code stored in memory (for any inherent program code installed in inherent memory of (for any inherent control circuit of eNB, MME or HeNB)) to implement small cell enhancements by:

controlling a first cell via a first eNB, wherein the first cell is serving a UE (User Equipment) FIG. 1, par. 0026); and

configuring, via the first eNB, a second cell to serve the UE, wherein the second cell is controlled by a second eNB (FIG. 3, par. 0040-0041);

allocating, via the first eNB, a measurement gap configuration to the UE (par. 0041).

However, Li fails to disclose sending, from the first eNB, the measurement gap configuration to the second eNB.

In the same field of endeavor, sending, from the first eNB, the measurement gap configuration to the second eNB (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to

Art Unit: 2642

support dual connectivity; and the first eNB configures a second cell to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

the first eNB configures a second cell to serve the UE together with the first cell. (par. 0071 for "The D2UE connections are controlled by the Macro base station. More specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE and the Macro base station are maintained while the D2UE connections are configured.").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 5 as applied to claim 4 above**, the claim is rejected for the same reason(s) as set forth claim 2 above.

Regarding **claim 6 as applied to claim 4 above**, the claim is rejected for the same reason(s) as set forth claim 3 above.

Regarding **claim 7**, Li discloses a method in a wireless communication system, wherein a UE (User Equipment) is served by a first cell controlled by a first eNB (FIG. 1, par. 0026), comprising:

a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE (FIG. 3, par. 0040-0041).

However, Li fails to explicitly disclose the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE.

In the same field of endeavor, Ji discloses the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing

an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and wherein the second cell is configured by the first eNB to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

wherein the second cell is configured by the first eNB to serve the UE together with the first cell (par. 0071 for "The D2UE connections are controlled by the Macro base station. More specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE and the Macro base station are maintained while the D2UE connections are configured.").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as

disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 8 as applied to claim 7 above**, and Ji further discloses the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE (par. 0090).

Regarding **claim 9 as applied to claim 8 above**, and Ji further discloses wherein the resources contain downlink assignments and/or uplink grants (par. 0041).

Regarding **claim 10 as applied to claim 7 above**, and Ji further discloses wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements (par. 0061).

Regarding **claim 11 as applied to claim 7 above**, the claim is rejected for the same reason(s) as set forth claim 3 above.

Response to Arguments

5. Applicant's arguments filed 03/16/2016 have been fully considered but they are not persuasive.

On page 5 of the Applicant's argument, Applicant argues, "Paragraph [0047] of Ji discloses one base station sends the measurement gap to the other base station for supporting handover. In contrast, claims 1, 4, and 7 of the present application recite one base station sends the measurement gap to the other base station for supporting dual connectivity. It is noted that a UE is served by different base station before and after the

Art Unit: 2642

handover, while the UE is served by two base stations in dual connectivity. Therefore, Applicant respectfully submits that handover and dual connectivity are clearly different scenarios." Examiner respectfully traverses. There is nothing in the claim to disclose "one base station sends the measurement gap to the other base station for supporting dual connectivity." It is noted that the limitation, "wherein separate eNBs (evolved Node B) are used to support dual connectivity" is in the preamble of the claims. In response to applicant's arguments, the recitation "wherein separate eNBs (evolved Node B) are used to support dual connectivity" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Furthermore, the limitations addressed by Isshii in paragraphs [0068] and [0072] as indicated in the office action(s).

On the bridging paragraph between pages 5 and 6 of the Applicant's remarks, Applicant argues, "as discussed in the previous response dated June 1, 2015, the measurement gap disclosed in Ji is sent from one base station to the other base station is to let the other base station transmit signals within the measurement gap so that the UE served by the one base station can perform measurement on the signals transmitted by the other base station to support handover from one base station to the other base station. In contrast, in the present application the measurement gap sent from one base

station to the other base station is to let the other base station avoid scheduling the UE during the measurement gap." Examiner respectfully traverses. There is nothing in the claim(s) to disclose, "the measurement gap sent from one base station to the other base station is to let the other base station avoid scheduling the UE during the measurement gap".

On the first full paragraph of page 6 of the Applicant's remarks, Applicant argues, "the technical effects of sending the measurement gap from one base station to the other base station are very different in the handover context disclosed by ,li and in the dual connectivity context discussed and claimed in the present application. Therefore, the Applicant respectfully submits that there is no teaching from Ji or Ishii for motivating one ordinary skill in the art to combine Ji (disclosing sending measurement gap for handover) with Ishii (disclosing dual connectivity) to arrive at claims 1, 4, and 7 of the present application". Examiner respectfully disagrees. The purpose of using "measurement gap" is for *obtaining system information* on a destination femtocell from a macro base station (see paragraphs [0014] and [0041] of Li). Therefore it would have been obvious to use measurement gap to be used for the "*basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station*" in a method of "femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station" as disclosed by Ishii (see paragraphs [0068] and [0071]). In response to Applicant's arguments against the references individually, one cannot show nonobviousness by

attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant(s) is reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claim. The Examiner is not limited to Applicant's definition, which is not specifically set forth in the claims, *In re Tanaka et al.* 193 USPQ 139, (CCPA) 1977.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez Gutierrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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.

/ALLAHYAR KASRAIAN/
Primary Examiner, Art Unit 2642

Index of Claims 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant											☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE														
Final	Original	02/23/2015	08/12/2015	12/14/2015	03/22/2016											
	1	✓	✓	✓	✓											
	2	✓	✓	✓	✓											
	3	✓	✓	✓	✓											
	4	✓	✓	✓	✓											
	5	✓	✓	✓	✓											
	6	✓	✓	✓	✓											
	7	✓	✓	✓	✓											
	8	✓	✓	✓	✓											
	9	✓	✓	✓	✓											
	10	✓	✓	✓	✓											
	11	✓	✓	✓	✓											

Search Notes 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

CPC- SEARCHED		
Symbol	Date	Examiner
H04W84/045, H04W24/10, H04W48/16, H04W36/0083, H04W36/0094, H04W24/02, H04W36/0088, H04W48/08, H04W72/00, H04W36/04, H04W36/0066, H04W88/08, H04W36/00, H04W36/026, H04W36/14, H04W72/1273	8/12/2015	AK
H04J11/0069 OR H04L1/0027	8/12/2015	AK

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	436-444	2/23/2015	AK
370	331-333	2/23/2015	AK

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached search strategy)	2/23/2015	AK
Inventor name and Assignee search in PALM ExPo and EAST	2/23/2015	AK
(H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027)	2/23/2015	AK
(455/436-444.ccls. 370/331-333.ccls.)	2/23/2015	AK
updated search	8/12/2015	AK
updated search	12/21/2015	AK
updated search	3/22/2016	AK

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	14/167317	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 20:01
S4	392	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:46
S5	19	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:53
S6	0	"20120188907" with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S7	1	"20120188907" and (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S8	16	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:38
S9	5	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (femto micro pico) near3 (cell (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:55
S10	15	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (receiv\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:09
S11	0	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with target near3	US-PGPUB; USPAT;	OR	ON	2015/02/22 19:13

		(node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	USOCR; EPO; JPO; DERWENT; IBM_TDB			
S12	0	configuration near2 gap with target near3 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:14
S13	0	configuration near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S14	17	configuration near2 gap with (receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S15	24	configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:09
S16	0	measurment near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:19
S17	191	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:20
S18	3	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with target near2 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:21
S19	10	measurement near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:31
S20	220	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 00:48
S21	11	(pattern measurement configuration) near2 gap with (femto micro) and S20	US-PGPUB; USPAT;	OR	ON	2015/02/23 01:01

			USOCR; EPO; JPO; DERWENT; IBM_TDB			
S22	22	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 01:17
S23	25	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:40
S24	18	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto)near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:50
S25	6	((pattern measurement configuration) near2 gap with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b)).ab. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 09:42
S26	232	((Richard) near2 (Kuo)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/23 10:48
S27	6	S26 and ((pattern measurement configuration) near2 gap) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
S28	2	S26 and ((pattern measurement configuration) near2 gap).clm. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
S29	11	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:52
S30	14	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (second target destiation) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:55
S31	61	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto	US-PGPUB; USPAT; USOCR;	OR	ON	2015/02/23 10:58

		second\$2 target destination) near4 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	EPO; JPO; DERWENT; IBM_TDB			
S32	55	S31 AND ((H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027).CPC.)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 11:02
S33	125	macro with (request\$3 ask\$3 configur\$3) with femto with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:04
S34	4	S33 and macro with femto with (concurrent\$3 simultaneous\$4) with serv\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:07
S35	8	macro with femto with (concurrent\$3 simultaneous\$4) with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:12
S36	25	femto with (concurrent\$3 simultaneous\$4) with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 11:16
S37	76	femto with (concurrent\$3 simultaneous\$4) with macro with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 11:52
S38	2	"20130137434".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 14:29
S39	5	femto with (concurrent\$3 simultaneous\$4) with macro with (serv\$3 provid\$3) near5 (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/12/14 01:21
S40	176	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station) e\$Node\$b	US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	2016/03/21 19:01

		enb\$2 BS\$2 BTS\$2) and (@ad<="20130208" @rlad<="20130208")	DERWENT; IBM_TDB			
S41	4	("370"/\$.ccls. "455"/\$.ccls.) and measurement near2 gap with (transfer\$3 transmit\$3 send\$3) with (target second\$2) near2 (femto (access near2 point) (base adj2 station) e\$Node\$b enb\$2 BS\$2 BTS\$2) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/03/21 19:03

EAST Search History (Interference)

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3/ 22/ 2016 7:11:03 PM
C:\ Users\ akasraian\ Documents\ EAST\ Workspaces\ 14167317_01.wsp

Docket No. 1291-236.101 (IS 1020060-US-D3)
Appl. No. 14/167,317
Amdt. Dated March 16, 2016
Reply to Office Action of December 17, 2015

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 14/167,317
Confirmation No. : 8112
Applicant : Richard Lee-Chee Kuo
Filed : January 29, 2014
Title : METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
TC/A.U. : 2642
Examiner : Allahyar Kasrianian
Docket No. : 1291-236.101 (IS 1010082-US-D3)
Customer No. : 106622

Amendment to Office Action

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action mailed on December 17, 2015, having a three-month period for filing a response to **March 17, 2016**, Applicant submits the following remarks.

Claims begin on page 2.

Remarks begin on page 5.

IN THE CLAIMS:

1. (Previously Presented) A method for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, comprising:

a first eNB controls a first cell, wherein the first cell is serving a UE (User Equipment);
and

the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB;

the first eNB allocates a measurement gap configuration to the UE; and

the first eNB sends the measurement gap configuration to the second eNB.

2. (Original) The method of claim 1, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

3. (Original) The method of claim 1, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

4. (Previously Presented) A communication device for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, the communication device comprising:

a control circuit;

a processor installed in the control circuit;

a memory installed in the control circuit and operatively coupled to the processor;

wherein the processor is configured to execute a program code stored in memory to implement small cell enhancements by:

controlling a first cell via a first eNB, wherein the first cell is serving a UE (User Equipment); and

configuring, via the first eNB, a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB;

allocating, via the first eNB, a measurement gap configuration to the UE; and

sending, from the first eNB, the measurement gap configuration to the second eNB.

5. (Original) The communication device of claim 4, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

6. (Original) The communication device of claim 4, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

7. (Previously Presented) A method for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity and a UE (User Equipment) is served by a first cell controlled by a first eNB, comprising:

a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell; and

the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE.

8. (Original) The method of claim 7, further comprises:
the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE.

9. (Original) The method of claim 8, wherein the resources contain downlink assignments and/or uplink grants.

10. (Original) The method of claim 7, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

11. (Original) The method of claim 7, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

REMARKS

Claims 1-11 are pending in the application. In the Office Action, claims 1-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Li (U.S. Patent Publication No. 2012/0315908), Ji (U.S. Patent Publication No. 2012/0088516), and Ishii (U.S. Patent Publication No. 2015/0017993). *See* Office Action, ¶ 5A. Applicant respectfully traverses the rejections and respectfully requests reconsideration of the claims.

Claim 1 recites “the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB.” Similarly, claim 4 recites “configuring, via the first eNB, a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB.” Furthermore, claim 7 recites “a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell.” Applicant respectfully submits that the combination of Li, Ji, and Ishii does not disclose the noted limitations.

The Office Action admits that “Li fails to disclose sending, from the first eNB, the measurement gap configuration to the second eNB.” *See* Office Action, Pages 3, 6, and 8. Nevertheless, the Office Action cites to FIG. 9 and Paragraph [0097] of Ji and alleges that Ji discloses the noted limitations. *See* Office Action, Pages 3-4, 6, and 8-9. Applicant respectfully disagrees.

Paragraph [0047] of Ji discloses one base station sends the measurement gap to the other base station for supporting handover. In contrast, claims 1, 4, and 7 of the present application recite one base station sends the measurement gap to the other base station for supporting dual connectivity. It is noted that a UE is served by different base station before and after the handover, while the UE is served by two base stations in dual connectivity. Therefore, Applicant respectfully submits that handover and dual connectivity are clearly different scenarios.

Furthermore, as discussed in the previous response dated June 1, 2015, the measurement gap disclosed in Ji is sent from one base station to the other base station is to let the other base station transmit signals within the measurement gap so that the UE served by the one base station can perform measurement on the signals transmitted by the other base station to support

Docket No. 1291-236.101 (IS 1020060-US-D3)
Appl. No. 14/167,317
Amdt. Dated March 16, 2016
Reply to Office Action of December 17, 2015

handover from one base station to the other base station. In contrast, in the present application the measurement gap sent from one base station to the other base station is to let the other base station avoid scheduling the UE during the measurement gap.

In short, **the technical effects of sending the measurement gap from one base station to the other base station are very different in the handover context disclosed by Ji and in the dual connectivity context discussed and claimed in the present application.** Therefore, the Applicant respectfully submits that there is no teaching from Ji or Ishii for motivating one ordinary skill in the art to combine Ji (disclosing sending measurement gap for handover) with Ishii (disclosing dual connectivity) to arrive at claims 1, 4, and 7 of the present application.

Based on the foregoing, Applicant respectfully submits that claims 1-11 are patentable over any combination of Li, Ji, and/or Ishii.

In view of the foregoing it is respectfully submitted that the pending claims are in condition for allowance. Reconsideration of the rejections is requested. Allowance of the claims at an early date is solicited. The Examiner is invited to contact Applicant's undersigned counsel by telephone at (714) 839-3800 to expedite the prosecution of this case should there be any unresolved matters remaining.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made.

Respectfully submitted,
Sang N. Dang
BLUE CAPITAL LAW FIRM, P.C.

Dated: March 16, 2016

/Sang N. Dang/

Reg. No. 51,186

Tel.: (714) 839-3800

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lee-Chee Kuo
Title: METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
Serial No.: 14/167,317 Filed: January 29, 2014
Examiner: Allahyar Kasraian Group Art Unit: 2642
Attorney Docket No.: 1291-236.101 (IS1020060-US-D3)

**CERTIFICATE OF EFS-WEB TRANSMISSION
UNDER 37 CFR § 1.8**

I hereby certify that the enclosed 2 Page Amendment Transmittal; and 6 Page
Amendment are being transmitted to the United States Patent and Trademark Office via EFS-
Web on March 16, 2016.

Date: March 16, 2016

/Sandy Kim/
Sandy Kim

Mailing Address:

BLUE CAPITAL LAW FIRM, P.C. (Customer No.: 106622)
611 Anton Blvd., Suite 1050
Costa Mesa, California 92626
Tel: 714-839-3800
Fax: 714-795-2995

Electronic Acknowledgement Receipt

EFS ID:	25213468
Application Number:	14167317
International Application Number:	
Confirmation Number:	8112
Title of Invention:	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
First Named Inventor/Applicant Name:	Richard Lee-Chee Kuo
Customer Number:	106622
Filer:	Sang N. Dang/Sandy Kim
Filer Authorized By:	Sang N. Dang
Attorney Docket Number:	1291-236.101
Receipt Date:	16-MAR-2016
Filing Date:	29-JAN-2014
Time Stamp:	14:40:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		1291-236-101-- ROAof12172015asFiled031620 16.pdf	96235 903efc075a6c5c292f8d184b1a09136ede158ec1	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Transmittal Letter	1	2
	Amendment/Req. Reconsideration-After Non-Final Reject	3	3
	Claims	4	6
	Applicant Arguments/Remarks Made in an Amendment	7	8
	Miscellaneous Incoming Letter	9	9
Warnings:			
Information:			
Total Files Size (in bytes):		96235	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			

Amendment Transmittal Letter

Docket Number

1291-236.101

Address To
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Title of Invention

METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

First Named Inventor **Richard Lee-Chee Kuo**

Application No. **14/167,317**

Filing Date **January 29, 2014**

Examiner **Allahyar Kasraian**

Art Unit **2642**

Transmitted herewith is an amendment in the above-identified application.

The fee has been calculated and is transmitted as shown below.

☐ Applicant claims Small Entity Status. See 37 CFR 1.27.

Fee Calculation

Claims as Amended

For	#Filed	#Previously Paid For	#Extra	Rate	Fee
Total Claims	11	- 20 =		x 80 =	
Total Indep. Claims	3	- 3 =		x 420 =	
Multiple Dependent Claims (check if applicable) ☐					
TOTAL					\$0

Method of Payment

☐ Deposit Account ☐ Credit Card ☐ Check ☐ Money Order ☐ Other: _____

Deposit Account Number _____

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

- ☐ Charge the fee(s) set forth above
☐ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17
☐ Charge fee(s) indicated above, **except for the filing fee**
☐ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on form PTO-2038.

Amount Grand Total _____ **\$0**

Amendment Transmittal Letter

Docket Number

1291-236.101

Correspondence Address

Customer Number 106622

-OR-

Name

Address

City

State

Country

Postal Code

Phone Number

E-mail Address

Certificate of Mailing by Express Mail

I hereby certify that this Amendment, accompanying documents, and fee (if appropriate) are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on the date indicated below:

(Date of Mailing)

(Typed or Printed Name of Person Mailing Correspondence)

(Signature of Person Mailing Correspondence)

("Express Mail" Mailing Label Number)

Certificate of Mailing by First Class Mail

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Certificate of Transmission

I hereby certify that this Amendment, accompanying documents, and fee (if appropriate) authorization are being facsimile transmitted to the United States Patent and Trademark Office on the date indicated below:

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(Signature of Person Transmitting Correspondence)

Signature Instructions

Select the name of the person who will electronically sign the Amendment from the drop-down box below.

If a practitioner is not present in the drop-down list, you must close this form and select 'Add Practitioner...' in the Form Manager's Utility menu.

Verify that the signatory information is correct and press the 'eSign' button to electronically sign the submission. If you prefer to sign the form manually, simply do not click the 'eSign' button; just print and manually sign.

Signatory Drop-Down Box

Sang N. Dang

Name

Sang N. Dang

Registration Number

51,186

Signatory Capacity

Attorney for Applicant(s)

E-mail Address

sdang@bluecapitallaw.com

eSign

/Sang N. Dang/

Date Signed

03/16/2016

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/167,317	Filing Date 01/29/2014	☐ To be Mailed
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ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO**APPLICATION AS FILED – PART I**

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	03/16/2016	CLAIMS REMAINING AFTER AMENDMENT	Minus	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 11	Minus	** 20	= 0	X \$80 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE						0	

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	Minus	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
TOTAL ADD'L FEE						

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/NICOLLE L. SCRIVNER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/167,317	01/29/2014	Richard Lee-Chee Kuo	1291-236.101	8112

106622 7590 12/17/2015
Blue Capital Law Firm, P.C.
611 Anton Blvd., Suite 1050
Costa Mesa, CA 92626

EXAMINER

KASRAIAN, ALLAHYAR

ART UNIT	PAPER NUMBER
----------	--------------

2642

NOTIFICATION DATE	DELIVERY MODE
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12/17/2015

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@bluecapitallaw.com

Office Action Summary	Application No. 14/167,317	Applicant(s) KUO, RICHARD LEE-CHEE	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	AIA (First Inventor to File) Status 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 MONTHS 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 11/18/2015.
☐ 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) 1-11 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) 1-11 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 or send an inquiry to 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) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____. | 4) ☐ Other: ____. |

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/18/2015 has been entered.

Remarks

3. The present Office Action is in response to Applicant's amendment filed on 11/18/2015. **Claims 1-11** are still pending in the present application.

Claim Rejections - 35 USC § 103

4. The following is a quotation of pre-AIA 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.

Art Unit: 2642

5. 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 pre-AIA 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.

A. **Claims 1-11** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Li (US Patent Application Publication # 20120315908 A1)** in view of **Ji et al. (US Patent Application Publication # 20120088516 A1)** (hereinafter Ji) and further in view of **Ishii (US Patent Application Publication # 20150017993 A1)**.

Regarding **claim 1**, Li discloses a method in a wireless communication system (FIGS. 1 and 3), comprising:

a first eNB controls a first cell, wherein the first cell is serving a UE (User Equipment) (FIG. 1, par. 0026); and

the first eNB configures a second cell to serve the UE, wherein the second cell is controlled by a second eNB (FIG. 3, par. 0040-0041);

the first eNB allocates a measurement gap configuration to the UE (par. 0041).

However, Li fails to explicitly disclose the first eNB sends the measurement gap configuration to the second eNB.

In the same field of endeavor, Ji discloses the first eNB sends the measurement gap configuration to the second eNB (FIG. 9, par. 0097 for “a first base station may

determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and the first eNB configures a second cell to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

the first eNB configures a second cell to serve the UE together with the first cell. (par. 0071 for "The D2UE connections are controlled by the Macro base station. More

specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE and the Macro base station are maintained while the D2UE connections are configured.”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 2**, Li as modified by Ji as modified by Ishii discloses the claimed invention **as applied to claim 1 above**, and Li further discloses wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements (par. 0050).

Regarding **claim 3**, Li as modified by Ji as modified by Ishii discloses the claimed invention **as applied to claim 1 above**, and Li further discloses wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB (par. 0041).

Regarding **claim 4**, Li discloses a communication device in a wireless communication system (FIGS. 1 and 3 for any of eNB, MME or HeNB), the communication device comprising:

a control circuit (for any inherent control circuit of eNB, MME or HeNB);

a processor installed in the control circuit (for any inherent processor of eNB, MME or HeNB);

a memory installed in the control circuit and operatively coupled to the processor (for any inherent memory of eNB, MME or HeNB);

wherein the processor is configured to execute a program code stored in memory (for any inherent program code installed in inherent memory of (for any inherent control circuit of eNB, MME or HeNB)) to implement small cell enhancements by:

controlling a first cell via a first eNB, wherein the first cell is serving a UE (User Equipment) FIG. 1, par. 0026); and

configuring, via the first eNB, a second cell to serve the UE, wherein the second cell is controlled by a second eNB (FIG. 3, par. 0040-0041);

allocating, via the first eNB, a measurement gap configuration to the UE (par. 0041).

However, Li fails to disclose sending, from the first eNB, the measurement gap configuration to the second eNB.

In the same field of endeavor, sending, from the first eNB, the measurement gap configuration to the second eNB (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and the first eNB configures a second cell to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

the first eNB configures a second cell to serve the UE together with the first cell. (par. 0071 for "The D2UE connections are controlled by the Macro base station. More specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE

and the Macro base station are maintained while the D2UE connections are configured.”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 5 as applied to claim 4 above**, the claim is rejected for the same reason(s) as set forth claim 2 above.

Regarding **claim 6 as applied to claim 4 above**, the claim is rejected for the same reason(s) as set forth claim 3 above.

Regarding **claim 7**, Li discloses a method in a wireless communication system, wherein a UE (User Equipment) is served by a first cell controlled by a first eNB (FIG. 1, par. 0026), comprising:

a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE (FIG. 3, par. 0040-0041).

However, Li fails to explicitly disclose the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE.

In the same field of endeavor, Ji discloses the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap

configuration was allocated by the first eNB to the UE (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and wherein the second cell is configured by the first eNB to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for “The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station”); and

wherein the second cell is configured by the first eNB to serve the UE together with the first cell (par. 0071 for “The D2UE connections are controlled by the Macro base station. More specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE and the Macro base station are maintained while the D2UE connections are configured.”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 8 as applied to claim 7 above**, and Ji further discloses the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE (par. 0090).

Regarding **claim 9 as applied to claim 8 above**, and Ji further discloses wherein the resources contain downlink assignments and/or uplink grants (par. 0041).

Regarding **claim 10 as applied to claim 7 above**, and Ji further discloses wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements (par. 0061).

Regarding **claim 11 as applied to claim 7 above**, the claim is rejected for the same reason(s) as set forth claim 3 above.

Response to Arguments

6. Applicant's arguments with respect to claims 1-11 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

On page 5 of the Applicant's remarks, Applicant asserts, "The Office Action cites to FIG. 3 and Paragraphs [0040]-[0041] of Li and alleges that Li the limitations of 'the first eNB configures a second cell to serve the UE, wherein the second cell is controlled by a second eNB... Applicant respectfully notes that the noted limitations of claims 1, 4, and 7 include the claim language 'together with the first cell', which was added in Applicant's Response dated June 1, 2015. Unfortunately, it seems that the Office Action did not address the claim language 'together with the first cell'." Applicant further discusses about the teachings of Li and Ji from on pages 5 to 7. Examiner respectfully traverses. On the previous (and current office) action(s) indicates the argued limitation (i.e. "the first eNB configures a second cell to serve the UE together with the first cell"), is disclosed by Ishii (in combination with the teachings of Li and Ji) in paragraph [0071].

In response to Applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant(s) is reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claim. The Examiner is not limited to Applicant's definition, which is not specifically set forth in the claims, *In re Tanaka et al.* 193 USPQ 139, (CCPA) 1977.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez Gutierrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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.

Application/Control Number: 14/167,317
Art Unit: 2642

Page 13

/ALLAHYAR KASRAIAN/
Primary Examiner, Art Unit 2642

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	5	femto with (concurrent\$3 simultaneous\$4) with macro with (serv\$3 provid\$3) near5 (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/12/14 01:21
S1	1	14/167317	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 20:01
S4	392	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:46
S5	19	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:53
S6	0	"20120188907" with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S7	1	"20120188907" and (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S8	16	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:38
S9	5	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (femto micro pico) near3 (cell (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:55
S10	15	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (receiv\$3)	US-PGPUB; USPAT;	OR	ON	2015/02/22 19:09

		with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	USOCR; EPO; JPO; DERWENT; IBM_TDB			
S11	0	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with target near3 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:13
S12	0	configuration near2 gap with target near3 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:14
S13	0	configuration near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S14	17	configuration near2 gap with (receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S15	24	configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:09
S16	0	measurment near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:19
S17	191	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:20
S18	3	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with target near2 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:21
S19	10	measurement near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:31
S20	220	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3	US-PGPUB; USPAT;	OR	ON	2015/02/23 00:48

		transfer\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	USOCR; EPO; JPO; DERWENT; IBM_TDB			
S21	11	(pattern measurement configuration) near2 gap with (femto micro) and S20	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 01:01
S22	22	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 01:17
S23	25	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:40
S24	18	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto)near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:50
S25	6	((pattern measurement configuration) near2 gap with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b)).ab. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 09:42
S26	232	((Richard) near2 (Kuo)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/23 10:48
S27	6	S26 and ((pattern measurement configuration) near2 gap) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
S28	2	S26 and ((pattern measurement configuration) near2 gap).clm. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
S29	11	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:52
S30	14	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (second target	US-PGPUB; USPAT; USOCR; EPO; JPO;	OR	ON	2015/02/23 10:55

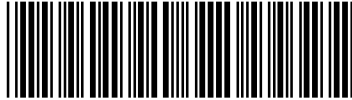
		destination) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	DERWENT; IBM_TDB			
S31	61	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto second\$2 target destination) near4 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:58
S32	55	S31 AND ((H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027).CPC.)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 11:02
S33	125	macro with (request\$3 ask\$3 configur\$3) with femto with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:04
S34	4	S33 and macro with femto with (concurrent\$3 simultaneous\$4) with serv\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:07
S35	8	macro with femto with (concurrent\$3 simultaneous\$4) with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:12
S36	25	femto with (concurrent\$3 simultaneous\$4) with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 11:16
S37	76	femto with (concurrent\$3 simultaneous\$4) with macro with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 11:52
S38	2	"20130137434".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 14:29

EAST Search History (Interference)

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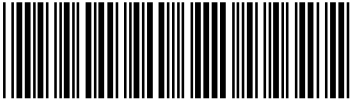
12/ 14/ 2015 1:24:15 AM

C:\ Users\ akasraian\ Documents\ EAST\ Workspaces\ 14167317_01.wsp

<i>Index of Claims</i> 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant											☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE														
Final	Original	02/23/2015	08/12/2015	12/14/2015												
	1	✓	✓	✓												
	2	✓	✓	✓												
	3	✓	✓	✓												
	4	✓	✓	✓												
	5	✓	✓	✓												
	6	✓	✓	✓												
	7	✓	✓	✓												
	8	✓	✓	✓												
	9	✓	✓	✓												
	10	✓	✓	✓												
	11	✓	✓	✓												

Search Notes 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

CPC- SEARCHED		
Symbol	Date	Examiner
H04W84/045, H04W24/10, H04W48/16, H04W36/0083, H04W36/0094, H04W24/02, H04W36/0088, H04W48/08, H04W72/00, H04W36/04, H04W36/0066, H04W88/08, H04W36/00, H04W36/026, H04W36/14, H04W72/1273	8/12/2015	AK
H04J11/0069 OR H04L1/0027	8/12/2015	AK

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	436-444	2/23/2015	AK
370	331-333	2/23/2015	AK

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached search strategy)	2/23/2015	AK
Inventor name and Assignee search in PALM ExPo and EAST	2/23/2015	AK
(H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027)	2/23/2015	AK
(455/436-444.ccls. 370/331-333.ccls.)	2/23/2015	AK
updated search	8/12/2015	AK
updated search	12/21/2015	AK

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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Request for Continued Examination (RCE) Transmittal

Docket Number

1291-236.101

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Information

First Named Inventor	Richard Lee-Chee Kuo
Application No.	14/167,317
Filing Date	January 29, 2014
Examiner	Allahyar Kasraian
Art Unit	2642

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application. Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

- a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.
- i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ii. ☐ Other _____
- b. ☒ Enclosed
- i. ☒ Amendment/Reply
- iii. ☐ Information Disclosure Statement
- ii. ☐ Affidavit(s)/Declaration
- iv. ☐ Other _____

2. Miscellaneous

- a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)
- b. ☐ Other _____

Request for Continued Examination (RCE) Transmittal

Docket Number

1291-236.101

Fee Calculation

Request for Continued Examination Fee

☐ Applicant Claims Small Entity Status *See 37 CFR 1.27*

TOTAL

\$1200

Method of Payment

☐ Deposit Account ☒ Credit Card ☐ Check ☐ Money Order ☐ Other: _____

Deposit Account Number _____

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

- ☐ Charge the fee(s) set forth above
- ☐ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17
- ☐ Charge fee(s) indicated above, **except for the filing fee**
- ☐ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on form PTO-2038.

Amount Grand Total **\$1200**

Request for Continued Examination (RCE) Transmittal

Docket Number

1291-236.101

Correspondence Address

Customer Number 106622

-OR-

Name

Address

City

State

Country

Postal Code

Phone Number

E-mail Address

Certificate of Mailing by Express Mail

I hereby certify that this Request for Continued Examination, accompanying documents, and fee are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on the date indicated below:

(Date of Mailing)

(Typed or Printed Name of Person Mailing Correspondence)

(Signature of Person Mailing Correspondence)

("Express Mail" Mailing Label Number)

Certificate of Mailing by First Class Mail

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Select the name of the person who will electronically sign the Request for Continued Examination from the drop-down box below.

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Signatory Drop-Down Box

Sang N. Dang

Name	Sang N. Dang	Registration Number	51,186
Signatory Capacity	Attorney for Applicant(s)	E-mail Address	sdang@bluecapitallaw.com
	/Sang N. Dang/	Date Signed	11/18/2015

Amendment Transmittal Letter

Docket Number

1291-236.101

Address To
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Title of Invention

METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

First Named Inventor **Richard Lee-Chee Kuo**

Application No. **14/167,317**

Filing Date **January 29, 2014**

Examiner **Allahyar Kasraian**

Art Unit **2642**

Transmitted herewith is an amendment in the above-identified application.

The fee has been calculated and is transmitted as shown below.

☐ Applicant claims Small Entity Status. See 37 CFR 1.27.

Fee Calculation

Claims as Amended

For	#Filed	#Previously Paid For	#Extra	Rate	Fee
Total Claims	11	- 20 =		x 80 =	
Total Indep. Claims	3	- 3 =		x 420 =	
Multiple Dependent Claims (check if applicable) ☐					
TOTAL					\$0

Method of Payment

☐ Deposit Account ☐ Credit Card ☐ Check ☐ Money Order ☐ Other: _____

Deposit Account Number _____

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

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Amendment Transmittal Letter

Docket Number

1291-236.101

Correspondence Address

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Signatory Drop-Down Box

Sang N. Dang

Name

Sang N. Dang

Registration Number

51,186

Signatory Capacity

Attorney for Applicant(s)

E-mail Address

sdang@bluecapitallaw.com

eSign

/Sang N. Dang/

Date Signed

11/18/2015

Docket No. 1291-236.101 (IS 1020060-US-D3)
Appl. No. 14/167,317
Amdt. Dated November 18, 2015
Reply to final Office Action of August 19, 2015

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 14/167,317
Confirmation No. : 8112
Applicant : Richard Lee-Chee Kuo
Filed : January 29, 2014
Title : METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
TC/A.U. : 2642
Examiner : Allahyar Kasrianian
Docket No. : 1291-236.101 (IS 1010082-US-D3)
Customer No. : 106622

Amendment to Final Office Action

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the final Office Action mailed on August 19, 2015, having a three-month period for filing a response to **November 19, 2015**, Applicant submits the following remarks and amendments along with an RCE.

Claims begin on page 2.

Remarks begin on page 5.

IN THE CLAIMS:

1. (Previously Presented) A method for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, comprising:

a first eNB controls a first cell, wherein the first cell is serving a UE (User Equipment);
and

the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB;

the first eNB allocates a measurement gap configuration to the UE; and

the first eNB sends the measurement gap configuration to the second eNB.

2. (Original) The method of claim 1, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

3. (Original) The method of claim 1, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

4. (Previously Presented) A communication device for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, the communication device comprising:

a control circuit;

a processor installed in the control circuit;

a memory installed in the control circuit and operatively coupled to the processor;

wherein the processor is configured to execute a program code stored in memory to implement small cell enhancements by:

controlling a first cell via a first eNB, wherein the first cell is serving a UE (User Equipment); and

configuring, via the first eNB, a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB;

allocating, via the first eNB, a measurement gap configuration to the UE; and

sending, from the first eNB, the measurement gap configuration to the second eNB.

5. (Original) The communication device of claim 4, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

6. (Original) The communication device of claim 4, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

7. (Previously Presented) A method for supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity and a UE (User Equipment) is served by a first cell controlled by a first eNB, comprising:

a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell; and

the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE.

8. (Original) The method of claim 7, further comprises:
the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE.

9. (Original) The method of claim 8, wherein the resources contain downlink assignments and/or uplink grants.

10. (Original) The method of claim 7, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

11. (Original) The method of claim 7, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

REMARKS

Claims 1-11 are pending in the application. In the Office Action, claims 1-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Li (U.S. Patent Publication No. 2012/0315908), Ji (U.S. Patent Publication No. 2012/0088516), and Ishii (U.S. Patent Publication No. 2015/0017993). *See* Office Action, ¶ 4A. Applicant respectfully traverses the rejections and respectfully requests reconsideration of the claims as amended.

Claim 1 recites “the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB.” Similarly, claim 4 recites “configuring, via the first eNB, a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB.” Furthermore, claim 7 recites “a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell.” Applicant respectfully submits that the combination of Li, Ji, and Ishii does not disclose the noted limitations.

The Office Action cites to FIG. 3 and Paragraphs [0040]-[0041] of Li and alleges that Li the limitations of “the first eNB configures a second cell to serve the UE, wherein the second cell is controlled by a second eNB. *See* Office Action, Pages 3, 6, and 8. Applicant respectfully notes that the noted limitations of claims 1, 4, and 7 include the claim language “**together with the first cell**”, which was added in Applicant’s Response dated June 1, 2015. Unfortunately, it seems that the Office Action did **not** address the claim language “together with the first cell”.

According to the abstract of Li, Li pertains to a handover procedure. *See* Li, Abstract (“Particularly, the present invention provides a method for performing a handover when a user terminal enters a femtocell from a macrocell.”) Consistent with the Abstract, FIG. 3 and Paragraphs [0040]-[0041] of Li describe this handover procedure. Furthermore, Paragraph [0006] of Li describes that the handover is performed when the user equipment (UE) moves between the macrocell and the femtocell. The entrance of the UE to the femtocell from the macrocell is referred to as an inbound handover, and the entrance of the UE to the macrocell from the femtocell is referred to as an inbound handover. Thus, it is clear that the serving cell of a UE would be changed from one cell to the other after handover. In other words, the UE is served by **only one cell** (i.e., the destination cell).

In contrast, claims 1, 4, and 7 cover a dual connectivity scenario in which a second cell is configured to serve the UE together with the first cell. In general, Li discusses a handover procedure. Therefore, Li does not disclose the limitation “the first eNB configures a second cell to serve the UE together with the first cell” recited in claim 1, the limitation “configuring, via the first eNB, a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB” recited in claim 4, and the limitation “a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell” recited in claim 7.

Furthermore, the Office Action admits that “Li fails to disclose sending, from the first eNB, the measurement gap configuration to the second eNB.” *See* Office Action, Page 6. Nevertheless, the Office Action cites to FIG. 9 and Paragraph [0097] of Ji and alleges that Ji discloses the noted limitations. *See* Office Action, Page 6. Applicant respectfully disagrees.

Paragraph [0047] of Ji states that a UE may be within the coverage of multiple eNBs, and one of these eNBs may be selected to serve the UE. Furthermore, the serving eNB may be selected based on various criteria such as received power, pathloss, signal-to-noise ratio (SNR), etc. Paragraph [0089] of Ji further describes that during a measurement gap, communication with serving cell is temporarily suspended such that a UE may measure other non-serving cells for inter-frequency or inter-RAT handover. Therefore, it is clear that similar to Li, Ji also addresses a handover, which is generally distinguishable from a dual connectivity scenario recited in claims 1, 4, and 7.

In addition, according to Paragraphs [0097] and [0100] of Ji, an indication of the measurement gap associated with a second base station is received by the first base station via a backhaul between the first and the second base stations (i.e., the first base station receives the measurement gap from the second base station). The first base station then generates resource partition information (RPI) by determining certain time and/or frequency resources to use for communicating with one or more UEs served by the first base station as described in Paragraph [0098] of Ji. The RPI is generated such that at least one subframe designated for resource measurements associated with the first base station falls within the measurement gap associated with the second base station. After that, the first base station transmits subframes according to the generated RPI, and these subframes include at least one subframe designated for radio

resource measurements associated with the first base station that falls within the measurement gap associated with the second base station (as discussed in Paragraph [0098]), which means UEs served by the second base station would be able to make radio resource measurements of signals from the first base station. Based on the measurements reported by a UE served by the second base station, the second base station can then determine whether to handover the UE to the first base station. Thus, it is clear that the UE served by the second base station is not served by the first base station in the scenario addressed by Ji. In other words, as disclosed in Ji, the measurement gap sent from the second base station to the first base station is associated with **a UE served by the second base station and not served by the first base station.**

In contrast, as recited in claims 1, 4, and 7, the measurement gap sent from the first eNB to the second eNB is associated and is allocated to with a UE that is served by both eNBs.

Furthermore, Paragraph [0036] of the present application states:

[0036] In addition to the above information, it would be beneficial for the macro eNB to send a measurement gap configuration (as discussed in 3GPP TS 36.331 V11.2.0) allocated for the UE to the small cell eNB so that the small cell eNB could take measurement gaps into consideration when scheduling resources to the UE. For example, **the small cell eNB could avoid scheduling the UE during measurement gaps because the UE cannot transmit or receive any signal to/from the small cell during the measurement gaps.**

See Application, Paragraph [0036], emphasis added.

As discussed in Paragraph [0036] of the present application, the intention for the macro eNB to send the measurement gap to the small cell eNB is to let the small cell eNB avoid scheduling the UE during the measurement gap because the UE cannot transmit or receive any signal to/from the small cell during the measurement gap.

In contrast, as discussed in Ji, the intention for the second base station to send the measurement gap to the first base station is to instruct the first base station to transmit at least one subframe that falls within the measurement gap associated with the second base station. Since the intentions are different due to different scenarios, Applicant respectfully submits that believes there is no motivation to combine Ji with Ishii (which addresses dual connectivity) to arrive at claims 1, 4, and 7.

Docket No. 1291-236.101 (IS 1020060-US-D3)
Appl. No. 14/167,317
Amdt. Dated November 18, 2015
Reply to final Office Action of August 19, 2015

Based on the foregoing, Applicant respectfully submits that claims 1-11 are patentable over any combination of Li, Ji, and/or Ishii.

In view of the foregoing it is respectfully submitted that the pending claims are in condition for allowance. Reconsideration of the rejections is requested. Allowance of the claims at an early date is solicited. The Examiner is invited to contact Applicant's undersigned counsel by telephone at (714) 839-3800 to expedite the prosecution of this case should there be any unresolved matters remaining.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made.

Respectfully submitted,

Sang N. Dang

BLUE CAPITAL LAW FIRM, P.C.

Dated: November 18, 2015

/Sang N. Dang/

Reg. No. 51,186

Tel.: (714) 839-3800

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lee-Chee Kuo
Title: METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
Serial No.: 14/167,317 Filed: January 29, 2014
Examiner: Allahyar Kasraian Group Art Unit: 2642
Attorney Docket No.: 1291-236.101 (IS1020060-US-D3)

**CERTIFICATE OF EFS-WEB TRANSMISSION
UNDER 37 CFR § 1.8**

I hereby certify that the enclosed 3 Page Request for Continued Examination; 2 Page
Amendment Transmittal; and 8 Page Amendment are being transmitted to the United States
Patent and Trademark Office via EFS-Web on November 18, 2015.

Date: November 18, 2015

/Sandy Kim/

Sandy Kim

Mailing Address:

BLUE CAPITAL LAW FIRM, P.C. (Customer No.: 106622)

611 Anton Blvd., Suite 1050
Costa Mesa, California 92626
Tel: 714-839-3800
Fax: 714-795-2995

Electronic Patent Application Fee Transmittal

Application Number:	14167317			
Filing Date:	29-Jan-2014			
Title of Invention:	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM			
First Named Inventor/Applicant Name:	Richard Lee-Chee Kuo			
Filer:	Sang N. Dang/Sandy Kim			
Attorney Docket Number:	1291-236.101			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Request for Continued Examination	1801	1	1200	1200
Total in USD (\$)				1200

Electronic Acknowledgement Receipt

EFS ID:	24122561
Application Number:	14167317
International Application Number:	
Confirmation Number:	8112
Title of Invention:	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
First Named Inventor/Applicant Name:	Richard Lee-Chee Kuo
Customer Number:	106622
Filer:	Sang N. Dang/Sandy Kim
Filer Authorized By:	Sang N. Dang
Attorney Docket Number:	1291-236.101
Receipt Date:	18-NOV-2015
Filing Date:	29-JAN-2014
Time Stamp:	15:48:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 1200
RAM confirmation Number	13306
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		1291-236-101-- RFOAwRCEasFiled11182015. pdf	169109	yes	14
			061c8f367c1fd7b56d06e96d5a076162715c3098		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Request for Continued Examination (RCE)		1	3	
	Transmittal Letter		4	5	
	Amendment Submitted/Entered with Filing of CPA/RCE		6	6	
	Claims		7	9	
	Applicant Arguments/Remarks Made in an Amendment		10	13	
	Miscellaneous Incoming Letter		14	14	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30741	no	2
			4d84b646b83e15c3e60ef2128cbde77e692ff8f1		
Warnings:					
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Total Files Size (in bytes):			199850		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/167,317	Filing Date 01/29/2014	☐ To be Mailed
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ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	(Column 1)	(Column 2)	(Column 3)	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	11/18/2015	CLAIMS REMAINING AFTER AMENDMENT					
	Total (37 CFR 1.16(i))	* 11	Minus	** 20	= 0	X \$80 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE							0

AMENDMENT	(Column 1)	(Column 2)	(Column 3)	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
		CLAIMS REMAINING AFTER AMENDMENT					
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE							

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/TARA WITCHER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/167,317	01/29/2014	Richard Lee-Chee Kuo	1291-236.101	8112

106622 7590 08/19/2015
Blue Capital Law Firm, P.C.
611 Anton Blvd., Suite 1050
Costa Mesa, CA 92626

EXAMINER

KASRAIAN, ALLAHYAR

ART UNIT	PAPER NUMBER
----------	--------------

2642

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

08/19/2015

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@bluecapitallaw.com

Office Action Summary	Application No. 14/167,317	Applicant(s) KUO, RICHARD LEE-CHEE	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	AIA (First Inventor to File) Status 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 MONTHS 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 06/01/2015.
☐ 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) 1-11 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) 1-11 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 or send an inquiry to 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) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____. | 4) ☐ Other: ____. |

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Remarks

2. The present Office Action is in response to Applicant's amendment filed on 06/01/2015. **Claims 11** are now pending in the present application. **This Action is made FINAL.**

Claim Rejections - 35 USC § 103

3. The following is a quotation of pre-AIA 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.

4. 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 pre-AIA 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.

A. **Claims 1-11** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Li (US Patent Application Publication # 20120315908 A1)** in view of **Ji et al. (US Patent Application Publication # 20120088516 A1)** (hereinafter Ji) and further in view of **Ishii (US Patent Application Publication # 20150017993 A1)**.

Regarding **claim 1**, Li discloses a method in a wireless communication system (FIGS. 1 and 3), comprising:

a first eNB controls a first cell, wherein the first cell is serving a UE (User Equipment) (FIG. 1, par. 0026); and

the first eNB configures a second cell to serve the UE, wherein the second cell is controlled by a second eNB (FIG. 3, par. 0040-0041);

the first eNB allocates a measurement gap configuration to the UE (par. 0041).

However, Li fails to explicitly disclose the first eNB sends the measurement gap configuration to the second eNB.

In the same field of endeavor, Ji discloses the first eNB sends the measurement gap configuration to the second eNB (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the

first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and the first eNB configures a second cell to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

the first eNB configures a second cell to serve the UE together with the first cell. (par. 0071 for "The D2UE connections are controlled by the Macro base station. More specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE and the Macro base station are maintained while the D2UE connections are configured.").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by

Ishii to the wireless communication system including macro and femto bases as disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 2**, Li as modified by Ji as modified by Ishii discloses the claimed invention **as applied to claim 1 above**, and Li further discloses wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements (par. 0050).

Regarding **claim 3**, Li as modified by Ji as modified by Ishii discloses the claimed invention **as applied to claim 1 above**, and Li further discloses wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB (par. 0041).

Regarding **claim 4**, Li discloses a communication device in a wireless communication system (FIGS. 1 and 3 for any of eNB, MME or HeNB), the communication device comprising:

- a control circuit (for any inherent control circuit of eNB, MME or HeNB);
- a processor installed in the control circuit (for any inherent processor of eNB, MME or HeNB);
- a memory installed in the control circuit and operatively coupled to the processor (for any inherent memory of eNB, MME or HeNB);

wherein the processor is configured to execute a program code stored in memory (for any inherent program code installed in inherent memory of (for any inherent control circuit of eNB, MME or HeNB)) to implement small cell enhancements by:

controlling a first cell via a first eNB, wherein the first cell is serving a UE (User Equipment) FIG. 1, par. 0026); and

configuring, via the first eNB, a second cell to serve the UE, wherein the second cell is controlled by a second eNB (FIG. 3, par. 0040-0041);

allocating, via the first eNB, a measurement gap configuration to the UE (par. 0041).

However, Li fails to disclose sending, from the first eNB, the measurement gap configuration to the second eNB.

In the same field of endeavor, sending, from the first eNB, the measurement gap configuration to the second eNB (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing

an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and the first eNB configures a second cell to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

the first eNB configures a second cell to serve the UE together with the first cell. (par. 0071 for "The D2UE connections are controlled by the Macro base station. More specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE connections between UE and the Macro base station are maintained while the D2UE connections are configured.").

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as

disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 5 as applied to claim 4 above**, the claim is rejected for the same reason(s) as set forth claim 2 above.

Regarding **claim 6 as applied to claim 4 above**, the claim is rejected for the same reason(s) as set forth claim 3 above.

Regarding **claim 7**, Li discloses a method in a wireless communication system, wherein a UE (User Equipment) is served by a first cell controlled by a first eNB (FIG. 1, par. 0026), comprising:

a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE (FIG. 3, par. 0040-0041).

However, Li fails to explicitly disclose the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE.

In the same field of endeavor, Ji discloses the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

However, Li as modified by Ji fails to disclose supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity; and wherein the second cell is configured by the first eNB to serve the UE together with the first cell.

In the same field of endeavor, Ishii discloses supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity (see FIGS. 2 and 3, par. 0068 for "The small-node device may be regarded as a femto/pico base station with which the mobile station (i.e., user equipment) communicates simultaneously with communicating with the macro base station"); and

wherein the second cell is configured by the first eNB to serve the UE together with the first cell (par. 0071 for "The D2UE connections are controlled by the Macro base station. More specifically, basic radio resource control, such as connection establishment, handover, connection release, call admission control and the like, for the D2UE connections are controlled by the Macro base station. Furthermore, the BS2UE

connections between UE and the Macro base station are maintained while the D2UE connections are configured.”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the communication method as taught by Ishii to the wireless communication system including macro and femto bases as disclosed by Li as modified by Ji for purpose of providing simultaneous communications, for a mobile station, with macro and femto base stations.

Regarding **claim 8 as applied to claim 7 above**, and Ji further discloses the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE (par. 0090).

Regarding **claim 9 as applied to claim 8 above**, and Ji further discloses wherein the resources contain downlink assignments and/or uplink grants (par. 0041).

Regarding **claim 10 as applied to claim 7 above**, and Ji further discloses wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements (par. 0061).

Regarding **claim 11 as applied to claim 7 above**, the claim is rejected for the same reason(s) as set forth claim 3 above.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 4 and 7 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Applicant's argument and statement, see pages 6-7, with respect to the teachings of Li and Ji is respectfully traverses since Applicant fails to provide any argument which of the claimed limitations are not taught by Li in view of Ji. Rather Applicant compares the teachings of Li and Ji to the teachings of the current specification. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant(s) is reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of the claim. The Examiner is not limited to Applicant's definition, which is not specifically set forth in the claims, *In re Tanaka et al.* 193 USPQ 139, (CCPA) 1977.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez Gutierrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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.

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/ALLAHYAR KASRAIAN/
Primary Examiner, Art Unit 2642

Notice of References Cited	Application/Control No. 14/167,317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2015/0017993 A1	01-2015	Ishii, Hiroyuki	455/444
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
 Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

CPC- SEARCHED		
Symbol	Date	Examiner
H04W84/045, H04W24/10, H04W48/16, H04W36/0083, H04W36/0094, H04W24/02, H04W36/0088, H04W48/08, H04W72/00, H04W36/04, H04W36/0066, H04W88/08, H04W36/00, H04W36/026, H04W36/14, H04W72/1273	8/12/2015	AK
H04J11/0069 OR H04L1/0027	8/12/2015	AK

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	436-444	2/23/2015	AK
370	331-333	2/23/2015	AK

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM_TDB (see attached search strategy)	2/23/2015	AK
Inventor name and Assignee search in PALM ExPo and EAST	2/23/2015	AK
(H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027)	2/23/2015	AK
(455/436-444.ccls. 370/331-333.ccls.)	2/23/2015	AK
updated search	8/12/2015	AK

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	14/167317	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 20:01
S4	392	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:46
S5	19	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:53
S6	0	"20120188907" with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S7	1	"20120188907" and (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S8	16	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:38
S9	5	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (femto micro pico) near3 (cell (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:55
S10	15	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (receiv\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:09
S11	0	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with target near3	US-PGPUB; USPAT;	OR	ON	2015/02/22 19:13

		(node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	USOCR; EPO; JPO; DERWENT; IBM_TDB			
S12	0	configuration near2 gap with target near3 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:14
S13	0	configuration near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S14	17	configuration near2 gap with (receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S15	24	configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:09
S16	0	measurment near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:19
S17	191	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:20
S18	3	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with target near2 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:21
S19	10	measurement near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:31
S20	220	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 00:48
S21	11	(pattern measurement configuration) near2 gap with (femto micro) and S20	US-PGPUB; USPAT;	OR	ON	2015/02/23 01:01

			USOCR; EPO; JPO; DERWENT; IBM_TDB			
S22	22	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 01:17
S23	25	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:40
S24	18	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto)near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:50
S25	6	((pattern measurement configuration) near2 gap with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b)).ab. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 09:42
S26	232	((Richard) near2 (Kuo)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/23 10:48
S27	6	S26 and ((pattern measurement configuration) near2 gap) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
S28	2	S26 and ((pattern measurement configuration) near2 gap).clm. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
S29	11	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:52
S30	14	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (second target destiation) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:55
S31	61	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto	US-PGPUB; USPAT; USOCR;	OR	ON	2015/02/23 10:58

		second\$2 target destination) near4 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	EPO; JPO; DERWENT; IBM_TDB			
S32	55	S31 AND ((H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027).CPC.)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 11:02
S33	125	macro with (request\$3 ask\$3 configur\$3) with femto with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:04
S34	4	S33 and macro with femto with (concurrent\$3 simultaneous\$4) with serv\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:07
S35	8	macro with femto with (concurrent\$3 simultaneous\$4) with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/11 20:12
S36	25	femto with (concurrent\$3 simultaneous\$4) with serv\$3 with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 11:16
S37	76	femto with (concurrent\$3 simultaneous\$4) with macro with (UE MS mobile portable terminal phone) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 11:52
S38	2	"20130137434".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/12 14:29

EAST Search History (Interference)

<This search history is empty>

8/ 12/ 2015 6:39:20 PM
C:\Users\ akasraian\ Documents\ EAST\ Workspaces\ 14167317_01.wsp

<i>Index of Claims</i> 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant											☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE														
Final	Original	02/23/2015	08/12/2015													
	1	✓	✓													
	2	✓	✓													
	3	✓	✓													
	4	✓	✓													
	5	✓	✓													
	6	✓	✓													
	7	✓	✓													
	8	✓	✓													
	9	✓	✓													
	10	✓	✓													
	11	✓	✓													

Docket No. 1291-236.101 (IS 1020060-US-D3)
Appl. No. 14/167,317
Amdt. Dated June 1, 2015
Reply to Office Action of March 2, 2015

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 14/167,317
Confirmation No. : 8112
Applicant : Richard Lee-Chee Kuo
Filed : January 29, 2014
Title : METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
TC/A.U. : 2642
Examiner : Allahyar Kasraian
Docket No. : 1291-236.101 (IS 1010082-US-D3)
Customer No. : 106622

Amendment to Office Action

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the non-final Office Action mailed on March 2, 2015, having a three-month period for filing a response to **June 2, 2015**, please amend the above-identified application as follows:

Claims begin on page 2.

Remarks begin on page 5.

IN THE CLAIMS:

1. (Currently Amended) A method for ~~implementing small cell enhancements~~ supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, comprising:

a first eNB ~~(evolved Node B)~~ controls a first cell, wherein the first cell is serving a UE (User Equipment); and

the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB;

the first eNB allocates a measurement gap configuration to the UE; and

the first eNB sends the measurement gap configuration to the second eNB.

2. (Original) The method of claim 1, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

3. (Original) The method of claim 1, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

4. (Currently Amended) A communication device for ~~implementing small cell enhancements~~ supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity, the communication device comprising:

a control circuit;

a processor installed in the control circuit;

a memory installed in the control circuit and operatively coupled to the processor;

wherein the processor is configured to execute a program code stored in memory to implement small cell enhancements by:

controlling a first cell via a first eNB ~~(evolved Node B)~~, wherein the first cell is serving a UE (User Equipment); and

configuring, via the first eNB, a second cell to serve the UE together with the first cell,
wherein the second cell is controlled by a second eNB;

allocating, via the first eNB, a measurement gap configuration to the UE; and

sending, from the first eNB, the measurement gap configuration to the second eNB.

5. (Original) The communication device of claim 4, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

6. (Original) The communication device of claim 4, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

7. (Currently Amended) A method for ~~implementing small cell enhancements~~ supporting dual connectivity in a wireless communication system, wherein separate eNBs (evolved Node B) are used to support dual connectivity and a UE (User Equipment) is served by a first cell controlled by a first eNB, comprising:

a second eNB ~~(evolved Node B)~~ controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell; and

the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE.

8. (Original) The method of claim 7, further comprises:
the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE.

9. (Original) The method of claim 8, wherein the resources contain downlink assignments and/or uplink grants.

10. (Original) The method of claim 7, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

11. (Original) The method of claim 7, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

REMARKS

Claims 1-11 are pending in the application. In the Office Action, claims 1-11 stand rejected under 35 U.S.C. § 112 (b) as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor regards as the invention. *See* Office Action, ¶ 6. Claims 1, 4, and 7 have been amended. Applicant respectfully requests reconsideration of the claims as amended.

Furthermore, claims 1-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Li (U.S. Patent Publication No. 2012/0315908) in view of Ji (U.S. Patent Publication No. 2012/0088516). *See* Office Action, ¶ 8A. Claims 1, 4, and 7 have been amended. Applicant respectfully requests reconsideration of the claims as amended.

Claims 1 recites “the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB.” Similarly, claim 4 recites “configuring, via the first eNB, a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB.” Furthermore, claim 7 recites “a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell.” Applicant respectfully submits that the combination of Li and Ji does not disclose the noted limitations.

The Office Action cites to FIG. 3 and Paragraphs [0040]-[0041] of Li and alleges Li discloses the noted limitations. *See* Office Action, Pages 4, 6, and 7. Applicant respectfully disagrees.

Based on to FIG. 3 and Paragraphs [0040]-[0041] of Li, the scenario addressed and discussed by Li is to handover a UE from the eNB (i.e., macro base station) to the HeNB (i.e., femto base station per Paragraph [0037] of Li). After the handover, the UE is served by the femto cell (the destination cell) alone. In contrast, the concerned scenario in claims 1, 4, and 7 is for dual connectivity in which a second cell is configured to serve the UE together with the first cell. In other words, Li does not disclose the limitations “the first eNB configures a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB.” recited in claim 1, the limitation “configuring, via the first eNB, a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB” recited in claim 4, and

the limitation “a second eNB controls a second cell, wherein the second cell is configured by the first eNB to serve the UE together with the first cell” recited in claim 7.

In addition, the Office Action states:

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

See Office Action, Pages 5, 7, and 8.

Applicant respectfully disagrees. Paragraph [0047] of Ji states that a UE may be within the coverage of multiple eNBs and one of these eNBs may be selected to serve the UE. The serving eNB may be selected based on various criteria such as received power, pathloss, signal-to-noise ratio (SNR), etc. Paragraph [0089] of Ji further describes that during a measurement gap, communication with serving cell is temporarily suspended such that a UE may measure other non-serving cells *for inter-frequency or inter-RAT handover*. Therefore, it is clear that similar to Li, Ji addresses a handover scenario.

Furthermore, according to Paragraphs [0097] and [0100] of Ji, an indication of the measurement gap associated with a second base station is received by the first base station via a backhaul between the first and the second base stations (i.e., the first base station receives the measurement gap from the second base station). The first base station then generates resource partition information (RPI) by determining certain time and/or frequency resources to use for communicating with one or more UEs served by the first base station (per Paragraph [0098] of Ji). The RPI is generated such that at least one subframe designated for resource measurements associated with the first base station would fall within the measurement gap associated with the second base station. After that, the first base station transmits subframes according to the generated RPI; and these subframes include at least one subframe designated for radio resource measurements associated with the first base station that falls within the measurement gap associated with the second base station, which means UEs served by the second base station would be able to make radio resource measurements of signals from the first base station. Thus, it is clear

that the first base station needs to transmit at least one subframe within the measurement gap associated with the second base station.

In contrast, Paragraph [0052] of the present application states:

[0052] In addition to the above information, it would be beneficial for the macro eNB to send a measurement gap configuration (as discussed in 3GPP TS 36.331 V11.2.0) allocated for the UE to the small cell eNB so that the small cell eNB could take measurement gaps into consideration when scheduling resources to the UE. For example, **the small cell eNB could avoid scheduling the UE during measurement gaps because the UE cannot transmit or receive any signal to/from the small cell during the measurement gaps.**

See Application, Paragraph [0052], emphasis added.

As discussed in Paragraph [0052] of the present application, the intent for the macro eNB to send the measurement gap to the small cell eNB is to let the small cell eNB avoid scheduling the UE during the measurement gap because the UE cannot transmit or receive any signal to/from the small cell during the measurement gap. In other words, the small cell does not transmit to the UE during the measurement gap received from the macro eNB. Since the small cell is configured to serve the UE together with the macro cell, the UE can perform measurement on the small cell, if necessary, during the period when it is being served by the small cell. And, this service period could be outside of the measurement gap. In contrast, the first base station in Ji needs to transmit at least one subframe within the measurement gap associated with the second base station for allowing a UE served by a cell of the second base station to perform measurement on a cell of the first base station. Since the scenarios addressed by the present application and of Ji are different and thus the intentions of the present application and of Ji are also different, Applicant respectfully submits that there is no motivation to combine what disclosed by Ji to arrive at claims 1, 4, and 7.

Based on the foregoing, Applicant respectfully submits that claims 1-11 are patentable over the combination of Li and Ji.

In view of the foregoing it is respectfully submitted that the pending claims are in condition for allowance. Reconsideration of the rejections is requested. Allowance of the claims at an early date is solicited. The Examiner is invited to contact Applicant's undersigned counsel by telephone at (714) 839-3800 to expedite the prosecution of this case should there be any unresolved matters remaining.

Docket No. 1291-236.101 (IS 1020060-US-D3)
Appl. No. 14/167,317
Amdt. Dated June 1, 2015
Reply to Office Action of March 2, 2015

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made.

Respectfully submitted,
Sang N. Dang
BLUE CAPITAL LAW FIRM, P.C.

Dated: June 1, 2015

/Sang N. Dang/

Reg. No. 51,186

Tel.: (714) 839-3800

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lee-Chee Kuo
Title: METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
Serial No.: 14/167,317 Filed: January 29, 2014
Examiner: Allahyar Kasraian Group Art Unit: 2642
Attorney Docket No.: 1291-236.101 (IS1020060-US-D3)

**CERTIFICATE OF EFS-WEB TRANSMISSION
UNDER 37 CFR § 1.8**

I hereby certify that the enclosed 2 Page Amendment Transmittal; and 8 Page
Amendment are being transmitted to the United States Patent and Trademark Office via EFS-
Web on June 1, 2015.

Date: June 1, 2015

/Sandy Kim/
Sandy Kim

Mailing Address:

BLUE CAPITAL LAW FIRM, P.C. (Customer No.: 106622)
611 Anton Blvd., Suite 1050
Costa Mesa, California 92626
Tel: 714-839-3800
Fax: 714-795-2995

Electronic Acknowledgement Receipt

EFS ID:	22498921
Application Number:	14167317
International Application Number:	
Confirmation Number:	8112
Title of Invention:	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
First Named Inventor/Applicant Name:	Richard Lee-Chee Kuo
Customer Number:	106622
Filer:	Sang N. Dang/Sandy Kim
Filer Authorized By:	Sang N. Dang
Attorney Docket Number:	1291-236.101
Receipt Date:	01-JUN-2015
Filing Date:	29-JAN-2014
Time Stamp:	16:06:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		1291-236-101-- ROAof03022015asFiled060120 15.pdf	144370 36d0f1bd237050811fd650f06f02e7c/e88c5fa	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Transmittal Letter	1	2
	Amendment/Req. Reconsideration-After Non-Final Reject	3	3
	Claims	4	6
	Applicant Arguments/Remarks Made in an Amendment	7	10
	Miscellaneous Incoming Letter	11	11
Warnings:			
Information:			
Total Files Size (in bytes):		144370	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			

Amendment Transmittal Letter

Docket Number

1291-236.101

Address To
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Title of Invention

METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

First Named Inventor **Richard Lee-Chee Kuo**

Application No. **14/167,317**

Filing Date **January 29, 2014**

Examiner **Allahyar Kasraian**

Art Unit **2642**

Transmitted herewith is an amendment in the above-identified application.

The fee has been calculated and is transmitted as shown below.

☐ Applicant claims Small Entity Status. See 37 CFR 1.27.

Fee Calculation

Claims as Amended

For	#Filed	#Previously Paid For	#Extra	Rate	Fee
Total Claims	11	- 20 =		x 80 =	
Total Indep. Claims	3	- 3 =		x 420 =	
Multiple Dependent Claims (check if applicable) ☐					
TOTAL					\$0

Method of Payment

☐ Deposit Account ☐ Credit Card ☐ Check ☐ Money Order ☐ Other: _____

Deposit Account Number _____

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

- ☐ Charge the fee(s) set forth above
☐ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17
☐ Charge fee(s) indicated above, **except for the filing fee**
☐ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on form PTO-2038.

Amount Grand Total _____ **\$0**

Amendment Transmittal Letter

Docket Number

1291-236.101

Correspondence Address

Customer Number 106622

-OR-

Name

Address

City

State

Country

Postal Code

Phone Number

E-mail Address

Certificate of Mailing by Express Mail

I hereby certify that this Amendment, accompanying documents, and fee (if appropriate) are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on the date indicated below:

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(Typed or Printed Name of Person Mailing Correspondence)

(Signature of Person Mailing Correspondence)

("Express Mail" Mailing Label Number)

Certificate of Mailing by First Class Mail

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(Name of Person Mailing Correspondence)

(Signature of Person Mailing Correspondence)

Certificate of Transmission

I hereby certify that this Amendment, accompanying documents, and fee (if appropriate) authorization are being facsimile transmitted to the United States Patent and Trademark Office on the date indicated below:

(Date of Transmission)

(Name of Person Transmitting Correspondence)

(Signature of Person Transmitting Correspondence)

Signature Instructions

Select the name of the person who will electronically sign the Amendment from the drop-down box below.

If a practitioner is not present in the drop-down list, you must close this form and select 'Add Practitioner...' in the Form Manager's Utility menu.

Verify that the signatory information is correct and press the 'eSign' button to electronically sign the submission. If you prefer to sign the form manually, simply do not click the 'eSign' button; just print and manually sign.

Signatory Drop-Down Box

Sang N. Dang

Name

Sang N. Dang

Registration Number

51,186

Signatory Capacity

Attorney for Applicant(s)

E-mail Address

sdang@bluecapitallaw.com

eSign

/Sang N. Dang/

Date Signed

06/01/2015

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/167,317	Filing Date 01/29/2014	☐ To be Mailed
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ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO**APPLICATION AS FILED – PART I**

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	06/01/2015	CLAIMS REMAINING AFTER AMENDMENT	Minus	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 11	Minus	** 11	= 0	X \$80 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	Minus	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	☐ Application Size Fee (37 CFR 1.16(s))					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/ANTHONY TYSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/167,317	01/29/2014	Richard Lee-Chee Kuo	1291-236.101	8112

106622 7590 03/02/2015
Blue Capital Law Firm, P.C.
600 Anton Blvd., Suite 1050
Costa Mesa, CA 92626

EXAMINER

KASRAIAN, ALLAHYAR

ART UNIT	PAPER NUMBER
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2642

NOTIFICATION DATE	DELIVERY MODE
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03/02/2015

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@bluecapitallaw.com

Office Action Summary	Application No. 14/167,317	Applicant(s) KUO, RICHARD LEE-CHEE	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	AIA (First Inventor to File) Status 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 MONTHS 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 01/29/2014.
☐ 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) 1-11 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) 1-11 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 or send an inquiry to 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) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date <u>06/25/2014</u> . | 4) ☐ Other: ____. |

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Priority

2. Applicant's claim for domestic priority under 35 U.S.C. 119(e), 120, 121, or 365(c) is acknowledged.

Information Disclosure Statement

3. The information disclosure statement submitted on 06/25/2014 has been considered by the Examiner and made of record in the application file.

Claim Rejections - 35 USC § 112

4. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.
5. The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. **Claims 1-11** are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.
 - A. **Claim 1** recites, "a method for implementing *small cell* enhancements in a wireless communication system." However, there is no relation between claimed "small

Art Unit: 2642

cell" and the claimed "first cell" and/or "second cell". (It is not clear or defined whether the claimed small cell is one of the "first cell" or "second cell".)

Claims 2 and 3 are also rejected by the virtue of their dependency on **claim 1**.

B. **Claim 4** recites, "*a communication device for implementing small cell enhancements in a wireless communication system.*" However, there is no relation between claimed "small cell" and the claimed "first cell" and/or "second cell". (It is unclear whether the claimed small cell is one of the "first cell" or "second cell".)

Furthermore, there is no relation between claimed "communication device" and the "first eNB", "second eNB" and/or "UE".

Claims 5 and 6 are also rejected by the virtue of their dependency on **claim 4**.

C. **Claim 7** recites, "*a method for implementing small cell enhancements in a wireless communication system.*" However, there is no relation between claimed "small cell" and the claimed "first cell" and/or "second cell". (It is not clear or defined whether the claimed small cell is one of the "first cell" or "second cell".)

Claims 5 and 6 are also rejected by the virtue of their dependency on **claim 4**.

Claim Rejections - 35 USC § 103

7. The following is a quotation of pre-AIA 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.

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8. 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 pre-AIA 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.

A. **Claims 1-11** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Li (US Patent Application Publication # 20120315908 A1)** in view of **Ji et al. (US Patent Application Publication # 20120088516 A1)** (hereinafter Ji).

Regarding **claim 1**, Li discloses a method for implementing small cell enhancements in a wireless communication system (FIGS. 1 and 3), comprising:

a first eNB (evolved Node B) controls a first cell, wherein the first cell is serving a UE (User Equipment) (FIG. 1, par. 0026); and

the first eNB configures a second cell to serve the UE, wherein the second cell is controlled by a second eNB (FIG. 3, par. 0040-0041);

the first eNB allocates a measurement gap configuration to the UE (par. 0041).

However, Li fails to explicitly disclose the first eNB sends the measurement gap configuration to the second eNB.

In the same field of endeavor, Ji discloses the first eNB sends the measurement gap configuration to the second eNB (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-

frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

Regarding **claim 2**, Li as modified by Ji discloses the claimed invention **as applied to claim 1 above**, and Li further discloses wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements (par. 0050).

Regarding **claim 3**, Li as modified by Ji discloses the claimed invention **as applied to claim 1 above**, and Li further discloses wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB (par. 0041).

Regarding **claim 4**, Li discloses a communication device for implementing small cell enhancements in a wireless communication system (FIGS. 1 and 3 for any of eNB, MME or HeNB), the communication device comprising:

a control circuit (for any inherent control circuit of eNB, MME or HeNB);

a processor installed in the control circuit (for any inherent processor of eNB, MME or HeNB);

a memory installed in the control circuit and operatively coupled to the processor (for any inherent memory of eNB, MME or HeNB);

wherein the processor is configured to execute a program code stored in memory (for any inherent program code installed in inherent memory of (for any inherent control circuit of eNB, MME or HeNB)) to implement small cell enhancements by:

controlling a first cell via a first eNB (evolved Node B), wherein the first cell is serving a UE (User Equipment) FIG. 1, par. 0026); and

configuring, via the first eNB, a second cell to serve the UE, wherein the second cell is controlled by a second eNB (FIG. 3, par. 0040-0041);

allocating, via the first eNB, a measurement gap configuration to the UE (par. 0041).

However, Li fails to disclose sending, from the first eNB, the measurement gap configuration to the second eNB.

In the same field of endeavor, sending, from the first eNB, the measurement gap configuration to the second eNB (FIG. 9, par. 0097 for “a first base station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

Regarding **claim 5 as applied to claim 4 above**, the claim is rejected for the same reason(s) as set forth claim 2 above.

Regarding **claim 6 as applied to claim 4 above**, the claim is rejected for the same reason(s) as set forth claim 3 above.

Regarding **claim 7**, Li discloses a method for implementing small cell enhancements in a wireless communication system, wherein a UE (User Equipment) is served by a first cell controlled by a first eNB (FIG. 1, par. 0026), comprising:

a second eNB (evolved Node B) controls a second cell, wherein the second cell is configured by the first eNB to serve the UE (FIG. 3, par. 0040-0041).

However, Li fails to explicitly disclose the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE.

In the same field of endeavor, Ji discloses the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE (FIG. 9, par. 0097 for “a first base

station may determine a measurement gap associated with a second base station for an inter-frequency or an inter-RAT radio resource measurement. For certain aspects, determining a measurement gap comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate determining a measurement gap which comprises receiving an indication of the measurement gap via a backhaul between the first and second base stations as taught by Ji to the method and system for performing an inbound handover to a femtocell from a macrocell as disclosed by Li for purpose of receiving measurement gap the first and second base stations.

Regarding **claim 8 as applied to claim 7 above**, and Ji further discloses the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE (par. 0090).

Regarding **claim 9 as applied to claim 8 above**, and Ji further discloses wherein the resources contain downlink assignments and/or uplink grants (par. 0041).

Regarding **claim 10 as applied to claim 7 above**, and Ji further discloses wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements (par. 0061).

Regarding **claim 11 as applied to claim 7 above**, the claim is rejected for the same reason(s) as set forth claim 3 above.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLAHYAR KASRAIAN whose telephone number is (571)270-1772. The examiner can normally be reached on Monday through Friday 8:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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.

/ALLAHYAR KASRAIAN/
Primary Examiner, Art Unit 2642

Notice of References Cited	Application/Control No. 14/167,317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2012/0315908 A1	12-2012	Li, Feng	455/436
*	B	US-2012/0088516 A1	04-2012	Ji et al.	455/452.1
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



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BIB DATA SHEET

CONFIRMATION NO. 8112

SERIAL NUMBER 14/167,317	FILING or 371(c) DATE 01/29/2014 RULE	CLASS 455	GROUP ART UNIT 2642	ATTORNEY DOCKET NO. 1291-236.101	
APPLICANTS INNOVATIVE SONIC CORPORATION, Taipei City, TAIWAN, Assignee (with 37 CFR 1.172 Interest); INVENTORS Richard Lee-Chee Kuo, Taipei City, TAIWAN; ** CONTINUING DATA ***** This appln claims benefit of 61/762,414 02/08/2013 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 02/12/2014					
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /ALLAHYAR KASRAIAN/ Acknowledged Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY TAIWAN	SHEETS DRAWINGS 5	TOTAL CLAIMS 11	INDEPENDENT CLAIMS 3
ADDRESS Blue Capital Law Firm, P.C. 600 Anton Blvd., Suite 1000 Costa Mesa, CA 92626 UNITED STATES					
TITLE METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM					
FILING FEE RECEIVED 1600	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

Receipt date: 06/25/2014

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

14167317 - GALL: 2642

P10/GB/08a (01-10)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14167317	
	Filing Date		2014-01-29	
	First Named Inventor	Richard Lee-Chee Kuo		
	Art Unit	2642		
	Examiner Name	~~Refael Perez-Cutierrez~~ Allahyar Kasraian		
	Attorney Docket Number	1291-236.101		

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

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	1							☐

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NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14167317
Filing Date	2014-01-29
First Named Inventor	Richard Lee-Chee Kuo
Art Unit	2642
Examiner Name	~~Rafael Perez Gutierrez~~ Allahyar Kasraian
Attorney Docket Number	1291-236.101

1	3GPP TSG RAN WG2 Meeting #75, Athens, Greece, 22nd-26th August 2011 (R2-114123)	☐
2	3GPP TSG RAN WG2 Meeting #75bis, Zhuhai, China, Oct 10th-14th, 2011 (R2-114947)	☐
3	3GPP TSG RAN WG2 Meeting #81, Malta, 28 January - 01 February 2013 (R2-130451)	☐
4	3GPP TSG RAN WG2 Meeting #81, Malta, 28 January - 01 February 2013 (R2-130658)	☐
5	3GPP TSG-RAN2 Meeting #83bis, Ljuljana, Slovenia, 07-11 October 2013 (R2-133292)	☐
6	Search Report on corresponding EP Patent Application No. 14153595.5 dated March 31, 2014	☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/Allahyar Kasraian/	Date Considered	02/22/2015
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

Search Notes 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	436-444	2/23/2015	AK
370	331-333	2/23/2015	AK

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Image and keyword search in USPTO, US-PGPUB, DERWENT, EPO, JPO, and IBM TDB (see attached search strategy)	2/23/2015	AK
Inventor name and Assignee search in PALM ExPo and EAST	2/23/2015	AK
(H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027)	2/23/2015	AK
(455/436-444.ccls. 370/331-333.ccls.)	2/23/2015	AK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/ALLAHYAR KASRAIAN/ Primary Examiner.Art Unit 2642
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<i>Index of Claims</i> 	Application/Control No. 14167317	Applicant(s)/Patent Under Reexamination KUO, RICHARD LEE-CHEE
	Examiner ALLAHYAR KASRAIAN	Art Unit 2642

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant											☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE														
Final	Original	02/23/2015														
	1	✓														
	2	✓														
	3	✓														
	4	✓														
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	7	✓														
	8	✓														
	9	✓														
	10	✓														
	11	✓														

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	6	((pattern measurement configuration) near2 gap with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b)).ab. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 09:42
L3	232	((Richard) near2 (Kuo)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2015/02/23 10:48
L4	6	3 and ((pattern measurement configuration) near2 gap) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
L5	2	3 and ((pattern measurement configuration) near2 gap).clm. and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:49
L6	11	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:52
L7	14	(455/436-444.ccls. 370/331-333.ccls.) and (pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (second target destiation) near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:55
L8	61	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto second\$2 target destination) near4 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 10:58
L9	55	8 AND ((H04W84/045 OR H04W24/10 OR H04W48/16 OR H04W36/0083 OR H04W36/0094 OR H04W24/02 OR H04W36/0088 OR H04W48/08 OR H04W72/005 OR H04W36/04 OR H04W36/0066 OR H04W88/08 OR H04W36/00 OR H04W36/026 OR H04W36/14 OR H04W72/1273 OR	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 11:02

		H04W28/18 OR H04W48/12 OR H04W36/08 OR H04W72/042 OR H04J11/0069 OR H04L1/0027).CPC.)				
S1	1	14/167317	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 20:01
S4	392	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:46
S5	19	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/21 22:53
S6	0	"20120188907" with (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S7	1	"20120188907" and (transfer\$3 transmit\$3 send\$3) with (femto (access near2 point) (base adj2 station))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 12:05
S8	16	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:38
S9	5	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (femto micro pico) near3 (cell (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 18:55
S10	15	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with (receiv\$3) with (femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:09
S11	0	("370"/\$.ccls. "455"/\$.ccls.) and configuration near2 gap with target near3 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:13
S12	0	configuration near2 gap with target near3 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and	US-PGPUB; USPAT; USOCR;	OR	ON	2015/02/22 19:14

		(@ad<="20130208" @rlad<="20130208")	EPO; JPO; DERWENT; IBM_TDB			
S13	0	configuration near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S14	17	configuration near2 gap with (receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 19:15
S15	24	configuration near2 gap with (transfer\$3 transmit\$3 send\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:09
S16	0	measurment near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:19
S17	191	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:20
S18	3	measurement near2 gap with (transfer\$3 transmit\$3 send\$3 receiv\$3) with target near2 (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:21
S19	10	measurement near2 gap with shar\$3 with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/22 21:31
S20	220	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 00:48
S21	11	(pattern measurement configuration) near2 gap with (femto micro) and S20	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 01:01
S22	22	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with	US-PGPUB; USPAT; USOCR;	OR	ON	2015/02/23 01:17

		(node\$b e\$node\$b femto (access near2 point) (base adj2 station)) and (@ad<="20130208" @rlad<="20130208")	EPO; JPO; DERWENT; IBM_TDB			
S23	25	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with between with (cell) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:40
S24	18	(pattern measurement configuration) near2 gap with (forward\$3 send\$3 transmit\$3 transfer\$3 receiv\$3) with (small femto)near2 (cell (base adj2 station) e\$node\$b e\$Nb node\$b) and (@ad<="20130208" @rlad<="20130208")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/23 02:50

EAST Search History (Interference)

< This search history is empty >

2/ 23/ 2015 11:11:53 AM
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/167,317	01/29/2014	Richard Lee-Chee Kuo	1291-236.101

CONFIRMATION NO. 8112

PUBLICATION NOTICE



OC000000070186873

106622
Blue Capital Law Firm, P.C.
600 Anton Blvd., Suite 1000
Costa Mesa, CA 92626

Title:METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

Publication No.US-2014-0228027-A1

Publication Date:08/14/2014

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14167317
	Filing Date		2014-01-29
	First Named Inventor	Richard Lee-Chee Kuo	
	Art Unit	2642	
	Examiner Name	Rafael Perez Gutierrez	
	Attorney Docket Number	1291-236.101	

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14167317
	Filing Date		2014-01-29
	First Named Inventor	Richard Lee-Chee Kuo	
	Art Unit		2642
	Examiner Name	Rafael Perez Gutierrez	
	Attorney Docket Number		1291-236.101

1	3GPP TSG RAN WG2 Meeting #75, Athens, Greece, 22nd-26th August 2011 (R2-114123)	☐
2	3GPP TSG RAN WG2 Meeting #75bis, Zhuhai, China, Oct 10th-14th, 2011 (R2-114947)	☐
3	3GPP TSG RAN WG2 Meeting #81, Malta, 28 January - 01 February 2013 (R2-130451)	☐
4	3GPP TSG RAN WG2 Meeting #81, Malta, 28 January - 01 February 2013 (R2-130658)	☐
5	3GPP TSG-RAN2 Meeting #83bis, Ljuljana, Slovenia, 07-11 October 2013 (R2-133292)	☐
6	Search Report on corresponding EP Patent Application No. 14153595.5 dated March 31, 2014	☐

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

Electronic Acknowledgement Receipt

EFS ID:	19405327
Application Number:	14167317
International Application Number:	
Confirmation Number:	8112
Title of Invention:	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
First Named Inventor/Applicant Name:	Richard Lee-Chee Kuo
Customer Number:	106622
Filer:	Sang N. Dang/Sandy Kim
Filer Authorized By:	Sang N. Dang
Attorney Docket Number:	1291-236.101
Receipt Date:	25-JUN-2014
Filing Date:	29-JAN-2014
Time Stamp:	12:39:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	1291-236-101-- IDSasFiled06252014.pdf	55449 b06e8061e194c9fda0c97cc918e8bba03911d7e	no	2

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Petitioners' Exhibit 1002, p. 224
AT&T et al v. Innovative Sonic & Celerity
IPR2024-01145

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2	Non Patent Literature	R2-114123v2.pdf	1412594	no	6
			28f9f302f1499e3aae6496d59736ef69aee5d460		
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Information:					
3	Non Patent Literature	R2-114947v2.pdf	940476	no	4
			9193b2a9b57c83eba83a524c6fc37d3d5d1abfec		
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4	Non Patent Literature	R2-130451v2.pdf	1220245	no	6
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5	Non Patent Literature	R2-130658v2.pdf	1266893	no	6
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Warnings:					
Information:					
6	Non Patent Literature	R2-133292v2.pdf	530140	no	4
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7	Non Patent Literature	EPSearchReport-20140331v2.pdf	2179524	no	12
			0d38ed248d978ca194040041ed6a3f72fa2bfcc3		
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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 14/167,317	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(j))	11	minus 20 = *			OR	x 80 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *				x 420 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	1600
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	OR	x =
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
				TOTAL ADD'L FEE		TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	OR	x =
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
				TOTAL ADD'L FEE		TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
14/167,317	01/29/2014	2414	1600	1291-236.101	11	3

CONFIRMATION NO. 8112

106622

Blue Capital Law Firm, P.C.
600 Anton Blvd., Suite 1000
Costa Mesa, CA 92626

FILING RECEIPT



Date Mailed: 02/18/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Richard Lee-Chee Kuo, Taipei City, TAIWAN;

Applicant(s)

INNOVATIVE SONIC CORPORATION, Taipei City, TAIWAN

Assignment For Published Patent Application

INNOVATIVE SONIC CORPORATION, Taipei City, TAIWAN

Power of Attorney: The patent practitioners associated with Customer Number 106622

Domestic Priority data as claimed by applicant

This appln claims benefit of 61/762,414 02/08/2013

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

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If Required, Foreign Filing License Granted: 02/12/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/167,317**

Projected Publication Date: 08/14/2014

Non-Publication Request: No

Early Publication Request: No

Title

METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

Preliminary Class

370

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/167,317	01/29/2014	Richard Lee-Chee Kuo	1291-236.101

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CONFIRMATION NO. 8112
POA ACCEPTANCE LETTER



Date Mailed: 02/18/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

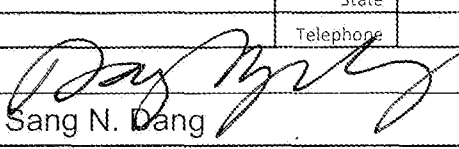
This is in response to the Power of Attorney filed 01/29/2014.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

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UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 CFR 1.53(b))		Attorney Docket No.	1291-236.101
		First Named Inventor	Richard Lee-Chee Kuo
		Title	METHOD AND APPARATUS FOR IMPLEMENTING...
		Express Mail Label No.	
APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents.		Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	
1. ☒ Fee Transmittal Form (PTO/SB/17 or equivalent) 2. ☐ Applicant asserts small entity status. See 37 CFR 1.27 3. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent. 4. ☒ Specification [Total Pages <u>16</u>] Both the claims and abstract must start on a new page. (See MPEP § 608.01(a) for information on the preferred arrangement) 5. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets <u>5</u>] 6. Inventor's Oath or Declaration [Total Pages <u>1</u>] (including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e)) a. ☒ Newly executed (original or copy) b. ☐ A copy from a prior application (37 CFR 1.63(d)) 7. ☒ Application Data Sheet * See note below. See 37 CFR 1.76 (PTO/AIA/14 or equivalent) 8. CD-ROM or CD-R in duplicate, large table, or Computer Program (Appendix) ☐ Landscape Table on CD 9. Nucleotide and/or Amino Acid Sequence Submission (if applicable, items a. – c. are required) a. ☐ Computer Readable Form (CRF) b. ☐ Specification Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☐ Paper c. ☐ Statements verifying identity of above copies 10. ☐ Assignment Papers (cover sheet & document(s)) Name of Assignee _____ 11. ☐ 37 CFR 3.73(c) Statement ☒ Power of Attorney (when there is an assignee) 12. ☐ English Translation Document (if applicable) 13. ☐ Information Disclosure Statement (PTO/SB/08 or PTO-1449) ☐ Copies of citations attached 14. ☐ Preliminary Amendment 15. ☐ Return Receipt Postcard (MPEP § 503) (Should be specifically itemized) 16. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed) 17. ☐ Nonpublication Request Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 18. ☐ Other: _____ _____ _____ _____		*Note: (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 must be included in an Application Data Sheet (ADS). (2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).	
		19. CORRESPONDENCE ADDRESS	
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Name (Print/Type)			January 29, 2014
		Registration No. (Attorney/Agent)	51,186

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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FEE TRANSMITTAL		Complete if known	
		Application Number	Not Yet Assigned
		Filing Date	Herewith
☐ Applicant asserts small entity status. See 37 CFR 1.27.		First Named Inventor	Richard Lee-Chee Kuo
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or 8 or equivalent must either be enclosed or have been submitted previously.		Examiner Name	Not Yet Assigned
		Art Unit	Not Yet Assigned
TOTAL AMOUNT OF PAYMENT		Practitioner Docket No.	1291-236.101
(\$)		1600.00	

METHOD OF PAYMENT (check all that apply)

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☐ Deposit Account Deposit Account Number: _____ Deposit Account Name: _____

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES (U = undiscounted fee; S = small entity fee; M = micro entity fee)

Application Type	FILING FEES			SEARCH FEES			EXAMINATION FEES			Fees Paid (\$)
	U (\$)	S (\$)	M (\$)	U (\$)	S (\$)	M (\$)	U (\$)	S (\$)	M (\$)	
Utility	280	140*	70	600	300	150	720	360	180	1600
Design	180	90	45	120	60	30	460	230	115	
Plant	180	90	45	380	190	95	580	290	145	
Reissue	280	140	70	600	300	150	2,160	1,080	540	
Provisional	260	130	65	0	0	0	0	0	0	

* The \$140 small entity status filing fee for a utility application is further reduced to \$70 for a small entity status applicant who files the application via EFS-Web.

2. EXCESS CLAIM FEES

Fee Description	Undiscounted Fee (\$)	Small Entity Fee (\$)	Micro Entity Fee (\$)
Each claim over 20 (including Reissues)	80	40	20
Each independent claim over 3 (including Reissues)	420	210	105
Multiple dependent claims	780	390	195
Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
11	-20 or HP =	x	=
HP = highest number of total claims paid for, if greater than 20.			
Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
3	-3 or HP =	x	=
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3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$400 (\$200 for small entity) (\$100 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
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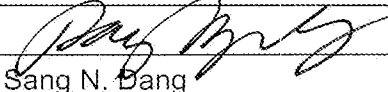
4. OTHER FEE(S)

Non-English specification, \$130 fee (no small or micro entity discount) _____

Non-electronic filing fee under 37 CFR 1.16(t) for a utility application, \$400 fee (\$200 small or micro entity) _____

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SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 51,186	Telephone (714) 839-3800
Name (Print/Type)	Sang N. Dang	Date January 29, 2014	

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METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present Application claims the benefit of U.S. Provisional Patent Application Serial No. 61/762,414 filed on February 8, 2013, the entire disclosures of which is incorporated herein by reference.

FIELD

[0002] This disclosure generally relates to wireless communication networks, and more particularly, to a method and apparatus for implementing small cell enhancements in a wireless communication system.

BACKGROUND

[0003] With the rapid rise in demand for communication of large amounts of data to and from mobile communication devices, traditional mobile voice communication networks are evolving into networks that communicate with Internet Protocol (IP) data packets. Such IP data packet communication can provide users of mobile communication devices with voice over IP, multimedia, multicast and on-demand communication services.

[0004] An exemplary network structure for which standardization is currently taking place is an Evolved Universal Terrestrial Radio Access Network (E-UTRAN). The E-UTRAN system can provide high data throughput in order to realize the above-noted voice over IP and multimedia services. The E-UTRAN system's standardization work is currently being performed by the 3GPP standards organization. Accordingly, changes to the current body of 3GPP standard are currently being submitted and considered to evolve and finalize the 3GPP standard.

SUMMARY

[0005] A method and apparatus for implementing small cell enhancements in a wireless communication system are disclosed. The method includes a first eNB (evolved Node B) controlling a first cell, wherein the first cell is serving a UE (User Equipment). The method

further includes the first eNB configuring a second cell to serve the UE, wherein the second cell is controlled by a second eNB. The method also includes the first eNB allocating a measurement gap configuration to the UE. In addition, the method includes the first eNB sending the measurement gap configuration to the second eNB.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 shows a diagram of a wireless communication system according to one exemplary embodiment.

[0007] FIG. 2 is a block diagram of a transmitter system (also known as access network) and a receiver system (also known as user equipment or UE) according to one exemplary embodiment.

[0008] FIG. 3 is a functional block diagram of a communication system according to one exemplary embodiment.

[0009] FIG. 4 is a functional block diagram of the program code of FIG. 3 according to one exemplary embodiment.

[0010] FIG. 5 illustrates a flow chart according to one exemplary embodiment.

DETAILED DESCRIPTION

[0011] The exemplary wireless communication systems and devices described below employ a wireless communication system, supporting a broadcast service. Wireless communication systems are widely deployed to provide various types of communication such as voice, data, and so on. These systems may be based on code division multiple access (CDMA), time division multiple access (TDMA), orthogonal frequency division multiple access (OFDMA), 3GPP LTE (Long Term Evolution) wireless access, 3GPP LTE-A or LTE-Advanced (Long Term Evolution Advanced), 3GPP2 UMB (Ultra Mobile Broadband), WiMax, or some other modulation techniques.

[0012] In particular, the exemplary wireless communication systems devices described below may be designed to support one or more standards such as the standard offered by a consortium named "3rd Generation Partnership Project" referred to herein as 3GPP, including Document Nos. TS 36.321 V11.1.0, "E-UTRA MAC protocol specification (Release 11)"; TS

36.331 V11.2.0, “E-UTRA RRC protocol specification (Release 11)”; RP-122033, “Study on Small Cell enhancements for E-UTRA and E-UTRAN – Higher-layer aspects”; and TR 36.932 v12.0.0, “Scenarios and Requirements for Small Cell Enhancements for E-UTRA and E-UTRAN”. The standards and documents listed above are hereby expressly incorporated herein.

[0013] FIG. 1 shows a multiple access wireless communication system according to one embodiment of the invention. An access network 100 (AN) includes multiple antenna groups, one including 104 and 106, another including 108 and 110, and an additional including 112 and 114. In FIG. 1, only two antennas are shown for each antenna group, however, more or fewer antennas may be utilized for each antenna group. Access terminal 116 (AT) is in communication with antennas 112 and 114, where antennas 112 and 114 transmit information to access terminal 116 over forward link 120 and receive information from access terminal 116 over reverse link 118. Access terminal (AT) 122 is in communication with antennas 106 and 108, where antennas 106 and 108 transmit information to access terminal (AT) 122 over forward link 126 and receive information from access terminal (AT) 122 over reverse link 124. In a FDD system, communication links 118, 120, 124 and 126 may use different frequency for communication. For example, forward link 120 may use a different frequency than that used by reverse link 118.

[0014] Each group of antennas and/or the area in which they are designed to communicate is often referred to as a sector of the access network. In the embodiment, antenna groups each are designed to communicate to access terminals in a sector of the areas covered by access network 100.

[0015] In communication over forward links 120 and 126, the transmitting antennas of access network 100 may utilize beamforming in order to improve the signal-to-noise ratio of forward links for the different access terminals 116 and 122. Also, an access network using beamforming to transmit to access terminals scattered randomly through its coverage causes less interference to access terminals in neighboring cells than an access network transmitting through a single antenna to all its access terminals.

[0016] An access network (AN) may be a fixed station or base station used for communicating with the terminals and may also be referred to as an access point, a Node B, a base station, an enhanced base station, an eNodeB, or some other terminology. An access

terminal (AT) may also be called user equipment (UE), a wireless communication device, terminal, access terminal or some other terminology.

[0017] FIG. 2 is a simplified block diagram of an embodiment of a transmitter system 210 (also known as the access network) and a receiver system 250 (also known as access terminal (AT) or user equipment (UE)) in a MIMO system 200. At the transmitter system 210, traffic data for a number of data streams is provided from a data source 212 to a transmit (TX) data processor 214.

[0018] In one embodiment, each data stream is transmitted over a respective transmit antenna. TX data processor 214 formats, codes, and interleaves the traffic data for each data stream based on a particular coding scheme selected for that data stream to provide coded data.

[0019] The coded data for each data stream may be multiplexed with pilot data using OFDM techniques. The pilot data is typically a known data pattern that is processed in a known manner and may be used at the receiver system to estimate the channel response. The multiplexed pilot and coded data for each data stream is then modulated (i.e., symbol mapped) based on a particular modulation scheme (e.g., BPSK, QPSK, M-PSK, or M-QAM) selected for that data stream to provide modulation symbols. The data rate, coding, and modulation for each data stream may be determined by instructions performed by processor 230.

[0020] The modulation symbols for all data streams are then provided to a TX MIMO processor 220, which may further process the modulation symbols (e.g., for OFDM). TX MIMO processor 220 then provides N_T modulation symbol streams to N_T transmitters (TMTR) 222a through 222t. In certain embodiments, TX MIMO processor 220 applies beamforming weights to the symbols of the data streams and to the antenna from which the symbol is being transmitted.

[0021] Each transmitter 222 receives and processes a respective symbol stream to provide one or more analog signals, and further conditions (e.g., amplifies, filters, and upconverts) the analog signals to provide a modulated signal suitable for transmission over the MIMO channel. N_T modulated signals from transmitters 222a through 222t are then transmitted from N_T antennas 224a through 224t, respectively.

[0022] At receiver system 250, the transmitted modulated signals are received by N_R antennas 252a through 252r and the received signal from each antenna 252 is provided to a respective receiver (RCVR) 254a through 254r. Each receiver 254 conditions (e.g., filters, amplifies, and downconverts) a respective received signal, digitizes the conditioned signal to provide samples, and further processes the samples to provide a corresponding “received” symbol stream.

[0023] An RX data processor 260 then receives and processes the N_R received symbol streams from N_R receivers 254 based on a particular receiver processing technique to provide N_T “detected” symbol streams. The RX data processor 260 then demodulates, deinterleaves, and decodes each detected symbol stream to recover the traffic data for the data stream. The processing by RX data processor 260 is complementary to that performed by TX MIMO processor 220 and TX data processor 214 at transmitter system 210.

[0024] A processor 270 periodically determines which pre-coding matrix to use (discussed below). Processor 270 formulates a reverse link message comprising a matrix index portion and a rank value portion.

[0025] The reverse link message may comprise various types of information regarding the communication link and/or the received data stream. The reverse link message is then processed by a TX data processor 238, which also receives traffic data for a number of data streams from a data source 236, modulated by a modulator 280, conditioned by transmitters 254a through 254r, and transmitted back to transmitter system 210.

[0026] At transmitter system 210, the modulated signals from receiver system 250 are received by antennas 224, conditioned by receivers 222, demodulated by a demodulator 240, and processed by a RX data processor 242 to extract the reserve link message transmitted by the receiver system 250. Processor 230 then determines which pre-coding matrix to use for determining the beamforming weights then processes the extracted message.

[0027] Turning to FIG. 3, this figure shows an alternative simplified functional block diagram of a communication device according to one embodiment of the invention. As shown in FIG. 3, the communication device 300 in a wireless communication system can be utilized for realizing the UEs (or ATs) 116 and 122 in FIG. 1, and the wireless communications system is

preferably the LTE system. The communication device 300 may include an input device 302, an output device 304, a control circuit 306, a central processing unit (CPU) 308, a memory 310, a program code 312, and a transceiver 314. The control circuit 306 executes the program code 312 in the memory 310 through the CPU 308, thereby controlling an operation of the communications device 300. The communications device 300 can receive signals input by a user through the input device 302, such as a keyboard or keypad, and can output images and sounds through the output device 304, such as a monitor or speakers. The transceiver 314 is used to receive and transmit wireless signals, delivering received signals to the control circuit 306, and outputting signals generated by the control circuit 306 wirelessly.

[0028] FIG. 4 is a simplified block diagram of the program code 312 shown in FIG. 3 in accordance with one embodiment of the invention. In this embodiment, the program code 312 includes an application layer 400, a Layer 3 portion 402, and a Layer 2 portion 404, and is coupled to a Layer 1 portion 406. The Layer 3 portion 402 generally performs radio resource control. The Layer 2 portion 404 generally performs link control. The Layer 1 portion 406 generally performs physical connections.

[0029] Carrier Aggregation (CA) is generally a feature to support wider bandwidth in LTE-Advanced (LTE-A). Depending on its capabilities, a terminal could simultaneously receive or transmit on one or multiple component carriers.

[0030] In addition to a primary serving cell (PCell), a UE in RRC_CONNECTED mode could be configured with other secondary serving cells (SCell). The PCell is considered as always activated, while an Activation/Deactivation MAC control Element (CE) can be used to activate or deactivate an SCell (as discussed in 3GPP TS 36.321 V11.1.0). Also, an *sCellDeactivationTimer* corresponding to the SCell could be used for SCell status maintenance (i.e., when the *sCellDeactivationTimer* expires). The corresponding SCell is implicitly considered as deactivated. A configured SCell could contain downlink (DL) resources only (i.e., a DL CC) or DL resources as well as uplink (UL) resources (such as a DL CC and an UL CC) as discussed in 3GPP TS 36.331 V11.2.0.

[0031] 3GPP RP-122033 generally describes a new study item on small cell enhancements for Release-12. The objective of the study item is described in 3GPP RP-122033 as follows:

4 Objective

The objective of this study is to identify potential technologies in the protocol and architecture for enhanced support of small cell deployment and operation which should satisfy scenarios and requirements defined in TR 36.932.

The study shall be conducted on the following aspects:

- Identify and evaluate the benefits of UEs having dual connectivity to macro and small cell layers served by different or same carrier and for which scenarios such dual connectivity is feasible and beneficial.
- Identify and evaluate potential architecture and protocol enhancements for the scenarios in TR 36.932 and in particular for the feasible scenario of dual connectivity and minimize core network impacts if feasible, including:
 - Overall structure of control and user plane and their relation to each other, e.g., supporting C-plane and U-plane in different nodes, termination of different protocol layers, etc.
- Identify and evaluate the necessity of overall Radio Resource Management structure and mobility enhancements for small cell deployments:
 - Mobility mechanisms for minimizing inter-node UE context transfer and signalling towards the core network.
 - Measurement and cell identification enhancements while minimizing increased UE battery consumption.

For each potential enhancement, the gain, complexity and specification impact should be assessed.

The study shall focus on potential enhancements which are not covered by other SI/WIs.

[0032] In general, 3GPP TR 36.932 captures the scenarios and requirements for small cell enhancements. In particular, Section 6.1.3 of 3GPP TR 36.932 describes ideal and non-ideal backhaul and also raises the need to study interfaces between macro and small cell as follows:

6.1.3 Ideal and non-ideal backhaul

Both ideal backhaul (i.e., very high throughput and very low latency backhaul such as dedicated point-to-point connection using optical fiber, LOS microwave) and non-ideal backhaul (i.e., typical backhaul widely used in the market such as xDSL, NLOS microwave, and other backhauls like relaying) should be studied. The performance-cost trade-off should be taken into account.

A categorization of non-ideal backhaul based on operator inputs is listed in Table 6.1-1:

Table 6.1-1: Categorization of non-ideal backhaul

Backhaul Technology	Latency (One way)	Throughput	Priority (1 is the highest)
Fiber Access 1	10-30ms	10M-10Gbps	1
Fiber Access 2	5-10ms	100-1000Mbps	2
DSL Access	15-60ms	10-100 Mbps	1
Cable	25-35ms	10-100 Mbps	2
Wireless Backhaul	5-35ms	10Mbps – 100Mbps typical, maybe up to Gbps range	1

A categorization of good to ideal backhaul based on operator inputs is listed in Table 6.1-2:

Table 6.1-2: Categorization of good to ideal backhaul

Backhaul Technology	Latency (One way)	Throughput	Priority (1 is the highest)
Fiber	2-5ms	50M-10Gbps	1

For interfaces between macro and small cell, as well as between small cells, the studies should first identify which kind of information is needed or beneficial to be exchanged between nodes in order to get the desired improvements before the actual type of interface is determined. And if direct interface should be assumed between macro and small cell, as well as between small cell and small cell, X2 interface can be used as a starting point.

[0033] Based on 3GPP RP-122033, the description of the study item of small cell enhancements proposes to study supporting C-plane and U-plane in different nodes for dual connectivity, which implies the C-plane goes through the macro cell and the U-plane goes through the small cell. In the RAN2#81 meeting, several contributions propose to keep part of U-plane (e.g., real time services) in the macro cell.

[0034] When separate eNBs are used to support dual connectivity, a new interface between the macro eNB and the small cell eNB would need to be specified. Also, the information to be exchanged over this new interface would need to be defined.

[0035] Similar to Rel-11 Carrier Aggregation, a small cell could generally be configured to a UE by the macro eNB. Thus, it could be expected that the macro eNB and the small cell eNB need to exchange some information for the small cell configuration and operation (such as security configuration, physical configuration, MAC configuration, RLC configuration, and/or PDCP configuration). Also, the macro eNB would need to forward some information sent from the UE to the small cell eNB for small cell configuration/reconfiguration and operation (such as UE capability, UE assistance information, and in device coexistence indication, etc.).

[0036] In addition to the above information, it would be beneficial for the macro eNB to send a measurement gap configuration (as discussed in 3GPP TS 36.331 V11.2.0) allocated for the UE to the small cell eNB so that the small cell eNB could take measurement gaps into consideration when scheduling resources to the UE. For example, the small cell eNB could avoid scheduling the UE during measurement gaps because the UE cannot transmit or receive any signal to/from the small cell during the measurement gaps.

[0037] FIG. 5 is a flow chart 500 in accordance with one exemplary embodiment. In step 505, a first eNB controls a first cell that serves a UE. In step 510, the first eNB configures a second cell to serve the UE together with the first cell. The second cell is controlled by a second eNB that is different from the first eNB. Also, the second cell could be configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

[0038] In step 515 of FIG. 5, the first eNB allocates a measurement gap configuration to the UE. In one embodiment, the measurement gap configuration could indicate a measurement

gap pattern to be applied in the UE for performing measurements. In step 520, the first eNB sends the measurement gap configuration to the second eNB.

[0039] In one embodiment, as shown in step 525 of FIG. 5, the second eNB receives the measurement gap from the first eNB, and takes the measurement gap configuration into consideration when scheduling resources to the UE. In this embodiment, the resources could be downlink assignments and/or uplink grants.

[0040] Referring back to FIGs. 3 and 4, in one embodiment, the device 300 could include a program code 312 stored in memory 310 to implement small cell enhancements. In one embodiment, the CPU 308 could execute the program code 312 enable a first eNB (i) to control a first cell, wherein the first cell is serving a UE, (ii) to configure a second cell to serve the UE together with the first cell, wherein the second cell is controlled by a second eNB different from the first eNB, (iii) to allocate a measurement gap configuration to the UE, and (iv) to send the measurement gap configuration to the second eNB. In addition, the CPU 308 could execute the program code 312 to perform all of the above-described actions and steps or others described herein.

[0041] Various aspects of the disclosure have been described above. It should be apparent that the teachings herein may be embodied in a wide variety of forms and that any specific structure, function, or both being disclosed herein is merely representative. Based on the teachings herein one skilled in the art should appreciate that an aspect disclosed herein may be implemented independently of any other aspects and that two or more of these aspects may be combined in various ways. For example, an apparatus may be implemented or a method may be practiced using any number of the aspects set forth herein. In addition, such an apparatus may be implemented or such a method may be practiced using other structure, functionality, or structure and functionality in addition to or other than one or more of the aspects set forth herein. As an example of some of the above concepts, in some aspects concurrent channels may be established based on pulse repetition frequencies. In some aspects concurrent channels may be established based on pulse position or offsets. In some aspects concurrent channels may be established based on time hopping sequences. In some aspects concurrent channels may be established based on pulse repetition frequencies, pulse positions or offsets, and time hopping sequences.

[0042] Those of skill in the art would understand that information and signals may be represented using any of a variety of different technologies and techniques. For example, data, instructions, commands, information, signals, bits, symbols, and chips that may be referenced throughout the above description may be represented by voltages, currents, electromagnetic waves, magnetic fields or particles, optical fields or particles, or any combination thereof.

[0043] Those of skill would further appreciate that the various illustrative logical blocks, modules, processors, means, circuits, and algorithm steps described in connection with the aspects disclosed herein may be implemented as electronic hardware (e.g., a digital implementation, an analog implementation, or a combination of the two, which may be designed using source coding or some other technique), various forms of program or design code incorporating instructions (which may be referred to herein, for convenience, as “software” or a “software module”), or combinations of both. To clearly illustrate this interchangeability of hardware and software, various illustrative components, blocks, modules, circuits, and steps have been described above generally in terms of their functionality. Whether such functionality is implemented as hardware or software depends upon the particular application and design constraints imposed on the overall system. Skilled artisans may implement the described functionality in varying ways for each particular application, but such implementation decisions should not be interpreted as causing a departure from the scope of the present disclosure.

[0044] In addition, the various illustrative logical blocks, modules, and circuits described in connection with the aspects disclosed herein may be implemented within or performed by an integrated circuit (“IC”), an access terminal, or an access point. The IC may comprise a general purpose processor, a digital signal processor (DSP), an application specific integrated circuit (ASIC), a field programmable gate array (FPGA) or other programmable logic device, discrete gate or transistor logic, discrete hardware components, electrical components, optical components, mechanical components, or any combination thereof designed to perform the functions described herein, and may execute codes or instructions that reside within the IC, outside of the IC, or both. A general purpose processor may be a microprocessor, but in the alternative, the processor may be any conventional processor, controller, microcontroller, or state machine. A processor may also be implemented as a combination of computing devices, e.g., a

combination of a DSP and a microprocessor, a plurality of microprocessors, one or more microprocessors in conjunction with a DSP core, or any other such configuration.

[0045] It is understood that any specific order or hierarchy of steps in any disclosed process is an example of a sample approach. Based upon design preferences, it is understood that the specific order or hierarchy of steps in the processes may be rearranged while remaining within the scope of the present disclosure. The accompanying method claims present elements of the various steps in a sample order, and are not meant to be limited to the specific order or hierarchy presented.

[0046] The steps of a method or algorithm described in connection with the aspects disclosed herein may be embodied directly in hardware, in a software module executed by a processor, or in a combination of the two. A software module (e.g., including executable instructions and related data) and other data may reside in a data memory such as RAM memory, flash memory, ROM memory, EPROM memory, EEPROM memory, registers, a hard disk, a removable disk, a CD-ROM, or any other form of computer-readable storage medium known in the art. A sample storage medium may be coupled to a machine such as, for example, a computer/processor (which may be referred to herein, for convenience, as a “processor”) such the processor can read information (e.g., code) from and write information to the storage medium. A sample storage medium may be integral to the processor. The processor and the storage medium may reside in an ASIC. The ASIC may reside in user equipment. In the alternative, the processor and the storage medium may reside as discrete components in user equipment. Moreover, in some aspects any suitable computer-program product may comprise a computer-readable medium comprising codes relating to one or more of the aspects of the disclosure. In some aspects a computer program product may comprise packaging materials.

[0047] While the invention has been described in connection with various aspects, it will be understood that the invention is capable of further modifications. This application is intended to cover any variations, uses or adaptation of the invention following, in general, the principles of the invention, and including such departures from the present disclosure as come within the known and customary practice within the art to which the invention pertains.

CLAIMS

What is claimed is:

1. A method for implementing small cell enhancements in a wireless communication system, comprising:
 - a first eNB (evolved Node B) controls a first cell, wherein the first cell is serving a UE (User Equipment); and
 - the first eNB configures a second cell to serve the UE, wherein the second cell is controlled by a second eNB;
 - the first eNB allocates a measurement gap configuration to the UE; and
 - the first eNB sends the measurement gap configuration to the second eNB.
2. The method of claim 1, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.
3. The method of claim 1, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.
4. A communication device for implementing small cell enhancements in a wireless communication system, the communication device comprising:
 - a control circuit;
 - a processor installed in the control circuit;
 - a memory installed in the control circuit and operatively coupled to the processor;
 - wherein the processor is configured to execute a program code stored in memory to implement small cell enhancements by:
 - controlling a first cell via a first eNB (evolved Node B), wherein the first cell is serving a UE (User Equipment); and

configuring, via the first eNB, a second cell to serve the UE, wherein the second cell is controlled by a second eNB;

allocating, via the first eNB, a measurement gap configuration to the UE; and

sending, from the first eNB, the measurement gap configuration to the second eNB.

5. The communication device of claim 4, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

6. The communication device of claim 4, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

7. A method for implementing small cell enhancements in a wireless communication system, wherein a UE (User Equipment) is served by a first cell controlled by a first eNB, comprising:

a second eNB (evolved Node B) controls a second cell, wherein the second cell is configured by the first eNB to serve the UE; and

the second eNB receives a measurement gap configuration from the first eNB, wherein the measurement gap configuration was allocated by the first eNB to the UE.

8. The method of claim 7, further comprises:

the second eNB takes the measurement gap configuration into consideration when scheduling resources to the UE.

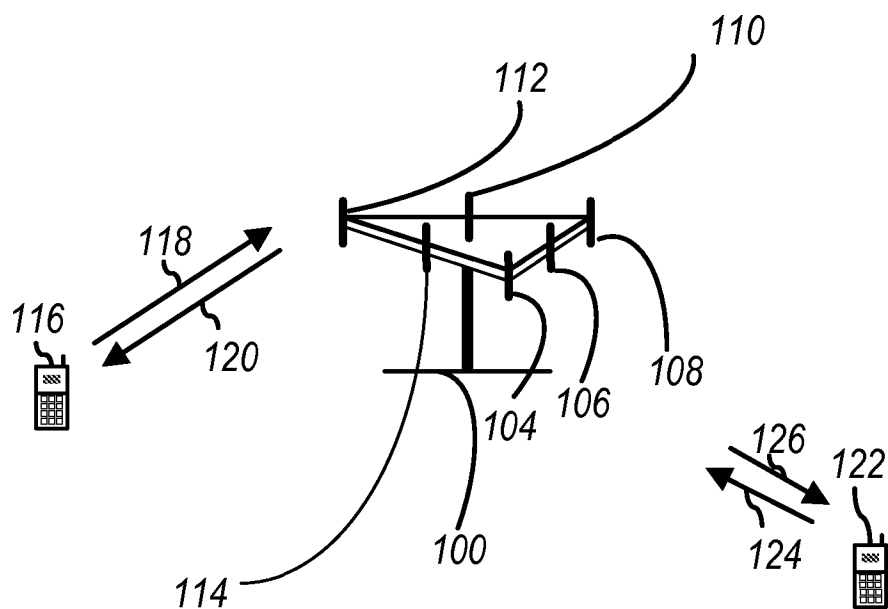
9. The method of claim 8, wherein the resources contain downlink assignments and/or uplink grants.

10. The method of claim 7, wherein the measurement gap configuration indicates a measurement gap pattern to be applied in the UE for performing measurements.

11. The method of claim 7, wherein the second cell is configured to the UE via a Radio Resource Control (RRC) message (such as a RRC Connection Reconfiguration message) from the first eNB.

ABSTRACT

A method and apparatus for implementing small cell enhancements in a wireless communication system are disclosed. The method includes a first eNB (evolved Node B) controlling a first cell, wherein the first cell is serving a UE (User Equipment). The method further includes the first eNB configuring a second cell to serve the UE, wherein the second cell is controlled by a second eNB. The method also includes the first eNB allocating a measurement gap configuration to the UE. In addition, the method includes the first eNB sending the measurement gap configuration to the second eNB.

**FIG. 1**

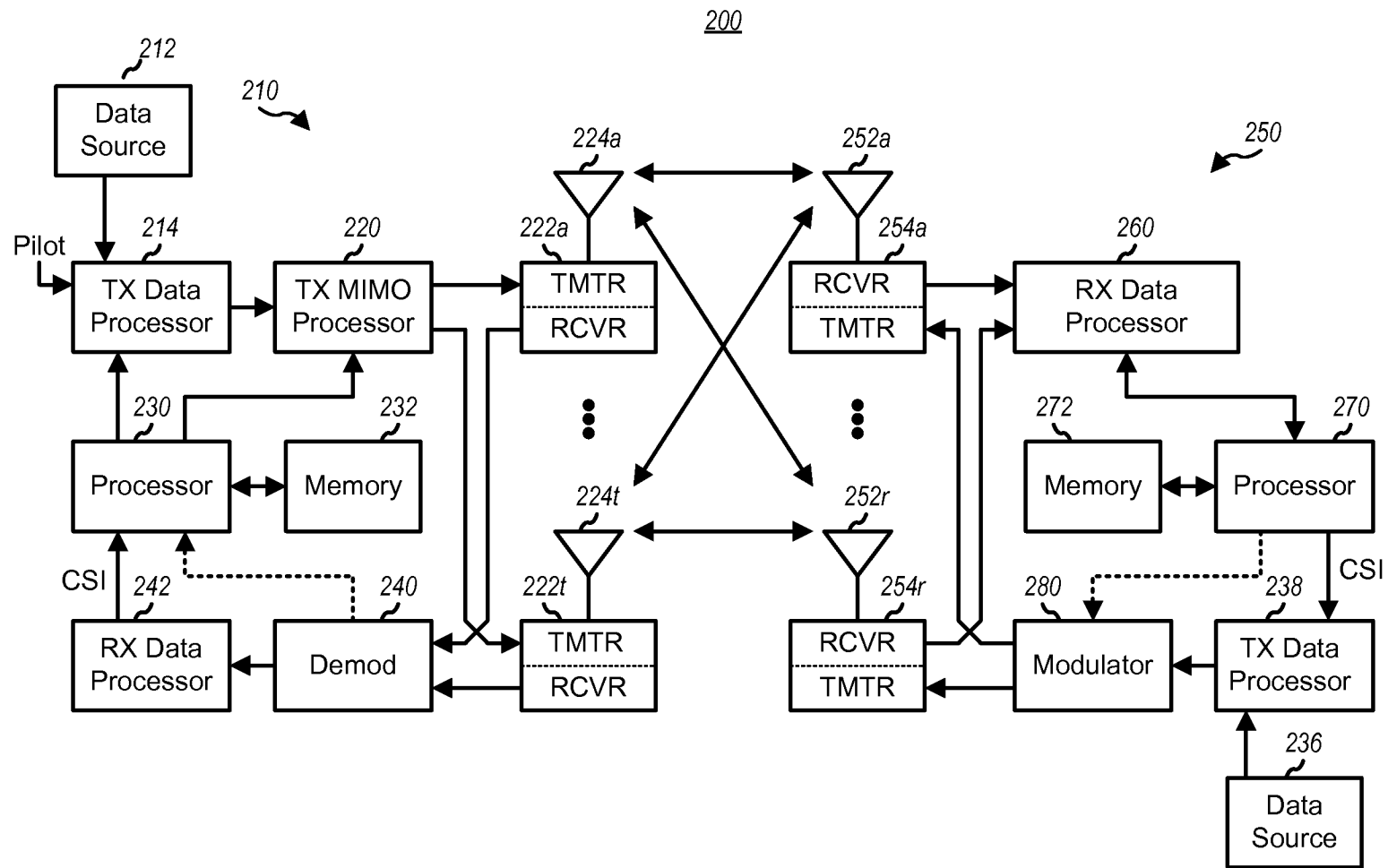
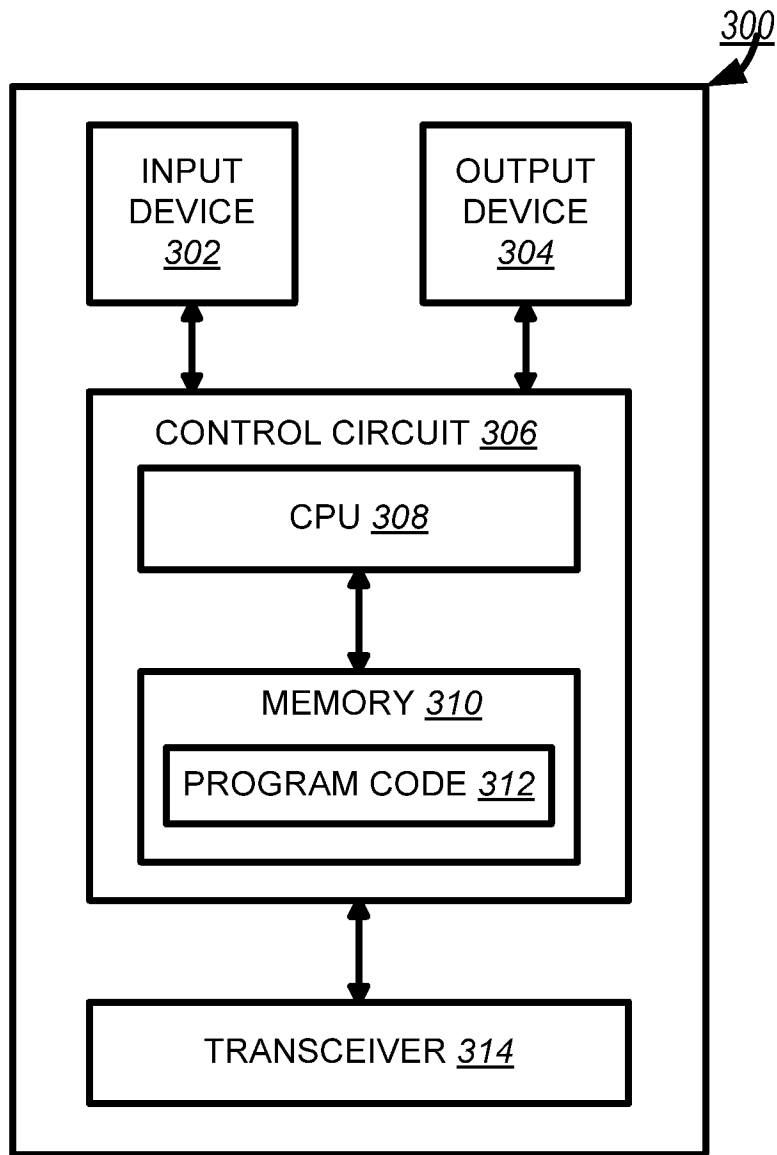
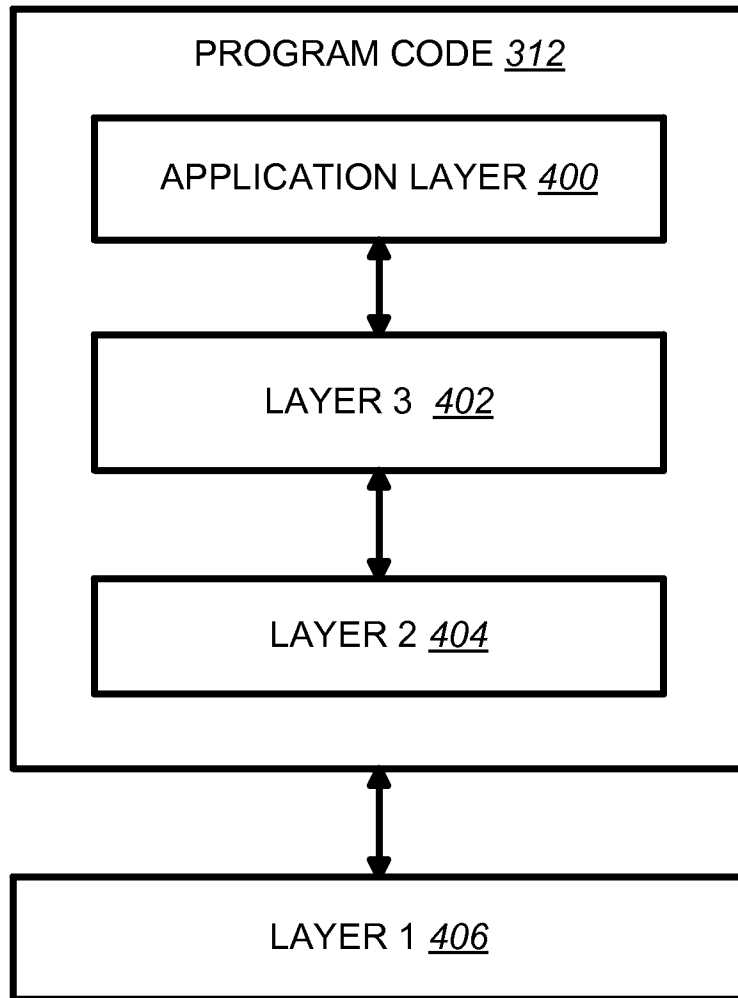


FIG. 2

**FIG. 3**

**FIG. 4**

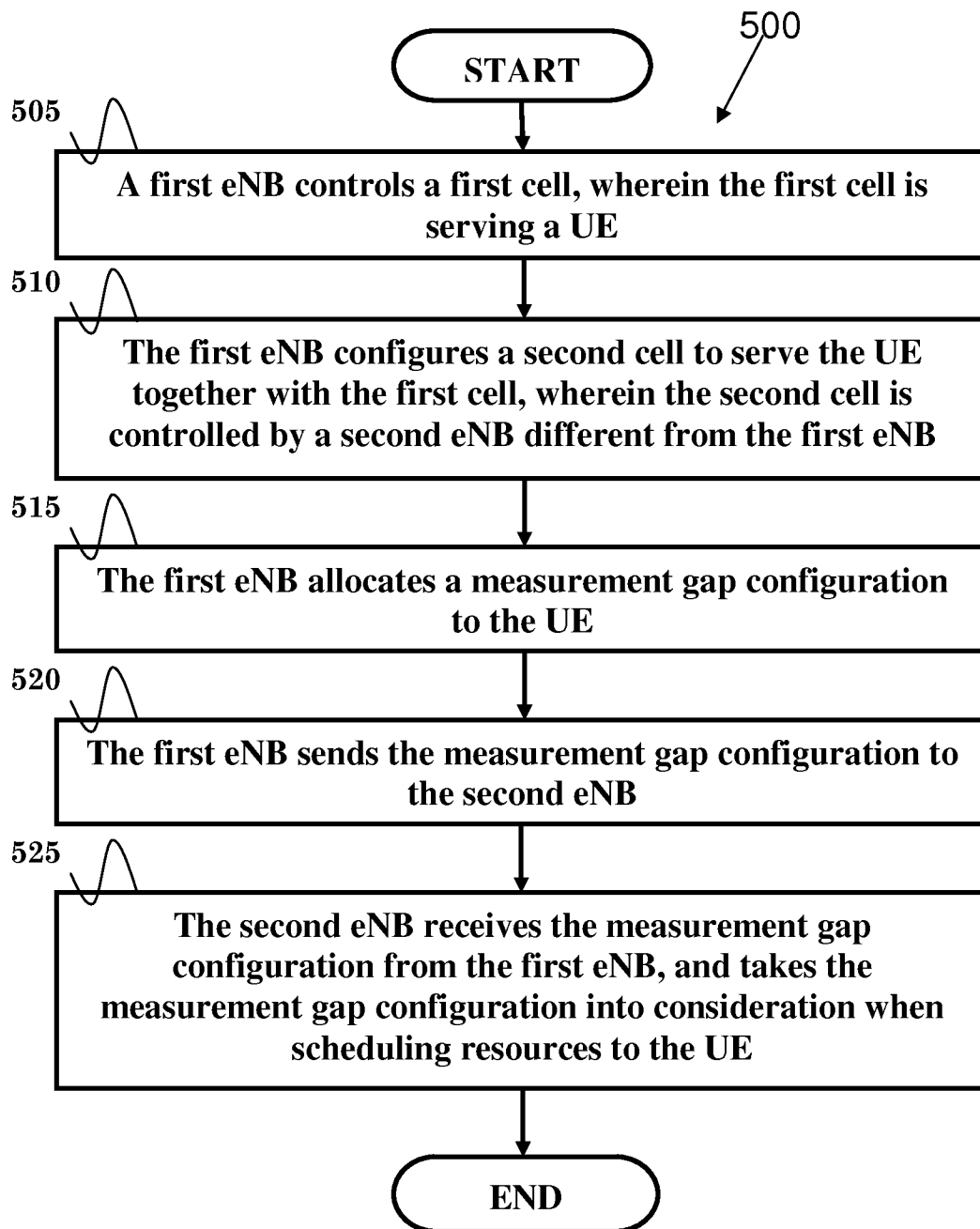


FIG. 5

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
As the below named inventor, I hereby declare that: This declaration is directed to: ☒ The attached application, or ☐ United States application or PCT international application number _____ filed on _____ The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. WARNING: Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.	
LEGAL NAME OF INVENTOR	
Inventor: <u>Richard Lee-Chee Kuo</u> Date (Optional): <u>Jan. 16, 2014</u>	
Signature: <u>Richard Lee-Chee Kuo</u>	
Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA/1 form for each additional inventor.	

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	Not Yet Assigned
Filing Date	Herewith
First Named Inventor	Richard Lee-Chee Kuo
Title	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
Art Unit	Not Yet Assigned
Examiner Name	Not Yet Assigned
Attorney Docket Number	1291-236.101

SIGNATURE of Applicant or Patent Practitioner

Signature		Date (Optional)	January 29, 2014
Name	Sang N. Dang	Registration Number	51,186
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.			
☐ *Total of _____ forms are submitted.			

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I hereby revoke all previous powers of attorney given in the application identified in the attached transmittal letter.

- ☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

106622

OR

- ☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

Name	Registration Number	Name	Registration Number

Please recognize or change the correspondence address for the application identified in the attached transmittal letter to:

- ☒ The address associated with the above-mentioned Customer Number.

OR

- ☐ The address associated with Customer Number:

OR

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Address			
City	State	Zip	
Country			
Telephone	Email		

I am the Applicant:

- ☐ Inventor or Joint Inventor
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document)

SIGNATURE of Applicant for Patent

Signature	<i>Yao Ching Hsu</i>	Date	<i>Sep 20 2012</i>
Name	Yao Ching Hsu	Telephone	
Title and Company	General Manager as Representative for Innovative Sonic Corporation		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms for more than one signature, see below *.

- ☐ *Total of _____ forms are submitted.

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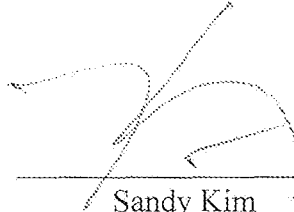
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Richard Lee-Chee Kuo
Title: METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL
ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
Serial No.: TBD Filed: Herewith
Examiner: TBD Group Art Unit: TBD
Attorney Docket No.: 1291-236.101 (IS1020060-US-D3)

**CERTIFICATE OF EFS-WEB TRANSMISSION
UNDER 37 CFR § 1.8**

I hereby certify that the enclosed 1 Page Utility Transmittal; 1 Page Fee Transmittal; 5
Page WebADS; 16 Page Specification; 5 Page Drawings; 1 Page executed Declaration; and 2
Page Power of Attorney are being transmitted to the United States Patent and Trademark Office
via EFS-Web on January 29, 2014.

Date: January 29, 2014



Sandy Kim

Mailing Address:

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600 Anton Blvd., Suite 1000
Costa Mesa, California 92626
Tel: 714-839-3800
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Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM		
First Named Inventor/Applicant Name:		Richard Lee-Chee Kuo		
Filer:		Sang N. Dang/Sandy Kim		
Attorney Docket Number:		1291-236.101		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	280	280
Utility Search Fee	1111	1	600	600
Utility Examination Fee	1311	1	720	720
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1600

Electronic Acknowledgement Receipt	
EFS ID:	18057770
Application Number:	14167317
International Application Number:	
Confirmation Number:	8112
Title of Invention:	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM
First Named Inventor/Applicant Name:	Richard Lee-Chee Kuo
Customer Number:	106622
Filer:	Sang N. Dang/Sandy Kim
Filer Authorized By:	Sang N. Dang
Attorney Docket Number:	1291-236.101
Receipt Date:	29-JAN-2014
Filing Date:	
Time Stamp:	15:16:52
Application Type:	Utility under 35 USC 111(a)

Payment information:					
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi-Petitioners' Exhibit 1002, p. 261	Pages 261 of 261

1	Application Data Sheet	WebADS.pdf	97489	no	5
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Warnings:					
Information:					
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	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Transmittal of New Application		1	1	
	Fee Worksheet (SB06)		2	2	
	Specification		3	14	
	Claims		15	17	
	Abstract		18	18	
	Drawings-only black and white line drawings		19	23	
	Oath or Declaration filed		24	24	
	Power of Attorney		25	26	
	Miscellaneous Incoming Letter		27	27	
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Information:					
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1291-236.101
		Application Number	
Title of Invention	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2(Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	--

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Richard	Lee-Chee	Kuo		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Taipei City	Country of Residence	i	TW	
Mailing Address of Inventor:					
Address 1		14F, No. 30, Beiping E. Rd., Zhongzheng District			
Address 2					
City	Taipei City	State/Province	OT		
Postal Code	10049	Country	i	TW	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence information of this application.			
Customer Number	106622		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM		
Attorney Docket Number	1291-236.101	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	5	Suggested Figure for Publication (if any)	Publication (if any)

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1291-236.101
		Application Number	
Title of Invention	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM		

Filing By Reference

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number			
Additional Representative Information blocks may be generated within this form by selecting the Add button.			

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.			
Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Claims benefit of provisional	61/762414	2013-02-08
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1291-236.101
		Application Number	
Title of Invention	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM		

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country	Filing Date (YYYY-MM-DD)	Access Code (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. ☐ NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.
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Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices
--

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1291-236.101
		Application Number	
Title of Invention	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM		

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.								
Applicant 1								
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.								
			Clear					
☒ Assignee	☐ Legal Representative under 35 U.S.C. 117	☐ Joint Inventor						
☐ Person to whom the inventor is obligated to assign.	☐ Person who shows sufficient proprietary interest							
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:								
Name of the Deceased or Legally Incapacitated Inventor :								
If the Applicant is an Organization check here. ☒								
Organization Name	INNOVATIVE SONIC CORPORATION							
Mailing Address Information:								
Address 1	14F, No. 30, Beiping E. Rd., Zhongzheng District							
Address 2								
City	Taipei City	State/Province	OT					
Country i	TW	Postal Code	10049					
Phone Number		Fax Number						

Petitioners' Exhibit 1002, p. 267

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1291-236.101
		Application Number	
Title of Invention	METHOD AND APPARATUS FOR IMPLEMENTING SMALL CELL ENHANCEMENTS IN A WIRELESS COMMUNICATION SYSTEM		
Email Address			
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Assignee Information including Non-Applicant Assignee Information:

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Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
If the Assignee or Non-Applicant Assignee is an Organization check here ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
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Signature:

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Signature	/SND/				
First Name	Sang N.	Last Name	Dang	Registration Number	51186
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