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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:



Practitioners associated with Customer Number:

03624

OR

Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:



The address associated with Customer Number:

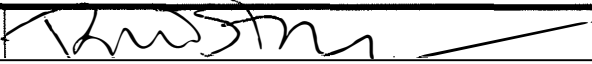
03624

OR

☐ Firm or Individual Name	Volpe and Koenig, P.C.		
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address: Signal Trust For Wireless Innovation
1011 Centre Road, Suite 327
Wilmington, Delaware 19805**A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.****SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	November 25, 2013	
Name	HCJ Advisors LLC, as Trustee, by Bruce Bernstein		Telephone	302-573-3819
Title	President			

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. 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 3 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.

LG Elecs. Ex. 1017

LG Elecs. v. Pantech Corp.

IPR2023-01270 Page 1

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.
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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.
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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 law or regulation.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER
-----------------------	---

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 13/908,242

filed on June 3, 2013

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 have reviewed and understand the contents of the above-identified application, including the claims

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR 1.56.

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.

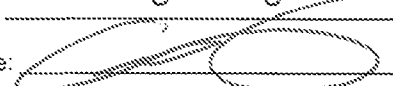
WARNING:

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: Guodong Zhang

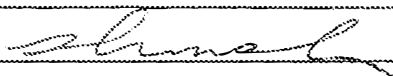
Date: 8/29/13

Signature: 

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional 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.

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Title of invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER
<p>As the below named inventor, I hereby declare that:</p> <p>This declaration is directed to: ☐ The attached application, or</p> <p style="margin-left: 150px;">☒ United States application or PCT international application number <u>13/908,242</u></p> <p style="margin-left: 150px;">filed on <u>June 3, 2013</u></p> <p>The above-identified application was made or authorized to be made by me.</p> <p>I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.</p> <p>I have reviewed and understand the contents of the above-identified application, including the claims.</p> <p>I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR 1.56.</p> <p>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.</p> <p style="text-align: center;">WARNING:</p> <p>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.</p>	
<p>LEGAL NAME OF INVENTOR</p> <p>Inventor: <u>Sung-Hyuk Shin</u> Date: <u>Sep 1, 2013</u></p> <p>Signature: <u></u></p>	
<p><small>Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional form for each additional inventor.</small></p>	

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Invention

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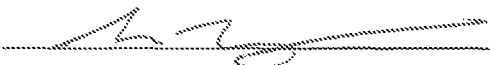
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LEGAL NAME OF INVENTOR

Inventor: Stephen E. Terry

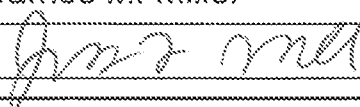
Date: 10/3/13

Signature: 

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional form for each additional inventor.

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APPLICATION DATA SHEET (37 CFR 1.76)**

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<p>LEGAL NAME OF INVENTOR</p> <p>Inventor: <u>James M. Miller</u> Date: <u>8/29/13</u></p> <p>Signature: <u></u></p>	
<p><small>Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional form for each additional inventor.</small></p>	

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER
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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 13/908,242

filed on June 3, 2013

The above-identified application was made or authorized to be made by me.

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LEGAL NAME OF INVENTOR

Inventor: Stephen G. Dick

Date: 10/3/13

Signature: *Stephen G. Dick*

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional 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 this 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.

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STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: Signal Trust for Wireless InnovationApplication No./Patent No.: Not Yet Assigned Filed/Issue Date: September 8, 2017Titled: SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVERSignal Trust for Wireless Innovation, a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is ____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Guodong Zhang, Sung-Hyuk Shin, Stephen E. Terry, James M. Miller and Stephen G. Dick To: INTERDIGITAL TECHNOLOGY CORPORATIONThe document was recorded in the United States Patent and Trademark Office at
Reel 019109, Frame 0717, or for which a copy thereof is attached.2. From: INTERDIGITAL TECHNOLOGY CORPORATION To: INTERDIGITAL HOLDINGS, INC.The document was recorded in the United States Patent and Trademark Office at
Reel 031434, Frame 0015, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(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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STATEMENT UNDER 37 CFR 3.73(c)3. From: INTERDIGITAL HOLDINGS, INC. To: INTERDIGITAL, INC.The document was recorded in the United States Patent and Trademark Office at
Reel 031434, Frame 0249, or for which a copy thereof is attached.4. From: INTERDIGITAL, INC. To: DST HOLDINGS, INC.The document was recorded in the United States Patent and Trademark Office at
Reel 031434, Frame 0302, or for which a copy thereof is attached.5. From: DST HOLDINGS, INC. To: SIGNAL TRUST FOR WIRELESS INNOVATIONThe document was recorded in the United States Patent and Trademark Office at
Reel 031597, Frame 0485, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.☐ Additional documents in the chain of title are listed on a supplemental sheet(s).☒ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Abhik A. Huq/

Signature

Abhik A. Huq

Printed or Typed Name

September 8, 2017

Date

40,656

Title or Registration Number

Privacy Act Statement

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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.
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:

Zhang et al.

Application No.: Not Yet Assigned

Filed: Herewith

For: SUPPORTING ENHANCED UPLINK
TRANSMISSION DURING SOFT
HANDOVER

Group: Not Yet Assigned

Examiner: Not Yet Assigned

Our File: SIG-2-0674US07

Date: September 8, 2017

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

Further to Applicant's Duty of Disclosure pursuant to 37 C.F.R. §1.56, Applicant wishes to bring to the Examiner's attention the material cited on the enclosed PTO Form SB/08a.

This Application is a continuation of U.S. Patent Application No. 14/869,313, which was filed September 29, 2015, which is a continuation of U.S. Patent Application No. 13/908,242, filed June 3, 2013, which issued December 15, 2015 as U.S. Patent No. 9,215,636 which is a continuation of U.S. Patent Application No. 13/308,950, filed December 1, 2011, which issued June 4, 2013 as U.S. Patent No. 8,457,072, which is a continuation of U.S. Patent Application No. 11/434,330, filed May 15, 2006, which issued March 6, 2012 as U.S. Patent No. 8,130,720, which is a continuation of U.S. Patent Application No. 10/962,720, filed October 12, 2004, which issued May 16, 2006 as U.S. Patent No. 7,046,648, which claims priority from

Applicant: Signal Trust for Wireless Innovation
Application No.: Not Yet Assigned

Provisional Application No. 60/578,674, filed June 10, 2004, Provisional Application No. 60/520,692, filed November 17, 2003, Provisional Application No. 60/519,990, filed November 14, 2003, and Provisional Application No. 60/517,656, filed November 5, 2003.

Pursuant to 37 C.F.R. §1.98(d) copies of documents cited in the parent application 14/869,313, are not enclosed, but copies will be provided upon request.

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It is respectfully requested that the Examiner consider these documents and return an initialed copy of the PTO Form SB/08a indicating consideration of the cited materials.

Respectfully submitted,

Signal Trust for Wireless Innovation

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	2	2007-511135	JP	A	2007-04-26	INTERDIGITAL TECHNOLOGY CORPORATION	Corresponds to WO2005/048503A2	
	3	536896	TW	B	2003-06-11	TELEFONAKTIEBOLAG ET L M ERICSSON	Corresponds to US6,977,888B1	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Guodong Zhang	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	SIG-2-0674US07	

4	200303689	TW	A	2003-09-01	INTERDIGITAL TECHNOLOGY CORPORATION	Corresponds to US2003/0176195A1	
5	2005/048503	WO	A2	2005-05-26	INTERDIGITAL TECHNOLOGY CORPORATION	Corresponds to JP2007-511135A	
6	20030040972	KR	A	2003-05-23	LG Electronics Inc.	English Abstract	×
7	0237572	WO	A1	2002-05-10	Japan Science and Technology Corp.	Corresponds to US 7,026,911 B2	☐
8	2000-217139	JP	A	2000-08-04	Hitachi, Ltd.	Corresponds to US6628631B1	☐
9	2001-8251	JP	A	2001-01-12	NEC Corporation	Corresponds to US 8682325B1	☐
10	02/102109	WO	A1	2002-12-19	MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.	Corresponds to US 2003/0171118A1	☐
11	2003-134180	JP	A	2003-05-09	Samsung Electronics Co., Ltd.	Corresponds to US 7283509B2	☐
12	03/037027	WO	A1	2003-05-01	Fujitsu Limited	Corresponds to US 7366538B2	☐

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STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Guodong Zhang	
Art Unit		
Examiner Name		
Attorney Docket Number	SIG-2-0674US07	

1	THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Feasibility Study for Enhanced Uplink for UTRA FDD (Release 6), 3GPP TR 25.896 V0.2.1, R1-030372, pages 14-17 (February 26, 2003).
2	SAMSUNG, "HARQ Structure", 3GPP TSG-RAN WG1 #31, R1-030247, Tokyo, Japan, 3 pages (February 18-21, 2003).
3	SAMSUNG, "Transport channel multiplexing options considering SHO", 3GPP TSG RAN WG1 #33, R1-030767, New York, USA, 5 pages (August 25-29, 2003).
4	PANASONIC, HARQ OPERATION DURING SOFT HANDOVER, 3GPP TSG-RAN WG1 MEETING #33 R1-030802, August 25-29, 2003.
5	3GPP TSG RAN WG1 #31, Tdoc R1-03-0273, QUALCOMM, "Channel Structure for Consideration in Enhanced Uplink", Tokyo, Japan, 18th-21st February 2003.
6	ETSI, UMTS XX. 15 V0.3.0 1999-01, UTRA HANDOVER, 21pp.
7	TSGR1#3(99)187, "Improvements to Site Selection Delivery Transmission (SSDT)", TSG-RAN Working Group 1 meeting #3, Source: Motorola, Stockholm, Sweden, 5 pages (March 22-26, 1999). http://www.3gpp.org/tsg_ran/WG1_RL1/TSGR1_03/Docs/pdfs/R1-99187.PDF

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Application Number	
Filing Date	
First Named Inventor	Guodong Zhang
Art Unit	
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That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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Signature	/Abhik A. Huq/	Date (YYYY-MM-DD)	2017-09-08
Name/Print	Abhik A. Huq	Registration Number	40,656

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Title of Invention:	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER			
First Named Inventor/Applicant Name:	Guodong Zhang			
Filer:	Abhik A. Huq/Gina Ordonez			
Attorney Docket Number:	SIG-2-0674US07			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
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

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Application Number:	15699418
International Application Number:	
Confirmation Number:	2162
Title of Invention:	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER
First Named Inventor/Applicant Name:	Guodong Zhang
Customer Number:	3624
Filer:	Abhik A. Huq/Gina Ordonez
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Attorney Docket Number:	SIG-2-0674US07
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	Specification		1	12	
	Claims		13	16	
	Abstract		17	17	
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SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. Patent Application No. 14/869,313, which was filed September 29, 2015, which is a continuation of U.S. Patent Application No. 13/908,242 filed on June 3, 2013, now U.S. Patent No. 9,215,636 issued on December 15, 2015, which is a continuation of U.S. Patent Application No. 13/308,950 filed on December 1, 2011, now U.S. Patent 8,457,072 issued on June 4, 2013, which is a continuation of U.S. Patent Application No. 11/434,330 filed on May 15, 2006, now U.S. Patent 8,130,720 issued on March 6, 2012, which is a continuation of U.S. Patent Application No. 10/962,720 filed October 12, 2004, now U.S. Patent 7,046,648 issued on May 16, 2006, which claims the benefit of U.S. Provisional Application Serial Nos. 60/578,674 filed June 10, 2004; 60/520,692 filed November 17, 2003; 60/519,990 filed November 14, 2003; and 60/517,656 filed November 5, 2003, all of which are incorporated by reference as if fully set forth.

FIELD OF INVENTION

[0002] The present invention is related to a wireless communication system. More particularly, the present invention is related to a method and apparatus for coordinating Node-Bs and supporting enhanced uplink (EU) transmissions during handover.

BACKGROUND

[0003] Many schemes have been proposed to improve coverage, throughput, and transmission latency for EU transmissions in third generation partnership project (3GPP). One of the developments is to move the functions for scheduling and assigning uplink (UL) physical channel resources from a radio network controller (RNC) to a Node-B. A Node-B can make more efficient decisions and manage UL radio resources on a short-term basis better than the RNC, even if the RNC retains overall control over Node-Bs. A similar approach has already been adopted in downlink for high speed

data packet access (HSDPA) in both universal mobile telecommunication system (UMTS) frequency division duplex (FDD) and time division duplex (TDD) modes.

[0004] It has also been recognized that performance is greatly enhanced with the use of medium access control (MAC) level automatic repeat request (ARQ) and hybrid ARQ (H-ARQ). Application of these techniques during soft handover provides additional significant benefits.

[0005] Figure 1 shows a conventional wireless multi-cell communication system 100 including a wireless transmit/receive unit (WTRU) 105, a Node-B 110, an RNC 115, and at least two cells 120A, 120B. Each of the cells 120A, 120B, is served by the Node-B 110. Node-B 110 is controlled by the RNC 115. When a change in the cell offering the best radio conditions is determined between cells 120A and 120B, a handover process is initiated.

[0006] An "intra-Node-B handover" occurs when a WTRU changes from one cell to another cell controlled by the same Node-B, as shown in Figure 1. An "inter-Node-B handover" occurs when a WTRU changes from one cell to another cell controlled by a different Node-B. In the latter case, the Node-B that controls the cell before the handover is called a source Node-B, and the Node-B that controls the cell after the handover is called a target Node-B.

[0007] During soft handover, a WTRU establishes a plurality of connections with a plurality of Node-Bs in an active set. In this situation, a problem may arise for scheduling and H-ARQ operation. A WTRU may receive conflicting EU transmission scheduling from more than one Node-B. It is also difficult for the WTRU to receive, decode and process H-ARQ positive and negative acknowledgements (ACKs/NACKs) generated by a plurality of Node-Bs. The soft buffer of an H-ARQ process in Node-Bs may be corrupted during soft handover.

[0008] One method to support H-ARQ across multiple Node-Bs, when the WTRU is in soft handover, is to place the ACK/NACK generation function in the RNC, which derives a single ACK/NACK based on the results from the multiple Node-Bs. However, this approach presents a significant delay to the ACK/NACK process, which is highly undesirable for performance reasons.

[0009] When a WTRU undergoes an inter-Node-B hard handover, there is a possibility that a source Node-B, which is a Node-B before hard handover is completed, may not successfully receive EU transmissions for data packets that have been NACKed prior to hard handover activation time. Other WTRUs competing for UL resources may not be provided with enough physical resources in the source cell. If data blocks that have been NACKed prior to the handover are retransmitted to the source Node-B before the handover activation timer expires, those data blocks can be combined with the previous data blocks for H-ARQ decoding. In this way, the decoding takes the advantage of previous, although failed, transmissions of those data blocks in the source cell. If data blocks that have been NACKed prior to the handover are not retransmitted to the source Node-B before the handover activation timer is expired, they have to be transmitted again in the target cell as new data blocks. In this case, the previous transmissions of those data blocks in the source cell are not utilized.

SUMMARY

[0010] An enhanced uplink user equipment is in soft handover. A radio network controller selects a primary Node-B out of a plurality of Node-Bs supporting the soft handover. The radio network controller receiving successfully received enhanced uplink data packets from the plurality of Node-Bs. The radio network controller reordered the successfully received enhanced uplink data packets for in-sequence deliver. The primary Node-B sends specified scheduling information to the user equipment that the other Node-Bs does not transmit. At least the primary Node-B transmits acknowledgements and negative acknowledgements to the user equipment.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] A more detailed understanding of the invention may be had from the following description, given by way of example and to be understood in conjunction with the accompanying drawings wherein:

[0012] Figure 1 shows a conventional wireless communication system;

[0013] Figure 2 shows a system which uses a UL scheduler located in a primary

Node-B during soft handover for EU in accordance with the present invention;

[0014] Figure 3 shows a system which uses an ACK/NACK generation function located in a primary Node-B during soft handover for EU in accordance with the present invention;

[0015] Figure 4 is a flowchart of a process including method steps for coordinating Node-Bs during soft handover in accordance with one embodiment of the present invention; and

[0016] Figure 5 is a flowchart of a process including method steps for prioritizing the transmission of NACKed data in a source Node-B before hard handover is completed in accordance with a separate embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0017] The present invention will be described with reference to the drawing figures wherein like numerals represent like elements throughout.

[0018] Hereafter, the terminology "WTRU" includes but is not limited to a user equipment (UE), a mobile station, a fixed or mobile subscriber unit, a pager, or any other type of device capable of operating in a wireless environment.

[0019] When referred to hereafter, the terminology "Node-B" includes but is not limited to a base station, a site controller, an access point or any other type of interfacing device in a wireless environment.

[0020] The present invention may be implemented in any type of wireless communication systems, such as UMTS - FDD, TDD, time division synchronous code division multiple access (TDSCDMA), code division multiple access 2000 (CDMA2000) (EV-DO and EV-DV) or any other type of wireless communication system.

[0021] The features of the present invention may be incorporated into an IC or be configured in a circuit comprising a multitude of interconnecting components.

[0022] Figure 2 shows a wireless multi-cell communication system 200 which uses a UL scheduler located in a primary Node-B in accordance with the present invention. The wireless multi-cell communication system 200 includes a WTRU 205, a plurality of Node-Bs 210 (i.e., 210A, 210B), an RNC 215 and a plurality of cells 260

(i.e., 260A, 260B, 260C). Cells 260A and 260C are served by the Node-B 210A. Cells 260B are served by the Node-Bs 210B. All of the Node-Bs 210 are controlled by the RNC 215.

[0023] During soft handover, the WTRU 205 establishes multiple connections with the Node-Bs 210 included in an active set. Each transmission from the WTRU 205 is processed independently at each of the Node-Bs 210. One of the Node-Bs 210 in the active set is designated as a primary Node-B 210A, and the other Node-Bs are designated as non-primary Node-Bs 210B.

[0024] As shown in Figure 2, the primary Node-B 210A includes a MAC entity 250A including a UL scheduler 255. Each of the non-primary Node-Bs 210B also includes a MAC entity 250B. Each of the MAC entities 250A, 250B, handles EU transmissions. The UL scheduler 255 in the MAC entity 250A is responsible for scheduling the EU transmissions.

[0025] In accordance with one embodiment of the present invention, the UL scheduler 255 is implemented only at the primary Node-B 210A during soft handover. The WTRU 205 receives a UL transmission schedule only from the primary Node-B 210A in a primary cell 260A. However, the primary Node-B 210A cannot send the scheduling information to the non-primary Node-Bs 210B in every transmission time interval (TTI). In order to allow the primary Node-B 210A to allocate resources for the WTRU 205 to transmit in cells controlled by the non-primary Node-Bs 210B, those resources scheduled by the primary Node-B 250A in a plurality of cells 260B controlled by the non-primary Node-Bs 210B cannot be assigned by the non-primary Node-Bs 210B. Therefore, some physical resources common to all of the cells in the active EU subset should be assigned and reserved by a particular Node-B for the WTRU 205 during the soft handover, so that those resources can be used only by the primary Node-B 210A.

[0026] The UL scheduler 255 located in the primary Node-B 210A considers the interference level caused by the EU transmission at any cell 260A, 260B, 260C, in the EU active subset to be below a predetermined maximum allowed interference level. Thus, the primary Node-B 250A limits the transmit power level of the WTRU 205 such

that the interference levels are also within the maximum allowed interference levels at other cells 260B, 260C. To achieve this, the RNC 215 needs to relay necessary information, such as transmission power level and interference level, of the cells 260B controlled by the non-primary Node-Bs 210B to the primary Node-B 210A, which then uses the information to schedule the UL transmissions.

[0027] The EU scheduling information is transmitted to the WTRU 205 only by the primary Node-B 210A through the primary cell 260A. During soft handover, the WTRU 205 receives EU scheduling information only in the primary cell 260A, although the EU scheduling information is valid in all other cells 260B, 260C.

[0028] In one embodiment, the primary Node-B 250A is selected by either the RNC 215 or the WTRU 205. The RNC 215 may choose a Node-B that has the highest percentage of correctly received data blocks during a predefined time window as a primary Node-B.

[0029] In another embodiment, the RNC 215 generates statistics for each Node-B, such as a bit error rate (BER) or a frame error rate (FER), or the like, over a predetermined time period. Then, the RNC 215 may select a Node-B having the best performance to be the primary Node-B 210A. The RNC 215 then notifies the WTRU 205 and all other Node-Bs about the primary Node-B 210A via radio resource control (RRC) and Iub signaling, respectively.

[0030] In another embodiment, the WTRU 102 may choose a Node-B 210 that has the best downlink pilot power, (i.e., best downlink path loss or highest code power), as a primary Node-B 210A. The WTRU 205 measures the power of pilot signals received from all Node-Bs 210 and selects the Node-B 210 having the highest pilot power to be the primary Node-B 210A. The WTRU 205 then notifies all other Node-Bs about the primary Node-B 210A via fast physical layer signaling.

[0031] The WTRU 205 may report the downlink pilot power of all cells 260 to the RNC 215. The RNC 215 then chooses one Node-B 210 to be the primary Node-B 210a based on the combined uplink and downlink quality. The uplink quality of a cell 260 based on the percentage of correctly received data blocks, (or BER, FER, or the like), during a predefined time window, and the downlink quality of a cell 260 is based on the

WTRU received downlink pilot power. Then, the RNC 215 notifies the WTRU 205 and all of the Node-Bs 210 about the primary Node-B 210A via RRC and Iub signaling, respectively.

[0032] The present invention is advantageous over prior art systems. Using the present invention, a WTRU does not receive conflicting scheduling of EU transmissions from Node-Bs during soft handover. In addition, EU transmission is scheduled in consideration of an interference level and radio resources in cells controlled by non-primary Node-Bs. Signaling delay from the primary Node-B 210A to the WTRU 205 is much lower as compared to signaling delay from the RNC 215 to the WTRU 205.

[0033] In a separate embodiment, Figure 3 shows a wireless multi-cell communication system 300, similar to the system 200 shown in Figure 2. As shown in Figure 3, the primary Node-B 210A includes a MAC entity 250A including an ACK/NACK generator 305. Only the primary Node-B 210A has the ACK/NACK generator 305. The primary Node-B 210A may perform H-ARQ with incremental redundancy, or only ARQ without implementing incremental redundancy.

[0034] Still referring to Figure 3, the primary Node-B 210A receives at least one data packet from the WTRU 205 through the primary cell 260A and performs an error check on the data packet. Any error checking method, such as a cyclic redundancy check (CRC), may be utilized. If the primary Node-B 210A correctly decodes the data packet, such as passing the CRC, the primary Node-B 210A transmits an ACK to the WTRU 205 and also transmits the correctly decoded data packet to the RNC 215. If the primary Node-B 210A fails to correctly decode the data packet, the primary Node-B 210A transmits a NACK to the WTRU 205.

[0035] The non-primary Node-Bs 210B also perform an error check on the data packet. However, the non-primary Node-Bs 210B do not send ACKs or NACKs to the WTRU 205. Instead, the non-primary Node-Bs send successfully decoded data packets to the RNC 215. During soft handover, only the primary Node-B 210A generates H-ARQ (or ARQ), ACKs and NACKs, and controls retransmissions.

[0036] The MAC layer WTRU identities received by the non-primary Node-Bs 210B may be used for routing of successfully received transmissions in a universal

terrestrial radio access network (UTRAN). Since the non-primary Node-Bs 210B are not aware of which WTRUs have been scheduled for EU transmission by the primary Node-B 210A, the non-primary Node-Bs 210B may rely on in-band MAC layer signaling of the WTRU ID to route correctly received transmissions to the correct RNC radio link. Even though the primary Node-B 210A may be aware of which WTRU is scheduled, the same method may be implemented by the primary Node-B 210A.

[0037] Preferably, the primary Node-B 210A may use soft combining to process transmissions, while the non-primary Node-Bs 210B may process each transmission without soft combining. If the primary Node-B sends a NACK to the WTRU 205, the NACKed data packet is stored in a buffer of the primary Node-B 210A, and the NACKed data packet is combined with a retransmitted data packet. In contrast, the non-primary Node-Bs 210B do not store the NACKed data packets. This eliminates the problem of soft buffer corruption between the Node-Bs 210, and the complexities of multiple independent ACKs and/or NACKs.

[0038] When an incremental combining process is implemented, measures should be taken to avoid soft buffer corruption. Sequence information or a new data indicator is required to enable a Node-B 210 to detect that the WTRU 205 is no longer repeating data for a particular WTRU H-ARQ process, but instead is sending new data. This is specifically required because the Node-B 210 has no other way to learn that a new transmission has started. Alternatively, the non-primary Node-Bs 210B may simply perform an ARQ, without using an incremental combining process. This eliminates the soft buffer corruption problem.

[0039] In the case where non-primary Node-Bs 210B perform simple ARQ without incremental combining, the WTRU 205 must transmit self-decodable data packets to ensure that all of the Node-Bs 210 may decode transmissions, regardless of the result of earlier transmissions. Preferably, the H-ARQ functionality is terminated at the Node-Bs 210. Each of the Node-Bs 210 sends to the RNC 215 successfully decoded data packets with explicit identification of transmission, such as a transmission sequence number (TSN). The RNC 215 may optionally use data packets delivered from the non-primary Node-Bs 210B. A MAC entity 310, located in the RNC

215, is used to implement an in-sequence delivery process for delivering data to higher layers over all of the packets received from the Node-Bs 210. After the RNC MAC entity 310 has completed its re-ordering process, it sends the data to a radio link control (RLC) (not shown). Missed packets are identified at the RNC 215 and the WTRU 205 is informed through RLC messaging.

[0040] Alternatively, EU transmissions may identify WTRU ID, H-ARQ process, transmission sequence and/or new data indication (NDI) to allow for soft combining in the non-primary Node-B's 210B. If this method is used to allow soft combining in the non-primary Node-Bs 210B, the primary Node-B 210A may not have to rely on scheduling and H-ARQ ACK/NACK decisions to determine when combining should be performed.

[0041] There are two options for the transmission of ACK/NACK messages. The first option is a synchronous transmission. The ACK/NACK messages are transmitted after a unique time delay with respect to the corresponding uplink transmission or the EU channel allocation message. The second option is an asynchronous transmission. There is no unique delay between the transmission of ACK/NACK messages and the corresponding uplink transmission or the EU channel allocation message. Explicit information in the ACK/NACK message identifies the corresponding uplink transmission to enable the WTRU 205 to make the correct association between the ACK/NACK message and the transmission. This association is made by either identifying the H-ARQ process number and/or a unique sequence number, such as a TSN with each ACK/NACK feedback message to the WTRU 205.

[0042] In a separate embodiment, preferably implemented for the asynchronous ACK/NACK feedback case, the non-primary Node-Bs 210B may provide H-ARQ ACK/NACK results to the primary Node-B 210A in order to avoid unnecessary retransmissions for transmissions that are not correctly received by the primary Node-B 210A, but are correctly received by the non-primary Node-Bs 210B. A non-primary Node-B 210B does not directly send an ACK or NACK message to the WTRU 205. The non-primary Node-Bs 210B sends ACK/NACK or CRC results to the RNC 215. Then, the RNC 215 sends ACK or CRC results to the primary Node-B 210A.

[0043] In order to speed up H-ARQ processing, the first ACK message from any non-primary Node-B 210B received by the RNC is preferably immediately forwarded to the primary Node-B 210A. The primary Node-B 210A also immediately generates an ACK message if the transmission is received correctly in the primary Node-B 210A without waiting for feedback from the non-primary Node-Bs 210B. The primary Node-B 210A also generates an ACK message immediately upon reception of a forwarded ACK message from the RNC, even if other ACK messages may be forwarded. Since an ACK is generated if any of the paths are successful, an ACK can be generated as soon as the first successful transmission is found.

[0044] Alternatively, in order to simplify the design of the ACK/NACK generator 205, only a subset of the generating nodes may be used. For example, ACKs may be generated only at the RNC, or at the RNC and the primary Node-B 210A.

[0045] When the WTRU 205 sends an uplink transmission, for each H-ARQ process the WTRU 205 waits at least the time required for the primary Node-B 210A to send ACK/NACK feedback. For each H-ARQ process, if an ACK is received by the WTRU 205, the WTRU 205 may send new data in the next available or assigned opportunity.

[0046] A NACK message can only originate in the RNC 215 since it is the only node that has all of the information necessary in the soft handover to determine that there have been no successful receptions at any Node-B 210. The RNC 215 generates a NACK command if the RNC 215 receives no ACK from the Node-Bs 210 within a predetermined time interval. The RNC 215 forwards the NACK message to the WTRU 205 via the primary Node-B 210A.

[0047] It is also possible that this procedure can be implemented without an explicit NACK command. In this case, the lack of ACK reception within a particular period of time is considered the same as an explicit NACK command at either the primary Node-B 210A and/or the WTRU 205.

[0048] Figure 4 is a flowchart of a process 400 including method steps for coordinating Node-Bs during soft handover in accordance with one embodiment of the present invention. In step 405, the RNC 215 makes a decision to initiate an inter-

Node-B soft handover. In step 410, the WTRU 205 establishes connections with at least two Node-Bs 210 in an active set. In step 415, one of the Node-Bs 210 in the active set is designated as a primary Node-B 210A and the one or more Node-B(s) 210 remaining in the active set are designated as a non-primary Node-Bs 210B. In step 420, the primary Node-B 210A controls UL transmissions during soft handover by performing EU scheduling and H-ARQ operations.

[0049] Figure 5 is a flowchart of a process 500 including method steps for prioritizing the transmission of NACKed data in a source Node-B before hard handover is completed in accordance with a separate embodiment of the present invention. In step 505, the RNC 215 makes a decision to initiate a hard handover for a WTRU 205 connected to a source Node-B 210. In step 510, the RNC 215 informs the source Node-B 210 when the WTRU 205 will stop transmission and reception in the source cell 260. In step 515, the RNC 215 sends an activation timer to the source Node-B 210 to set the time for handover.

[0050] Still referring to Figure 5, if the source Node-B 210 determines that there are data packets that were previously NACKed, as many previously NACKed data packets as possible should be retransmitted before the handover activation timer expires. Otherwise, the system may lose the benefit of incrementally combining the previous transmission with the retransmission. Therefore, the source Node-B scheduler 255 takes the handover activation time into account when it schedules the data packets that have been NACKed. If there is not enough radio resource for the source Node-B 210 to schedule transmission of all the NACKed data packets in time, the source Node-B 210 should manage to schedule transmission of as many NACKed data packets as possible.

[0051] Still referring to Figure 5, in order to transmit as many NACKed data packets as possible before the activation timer expires, the source Node-B 210 adjusts the priority of transmissions (step 525) and, in step 530, the source node-B 210 adjusts the MCS of the transmissions (step 530). Higher priority of scheduling is given to the data packets that have been NACKed. If the radio resources are sufficient, a more robust MCS may be used to increase the probability of successful transmissions from

the WTRU 205 to the source Node-B 210. In step 535, the handover is completed at the expiration of the activation timer.

[0052] In order for the WTRU 205 to understand that the scheduled uplink transmission is intended for data blocks with previous transmission failures, the source Node-B 210 uplink scheduler 255 may specify that the scheduled UL transmission is intended for the data blocks that were previously NACKed. This may be implemented by including H-ARQ process identification in the UL scheduling information that is sent from the source Node-B 210 to the WTRU 205. By receiving the scheduling information from the source Node-B 210, the WTRU 205 knows that the scheduled transmission is for specific data associated with HARQ process identification sent together with the scheduling information.

[0053] While this invention has been particularly shown and described with reference to preferred embodiments, it will be understood by those skilled in the art that various changes in forms and details may be made therein without departing from the scope of the invention as described above.

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CLAIMS

What is claimed is:

1. A method for communicating by a wireless transmit/receive unit (WTRU) during a handover from a primary cell to a non-primary cell, the method comprising:
 - receiving scheduling information via the primary cell and not via the non-primary cell;
 - transmitting, via the primary cell and the non-primary cell, enhanced uplink (EU) data;
 - receiving hybrid automatic repeat request (HARQ) acknowledgements (ACKs) via the primary cell; and
 - receiving negative acknowledgements (NACKs) via the primary cell and not via the non-primary cell.
2. The method of claim 1, further comprising:
 - receiving an identifier indicating the primary cell and the non-primary cell.
3. The method of claim 1, further comprising:
 - transmitting downlink power measurements of transmissions received by the WTRU.
4. The method of claim 1, wherein the EU data includes identification information of the WTRU.
5. The method of claim 1, wherein the scheduling information includes at least one of a HARQ process identification and a transmit power level of the WTRU.
6. The method of claim 1, further comprising:
 - transmitting the EU data using synchronous HARQ.

7. The method of claim 1, wherein the EU data is transmitted in accordance with the received scheduling information.

8. The method of claim 1, further comprising:
retransmitting the EU data from the WTRU via the primary cell and the non-primary cell upon receipt of a NACK.

9. The method of claim 1, wherein the handover is a soft handover.

10. A wireless transmit/receive unit (WTRU), comprising:
a transmitter; and
a receiver,
wherein when the WTRU is in a handover from a primary cell to a non-primary cell,
the receiver receives scheduling information via the primary cell and not via the non-primary cell,
the transmitter transmits, via the primary cell and the non-primary cell, enhanced uplink (EU) data,
the receiver receives hybrid automatic repeat request (HARQ) acknowledgements (ACKs) via the primary cell, and
the receiver receives negative acknowledgements (NACKs) via the primary cell and not via the non-primary cell.

11. The WTRU of claim 10, wherein the receiver is configured to process an identifier indicating the primary cell and the non-primary cell.

12. The WTRU of claim 10, wherein the transmitter is configured to transmit downlink power measurements of transmissions received by the receiver.

13. The WTRU of claim 10, wherein the EU data includes identification

information of the WTRU.

14. The WTRU of claim 10, wherein the scheduling information includes at least one of a HARQ process identification and a transmit power level of the transmitter.

15. The WTRU of claim 10, wherein the transmitter transmits the EU data using synchronous HARQ.

16. The WTRU of claim 10, wherein the transmitter transmits the EU data in accordance with the received scheduling information.

17. The WTRU of claim 10, wherein the transmitter further retransmits the EU data via the primary cell and the non-primary cell upon receipt of a NACK.

18. The WTRU of claim 10, wherein the handover is a soft handover.

19. A wireless transmit/receive unit (WTRU), comprising:
a transmitter; and
a receiver,

wherein when the WTRU is in a soft handover,

the receiver receives scheduling information from a first Node-B,

the transmitter transmits, in accordance with the received scheduling information, enhanced uplink (EU) data to the first Node-B and to a second Node-B,

the receiver receives hybrid automatic repeat request (HARQ) acknowledgements (ACKs) from the first Node-B, and

the receiver receives negative acknowledgements (NACKs) from the first Node-B and not from the second Node-B.

20. The WTRU of claim 19, wherein the receiver is configured to process an identifier indicating a primary cell controlled by the first Node-B and a non-primary cell controlled by the second Node-B.

ABSTRACT

An enhanced uplink user equipment is in soft handover. A radio network controller selects a primary Node-B out of a plurality of Node-Bs supporting the soft handover. The radio network controller receiving successfully received enhanced uplink data packets from the plurality of Node-Bs. The radio network controller reordered the successfully received enhanced uplink data packets for in-sequence deliver. The primary Node-B sends specified scheduling information to the user equipment that the other Node-Bs does not transmit. At least the primary Node-B transmits acknowledgements and negative acknowledgements to the user equipment.

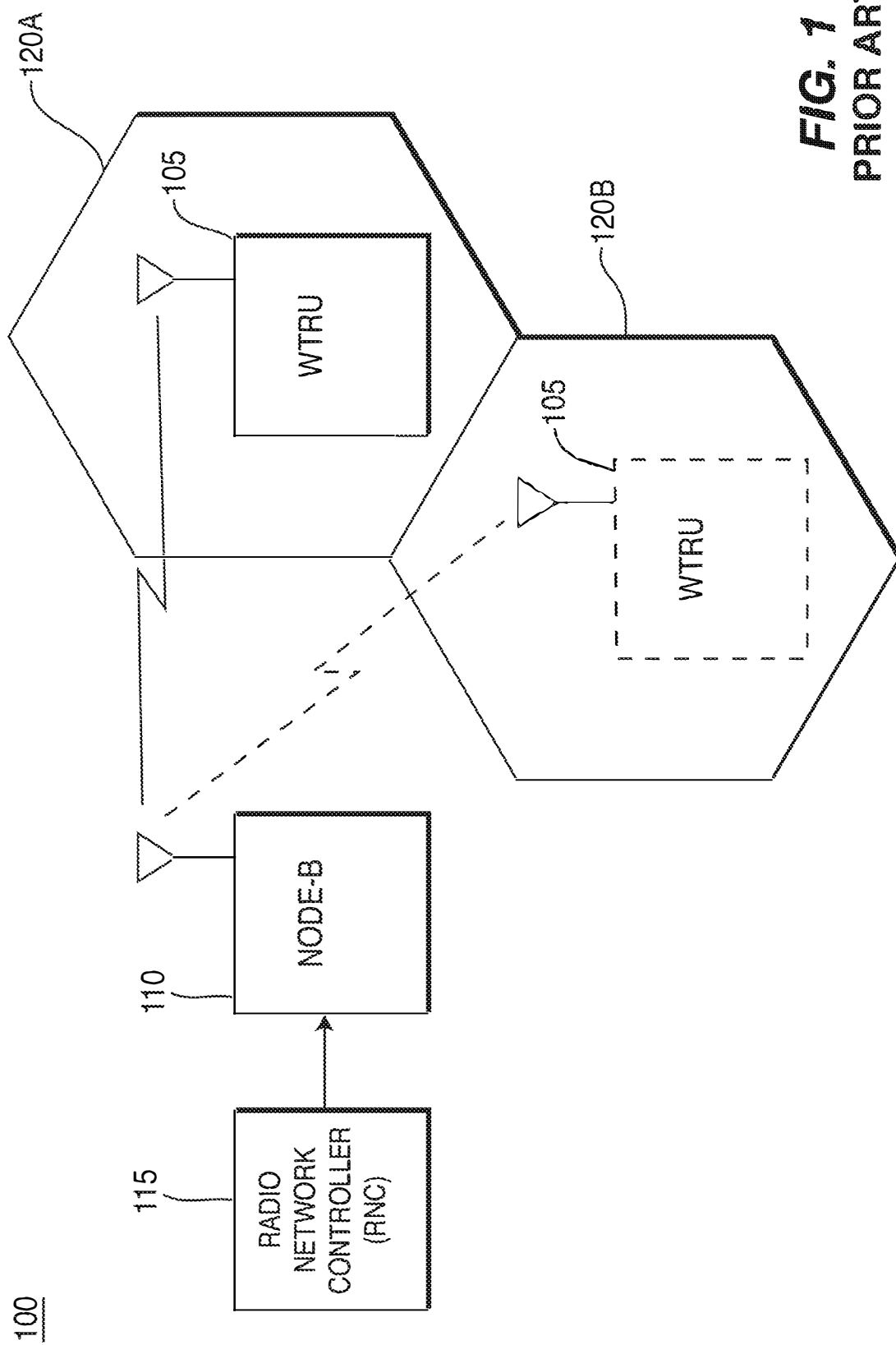


FIG. 1
PRIOR ART



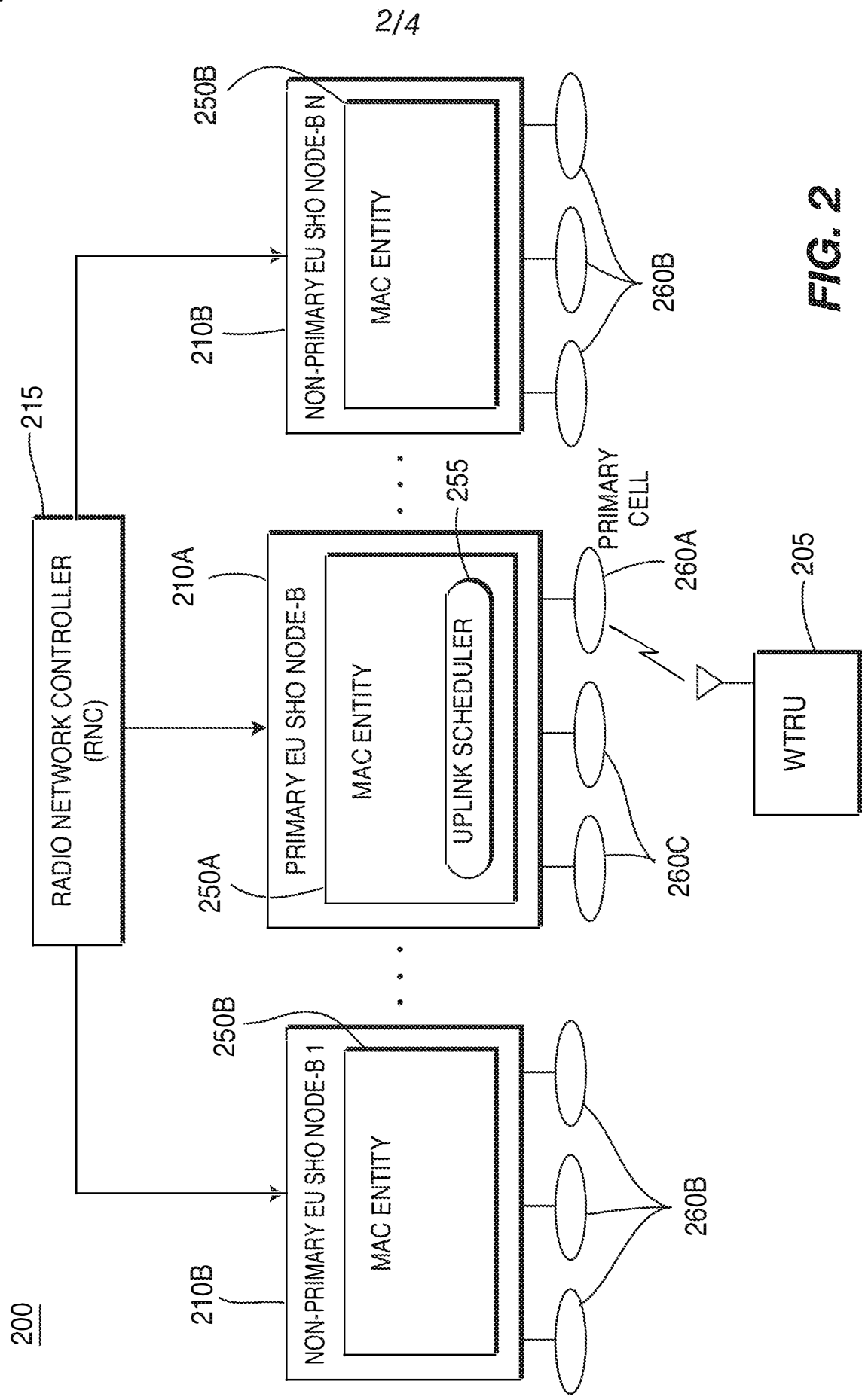


FIG. 2



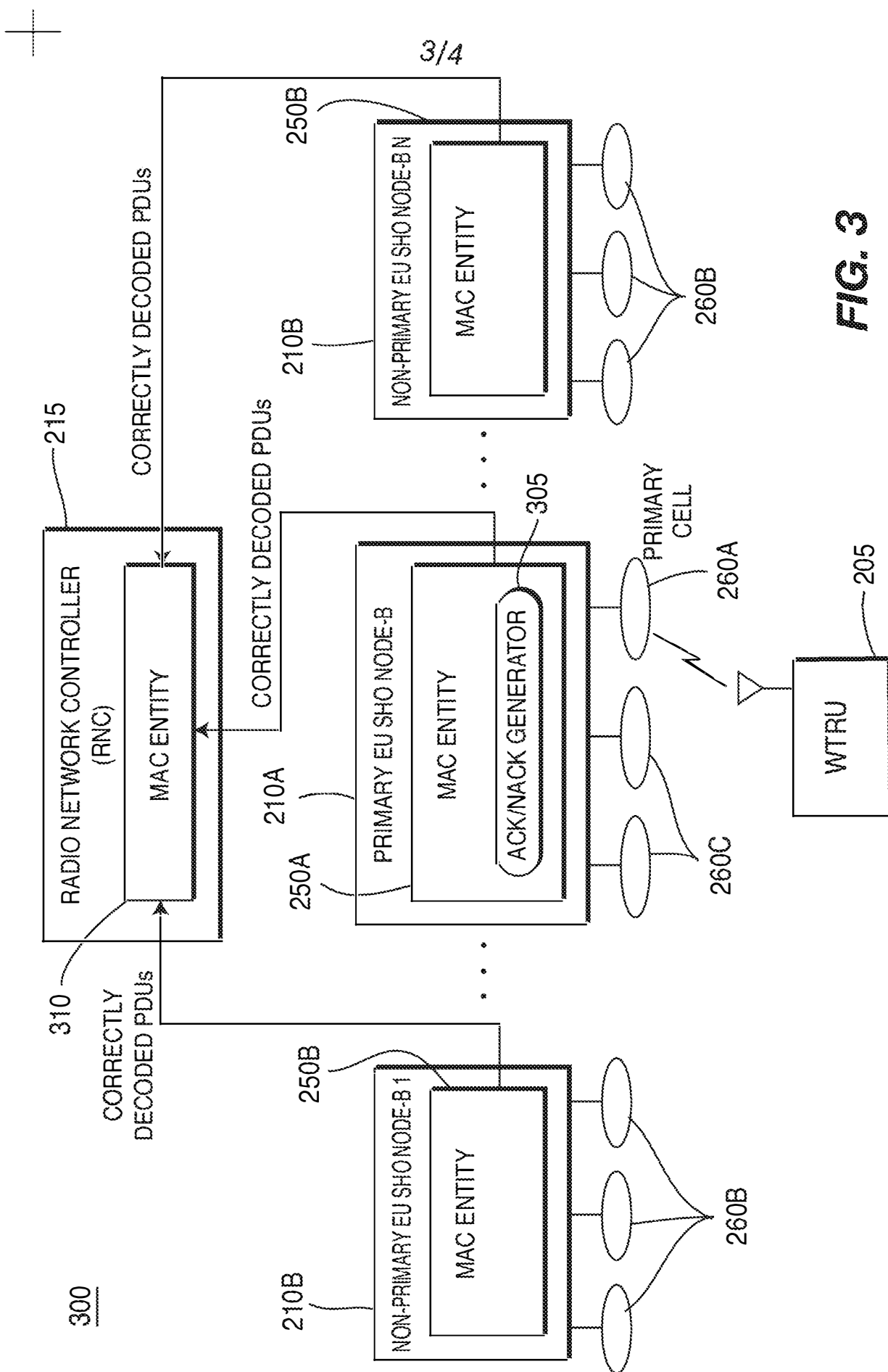
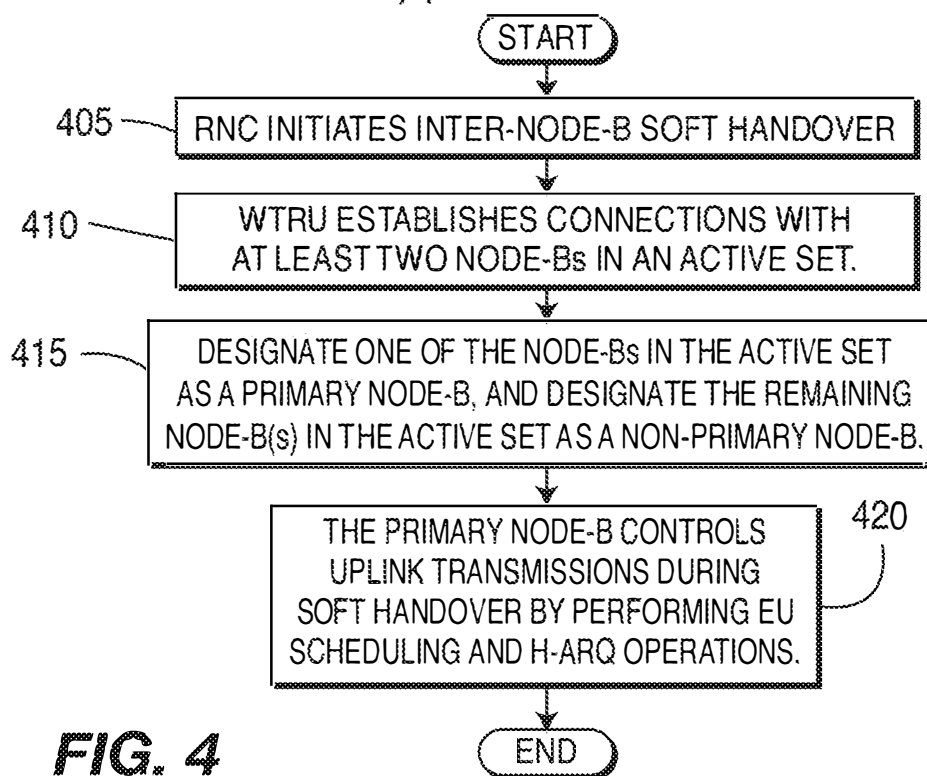
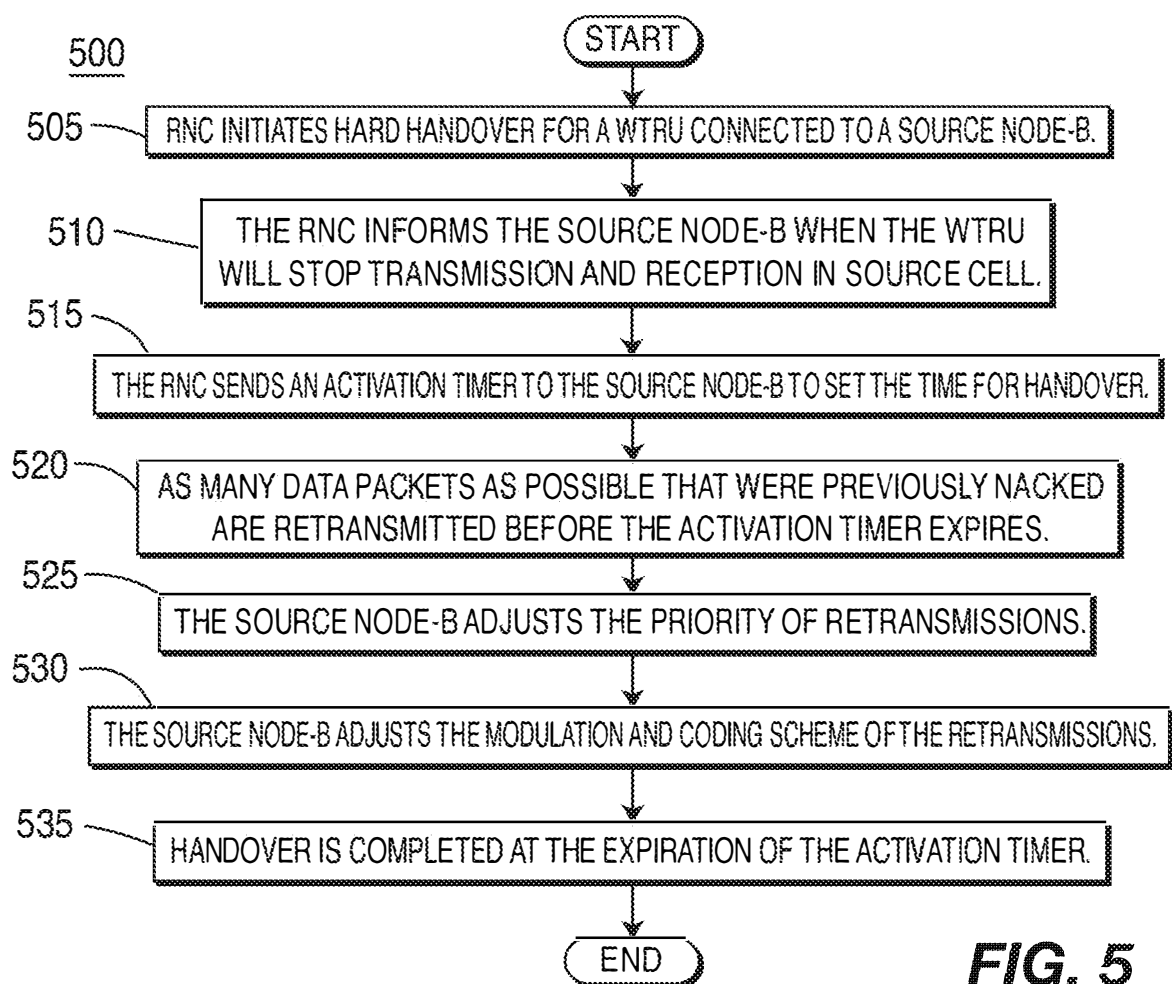


FIG. 3



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**FIG. 5**

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIG-2-0674US07
		Application Number	
Title of Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER		
<p>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.</p> <p>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.</p>			

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.)
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIG-2-0674US07
		Application Number	
Title of Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER		

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIG-2-0674US07
		Application Number	
Title of Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER		

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Title of the Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER		
Attorney Docket Number	SIG-2-0674US07	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	

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.

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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.			
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIG-2-0674US07
		Application Number	
Title of Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(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.

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Prior Application Status	Pending	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
	Continuation of	14869313	2015-09-29		
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14869313	Continuation of	13908242	2013-06-03	9215636	2015-12-15
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13908242	Continuation of	13308950	2011-12-01	8457072	2013-06-04
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13308950	Continuation of	11434330	2006-05-15	8130720	2012-03-06
Prior Application Status	Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11434330	Continuation of	10962720	2004-10-12	7046648	2006-05-16
Prior Application Status	Expired	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
10962720	Claims benefit of provisional	60578674	2004-06-10		
Prior Application Status	Expired	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
10962720	Claims benefit of provisional	60520692	2003-11-17		
Prior Application Status	Expired	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
10962720	Claims benefit of provisional	60519990	2003-11-14		
Prior Application Status	Expired	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)		
10962720	Claims benefit of provisional	60517656	2003-11-05		
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIG-2-0674US07
		Application Number	
Title of Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER		

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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. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(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).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)	Remove

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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.

Authorization to Permit Access:

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIG-2-0674US07
		Application Number	
Title of Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER		

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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.

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Name of the Deceased or Legally Incapacitated Inventor :			
If the Applicant is an Organization check here. ☒			
Organization Name	Signal Trust for Wireless Innovation		
Mailing Address Information For Applicant:			
Address 1	1011 Centre Road, Suite 327		
Address 2			
City	Wilmington	State/Province	DE
Country	US	Postal Code	19805
Phone Number		Fax Number	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIG-2-0674US07
		Application Number	
Title of Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER		
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

Assignee Information including Non-Applicant Assignee 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.

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.			
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If the Assignee or Non-Applicant Assignee is an Organization check here. ☒			
Organization Name	Signal Trust for Wireless Innovation		
Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	1011 Centre Road, Suite 327		
Address 2			
City	Wilmington	State/Province	DE
Country	US	Postal Code	19805
Phone Number		Fax Number	
Email Address			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.			
<input type="button" value="Add"/>			

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.					
Signature	/Abhik A. Huq/			Date (YYYY-MM-DD)	2017-09-08
First Name	Abhik A.	Last Name	Huq	Registration Number	40656
Additional Signature may be generated within this form by selecting the Add button.					<input type="button" value="Add"/>

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIG-2-0674US07
		Application Number	
Title of Invention	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER		

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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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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 the Freedom of Information Act requires disclosure of these records.
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.
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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 inspections 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 law or regulation.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/699,418	
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))	20	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
			TOTAL			TOTAL	1600
* If the difference in column 1 is less than zero, enter "0" in column 2.							
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(\$)
	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		OR	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(\$)
	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		OR	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
15/699,418	09/08/2017	2414	1600	SIG-2-0674US07	20	3

CONFIRMATION NO. 2162

FILING RECEIPT



0000000094140941

3624
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET, 18th Floor
PHILADELPHIA, PA 19103

Date Mailed: 09/19/2017

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)

Guodong Zhang, Syosset, NY;
Sung-Hyuk Shin, Northvale, NJ;
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Applicant(s)

Signal Trust for Wireless Innovation, Wilmington, DE;

Assignment For Published Patent Application

Signal Trust for Wireless Innovation, Wilmington, DE

Power of Attorney: The patent practitioners associated with Customer Number 03624

Domestic Priority data as claimed by applicant

This application is a CON of 14/869,313 09/29/2015 PAT 9763156
which is a CON of 13/908,242 06/03/2013 PAT 9215636
which is a CON of 13/308,950 12/01/2011 PAT 8457072
which is a CON of 11/434,330 05/15/2006 PAT 8130720
which is a CON of 10/962,720 10/12/2004 PAT 7046648
which claims benefit of 60/578,674 06/10/2004
and claims benefit of 60/520,692 11/17/2003
and claims benefit of 60/519,990 11/14/2003
and claims benefit of 60/517,656 11/05/2003

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.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 09/18/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/699,418**

Projected Publication Date: 12/28/2017

Non-Publication Request: No

Early Publication Request: No

Title

SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER

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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Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

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Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign

patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:

Zhang et al.

Application No.: 15/699,418

Filed: September 8, 2017

Confirmation No.: 2162

For: SUPPORTING ENHANCED UPLINK
TRANSMISSION DURING SOFT
HANDOVER

Group: 2466

Examiner: Brian S. Roberts

Our File: SIG-2-0674US07

Date: October 17, 2017

PRELIMINARY AMENDMENT

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

Please amend the application without prejudice or disclaimer as follows:

Amendments to the Claims:

This listing of the claims will replace all prior versions of the claims in the application:

1. (Currently Amended) A method for communicating by a wireless transmit/receive unit (WTRU) during a handover from a primary cell to a non-primary cell, the method comprising:

receiving scheduling information via the primary cell and not via the non-primary cell;

transmitting, via the primary cell and the non-primary cell, enhanced uplink (EU) data, wherein the EU data transmissions are scheduled to limit interference at the primary cell and at the non-primary cell;

receiving hybrid automatic repeat request (HARQ) acknowledgements (ACKs) via the primary cell; and

receiving negative acknowledgements (NACKs) via the primary cell and not via the non-primary cell.

2. (Original) The method of claim 1, further comprising:
receiving an identifier indicating the primary cell and the non-primary cell.

3. (Original) The method of claim 1, further comprising:
transmitting downlink power measurements of transmissions received by the WTRU.

4. (Original) The method of claim 1, wherein the EU data includes identification information of the WTRU.

5. (Original) The method of claim 1, wherein the scheduling information includes at least one of a HARQ process identification and a transmit power level of the WTRU.

6. (Original) The method of claim 1, further comprising:
transmitting the EU data using synchronous HARQ.

7. (Original) The method of claim 1, wherein the EU data is transmitted in accordance with the received scheduling information.

8. (Original) The method of claim 1, further comprising:
retransmitting the EU data from the WTRU via the primary cell and the non-primary cell upon receipt of a NACK.

9. (Original) The method of claim 1, wherein the handover is a soft handover.

10. (Currently Amended) A wireless transmit/receive unit (WTRU), comprising:

a transmitter; and

a receiver,

wherein when the WTRU is in a handover from a primary cell to a non-primary cell,

the receiver receives scheduling information via the primary cell and not via the non-primary cell,

the transmitter transmits, via the primary cell and the non-primary cell, enhanced uplink (EU) data, wherein the EU data transmissions are

scheduled to limit interference at the primary cell and at the non-primary cell.

the receiver receives hybrid automatic repeat request (HARQ) acknowledgements (ACKs) via the primary cell, and

the receiver receives negative acknowledgements (NACKs) via the primary cell and not via the non-primary cell.

11. (Original) The WTRU of claim 10, wherein the receiver is configured to process an identifier indicating the primary cell and the non-primary cell.

12. (Original) The WTRU of claim 10, wherein the transmitter is configured to transmit downlink power measurements of transmissions received by the receiver.

13. (Original) The WTRU of claim 10, wherein the EU data includes identification information of the WTRU.

14. (Original) The WTRU of claim 10, wherein the scheduling information includes at least one of a HARQ process identification and a transmit power level of the transmitter.

15. (Original) The WTRU of claim 10, wherein the transmitter transmits the EU data using synchronous HARQ.

16. (Original) The WTRU of claim 10, wherein the transmitter transmits the EU data in accordance with the received scheduling information.

17. (Original) The WTRU of claim 10, wherein the transmitter further retransmits the EU data via the primary cell and the non-primary cell upon receipt of a NACK.

18. (Original) The WTRU of claim 10, wherein the handover is a soft handover.

19. Canceled

20. Canceled

21. (New) A wireless network comprising a plurality of Node-Bs configured to communicate with a wireless transmit/receiver unit (WTRU) during a handover from a first Node-B of the plurality of Node-Bs to a second Node-B of the plurality of Node-Bs by:

transmitting scheduling information to the WTRU via the first Node-B;

receiving enhanced uplink (EU) data from the WTRU via the first Node-B and the second Node-B, wherein the EU data transmissions are scheduled to limit interference at the first Node-B and at the second Node-B;

transmitting hybrid automatic repeat request (HARQ) acknowledgements (ACKs) to the WTRU via the first Node-B; and

transmitting negative acknowledgements (NACKs) to the WTRU via the first Node-B and not via the second Node-B.

22. (New) The wireless network of claim 21, wherein the first Node-B controls a primary cell and the second Node-B controls a non-primary cell.

23. (New) The wireless network of claim 21, further comprising:

a radio network controller (RNC) to transmit to the plurality of Node-Bs an identifier indicating the first Node-B and the second Node-B.

24. (New) The wireless network of claim 21, wherein the plurality of Node-Bs is further configured to receive, from the WTRU, downlink power measurements of transmissions received by the WTRU.

25. (New) The wireless network of claim 21, wherein the EU data includes identification information of the WTRU.

26. (New) The wireless network of claim 21, wherein the scheduling information includes at least one of a HARQ process identification and a transmit power level of the WTRU.

27. (New) The wireless network of claim 21, wherein the first and second Node-Bs are further configured to receive the EU data using synchronous HARQ.

28. (New) The wireless network of claim 21, wherein the handover is a soft handover.

REMARKS/ARGUMENTS

After the foregoing Amendment, claims 1-18 and 21-28 are currently pending. Claims 1 and 10 are amended. Claims 19 and 20 are canceled. Claims 21-28 are added. No new matter is added.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephonic interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing, Applicant respectfully submits that the present application, including claims 1-18 and 21-28 are in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

SIGNAL TRUST FOR WIRELESS
INNOVATION

By /Abhik A. Huq/
Abhik A. Huq
Registration No. 40,656

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AAH/gvo

Electronic Patent Application Fee Transmittal				
Application Number:		15699418		
Filing Date:		08-Sep-2017		
Title of Invention:		SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER		
First Named Inventor/Applicant Name:		Guodong Zhang		
Filer:		Abhik A. Huq/Gina Ordonez		
Attorney Docket Number:		SIG-2-0674US07		
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:				
CLAIMS IN EXCESS OF 20	1202	6	80	480
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				480

Electronic Acknowledgement Receipt

EFS ID:	30680601
Application Number:	15699418
International Application Number:	
Confirmation Number:	2162
Title of Invention:	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER
First Named Inventor/Applicant Name:	Guodong Zhang
Customer Number:	3624
Filer:	Abhik A. Huq/Gina Ordonez
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-0674US07
Receipt Date:	17-OCT-2017
Filing Date:	08-SEP-2017
Time Stamp:	17:00:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 480
RAM confirmation Number	101817INTEFSW17005500
Deposit Account	220493
Authorized User	Gina Ordonez

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:
37 CFR 1.17 (Patent application and reexamination processing fees)

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		SIG_2_0674US07_Preliminary_Amendment.PDF	73689	yes	7
			9485024c0d31e709f53a41b21f7d5a06d664fc9b		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Claims		2	6	
	Applicant Arguments/Remarks Made in an Amendment		7	7	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30803	no	2
			2e0e7bbe7ff9515795abcf8f001da4ba768c912		
Warnings:					
Information:					
Total Files Size (in bytes):			104492		

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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 15/699,418	Filing Date 09/08/2017	☐ 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	10/17/2017	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 26	Minus	** 20	= 6	X \$80 =	480
	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							480

(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.

LDRC
ADRIANE WINSTON

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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/699,418	09/08/2017	Guodong Zhang	SIG-2-0674US07

CONFIRMATION NO. 2162

PUBLICATION NOTICE



OC00000096347813

3624
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET, 18th Floor
PHILADELPHIA, PA 19103

Title:SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER

Publication No.US-2017-0374592-A1

Publication Date:12/28/2017

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 Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, 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 <https://portal.uspto.gov/pair/PublicPair>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

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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	15699418
	Filing Date	2017-09-08
	First Named Inventor	Zhang et al.
	Art Unit	2466
	Examiner Name	Brian S. Roberts
	Attorney Docket Number	SIG-2-0674US07

U.S.PATENTS							Remove	
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	5933787	A	1999-08-03	Gilhousen et al.			
	2	6690939	B1	2004-02-10	Jonsson et al.			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S.PATENT APPLICATION PUBLICATIONS							Remove	
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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If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15699418
	Filing Date		2017-09-08
	First Named Inventor	Zhang et al.	
	Art Unit	2466	
	Examiner Name	Brian S. Roberts	
	Attorney Docket Number	SIG-2-0674US07	

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
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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15699418
	Filing Date		2017-09-08
	First Named Inventor	Zhang et al.	
	Art Unit	2466	
	Examiner Name	Brian S. Roberts	
	Attorney Docket Number	SIG-2-0674US07	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Abhik Huq/	Date (YYYY-MM-DD)	2018-01-10
Name/Print	Abhik Huq	Registration Number	40656

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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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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 inspections or an issued patent.
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Electronic Acknowledgement Receipt

EFS ID:	31460779
Application Number:	15699418
International Application Number:	
Confirmation Number:	2162
Title of Invention:	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER
First Named Inventor/Applicant Name:	Guodong Zhang
Customer Number:	3624
Filer:	Abhik A. Huq/Dawn Larsen
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-0674US07
Receipt Date:	10-JAN-2018
Filing Date:	08-SEP-2017
Time Stamp:	14:44:02
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)	SIG_2_0674US07_SIDS_20180110.PDF	1035182 f52ccd05b19c065119e14a713c8aa04016052790	no	4

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Total Files Size (in bytes):	1035182
<p>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.</p> <p><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.</p> <p><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.</p> <p><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.</p>	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15699418
	Filing Date	2017-09-08
	First Named Inventor	Zhang et al.
	Art Unit	2466
	Examiner Name	Brian S. Roberts
	Attorney Docket Number	SIG-2-0674US07

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15699418
	Filing Date		2017-09-08
	First Named Inventor	Zhang et al.	
	Art Unit	2466	
	Examiner Name	Brian S. Roberts	
	Attorney Docket Number	SIG-2-0674US07	

1	Hybrid ARQ text proposal for Section 7 of TR25.896" TSG-RAN WG1 #31, R1-030208, Tokyo, Japan, February 18-21, 2002, 4 pages
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15699418
	Filing Date		2017-09-08
	First Named Inventor	Zhang et al.	
	Art Unit	2466	
	Examiner Name	Brian S. Roberts	
	Attorney Docket Number	SIG-2-0674US07	

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OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Abhik Huq/	Date (YYYY-MM-DD)	2018-02-07
Name/Print	Abhik Huq	Registration Number	40656

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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).
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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.
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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 law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	31727192
Application Number:	15699418
International Application Number:	
Confirmation Number:	2162
Title of Invention:	SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER
First Named Inventor/Applicant Name:	Guodong Zhang
Customer Number:	3624
Filer:	Abhik A. Huq/Dawn Larsen
Filer Authorized By:	Abhik A. Huq
Attorney Docket Number:	SIG-2-0674US07
Receipt Date:	07-FEB-2018
Filing Date:	08-SEP-2017
Time Stamp:	14:53:55
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)	SIG_2_0674US07_SIDS_20180207.PDF	1035189 d69e35c5fb2cde0347e41a805b689c948717a347	no	4

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2	Non Patent Literature	TSG_RAN_WG1_31_Hybrid_AR Q_text_proposal_for_Section_ 7_of_TR25_896.PDF	125236 22419d8efe2ce66068329456810fb13e4c6f6235	no	4
Warnings:					
Information:					
Total Files Size (in bytes):			1160425		
<p>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.</p> <p><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.</p> <p><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.</p> <p><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.</p>					



UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

3624 7590 06/22/2018
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET, 18th Floor
PHILADELPHIA, PA 19103

EXAMINER

ROBERTS, BRIAN S

ART UNIT

PAPER NUMBER

2466

DATE MAILED: 06/22/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/699,418	09/08/2017	Guodong Zhang	SIG-2-0674US07	2162

TITLE OF INVENTION: SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0	\$0	\$1000	09/24/2018

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

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.

3624 759 06/22/2018
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET, 18th Floor
PHILADELPHIA, PA 19103

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.
15/699,418	09/08/2017	Guodong Zhang	SIG-2-0674US07	2162

TITLE OF INVENTION: SUPPORTING ENHANCED UPLINK TRANSMISSION DURING SOFT HANDOVER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0	\$0	\$1000	09/24/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
ROBERTS, BRIAN S	2466	370-331000

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, 1 _____
- (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. 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. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/699,418	09/08/2017	Guodong Zhang	SIG-2-0674US07	2162

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PHILADELPHIA, PA 19103

EXAMINER

ROBERTS, BRIAN S

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

2466

DATE MAILED: 06/22/2018

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 law or regulation.

Notice of Allowability	Application No. 15/699,418	Applicant(s) ZHANG ET AL.	
	Examiner BRIAN ROBERTS	Art Unit 2466	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 the amendment filed on 10/17/2017.
☐ 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 1-18,21-28. 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) 2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____ 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date ____ . 5. ☒ Examiner's Amendment/Comment 6. ☒ Examiner's Statement of Reasons for Allowance 7. ☐ Other ____ .	
--	--

/BRIAN ROBERTS/ Primary Examiner, Art Unit 2466	
--	--

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

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claim 1 line 7 "theEU" has been amended to --the EU--

Examiner's Statement of Reasons for Allowance

Claims 1-18 and 21-28 are allowed.

The following is an examiner's statement of reasons for allowance:

The primary reason independent claim 1, and similarly independent claim 10, is allowable is because the closest prior art of record, US 7013143 by Love et al., fails to teach or fairly suggest either alone or in combination with the prior art of record a method for communicating by a wireless transmit/receive unit (WTRU) during a

Art Unit: 2466

handover from a primary cell to a non-primary cell that includes receiving scheduling information via the primary cell and not via the non-primary cell; transmitting, via the primary cell and the non-primary cell, enhanced uplink (EU) data, wherein the EU data transmissions are scheduled to limit, interference at the primary cell and at the non-primary cell; receiving hybrid automatic repeat request (HARQ) acknowledgements (ACKs) via the primary cell; and receiving negative acknowledgements (NACKs) via the primary cell and not via the non-primary cell.

The primary reason independent claim 21 is allowable is because the closest prior art of record, US 7013143 by Love et al., fails to teach or fairly suggest either alone or in combination with the prior art of record a wireless network comprising a plurality of Node-Bs configured to communicate with a wireless transmit/receiver unit (WTRU) during a handover from a first Node-B of the plurality of Node-Bs to a second Node-B of the plurality of Node-Bs by: transmitting scheduling information to the WTRU via the first Node-B; receiving enhanced uplink (EU) data from the WTRU via the first Node-B and the second Node-B, wherein the EU data transmissions are scheduled to limit, interference at the first Node-B and at the second Node-B; transmitting hybrid automatic repeat request (HARQ) acknowledgements (ACKs) to the WTRU via the first Node-B; and transmitting negative acknowledgements (NACKs) to the WTRU via the first Node-B and not via the second Node-B.

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN ROBERTS whose telephone number is (571)272-3095. The examiner can normally be reached on M-F 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, FARUK HAMZA can be reached on (571) 272-7969. 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: 15/699,418

Page 5

Art Unit: 2466

/BRIAN ROBERTS/

Primary Examiner, Art Unit 2466

06/14/2018

Doc code: IDS

PTO/SB/08a (03-15)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2016. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	15699418
Filing Date	2017-09-08
First Named Inventor	Zhang et al.
Art Unit	2466
Examiner Name	Brian S. Roberts
Attorney Docket Number	SIG-2-0674US07

U.S.PATENTS

Remove

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	5933787	A	1999-08-03	Gilhousen et al.	
	2	6690939	B1	2004-02-10	Jonsson et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

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U.S.PATENT APPLICATION PUBLICATIONS

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NON-PATENT LITERATURE DOCUMENTS

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15699418
Filing Date	2017-09-08
First Named Inventor	Zhang et al.
Art Unit	2466
Examiner Name	Brian S. Roberts
Attorney Docket Number	SIG-2-0674US07

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
	1		

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/BRIAN S ROBERTS/	Date Considered	06/13/2018
--------------------	-------------------	-----------------	------------

*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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	15699418
Filing Date	2017-09-08
First Named Inventor	Zhang et al.
Art Unit	2466
Examiner Name	Brian S. Roberts
Attorney Docket Number	SIG-2-0674US07

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Abhik Huq/	Date (YYYY-MM-DD)	2018-01-10
Name/Print	Abhik Huq	Registration Number	40656

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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 Number	
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First Named Inventor	Zhang et al.
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Examiner Name	
Attorney Docket Number	SIG-2-0674US07

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/BRIAN S ROBERTS/

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Application Number	15699418
Filing Date	2017-09-08
First Named Inventor	Zhang et al.
Art Unit	2466
Examiner Name	Brian S. Roberts
Attorney Docket Number	SIG-2-0674US07

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Examiner Name	Brian S. Roberts
Attorney Docket Number	SIG-2-0674US07

1	"Hybrid ARQ text proposal for Section 7 of TR25.896" TSG-RAN WG1 #31, R1-030208, Tokyo, Japan, February 18-21, 2002, 4 pages
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EXAMINER SIGNATURE

Examiner Signature	/BRIAN S ROBERTS/	Date Considered	06/13/2018
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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	15699418
Filing Date	2017-09-08
First Named Inventor	Zhang et al.
Art Unit	2466
Examiner Name	Brian S. Roberts
Attorney Docket Number	SIG-2-0674US07

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Abhik Huq/	Date (YYYY-MM-DD)	2018-02-07
Name/Print	Abhik Huq	Registration Number	40656

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	8991	(enhanc\$3 near2 uplink or ("e-dch"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 15:21
S2	589	(enhanc\$3 near2 uplink or ("e-dch")) and HARQ and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 15:22
S3	637	(enhanc\$3 near2 uplink or ("e-dch")) and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)) and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 15:23
S4	637	((enhanc\$3 near2 uplink) or ("e-dch")) and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)) and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 15:23
S5	459	H04L1/1887.cpc. and (enhanc\$3 near2 uplink or ("e-dch"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 15:58
S6	459	H04L1/1887.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 16:04
S7	350	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 16:21
S8	6	"20030002470".pn.	US-PGPUB;	OR	ON	2015/02/19

		"20030031119".pn.	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			16:30
S9	71	"5794149".pn. "5946320".pn. "6434396".pn. "6643813".pn. "6678523".pn. "6907245".pn. "6915465".pn. "6977888".pn. "7046648".pn. "7054633".pn. "7103729".pn. "7124350".pn. "7158504".pn. "7185256".pn. "7269420".pn. "7283508".pn. "7315741".pn. "7317700".pn. "7403513".pn. "8023463".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 16:47
S10	70	H04L1/1893.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 16:53
S11	16	"20020093937".pn. "20030081692".pn. "20030202500".pn. "20060045010".pn. "20060105796".pn. "20070079207".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 16:54
S12	3	"20030003943".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 16:55
S13	66	"6678249".pn. "6778830".pn. "6892071".pn. "7013143".pn. "7346035".pn. "7414989".pn. "20020095635".pn. "20020191544".pn. "20030007480".pn. "20030043786".pn. "20030054824".pn. "20030081692".pn. "20030161284".pn. "20030210668".pn. "20040004954".pn. "20040072567".pn. "20040085934".pn. "20040120306".pn. "20040160925".pn. "20040202129".pn. "20040203991".pn. "20040219917".pn. "20040219919".pn. "20040219920".pn. "20040228313".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 17:13
S14	15	"20050041694".pn. "20050047354".pn. "20050048920".pn.	US-PGPUB; USPAT; USOCR;	OR	ON	2015/02/19 17:19

		"20050083888".pn. "20070047501".pn.	FPRS; EPO; JPO; DERWENT; IBM_TDB			
S15	0	H04L1/12.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 20:33
S16	314	H04L1/12.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/19 20:34
S17	637	((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))and ((HARQ or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)) and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 10:58
S18	77	H04L1/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 12:38
S19	884	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 12:52
S20	107	H04L1/1816.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 14:11
S21	178	H04L1/1819.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 14:27
S22	201	H04L1/1867.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 14:44
S23	49	H04L1/189.cpc. and ((enhanc\$3 near2	US-PGPUB;	OR	ON	2015/02/20

		uplink) or ("e-dch") or ("EU-DCH"))	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			15:01
S24	105	H04L1/1896.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 15:16
S25	2	H04L1/22.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 15:30
S26	101	H04B7/022.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 15:34
S27	154	H04W36/30.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 16:03
S28	30	H04W36/00.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 16:20
S29	71	H04W36/02.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 16:37
S30	10	H04W36/16.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 16:44
S31	350	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2015/02/20 16:45

			IBM_TDB			
S32	10	"8457072".pn. "8130720".pn. "7046648".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 17:12
S33	2	"20040219917".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 17:13
S34	2273255	"73"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 17:14
S35	2	"7346035".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 17:14
S36	6	"8130720".pn. "8457072".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 17:32
S37	19	H04W36/24.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 17:44
S38	4	H04W36/26.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 17:46
S39	7	H04W36/28.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 17:46
S40	4	H04W36/34.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2015/02/20 17:47

			EPO; JPO; DERWENT; IBM_TDB			
S41	3	H04W36/38.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 17:48
S42	261	H04W88/08.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/02/20 18:03
S46	0	"6754496".pn. and "7206598".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 15:19
S48	9	"6754496".pn. "7206598".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 15:27
S49	9371	(enhanc\$3 near2 uplink or ("e-dch"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 15:37
S50	614	(enhanc\$3 near2 uplink or ("e-dch")) and HARQ and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 15:38
S51	665	((enhanc\$3 near2 uplink) or ("e-dch")) and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)) and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 15:38
S52	496	H04L1/1887.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 15:38
S53	362	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-	US-PGPUB; USPAT;	OR	ON	2015/06/22 16:11

		DCH"))	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S54	73	H04L1/1893.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 16:52
S55	305	H04L1/12.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 17:09
S56	909	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 17:53
S57	909	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 19:40
S58	110	H04L1/1816.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 20:39
S59	188	H04L1/1819.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 20:44
S60	111	H04L1/1896.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 21:05
S61	2	H04L1/22.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 21:13

S62	104	H04B7/022.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 21:13
S63	161	H04W36/30.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 21:23
S64	72	H04W36/02.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 21:36
S65	10	H04W36/16.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 21:44
S66	362	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 21:53
S67	20	H04W36/24.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 22:27
S68	4	H04W36/26.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 22:28
S69	4	H04W36/26.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 22:28
S70	7	H04W36/28.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2015/06/22 22:28

			DERWENT; IBM_TDB			
S71	4	H04W36/34.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 22:29
S72	289	H04W88/08.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/22 22:30
S73	614	((enhanc\$3 near2 uplink or ("e-dch")) and HARQ and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/23 11:55
S74	1148	((enhanc\$3 near2 uplink or ("e-dch")) and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/06/23 11:55
S78	936	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 14:54
S79	380	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 17:26
S80	680	((enhanc\$3 near2 uplink) or ("e-dch")) and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)) and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 18:05
S81	47	H04L1/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 19:49
S82	114	H04L1/1816.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR;	OR	ON	2015/08/14 20:03

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S83	195	H04L1/1819.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 20:12
S84	206	H04L1/1867.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 20:28
S85	51	H04L1/189.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 20:47
S86	115	H04L1/1896.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 20:57
S87	103	H04B7/022.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 21:08
S88	164	H04W36/30.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 21:23
S89	307	H04W88/08.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/14 21:39
S90	629	((enhanc\$3 near2 uplink or ("e-dch")) and HARQ and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/17 10:22
S91	5	"20120155304".pn.	US-PGPUB;	OR	ON	2015/08/17

		"20120039271".pn.	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			13:30
S92	2	"20120322492".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/17 13:55
S93	2	"20140254516".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/17 14:01
S94	0	"20090247206.pn."	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/17 14:11
S95	0	"20090247206.pn."	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/17 14:11
S96	2	"20090247206".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/17 14:11
S97	5	"6507567".pn. "20030131124".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/17 15:39
S101	639	((enhanc\$3 near2 uplink or ("e-dch")) and HARQ and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/05 19:26
S102	970	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2015/10/05 20:59

			IBM_TDB			
S103	311	H04W88/08.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/06 07:31
S104	393	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/06 08:26
S105	527	H04L1/1887.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 19:03
S106	79	H04L1/1893.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 19:41
S107	0	H04L1/12.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 19:53
S108	170	H04W36/30.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 19:54
S109	30	H04W36/00.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 20:08
S110	76	H04W36/02.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 20:15
S111	11	H04W36/16.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2015/10/20 20:24

			EPO; JPO; DERWENT; IBM_TDB			
S112	401	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 20:26
S113	19	H04W36/24.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 21:03
S114	4	H04W36/26.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 21:12
S115	7	H04W36/28.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 21:15
S116	4	H04W36/34.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 21:17
S117	4	H04W36/38.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 21:22
S118	0	H04W88/00.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 21:26
S119	12891	H04W36/18.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/20 21:39
S120	401	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-	US-PGPUB; USPAT;	OR	ON	2015/10/21 11:28

		DCH"))	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S121	1005	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/21 12:05
S122	400	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/27 18:44
S123	527	H04L1/1887.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/27 19:04
S124	79	H04L1/1893.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/27 20:35
S125	0	H04L1/12.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/27 20:43
S126	50	H04L1/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/27 20:44
S127	1005	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/27 20:50
S128	119	H04L1/1816.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/27 21:49

S129	7623	H04L1/1819.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/27 21:56
S130	242	H04L1/1819.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/28 12:56
S131	209	H04L1/1867.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/28 13:15
S132	54	H04L1/189.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/28 13:44
S133	122	H04L1/1896.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/28 15:41
S134	2	H04L1/22.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/28 17:04
S135	4126	H04L1/22.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/28 19:16
S136	107	H04B7/022.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 15:06
S137	169	H04W36/30.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2015/10/29 15:35

			DERWENT; IBM_TDB			
S138	31	H04W36/00.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 16:20
S139	76	H04W36/02.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 16:45
S140	11	H04W36/16.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 16:49
S141	400	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 16:55
S142	19	H04W36/24.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 17:14
S143	4	H04W36/26.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 17:15
S144	10	H04W36/28.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 17:15
S145	4	H04W36/34.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 17:16
S146	4	H04W36/38.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR;	OR	ON	2015/10/29 17:16

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S147	329	H04W88/08.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 17:16
S148	3580	((enhanc\$3 near2 uplink or ("e-dch")) and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 17:27
S149	3580	((enhanc\$3 near2 uplink or ("e-dch")) and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/29 19:44
S150	3580	((enhanc\$3 near2 uplink or ("e-dch")) and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/10/31 18:36
S154	689	((enhanc\$3 near2 uplink or ("e-dch")) and HARQ and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 13:24
S155	17	"7046648".pn. "8130720".pn. "8457072".pn. "9215636".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 13:36
S156	8	"7283509".pn. "7366538".pn. "20010020285".pn. "20020115467".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 13:56
S157	1176	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 14:18
S158	504	H04W88/08.cpc. and ((enhanc\$3	US-PGPUB;	OR	ON	2016/05/26

		near2 uplink) or ("e-dch") or ("EU-DCH"))	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			14:23
S159	436	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:06
S160	570	H04L1/1887.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:07
S161	93	H04L1/1893.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:15
S162	0	H04L1/12.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:16
S163	198	H04W36/30.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:16
S164	36	H04W36/00.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:18
S165	79	H04W36/02.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:20
S166	13	H04W36/16.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2016/05/26 15:22

			IBM_TDB			
S167	436	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:22
S168	21	H04W36/24.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:25
S169	7	H04W36/26.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:25
S170	10	H04W36/28.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:25
S171	4	H04W36/34.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:25
S172	6	H04W36/38.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:26
S173	436	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:26
S174	1176	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:27
S175	125	H04L1/1816.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2016/05/26 15:31

			EPO; JPO; DERWENT; IBM_TDB			
S176	256	H04L1/1819.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:31
S177	214	H04L1/1867.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:44
S178	1553	((enhanc\$3 near2 uplink or ("e-dch")) and HARQ and ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:47
S179	1645	((enhanc\$3 near2 uplink or ("e-dch")) and (HARQ or (hybrid near2 automatic near2 repeat near2 request\$4)) and ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/05/26 15:48
S180	702	((enhanc\$3 near2 uplink or ("e-dch")) and HARQ and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/05 15:41
S181	1227	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/05 16:05
S182	516	H04W88/08.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/05 17:12
S183	442	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/05 18:28
S184	578	H04L1/1887.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-	US-PGPUB; USPAT;	OR	ON	2016/07/05 19:16

		DCH"))	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S185	1227	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/05 20:28
S186	94	H04L1/1893.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 09:59
S187	0	H04L1/12.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:07
S188	203	H04W36/30.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:07
S189	35	H04W36/00.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:11
S190	80	H04W36/02.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:13
S191	14	H04W36/16.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:17
S192	442	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:20

S193	22	H04W36/24.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:35
S194	9	H04W36/26.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:38
S195	11	H04W36/28.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:38
S196	4	H04W36/34.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:41
S197	6	H04W36/38.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:45
S198	1674	((enhanc\$3 near2 uplink or ("e-dch")) and (HARQ or (hybrid near2 automatic near2 repeat near2 request\$4)) and ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 12:45
S199	702	((enhanc\$3 near2 uplink or ("e-dch")) and HARQ and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/06 13:18
S203	10	"716167".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/07/07 12:22
S204	2	"7169167".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2016/07/07 12:23

			DERWENT; IBM_TDB			
S205	1889	((enhanc\$3 near2 uplink or ("e-dch")) and (HARQ or (hybrid near2 automatic near2 repeat near2 request\$4)) and ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/08; 17:07
S206	4	"20140294884".pn. "20140349647".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/08; 17:25
S207	827	((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)) and soft near2 ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/08; 18:26
S208	57	H04L1/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/09; 08:06
S209	1479	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/09; 08:06
S210	4	"5530841".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/10; 10:35
S211	3	"5680318".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/10; 10:36
S212	546	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17; 16:01
S213	116	H04L1/1893.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR;	OR	ON	2017/05/17; 16:05

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S214	1490	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 16:09
S215	150	H04L1/1816.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 16:35
S216	1	("7283782").PN.	US-PGPUB; USPAT	OR	ON	2017/05/17 16:53
S217	2	("20020115460" "20020172208").PN.	US-PGPUB; USPAT	OR	ON	2017/05/17 16:54
S218	3	("6850771" "7428424" "9348381").PN.	US-PGPUB; USPAT	OR	ON	2017/05/17 16:54
S219	1	("7026911").PN.	US-PGPUB; USPAT	OR	ON	2017/05/17 16:54
S220	5	("6650905" "6754496" "6977888" "7065359" "7185256" "B2").PN.	US-PGPUB; USPAT	OR	ON	2017/05/17 16:54
S221	305	H04L1/1819.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 16:59
S222	234	H04L1/1867.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 17:04
S223	69	H04L1/189.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 17:12
S224	159	H04L1/1896.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 17:16
S225	2	H04L1/22.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2017/05/17 17:33

			EPO; JPO; DERWENT; IBM_TDB			
S226	546	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 17:34
S227	137	H04B7/022.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 17:34
S228	272	H04W36/30.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 17:46
S229	29	H04W36/00.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 18:19
S230	91	H04W36/02.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 18:21
S231	14	H04W36/16.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 19:02
S232	1897	((enhanc\$3 near2 uplink) or ("e-dch")) and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)) and ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/17 19:02
S233	1794	(enhanc\$3 near2 uplink or ("e-dch")) and HARQ and ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/18 10:50
S234	546	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-	US-PGPUB; USPAT;	OR	ON	2017/05/18 11:38

		DCH"))	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S235	14	H04W36/24.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/18 14:58
S236	10	H04W36/26.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/18 14:58
S237	14	H04W36/28.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/18 14:59
S238	4	H04W36/34.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/18 15:00
S239	13	H04W36/38.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/18 15:00
S240	679	H04W88/08.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/05/18 15:01
S244	584	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 13:33
S245	82	("0032007" "0042007" "20010020285" "20020093937" "20020095635" "20020115460" "20020115467" "20020172208" "20020191544" "20030002470" "20030007480" "20030031119" "20030043786" "20030054824"	US-PGPUB; USPAT	OR	ON	2018/06/13 13:39

		"20030081692" "20030131124" "20030147370" "20030161284" "20030171118" "20030176195" "20030202500" "20030210668" "20040004954" "20040072567" "20040085934" "20040120306" "20040160925" "20040202129" "20040203991" "20040219917" "20040219919" "20040219920" "20040228313" "20050041694" "20050047354" "20050048920" "20050083888" "20060045010" "20060105796" "20060274712" "5794149" "5946320" "6434396" "6507567" "6628631" "6643813" "6650905" "6678249" "6678523" "6754496" "6778830" "6850771" "6892071" "6907245" "6915465" "6977888" "7013143" "7026911" "7046648" "7054633" "7065359" "7103729" "7124350" "7158504" "7185256" "7206598" "7269420" "7283508" "7283509" "7283782" "7315741" "7317700" "7346035" "7366538" "7403513" "7414989" "7428424" "7848290" "7903610" "8023463" "8682325" "9438381").PN.				
S246	126	H04L1/1893.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 13:47
S247	1620	H04L1/1812.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 13:52
S248	169	H04L1/1816.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 14:08
S249	321	H04L1/1819.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 14:15
S250	244	H04L1/1867.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2018/06/13 14:22

			IBM_TDB			
S251	79	H04L1/189.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 14:25
S252	167	H04L1/1896.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 14:30
S253	2	H04L1/22.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 14:38
S254	584	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 14:38
S255	144	H04B7/022.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 14:50
S256	584	H04W36/18.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 14:55
S257	144	H04B7/022.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 15:05
S258	302	H04W36/30.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 15:18
S259	30	H04W36/00.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU-DCH"))	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2018/06/13 15:32

			EPO; JPO; DERWENT; IBM_TDB			
S260	30	H04W36/00.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 15:32
S261	98	H04W36/02.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 15:33
S262	14	H04W36/16.cpc. and ((enhanc\$3 near2 uplink) or ("e-dch") or ("EU- DCH"))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 15:33
S263	2134	((enhanc\$3 near2 uplink) or ("e-dch")) and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)) and ((handover) or (handoff) or (hand\$3 near over) or (hand\$3 near2 off))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 15:33
S264	2355	((enhanc\$3 near2 uplink) or ("e-dch")) and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)) and interference	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/06/13 16:18

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S43	12	enhanced near2 uplink.clm. and soft near2 handover.clm.	USPAT	OR	ON	2015/02/20 18:25
S44	4	enhanced near2 uplink.clm. and soft near2 handover.clm. and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)).clm.	USPAT	OR	ON	2015/02/20 18:26
S45	7	enhanced near2 uplink.clm. and soft near2 handover.clm. and schedul\$.clm.	USPAT	OR	ON	2015/02/20 18:27
S75	12	enhanced near2 uplink.clm. and soft near2 handover.clm.	USPAT	OR	ON	2015/06/23 15:38
S76	4	enhanced near2 uplink.clm. and soft near2 handover.clm. and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)).clm.	USPAT	OR	ON	2015/06/23 15:40
S77	7	enhanced near2 uplink.clm. and soft near2 handover.clm. and schedul\$.clm.	USPAT	OR	ON	2015/06/23 15:42

S98	4	enhanced near2 uplink.clm. and soft near2 handover.clm. and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)).clm.	USPAT	OR	ON	2015/08/17 15:47
S99	7	enhanced near2 uplink.clm. and soft near2 handover.clm. and schedul\$.clm.	USPAT	OR	ON	2015/08/17 15:48
S100	1	enhanced near2 uplink.clm. and soft near2 handover.clm. and primary near2 cell.clm.	USPAT	OR	ON	2015/08/17 15:48
S151	4	enhanced near2 uplink.clm. and primary near2 cell.clm.	USPAT	OR	ON	2015/11/01 17:50
S152	51	enhanced near2 uplink.clm. and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)).clm.	USPAT	OR	ON	2015/11/01 17:52
S153	33	enhanced near2 uplink.clm. and schedul\$4 near2 information.clm.	USPAT	OR	ON	2015/11/01 17:57
S200	37	enhanced near2 uplink.clm. and schedul\$4 near2 information.clm.	USPAT	OR	ON	2016/07/06 13:28
S201	94	enhanced near2 uplink.clm. and schedul\$4 near2 information.clm.	US-PGPUB; USPAT	OR	ON	2016/07/06 13:28
S202	134	enhanced near2 uplink.clm. and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)).clm.	US-PGPUB; USPAT	OR	ON	2016/07/06 13:29
S241	99	enhanced near2 uplink.clm. and schedul\$4 near2 information.clm.	US-PGPUB; USPAT	OR	ON	2017/05/18 15:21
S242	99	enhanced near2 uplink.clm. and schedul\$4 near2 information.clm.	US-PGPUB; USPAT	OR	ON	2017/05/18 15:21
S243	147	enhanced near2 uplink.clm. and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)).clm.	US-PGPUB; USPAT	OR	ON	2017/05/18 15:26
S265	154	enhanced near2 uplink.clm. and ((HARQ) or (hybrid near2 automatic near2 repeat\$3 near2 request\$3)).clm.	US-PGPUB; USPAT	OR	ON	2018/06/14 09:31
S266	102	enhanced near2 uplink.clm. and schedul\$4 near2 information.clm.	US-PGPUB; USPAT	OR	ON	2018/06/14 09:32
S267	10	enhanced near2 uplink.clm. and schedul\$4 near2 information.clm. and interference.clm.	US-PGPUB; USPAT	OR	ON	2018/06/14 09:51

6/ 15/ 2018 2:50:56 PM
C:\ Users\ broberts\ Documents\ EAST\ Workspaces\ 15699418.wsp

Issue Classification 	Application/Control No. 15699418	Applicant(s)/Patent Under Reexamination ZHANG ET AL.	
	Examiner BRIAN ROBERTS	Art Unit 2466	

CPC							
Symbol						Type	Version
H04W		36	/	18		F	2013-01-01
H04B		7	/	022		A	2013-01-01
H04L		1	/	1887		I	2013-01-01
H04L		1	/	1893		I	2013-01-01
H04W		36	/	30		A	2013-01-01
H04W		88	/	08		A	2013-01-01
H04L		1	/	1812		I	2013-01-01
H04W		74	/	004		I	2013-01-01
H04W		74	/	04		I	2013-01-01
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			/				
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			/				
			/				
			/				

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

NONE	Total Claims Allowed: 26	
(Assistant Examiner)	(Date)	
/BRIAN ROBERTS/ Primary Examiner.Art Unit 2466	06/19/2018	O.G. Print Claim(s) 1
(Primary Examiner)	(Date)	O.G. Print Figure 3

Issue Classification 	Application/Control No. 15699418	Applicant(s)/Patent Under Reexamination ZHANG ET AL.
	Examiner BRIAN ROBERTS	Art Unit 2466

☐ Claims renumbered in the same order as presented by applicant															
☐ CPA															
☐ T.D.															
☐ R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17												
2	2	18	18												
3	3		19												
4	4		20												
5	5	19	21												
6	6	20	22												
7	7	21	23												
8	8	22	24												
9	9	23	25												
10	10	24	26												
11	11	25	27												
12	12	26	28												
13	13														
14	14														
15	15														
16	16														

NONE	Total Claims Allowed: 26	
(Assistant Examiner)	(Date)	
/BRIAN ROBERTS/ Primary Examiner.Art Unit 2466	06/19/2018	O.G. Print Claim(s) 1
(Primary Examiner)	(Date)	O.G. Print Figure 3

Bibliographic Data

Application No: 15/699,418

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☒ No ☐ Met After Allowance

Verified and Acknowledged: /BRIAN S ROBERTS/

BSR

Examiner's Signature

Initials

Title:

SUPPORTING ENHANCED UPLINK TRANSMISSION DURING
SOFT HANDOVER

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/08/2017	370	2466	SIG-2-0674US07
RULE			

APPLICANTS

Signal Trust for Wireless Innovation, Wilmington, DE,

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James M. Miller Verona, NJ, UNITED STATES

Stephen G. Dick Nesconset, NY, UNITED STATES

CONTINUING DATA

This application is a CON of 14869313 09/29/2015 PAT 9763156

14869313 is a CON of 13908242 06/03/2013 PAT 9215636

13908242 is a CON of 13308950 12/01/2011 PAT 8457072

13308950 is a CON of 11434330 05/15/2006 PAT 8130720

11434330 is a CON of 10962720 10/12/2004 PAT 7046648

10962720 has PRO of 60578674 06/10/2004

10962720 has PRO of 60520692 11/17/2003

10962720 has PRO of 60519990 11/14/2003

10962720 has PRO of 60517656 11/05/2003

FOREIGN APPLICATIONS

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09/18/2017

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\$1,600

Doc code: IDS

PTO/SB/08a (03-15)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2016. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Guodong Zhang	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	SIG-2-0674US07	

U.S.PATENTS						Remove
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	6650905	B1	2003-11-18	Toskala et al.	
	2	6754496	B2	2004-06-22	Mohebbi et al.	
	3	6977888	B1	2005-12-20	Frenger et al.	Corresponds to TW536896B
	4	7065359	B2	2006-06-20	Chuah et al.	
	5	7185256	B2	2007-02-27	Miki et al.	Corresponds to JP2002-009741A
	6	7848290	B2	2010-12-07	Cheng et al.	
	7	6850771	B2	2005-02-01	Malladi et al.	
	8	7428424	B2	2008-09-23	Hwang et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Guodong Zhang	
Art Unit		
Examiner Name		
Attorney Docket Number	SIG-2-0674US07	

9	9438381	B2	2016-09-06	Dick et al.	
10	7026911	B2	2006-04-11	Aono et al.	Corresponds to WO/0237572A1
11	7283782		2007-10-16	Sinnarajah et al.	
12	6628631	B1	2003-09-30	Mazawa et al.	Corresponds to JP2000-217139A
13	8682325	B1	2014-03-25	Cooper	Corresponds to JP2001-8251A
14	7283509	B2	2007-10-16	Moon et al.	Corresponds to JP2003-134180
15	7366538	B2	2008-04-29	Seki et al.	Corresponds to WO 03/037027

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	1	20030176195	A1	2003-09-18	Dick et al.	Corresponds to TW200303689A
	2	20060274712	A1	2006-12-07	Malladi et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Guodong Zhang	
Art Unit		
Examiner Name		
Attorney Docket Number	SIG-2-0674US07	

3	20030147370	A1	2003-08-07	Wu, Chih-Hsiang	
4	20020115460	A1	2002-08-22	Rune et al.	
5	20020172208	A1	2002-11-21	Malkamaki, Esa	
6	20030171118	A1	2003-09-11	Miya	Corresponds to WO 02/102109A1
7	20010020285	A1	2001-09-06	Fujiwara et al.	
8	20020115467	A1	2002-08-22	Hamabe	

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	1	2002-009741	JP	A	2002-01-11	NTT DOCOMO, INC.	Corresponds to US7,185,256B2	
	2	2007-511135	JP	A	2007-04-26	INTERDIGITAL TECHNOLOGY CORPORATION	Corresponds to WO2005/048503A2	
	3	536896	TW	B	2003-06-11	TELEFONAKTIEBOLAG ET L M ERICSSON	Corresponds to US6,977,888B1	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Guodong Zhang	
Art Unit		
Examiner Name		
Attorney Docket Number	SIG-2-0674US07	

4	200303689	TW	A	2003-09-01	INTERDIGITAL TECHNOLOGY CORPORATION	Corresponds to US2003/0176195A1	
5	2005/048503	WO	A2	2005-05-26	INTERDIGITAL TECHNOLOGY CORPORATION	Corresponds to JP2007-511135A	
6	20030040972	KR	A	2003-05-23	LG Electronics Inc.	English Abstract	×
7	0237572	WO	A1	2002-05-10	Japan Science and Technology Corp.	Corresponds to US 7,026,911 B2	☐
8	2000-217139	JP	A	2000-08-04	Hitachi, Ltd.	Corresponds to US6628631B1	☐
9	2001-8251	JP	A	2001-01-12	NEC Corporation	Corresponds to US 8682325B1	☐
10	02/102109	WO	A1	2002-12-19	MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.	Corresponds to US 2003/0171118A1	☐
11	2003-134180	JP	A	2003-05-09	Samsung Electronics Co., Ltd.	Corresponds to US 7283509B2	☐
12	03/037027	WO	A1	2003-05-01	Fujitsu Limited	Corresponds to US 7366538B2	☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Guodong Zhang	
Art Unit		
Examiner Name		
Attorney Docket Number	SIG-2-0674US07	

1	THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Feasibility Study for Enhanced Uplink for UTRA FDD (Release 6), 3GPP TR 25.896 V0.2.1, R1-030372, pages 14-17 (February 26, 2003).
2	SAMSUNG, "HARQ Structure", 3GPP TSG-RAN WG1 #31, R1-030247, Tokyo, Japan, 3 pages (February 18-21, 2003).
3	SAMSUNG, "Transport channel multiplexing options considering SHO", 3GPP TSG RAN WG1 #33, R1-030767, New York, USA, 5 pages (August 25-29, 2003).
4	PANASONIC, HARQ OPERATION DURING SOFT HANDOVER, 3GPP TSG-RAN WG1 MEETING #33 R1-030802, August 25-29, 2003.
5	3GPP TSG RAN WG1 #31, Tdoc R1-03-0273, QUALCOMM, "Channel Structure for Consideration in Enhanced Uplink", Tokyo, Japan, 18th-21st February 2003.
6	ETSI, UMTS XX. 15 V0.3.0 1999-01, UTRA HANDOVER, 21pp.
7	TSGR1#3(99)187, "Improvements to Site Selection Delivery Transmission (SSDT)", TSG-RAN Working Group 1 meeting #3, Source: Motorola, Stockholm, Sweden, 5 pages (March 22-26, 1999). http://www.3gpp.org/tsg_ran/WG1_RL1/TSGR1_03/Docs/pdfs/R1-99187.PDF

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/BRIAN S ROBERTS/	Date Considered	06/13/2018
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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Guodong Zhang	
Art Unit		
Examiner Name		
Attorney Docket Number	SIG-2-0674US07	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Abhik A. Huq/	Date (YYYY-MM-DD)	2017-09-08
Name/Print	Abhik A. Huq	Registration Number	40,656

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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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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 inspections 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 law or regulation.

Search Notes 	Application/Control No. 15699418	Applicant(s)/Patent Under Reexamination ZHANG ET AL.
	Examiner BRIAN ROBERTS	Art Unit 2466

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
PALM inventor search	6/14/2018	BSR
Search focused on: H04W36/18 H04L1/1887,1893,12,18,1812,1816,1819,1867,189,1896,22 H04B7/022 H04W36/30,00,02,16,18,24,26,28,34,38 H04W88/08	6/14/2018	BSR
EAST text search: see search history printout	6/14/2018	BSR
IEEE Xplore "enhanced uplink"	6/14/2018	BSR

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
Interference search	See search history printout	6/14/2018	BSR

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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL **(Submitted Only via EFS-Web)**

Application Number	15699418	Filing Date	2017-09-08	Docket Number (if applicable)	SIG-2-0674US07	Art Unit	2466
First Named Inventor	Zhang et al.			Examiner Name	Brian S. Roberts		

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. The Instruction Sheet for this form is located at WWW.USPTO.GOV

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).

☐ 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.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☒ Other

One (1) Foreign Patent document and One (1) Non-Patent Literature document

MISCELLANEOUS

☐ 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)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 220493

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

Signature of Registered U.S. Patent Practitioner			
Signature	Joseph P. Gushue/	Date (YYYY-MM-DD)	2018-09-21
Name	Joseph P. Gushue	Registration Number	59819

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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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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 law or regulation.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:

Signal Trust for Wireless Innovation

Application No.: 15/699,418

Confirmation No.: 2162

Filed: September 8, 2017

For: SUPPORTING
ENHANCED UPLINK TRANSMISSION
DURING SOFT HANDOVER

Group: 2466

Examiner: Brian S. Roberts

Our File: SIG-2-0674US07

Date: September 21, 2018

INFORMATION DISCLOSURE STATEMENT

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

Further to Applicant's Duty of Disclosure pursuant to 37 C.F.R. § 1.56, Applicants wish to bring to the Examiner's attention the materials cited on the enclosed PTO/SB/08a form.

Copies of the newly cited documents are enclosed. Pursuant to 37 C.F.R. § 1.98(a)(2)(ii), copies of the newly cited U.S. publications and/or patent documents have not been included.

This application is a continuation of U.S. Patent Application No. 14/869,313, which was filed September 29, 2015, which issued on September 12, 2017 as U.S. Patent No. 9,763,156, which is a continuation of U.S. Patent Application No. 5339741-1

13/908,242 filed on June 3, 2013, which issued on December 15, 2015 as U.S. Patent No. 9,215,636, which is a continuation of U.S. Patent Application No. 13/308,950 filed on December 1, 2011, which issued on June 4, 2013 as U.S. Patent 8,457,072, which is a continuation of U.S. Patent Application No. 11/434,330 filed on May 15, 2006, which issued on March 6, 2012 as U.S. Patent 8,130,720, which is a continuation of U.S. Patent Application No. 10/962,720 filed October 12, 2004, which issued on May 16, 2006 as U.S. Patent 7,046,648, which claims the benefit of U.S. Provisional Application No. 60/578,674 filed June 10, 2004, U.S. Provisional Application No. 60/520,692 filed November 17, 2003, U.S. Provisional Application No. 60/519,990 filed November 14, 2003, and U.S. Provisional Application No. 60/517,656 filed November 5, 2003.

Applicant also wishes to bring to the Examiner's attention co-pending U.S. Application No. 15/212,402, filed on July 18, 2016, and co-pending U.S. Application No. 15/212,403, filed on July 18, 2016, which are continuations of U.S. Application No. 13/236,133 filed on September 19, 2011, which issued as U.S. Patent No. 9,438,381 on September 6, 2016, which is a continuation of 10/925,426 filed on August 25, 2004, which issued as U.S. Patent 8,023,463 on September 20, 2011, which claims priority from U.S. Provisional Application No. 60/497,747 filed on August 25, 2003; U.S. Provisional Application No. 60/507,554 filed on October 1, 2003; U.S. Provisional Application No. 60/508,797 filed on October 3, 2003; U.S. Provisional Application No. 60/520,207 filed on November 14, 2003 and U.S. Provisional Application No. 60/585,174 filed on July 2, 2004.

It is respectfully requested that the Examiner consider these documents and return an initialed copy of the PTO/SB/08a form indicating consideration of the cited material.

Respectfully submitted,

Signal Trust for Wireless Innovation

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JPG/JMB/gvo
Enclosures (3)

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:

Zhang et al.

Application No.: 15/699,418

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Date: September 21, 2018

AMENDMENT

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

Sir:

This Amendment is submitted further to the Notice of Allowance mailed June 22, 2018. A Request for Continued Examination is filed concurrently herewith.

Please amend the application as follows:

Amendments to the Claims:

This listing of the claims will replace all prior versions of the claims in the application:

1. (Currently Amended) A method for communicating by a wireless transmit/receive unit (WTRU) during a handover from a primary cell to a non-primary cell, the method comprising:

receiving scheduling information via the primary cell and not via the non-primary cell;

transmitting, via the primary cell and the non-primary cell, enhanced uplink (EU) data according to the scheduling information to control, wherein the EU data transmissions are scheduled to limit interference at the primary cell and at the non-primary cell;

receiving hybrid automatic repeat request (HARQ) acknowledgements (ACKs) via the primary cell; and

receiving negative acknowledgements (NACKs) via the primary cell and not via the non-primary cell.

2. (Original) The method of claim 1, further comprising:

receiving an identifier indicating the primary cell and the non-primary cell.

3. (Original) The method of claim 1, further comprising:
transmitting downlink power measurements of transmissions received by the
WTRU.

4. (Original) The method of claim 1, wherein the EU data includes
identification information of the WTRU.

5. (Original) The method of claim 1, wherein the scheduling
information includes at least one of a HARQ process identification and a transmit
power level of the WTRU.

6. (Original) The method of claim 1, further comprising:
transmitting the EU data using synchronous HARQ.

7. (Original) The method of claim 1, wherein the EU data is
transmitted in accordance with the received scheduling information.

8. (Original) The method of claim 1, further comprising:

retransmitting the EU data from the WTRU via the primary cell and the non-primary cell upon receipt of a NACK.

9. (Original) The method of claim 1, wherein the handover is a soft handover.

10. (Currently Amended) A wireless transmit/receive unit (WTRU), comprising:

a transmitter; and

a receiver,

wherein when the WTRU is in a handover from a primary cell to a non-primary cell,

the receiver receives scheduling information via the primary cell and not via the non-primary cell,

the transmitter transmits, via the primary cell and the non-primary cell, enhanced uplink (EU) data according to the scheduling information to control, ~~wherein the EU data transmissions are scheduled to limit~~ interference at the primary cell and at the non-primary cell,