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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/204,265	11/12/2019	10476722	1009-3048 / P71583 US1	1087

102721 7590 10/23/2019
Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

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

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

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

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

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

Jianfeng Wang, Beijing, CHINA;
Telefonaktiebolaget LM Ericsson (publ), Stockholm, SWEDEN
Asbjörn Grövlén, Stockholm, SWEDEN;
Henrik Sahlin, Mölnlycke, SWEDEN;

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



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583	1087
			US1	
			EXAMINER	
			ALPHONSE, FRITZ	
			ART UNIT	PAPER NUMBER
			2112	

7590 09/24/2019
Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

DATE MAILED: 09/24/2019

PRIORITY ACKNOWLEDGMENT

- ☐ 1. Receipt is acknowledged of priority papers submitted under 35 U.S.C. 119. The papers have been placed of record in the file.
- ☒ 2. Applicant's claim for priority, based on papers filed in parent Application Number PCT/SE2018/050287 submitted under 35 U.S.C. 119, is acknowledged.
- ☐ 3. The priority papers, submitted _____, after payment of the issue fee are
- ☐ acknowledged
While the priority claim or certified copy filed will be placed in the file record, neither will be reviewed and the patent when published will not include the priority claim.
See 37 CFR 1.55(a)(2).
 - ☐ not acknowledged since the processing fee in 37 CFR 1.17(i) has not been received.
- ☐ 4. For utility and plant applications filed on or after November 29, 2000, the priority claim is not entered because the claim was not presented within the time limit required by 37 CFR 1.55(a)(1). A petition to accept a delayed claim for priority under 35 U.S.C. 119(a) - (d) or (f), or 365(a) may be filed. See 37 CFR 1.55(c) and MPEP 201.14(a).

Dung Nguyen, for

571-272-4200 or 1-888-786-0101
Application Assistance Unit
Office of Data Management

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

102721 7590 08/01/2019
Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

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

Certificate of Mailing or Transmission

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

Aleesia Sarabia	(Typed or printed name)
/Aleesia Sarabia/	(Signature)
2019-09-20	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1	1087

TITLE OF INVENTION: NR Broadcast Channel Transmission

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	11/01/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
ALPHONSE, FRITZ	2112	714-756000

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 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

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

Murphy, Bilak & Homiller, PLLC
1 _____

2 _____

3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

Telefonaktiebolaget LM Ericsson (publ)

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

Stockholm, Sweden

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

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-5650

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 / Daniel P. Homiller, Reg. # 55,275 /

Date 2019-09-20

Typed or printed name Daniel P. Homiller

Registration No. 55,275

Electronic Patent Application Fee Transmittal				
Application Number:		16204265		
Filing Date:		29-Nov-2018		
Title of Invention:		NR Broadcast Channel Transmission		
First Named Inventor/Applicant Name:		Jianfeng Wang		
Filer:		Daniel P. Homiller/Aleesia Sarabia		
Attorney Docket Number:		1009-3048 / P71583 US1		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1000

Electronic Acknowledgement Receipt	
EFS ID:	37223045
Application Number:	16204265
International Application Number:	
Confirmation Number:	1087
Title of Invention:	NR Broadcast Channel Transmission
First Named Inventor/Applicant Name:	Jianfeng Wang
Customer Number:	102721
Filer:	Daniel P. Homiller/Aleesia Sarabia
Filer Authorized By:	Daniel P. Homiller
Attorney Docket Number:	1009-3048 / P71583 US1
Receipt Date:	20-SEP-2019
Filing Date:	29-NOV-2018
Time Stamp:	10:32:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$1000
RAM confirmation Number	E20199JA32481269
Deposit Account	505650
Authorized User	Aleesia Sarabia
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	1009-3048_Issue_Fee_Transmit tal.pdf	137560	no	1
			6f7c735b0e66c0a97587d3730c4b885e59832950		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30416	no	2
			42c4bfb9492983b2d396345d02426d98d6bff4b0		

Warnings:

Information:

Total Files Size (in bytes):	167976
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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



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NOTICE OF ALLOWANCE AND FEE(S) DUE

102721 7590 08/01/2019
Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

EXAMINER

ALPHONSE, FRITZ

ART UNIT

PAPER NUMBER

2112

DATE MAILED: 08/01/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1	1087

TITLE OF INVENTION: NR Broadcast Channel Transmission

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	11/01/2019

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), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

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

102721 7590 08/01/2019
Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

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

Certificate of Mailing or Transmission

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

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1	1087

TITLE OF INVENTION: NR Broadcast Channel Transmission

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	11/01/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
ALPHONSE, FRITZ	2112	714-756000

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 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

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

1 _____

2 _____

3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

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

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

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

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1	1087
102721	7590	08/01/2019	EXAMINER	
Murphy, Bilak & Homiller/Ericsson			ALPHONSE, FRITZ	
1255 Crescent Green			ART UNIT	
Suite 200			PAPER NUMBER	
Cary, NC 27518			2112	
DATE MAILED: 08/01/2019				

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 30 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. 16/204,265	Applicant(s) Wang et al.	
	Examiner FRITZ ALPHONSE	Art Unit 2112	AIA (FITF) Status Yes

-- 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 4/23/2019.
☐ 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 1-30 . 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 areply 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. <input type="checkbox"/> Notice of References Cited (PTO-892)	5. <input type="checkbox"/> Examiner's Amendment/Comment
2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance
3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. <input type="checkbox"/> Other _____.
4. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/FRITZ ALPHONSE/ Primary Examiner, Art Unit 2112	
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<i>Search Notes</i> 	Application/Control No. 16/204,265	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner FRITZ ALPHONSE	Art Unit 2112

CPC - Searched*		
Symbol	Date	Examiner
H03M 13/15	07/25/2019	FA

CPC Combination Sets - Searched*		
Symbol	Date	Examiner


US Classification - Searched*			
Class	Subclass	Date	Examiner
714	756,758,761	07/25/2019	FA

* 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
East Search	07/25/2019	FA


Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
PGPUB Word Search of Claims Conducted in East		07/25/2019	FA

/FRITZ ALPHONSE/ Primary Examiner, Art Unit 2112	
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<i>Index of Claims</i> 	Application/Control No. 16/204,265	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner FRITZ ALPHONSE	Art Unit 2112

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

CLAIMS									
<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47									
CLAIM		DATE							
Final	Original	03/18/2019	07/25/2019						
	1	✓	=						
	2	✓	=						
	3	✓	=						
	4	✓	=						
	5	✓	=						
	6	✓	=						
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	24	✓	=						
	25	✓	=						
	26	✓	=						
	27	✓	=						
	28	✓	=						
	29	✓	=						
	30	O	=						

Issue Classification 	Application/Control No. 16/204,265	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner FRITZ ALPHONSE	Art Unit 2112


CPC						
Symbol					Type	Version
H04L	/	27	/	2655	F	2013-01-01
H04L	/	25	/	03872	I	2013-01-01
H03M	/	13	/	091	I	2013-01-01
H03M	/	13	/	41	I	2013-01-01
H04L	/	5	/	0035	I	2013-01-01
H04W	/	48	/	12	I	2013-01-01
H04W	/	56	/	0015	A	2013-01-01

CPC Combination Sets					
Symbol				Type	Version
	/		/		

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	30	
/FRITZ ALPHONSE/ Primary Examiner, Art Unit 2112	25 July 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20190725

Issue Classification 	Application/Control No. 16/204,265	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner FRITZ ALPHONSE	Art Unit 2112

INTERNATIONAL CLASSIFICATION			
CLAIMED			
H04L27/26		27	26

NON-CLAIMED			


US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
714	756

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					
714	758	761				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	30	
/FRITZ ALPHONSE/	25 July 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20190725

Issue Classification 	Application/Control No. 16/204,265	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner FRITZ ALPHONSE	Art Unit 2112

<input checked="" type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19		28								
	2		11		20		29								
	3		12		21		30								
	4		13		22										
	5		14		23										
	6		15		24										
	7		16		25										
	8		17		26										
	9		18		27										

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 30	
/FRITZ ALPHONSE/ Primary Examiner, Art Unit 2112 (Primary Examiner) _____ (Date) 25 July 2019		O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office

Part of Paper No.: 20190725

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	48371	(time index accuracy time index error detection code system information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 19:03
L2	34241	(block burst set receiv\$4 network node)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 19:03
L3	5547	(information received synchronization signal block burst multiplexed time index indicating)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 19:03
L4	451572	(wireless system information network node)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 19:03
L5	673	L1 L2 L3 L4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 19:03
L6	416	L5 and (wireless information network near4 node)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 19:03
L7	8	L6 and (information synchronization near4 signal near4 block)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/07/24 19:03
L8	8	L7 and network near4 node	US-PGPUB;	SAME	OFF	2019/07/24

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			19:03
L9	8	L8 and (synchronization signal burst)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/07/24 19:03
L10	7	L9 and scrambling sequence	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/07/24 19:03
L11	7	10 AND ((H03M13/091 OR H03M13/41 OR H04L25/03872 OR H04L27/2655 OR H04L41/06 OR H04L5/0035 OR H04L5/0048 OR H04L27/2602 OR H04L27/2613 OR H04L27/2662 OR H04L5/005 OR H04L5/0053 OR H04W16/28 OR H04W48/12 OR H04W56/0015 OR H04W72/046 OR H04W72/085 OR H04W76/30 OR H04W76/32 OR H04W76/34 OR H04W88/08 OR H04W56/00).CPC. OR (1/1).CCLS. OR (H04L27/26 OR H04L5/00 OR H04L12/24 OR H03M13/09 OR H03M13/41 OR H04W16/28 OR H04W56/00 OR H04W72/04 OR H04W72/08 OR H04W76/30 OR H04W76/32).IPCR.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/07/24 19:12
S1	166325	(memory near3 controller communicat\$4 memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 16:19
S2	174575	714/\$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 16:22
S3	6076	S1 S2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/02/28 16:30
S4	354	S3 and interface communicat\$4 memory (multiple or plurality) near4 memory near4 cell	US-PGPUB; USPAT; USOCR; FPRS;	AND	OFF	2019/02/28 16:32

			EPO; JPO; DERWENT; IBM_TDB			
S5	16	S4 and (refresh\$4 memory cell invert\$4 data memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/02/28 16:33
S6	0	S5 and (stor\$4 read\$4 analyz\$4 recover polarity)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/02/28 16:34
S7	0	S5 and (stor\$4 read\$4 analyz\$4 recover)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/02/28 16:34
S9	0	S5 and (stor\$4 read\$4 analyz\$4 recover)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/02/28 16:35
S10	16	S5 and (stor\$4 read\$4 analyz\$4 recover)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/28 16:35
S11	166325	(memory near3 controller communicat\$4 memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 17:51
S12	174575	714/\$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 17:51
S13	6076	S11 S12	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/02/28 17:51
S14	354	S13 and interface communicat\$4 memory (multiple or plurality) near4	US-PGPUB; USPAT;	AND	OFF	2019/02/28 17:51

		memory near4 cell	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S15	16	S14 and (refresh\$4 memory cell invert\$4 data memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/02/28 17:51
S16	16	S15 and (stor\$4 read\$4 analyz\$4 recover)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/28 17:51
S17	16	S16 and (recover\$4 input data read data identified polarity)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/28 17:56
S18	0	S16 and (recover\$4 input data read data identified polarity)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 18:07
S19	7	(recover\$4 input data read data identified polarity)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 18:08
S20	0	S16 and (recover\$4 input data read data identified polarity)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 18:48
S21	7	(recover\$4 input data read data identified polarity)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 18:48
S22	119	(recover\$4 input data read data polarity)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 19:51

S23	0	S14 and S22	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 19:51
S24	0	recover4 near4 data same memory near4 unknown near4 polarity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 19:57
S25	0	recover4 near4 data same memory near4 unknown polarity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 20:04
S26	0	recover4 near4 data same memory near4 polarity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 20:04
S27	0	recover4 near4 data same memory polarity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 20:04
S28	72	recover\$4 near4 data same memory polarity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 20:04
S29	2	recover\$4 near4 data same memory near4 unknown near4 polarity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 20:05
S30	18	recover\$4 near4 data same memory near9 polarity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 20:05
S31	18	recover\$4 near4 data same memory near9 polarity	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	SAME	OFF	2019/02/28 22:57

			DERWENT; IBM_TDB			
S32	3	S31 and (invert\$4 data stored memory cells)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 23:00
S33	1	S32 and data recovery	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 23:14
S34	3	S32 and data recover\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 23:15
S35	0	S34 and (stor\$4 red\$4 analy\$4 recover\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 23:16
S36	2	S34 and (stor\$4 red\$4 analy\$4 recover\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/02/28 23:16
S37	3	S34 and (stor\$4 red\$4 analy\$4 recover\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/28 23:17
S38	119	(recover\$4 input data read polarity)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 23:34
S39	12	S38 and (repeat\$5 invert\$4 data memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/02/28 23:35
S40	12	S39 and(memory controller interface communicate memory memory cell invert\$4 data cell)	US-PGPUB; USPAT; USOCR;	OR	OFF	2019/02/28 23:58

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S41	12	S40 and (stor\$4 input group memory cell read refresh\$4 analyz\$4 recover\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/02/28 23:59
S42	167121	(memory near3 controller communicat\$4 memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 10:56
S43	2	(determin\$4 accuracy information providing time index error-detection code system information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 11:02
S44	2	(determin\$4 accuracy information providing time index error detection code system information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 11:06
S45	3	(determin\$4 accuracy information time index error detection code system information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 11:06
S46	29	(determin\$4 information time index error detection code system information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 11:07
S47	0	use near4 error detection near5 provide same better	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 16:07
S48	0	use near4 error-detection near5 provide same better	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 16:07
S49	0	use near4 error-detection provide\$4	US-PGPUB;	SAME	OFF	2019/03/15

		same better	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			16:08
S50	0	use near4 error-detection provide\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 16:08
S51	43	(error-detection provide\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 16:08
S52	1	(error-detection provide\$4) better	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 16:09
S53	3	(determin\$4 accuracy information time index error detection code system information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 17:26
S54	167121	(memory near3 controller communicat\$4 memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 17:30
S55	175146	714/\$.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 17:30
S56	6078	S54 S55	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/03/15 17:30
S57	354	S56 and interface communicat\$4 memory (multiple or plurality) near4 memory near4 cell	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	AND	OFF	2019/03/15 17:30

			IBM_TDB			
S58	16	S57 and (refresh\$4 memory cell invert\$4 data memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/03/15 17:30
S59	16	S58 and (stor\$4 read\$4 analyz\$4 recover)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/15 17:29
S60	16	S57 and (refresh\$4 memory cell invert\$4 data memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/03/15 17:32
S61	119	(recover\$4 input data read data polarity)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 17:33
S62	16	S57 and (refresh\$4 memory cell invert\$4 data memory)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/03/15 17:40
S63	2	"20180324623"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/03/15 17:44
S64	2	"20180324623"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/03/17 22:36
S65	341355	(wireless device receiving system information network node wireless communication system)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/23 20:25
S66	5547	(information received synchronization signal block burst multiplexed time index indicating)	US-PGPUB; USPAT; USOCR; FPRS;	AND	OFF	2019/07/23 20:30

			EPO; JPO; DERWENT; IBM_TDB			
S67	34241	(block burst set receive\$4 network node)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/23 20:34
S68	3637	(information time index receiving system information descrambling information scrambling sequence)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/23 20:39
S69	48371	(time index accuracy time index error detection code system information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/23 20:48
S70	34241	(block burst set receive\$4 network node)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/23 20:56
S71	5547	(information received synchronization signal block burst multiplexed time index indicating)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/23 20:57
S72	451572	(wireless system information network node)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/23 21:04
S73	673	S69 S70 S71 S72	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/23 21:04
S74	48371	(time index accuracy time index error detection code system information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 14:21
S75	34241	(block burst set receive\$4 network node)	US-PGPUB; USPAT;	AND	OFF	2019/07/24 14:21

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S76	5547	(information received synchronization signal block burst multiplexed time index indicating)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 14:21
S77	451572	(wireless system information network node)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 14:21
S78	673	S74 S75 S76 S77	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 14:21
S79	416	S78 and (wireless information network near4 node)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2019/07/24 14:45
S80	8	S79 and (information synchronization near4 signal near4 block)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/07/24 14:47
S81	8	S80 and network near4 node	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/07/24 14:49
S82	8	S81 and (synchronization signal burst)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/07/24 14:50

7/ 24/ 2019 7:19:41 PM

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BIB DATA SHEET

CONFIRMATION NO. 1087

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
16/204,265	11/29/2018	714	2112	1009-3048 / P71583 US1		
APPLICANTS Telefonaktiebolaget LM Ericsson (publ), Stockholm, SWEDEN INVENTORS Jianfeng Wang, Beijing, CHINA; Asbjörn Grövlén, Stockholm, SWEDEN; Henrik Sahlin, Mölnlycke, SWEDEN; ** CONTINUING DATA ***** This application is a CON of PCT/SE2018/050287 03/21/2018 ** FOREIGN APPLICATIONS ***** CHINA PCT/CN2017/078102 03/24/2017 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **						
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and Acknowledged <u>/FRITZ ALPHONSE/</u> Examiner's Signature		<input type="checkbox"/> Met after Allowance FA Initials	STATE OR COUNTRY CHINA	SHEETS DRAWINGS 7	TOTAL CLAIMS 30	INDEPENDENT CLAIMS 4
ADDRESS Murphy, Bilak & Homiller/Ericsson 1255 Crescent Green Suite 200 Cary, NC 27518 UNITED STATES						
TITLE NR Broadcast Channel Transmission						
FILING FEE RECEIVED 3180	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1

CONFIRMATION NO. 1087

102721

Murphy, Bilak & Homiller/Ericsson

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Suite 200

Cary, NC 27518

PUBLICATION NOTICE



Title:NR Broadcast Channel Transmission

Publication No.US-2019-0123951-A1

Publication Date:04/25/2019

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/>.

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Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Electronic Acknowledgement Receipt	
EFS ID:	35807719
Application Number:	16204265
International Application Number:	
Confirmation Number:	1087
Title of Invention:	NR Broadcast Channel Transmission
First Named Inventor/Applicant Name:	Jianfeng Wang
Customer Number:	102721
Filer:	Daniel P. Homiller/Brittany Wage
Filer Authorized By:	Daniel P. Homiller
Attorney Docket Number:	1009-3048 / P71583 US1
Receipt Date:	23-APR-2019
Filing Date:	29-NOV-2018
Time Stamp:	16:43:44
Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	Response.pdf	45617	no	9
			322ddffa4d878b4286349e03321f1f3dd3b323c82		

Warnings:

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Total Files Size (in bytes):	45617
<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>	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:)	
Wang)	
	)	PATENT PENDING
Serial No.: 16/204,265)	
	)	Examiner: ALPHONSE, FRITZ
Filed: Nov 29, 2018)	
	)	Group Art Unit: 1629
For: NR Broadcast Channel Transmission)	
	)	Confirmation No.: 1087
Docket No: 1009-3048 / P71583 US1)	
)	

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

RESPONSE TO OFFICE ACTION

Applicant submits this paper in response to the Office Action mailed 03/22/2019 and requests favorable reconsideration in light of the following remarks and/or amendments. The Commissioner is hereby authorized to charge any required fees not submitted herewith to Deposit Account No. 50-5650.

LISTING OF THE CLAIMS

1. (Original) A method performed by a wireless device, for receiving system information from a network node of a wireless communication system, the system information being received in a synchronization signal (SS) block of an SS burst set comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being received, the method comprising:
 - receiving, from the network node, the information providing the time index;
 - receiving the system information, wherein receiving comprises descrambling the system information using a scrambling sequence generated based on the information providing the time index; and
 - determining an accuracy of the information providing the time index, based on an error-detection code related to the received system information.
2. (Original) The method of claim 1, wherein the error detection code is a Cyclic Redundancy Check (CRC) attachment to information bits corresponding to the received system information, and wherein determining the accuracy of the information providing the time index comprises:
 - performing a CRC of the received system information based on the CRC attachment,
 - determining that the information providing the time index is inaccurate when the performed CRC indicates erroneously received system information, and
 - determining that the information providing the time index is accurate when the performed CRC indicates correctly received system information.
3. (Original) The method of claim 1, further comprising determining how to perform an initial access procedure based on the determined accuracy of the information providing the time index, wherein determining how to perform the initial access procedure comprises:

when the information providing the time index is determined to be accurate, completing the initial access procedure based on the received system information,

when the information providing the time index is determined to be inaccurate, detecting another SS block for reception of system information and time index before completing the initial access procedure.

4. (Original) The method of claim 1, wherein the information providing the time index is received without any related error-detection code.

5. (Original) The method of claim 1, wherein generating the scrambling sequence comprises initializing the scrambling sequence at the start of the SS block.

6. (Original) The method of claim 1, further comprising determining where the boundary of the SS burst set is or where the SS burst set starts using the information providing the time index.

7. (Original) A method performed by a network node of a wireless communication network, for transmitting system information to a wireless device in a synchronization signal (SS) block of an SS burst set comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being transmitted, the method comprising:

scrambling the system information using a scrambling sequence generated based on the information providing the time index, and
transmitting, to the wireless device, the scrambled system information multiplexed with the information providing the time index of the SS block, wherein an error detection code is related to the system information.

8. (Original) The method of claim 7, wherein scrambling the system information comprises scrambling coded bits of the system information.
9. (Original) The method of claim 7, wherein the error detection code is a Cyclic Redundancy Check (CRC) attachment to information bits corresponding to the system information.
10. (Original) The method of claim 7, wherein the information providing the time index is transmitted without any related error-detection code.
11. (Original) The method of claim 7, wherein the SS block has a certain size in the time dimension during which synchronization signals, the information providing the time index, and system information are transmitted.
12. (Original) The method of claim 7, wherein the information providing the time index is a tertiary synchronization signal (TSS) in the SS block.
13. (Original) A wireless device configured to receive system information from a network node of a wireless communication system, the system information being in a synchronization signal (SS) block of an SS burst set comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being received, the wireless device comprising:
 - a processing circuitry; and
 - a memory, the memory containing instructions executable by the processing circuitry whereby the wireless device is configured to:
 - receive, from the network node, the information providing the time index,

receive the system information by descrambling the system information using a scrambling sequence generated based on the information providing the time index, and
determine an accuracy of the information providing the time index, based on an error-detection code related to the received system information.

14. (Original) The wireless device of claim 13, wherein the error detection code is a Cyclic Redundancy Check (CRC) attachment to information bits corresponding to the received system information, and wherein the wireless device is further configured to determine the accuracy of the information providing the time index by:

performing a CRC of the received system information based on the CRC attachment,
determining that the information providing the time index is inaccurate when the performed CRC indicates erroneously received system information, and
determining that the information providing the time index is accurate when the performed CRC indicates correctly received system information.

15. (Original) The wireless device of claim 13, wherein the wireless device is further configured to:
determine how to perform an initial access procedure based on the determined accuracy of the information providing the time index.

16. (Original) The wireless device of claim 15, wherein the wireless device is configured to determine how to perform the initial access procedure by:
when the information providing the time index is determined to be accurate, completing the initial access procedure based on the received system information,

when the information providing the time index is determined to be inaccurate, detecting another SS block for reception of system information and time index before completing the initial access procedure.

17. (Original) The wireless device of claim 13, wherein the wireless device is further configured to:
acquire synchronization with the network node based on the information in the SS block.
18. (Original) The wireless device of claim 13, wherein the wireless device is configured to descramble the system information by descrambling coded bits of the system information.
19. (Original) The wireless device of claim 13, wherein the wireless device is further configured to receive the information providing the time index without any related error-detection code.
20. (Original) The wireless device of claim 13, wherein the wireless device is configured to generate the scrambling sequence by initializing the scrambling sequence at the start of the SS block.
21. (Original) The wireless device of claim 13, wherein the wireless device is further configured to determine where the boundary of the SS burst set is or where the SS burst set starts using the information providing the time index.
22. (Original) The wireless device of claim 13, wherein the wireless device is further configured to receive the system information based on a boundary of the SS burst set indicated by the time index.
23. (Original) The wireless device of claim 13, wherein the scrambling sequence is a pseudo-random sequence and wherein the wireless device is configured to generate the pseudo-random sequence based on an identity of a cell related to the SS block.

24. (Original) The wireless device of claim 13, wherein the wireless device is a User Equipment (UE).
25. (Original) A network node of a wireless communication network, the network node comprising:
a processing circuitry; and
a memory, the memory comprising instructions executable by the processing circuitry whereby
the network node is configured to:
scramble the system information using a scrambling sequence generated based on the
information providing the time index, and
transmit to the wireless device, in a synchronization signal (SS) block of an SS burst set
comprising at least one SS block, the scrambled system information multiplexed
with the information providing the time index of the SS block, wherein an error
detection code is related to the system information.
26. (Original) The network node of claim 25, wherein the network node is configured to scramble the
system information by scrambling coded bits of the system information.
27. (Original) The network node of claim 25, wherein the error detection code is a Cyclic Redundancy
Check (CRC) attachment to information bits corresponding to the system information.
28. (Original) The network node of claim 25, wherein the network node is configured to transmit the
information providing the time index without any related error-detection code.
29. (Original) The network node of claim 25, wherein the network node is configured to generate the
scrambling sequence by initializing the scrambling sequence at the start of the SS block.

30. (Original) The network node of claim 25, wherein the scrambling sequence is a pseudo-random sequence, the network node being further configured to generate the pseudo-random sequence based on an identity of a cell related to the SS block.

REMARKS

The pending Office Action rejects claims 1-22 and 24-29 as allegedly obvious over Jung (US 2018/0324623) in combination with Tamaki (US 2013/0301618).

The Applicant notes the present application has an effective filing date of 24 March 2017, by virtue of a priority claim to PCT/CN/2017/078102, filed on that date. The earliest possible effective filing date for any of the subject matter disclosed in Jung, on the other hand, is 5 May 2017, by virtue of a priority application in Jung to a provisional application filed on that date. Because the present Office Action shows neither that the relied-upon subject matter in Jung is also disclosed in Jung's provisional nor that any of the claims in the present application are not entitled to the present application's priority claims, Jung does not qualify as prior art with respect to the pending claims, and all of the rejections should be withdrawn.

Conclusion

The present application should be in condition for allowance in view of the amendments and/or remarks made herein. Action to such effect is respectfully requested. The Examiner is encouraged to contact the undersigned at (919)-948-3390 if any outstanding matters can be readily addressed by a phone call.

Respectfully submitted,
Murphy, Bilak & Homiller, PLLC

/ Daniel P. Homiller, Reg. # 55,275 /

Dated: 23 April 2019

Daniel P. Homiller
Registration No.: 55,275

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Telephone: (919) 948-3390
Facsimile: (919) 948-3357

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/204,265		Filing Date 11/29/2018		<input type="checkbox"/> To be Mailed		
ENTITY: <input checked="" type="checkbox"/> LARGE <input type="checkbox"/> SMALL <input type="checkbox"/> MICRO										
APPLICATION AS FILED - PART I										
		(Column 1)	(Column 2)							
FOR		NUMBER FILED	NUMBER EXTRA	RATE (\$)		FEE (\$)				
<input type="checkbox"/> BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A	N/A						
<input type="checkbox"/> SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A	N/A						
<input type="checkbox"/> EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A	N/A						
TOTAL CLAIMS (37 CFR 1.16(j))		minus 20 =	*	x \$100 =						
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*	x \$460 =						
<input type="checkbox"/> 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).								
<input type="checkbox"/> 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	04/23/2019	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	* 30	Minus	** 30	= 0	x \$100 =		0		
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0	x \$460 =		0		
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))									
	<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		0		
AMENDMENT		(Column 1)	(Column 2)	(Column 3)						
		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =				
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =				
	<input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))									
<input type="checkbox"/> 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.						LIE				
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/VENESSA JONES/				
*** 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.										

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1	1087
102721	7590	03/22/2019	EXAMINER	
Murphy, Bilak & Homiller/Ericsson			ALPHONSE, FRITZ	
1255 Crescent Green				
Suite 200				
Cary, NC 27518			ART UNIT	PAPER NUMBER
			2112	
			NOTIFICATION DATE	DELIVERY MODE
			03/22/2019	ELECTRONIC

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

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

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

official@mbhiplaw.com

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.
2. This Office Action is in regard to the application filed on 11/29/2018. Claims 1-20 are pending.

Oath/Declaration

3. The Oath/Declaration filed on 11/29/2018 is accepted.

Claim Rejections - 35 USC § 103

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

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-22, 24-29 are rejected under 35 U.S.C. 103 as being unpatentable over Jung (US Pub. No. 20180324623) in view of Tamaki (US Pub. No. 20130301618).

As to claim 1, Jung (figs. 1-10) discloses a 1. A method performed by a wireless device, for receiving system information from a network node of a wireless communication system, the system information being received in a synchronization signal (SS) block of an SS burst set comprising at least one SS block (see abstract), wherein the system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being received (parag. 0062), the method comprising: receiving, from the network node, the information providing the time index (parag. 0059); receiving the system information, wherein receiving comprises descrambling the system information using a scrambling sequence generated based on the information providing the time index (parag. 0041).

Jung does not explicitly disclose the step of “determining an accuracy of the information providing the time index, based on an error-detection code related to the received system information.”. However, the limitations are obvious and well known in the art, as evidenced by Tamaki (parag. 0030).

Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify Jung with the teachings of Tamaki by including the use of an error detection code to receive system information. This modification would have been obvious to one of ordinary skill in the art because one of ordinary skill in the art would have recognized that use of error detection code in a wireless device would mitigate potential propagation of data errors.

As to claim 4, Jung does not explicitly disclose a method, wherein the information providing the time index is received without any related error-detection code. However, the limitations are obvious and well known in the art, as disclosed by Tamaki (parag. 0030). See the motivations above.

As to claims 5-6, Jung (figs. 1-10) discloses a method, wherein generating the scrambling sequence comprises initializing the scrambling sequence at the start of the SS block; the method, further comprising determining where the boundary of the SS burst set is or where the SS burst set starts using the information providing the time index (parag. 0034).

As to claim 7, the claim has substantially the limitations of claim 1; therefore, it is analyzed as previously discussed in claim 1 above.

As to claims 8 and 11-12, Jung (fig. 1-10) discloses a method, wherein scrambling the system information comprises scrambling coded bits of the system information; wherein the SS block has a certain size in the time dimension during which synchronization signals, the

information providing the time index, and system information are transmitted; and, wherein the information providing the time index is a tertiary synchronization signal (TSS) in the SS block (parag. 0034).

As to claims 9-10, Jung does not explicitly teach a method, wherein the error detection code is a Cyclic Redundancy Check (CRC) attachment to information bits corresponding to the system information; and, wherein the information providing the time index is transmitted without any related error-detection code. However, the limitations are obvious and well known in the art, as evidenced by Tamaki (parag. 0030). See the motivations above.

As to claim 13, Jung (figs. 1-10) discloses a wireless device configured to receive system information from a network node of a wireless communication system, the system information being in a synchronization signal (SS) block of an SS burst set comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being received (see abstract; fig. 10), the wireless device comprising: a processing circuitry (1020); and a memory (1050), the memory containing instructions executable by the processing circuitry whereby the wireless device is configured to: receive, from the network node, the information providing the time index, receive the system information by descrambling the system information using a scrambling sequence generated based on the information providing the time index (parag. 0082).

Jung does not explicitly teach “determine an accuracy of the information providing the time index, based on an error- detection code related to the received system information.” However, the limitations are obvious and well known in the art, as disclosed by Tamaki (parag. 0030). See the motivations above.

As to claims 14-16, the claims have substantially the limitations of claims 2-3; therefore, they are analyzed as previously discussed in claims 2-3 above.

As to claims 17-18, 20-22, the claims have substantially the limitations of claims 8 and 11-12; therefore, they are analyzed as previously discussed in claims 8 and 11-12 above.

As to claims 19 and 24, Jung does not explicitly disclose the wireless device is further configured to receive the information providing the time index without any related error-detection code; and, wherein the wireless device is a User Equipment (UE). However, the limitations are obvious and well known in the art, as disclosed by Tamaki (parag. 0030). See the motivations above.

As to claim 25, the claim has substantially the limitations of claim 1; therefore, it is analyzed as previously discussed in claim 1 above.

As to claims 26 and 29, Jung (figs. 1-10) discloses a network node, wherein the network node is configured to scramble the system information by scrambling coded bits of the system information; wherein the network node is configured to generate the scrambling sequence by initializing the scrambling sequence at the start of the SS block (parag. 0041).

As to claims 27-28, Jung does not explicitly teach a method, wherein the error detection code is a Cyclic Redundancy Check (CRC) attachment to information bits corresponding to the system information; and, wherein the network node is configured to transmit the information providing the time index without any related error-detection code. However, the limitations are obvious and well known in the art, as disclosed by Tamaki (parag. 0030). See the motivations above.

Allowable Subject Matter

6. Claims 23 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

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

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fritz Alphonse, whose telephone number is (571) 272-3813. The examiner can normally be reached on MaxFlex: M-F 5:30 AM-10:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady, can be reached at (571) 272-3819.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-3824

Information regarding the status of an application may also 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)?

/Fritz Alphonse/

Primary Examiner, Art Unit 2112

<i>Notice of References Cited</i>	Application/Control No. 16/204,265		Applicant(s)/Patent Under Reexamination Wang et al.	
	Examiner FRITZ ALPHONSE		Art Unit 2112	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20180324623-A1	11-2018	Jung; Hyejung	H04W24/10	1/1
*	B	US-20130301618-A1	11-2013	Tamaki; Satoshi	H04W72/04	370/335
*	C	US-20040081260-A1	04-2004	Matsusaka, Hiromi	H04L1/0003	375/340
*	D	US-20160172057-A1	06-2016	HER; Sung-Jun	G11C29/38	714/719
*	E	US-7289574-B2	10-2007	Parolari; Sergio	H04L1/0003	375/259
	F					
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FOREIGN PATENT DOCUMENTS

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NON-PATENT DOCUMENTS


*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
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U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20190304

<i>Search Notes</i> 	Application/Control No. 16/204,265	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner FRITZ ALPHONSE	Art Unit 2112

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner
H03M 13/15	03/18/2019	FA


US Classification - Searched*			
Class	Subclass	Date	Examiner
714	756,758,761	03/18/2019	FA

* 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
East Search	03/18/2019	FA

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

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<i>Index of Claims</i> 	Application/Control No. 16/204,265	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner FRITZ ALPHONSE	Art Unit 2112

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

CLAIMS										
<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47										
CLAIM			DATE							
Final	Original	03/18/2019								
	1	✓								
	2	✓								
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Doc code: IDS

03/18/2019

PTO/SB/08a (02-18)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 11/30/2020. OMB 0651-0031

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	16/204,265 - GAU: 2112
	Filing Date	
	First Named Inventor	Jianfeng Wang
	Art Unit	
	Examiner Name	
	Attorney Docket Number	1009-3048

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

Application Number		
Filing Date		
First Named Inventor	Jianfeng Wang	
Art Unit		
Examiner Name		
Attorney Docket Number	1009-3048	

/F.A/	1	3GPP, "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation (Release 14)", 3GPP TS 36.211 V14.2.0, March 2017, 1-194.
/F.A/	2	UNKNOWN, AUTHOR, "Design of SS burst set and SS block index", ZTE, ZTE Microelectronics, 3GPP TSG RAN WG1 Meeting #88, R1-1701573, Athens, Greece, 13-17 February 2017, 1-5.
/F.A/	3	UNKNOWN, AUTHOR, "Discussion on SS burst set composition and SS block time index indication", Huawei, HiSilicon, 3GPP TSG RAN WG1 Meeting #88, R1-1703353, Athens, Greece, 13-17 February 2017, 1-7.
/F.A/	4	UNKNOWN, AUTHOR, "Discussion on synchronization procedure in NR", Sequans Communications, 3GPP TSG-RAN WG1 #88, R1-1701850, Athens, Greece, 13-17 February 2017, 1-6.
/F.A/	5	3GPP, "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Study on New Radio (NR) Access Technology; Physical Layer Aspects (Release 14)", 3GPP TR 38.802 V1.2.0, February 2017, 1-83.

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EXAMINER SIGNATURE

Examiner Signature	/FRITZ ALPHONSE/	Date Considered	03/18/2019
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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
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Application Number	
Filing Date	
First Named Inventor	Jianfeng Wang
Art Unit	
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Attorney Docket Number	1009-3048

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).

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Signature	/ Daniel P. Horniller, Reg. # 55,275 /	Date (YYYY-MM-DD)	2018-11-29
Name/Print	Daniel P. Horniller	Registration Number	55275

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	(determining accuracy information time index error-detection code received system information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 00:54
L2	6	system information receiv\$4 synchronization signal burst block index	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 00:57
L3	5	2 AND ((H04L1/0003 OR H04L1/0032 OR H04L1/0038 OR H04L27/0012 OR H04L1/0009 OR H04L1/0016 OR H04L1/002 OR H04L1/0021 OR H04L1/0025 OR H04L1/1819 OR H04L25/03872 OR H04L27/0008 OR H04L27/2017 OR H04L27/2067 OR H04W24/08 OR H04W24/10 OR H04W48/10 OR H04W48/12 OR H04W48/16 OR H04W56/001 OR H04W72/005 OR H04W72/0446 OR H04W74/002 OR H04W74/0833 OR Y02B60/31).CPC. OR (375/259 OR 375/316 OR 375/224 OR 375/295 OR 375/340 OR 1/1).CCLS. OR (H04L27/00 OR H04L1/00 OR H04W24/08 OR H04W24/10 OR H04W56/00 OR H04W72/00 OR H04W72/04 OR H04W74/00).IPCR.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 01:02
L4	5	3 AND ((H04L1/0003 OR H04L1/0032 OR H04L1/0038 OR H04L27/0012 OR H04L1/0009 OR H04L1/0016 OR H04L1/002 OR H04L1/0021 OR H04L1/0025 OR H04L1/1819 OR H04L25/03872 OR H04L27/0008 OR H04L27/2017 OR H04L27/2067 OR H04W24/08 OR H04W24/10 OR H04W48/10 OR H04W48/12 OR H04W48/16 OR H04W56/001 OR H04W72/005 OR H04W72/0446 OR H04W74/002 OR H04W74/0833 OR Y02B60/31).CPC. OR (375/259 OR 375/316 OR 375/224 OR 375/295 OR 375/340 OR 1/1).CCLS. OR (H04L27/00 OR H04L1/00 OR H04W24/08 OR H04W24/10 OR H04W56/00 OR H04W72/00 OR H04W72/04 OR H04W74/00).IPCR.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/15 01:03

EAST Search History

S1	5	(controller memory stor\$4 codeword convolution\$4 low density parity check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/15 22:53
S2	5	(controller memory stor\$4 codeword convolution\$4 low-density parity-check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/15 22:53
S3	1527	(controller memory stor\$4 codeword)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/15 22:54
S4	886	(convolution\$4 low-density parity-check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/15 23:13
S5	18	S3 S4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2018/08/15 23:13
S6	18	S5 and (memory stor\$4 codeword)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2018/08/15 23:42
S7	18	S5 and (memory stor\$4 codeword)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/15 23:42
S8	18	S7 and (convolution\$4 low-density parity-check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/15 23:42
S9	14	S8 and (codeword size)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	SAME	OFF	2018/08/15 23:47

			DERWENT; IBM_TDB			
S10	3	S9 and (multiple portion independent\$4 decodable second size)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2018/08/15 23:48
S11	161	("9690517" "20160342471" "20170293526" "5285454" "9772899" "20160328289" "20180011757" "4136090" "5225113" "5294091" "5414451" "5569537" "5599876" "5614938" "5710920" "5814009" "6092906" "6182082" "6233378" "6262889" "6383248" "6420479" "6423045" "6598164" "6701408" "7177974" "7314900" "7392207" "7529142" "7864047" "7929842" "7995082" "8977936" "9086955" "9141474" "9607690" "9715943" "9760301" "9916197" "9933974" "9946475" "10014050" "20020087784" "20020136068" "20030096905" "20040141358" "20050049926" "20060137226" "20080046317" "20080140506").pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/08/17 22:00
S12	0	S11 and (memory codeword convolutional low-density parity-check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2018/08/17 22:02
S13	0	S11 and (memory codeword convolutional low density parity check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2018/08/17 22:07
S14	92	(memory codeword convolutional low density parity check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:07
S15	53	(memory codeword convolutional low- density parity-check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:07
S16	92	S14 or S15	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	SAME	OFF	2018/08/17 22:07

			IBM_TDB			
S17	2	S16 and (memory CLDPC code second size controller decoder)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:09
S18	2	(memory CLDPC code second size controller decoder)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:10
S19	0	"15265045.pn."	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:11
S20	0	"15265045".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:11
S21	2	"15265045"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:11
S22	0	(reciev\$4 portion codeword convolution\$4 low-density parity-check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:29
S23	0	(reciev\$4 portion codeword convolution\$4 low density parity check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:30
S24	0	(reciev\$4 portion codeword convolution\$4 LDPC code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:31
S25	0	(reciev\$4 portion codeword convolution\$4 CLDPC code)	US-PGPUB; USPAT; USOCR; FPRS;	SAME	OFF	2018/08/17 22:31

			EPO; JPO; DERWENT; IBM_TDB			
S26	0	(reciev\$4 portion codeword CLDPC code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/17 22:31
S27	0	(reciev\$4 portion codeword CLDPC code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2018/08/17 22:31
S28	1530	(controller memory stor\$4 codeword)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/22 12:59
S29	888	(convolution\$4 low-density parity-check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/22 12:59
S30	18	S28 S29	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2018/08/22 12:59
S31	18	S30 and (memory stor\$4 codeword)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/22 12:59
S32	888	(convolution\$4 low-density parity-check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/22 13:00
S33	0	S28 and (memory stor\$4 codeword convolutional low density pasrity check code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/22 13:01
S34	7	S28 and (memory stor\$4 codeword CLDPC)	US-PGPUB; USPAT;	SAME	OFF	2018/08/22 13:01

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S35	7	S34 and controller	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/22 13:02
S36	7	S35 AND ((H03M13/1154 OR H03M13/1105 OR H03M13/353 OR H03M13/1108 OR H03M13/3715 OR H03M13/3723 OR H03M13/612 OR H03M13/6325 OR H03M13/1128 OR H03M13/616 OR H03M13/23 OR H03M13/2927 OR G06F11/1012 OR G06F11/1076 OR G06F11/10 OR G06F11/1052 OR G06F11/106 OR G06F11/1072 OR G06F11/1068 OR G11C29/52).CPC. OR (1/1 OR 714/758).CCLS. OR (H03M13/11 OR H03M13/00 OR H03M13/23 OR H03M13/29 OR H03M13/35 OR H03M13/37 OR G06F11/10 OR G11C29/52).IPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2018/08/22 13:04
S37	6	"2007061672".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/13 16:55
S38	17	"2007061672"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/13 17:28
S39	0	2007061672A1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/13 17:29
S40	0	20070061672A1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/13 17:29
S41	8	"20070061672"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	SAME	OFF	2019/03/13 17:29

			IBM_TDB			
S42	8	"20070061672"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/13 19:37
S43	1	(memory codeword convolution\$5 low-density parity-check code size multiple portions controller CLDPC encoder).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/13 19:48
S44	1	S43 AND ((G06F11/1012 OR H03M13/1105 OR H03M13/1108 OR H03M13/1128 OR H03M13/1154 OR H03M13/353 OR H03M13/3715 OR H03M13/3723 OR H03M13/612 OR H03M13/616 OR H03M13/6325).CPC. OR (1/1).CCLS. OR (H03M13/00 OR H03M13/11 OR H03M13/23).IPCR.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/13 19:49
S45	4	"20160112221"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/13 21:29
S46	0	S45 and (receiv\$4 network node time index)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/13 21:50
S47	2	S45 and (receiv\$4 network node time index)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/13 21:51
S48	2	S47 and (system information descrambl\$4 time index accuracy error detection code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/13 22:14
S49	0	S48 and accuracy	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/13 22:14
S50	0	S48 and accura\$4	US-PGPUB; USPAT; USOCR;	OR	OFF	2019/03/13 22:14

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S51	1	S48 and (information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/13 22:15
S52	4	"20160112221"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/14 17:24
S53	2	S52 and (receiv\$4 network node time index)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/14 17:24
S54	2	S53 and (system information descrambl\$4 time index accuracy error detection code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/14 17:24
S55	1	S54 and (information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/14 17:24
S56	1	S55 and wireless	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/03/14 17:25
S57	0	S56 and network node	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/14 17:25
S58	0	S56 and network\$4 node	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/14 17:25
S59	1	S56 and network\$4 data	US-PGPUB;	SAME	OFF	2019/03/14;

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			17:26
S60	0	S59 and synchroniz\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/14 17:26
S61	0	S59 and synchroniz\$6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/14 17:27
S62	21158	system information receiv\$4 synchronization signal	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/14 17:28
S63	166	system information receiv\$4 synchronization signal block burst	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/14 17:29
S64	52	S63 and wireless near4 (device or system or apparatus)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/14 17:37
S65	1	S64 and (information or data) same multiplex\$4 time index	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/14 17:39
S66	6	system information receiv\$4 synchronization signal burst block index	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	SAME	OFF	2019/03/14 18:22
S67	6	system information receiv\$4 synchronization signal burst block index	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	SAME	OFF	2019/03/14 22:51

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PLUS Search Results for S/N 16204265, Searched Fri Mar 15 12:16:30 EDT 2019
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20180220360 99	20130005343 64
20180279237 99	
20180279240 99	
20180368054 99	
20180198575 83	
20180279243 83	
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20080181120 64	
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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
16/204,265	11/29/2018	1629	3180	1009-3048 / P71583 US1	30	4

CONFIRMATION NO. 1087

UPDATED FILING RECEIPT



102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

Date Mailed: 01/24/2019

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)

Jianfeng Wang, Beijing, CHINA;
Asbjörn Grövlén, Stockholm, SWEDEN;
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Applicant(s)

Telefonaktiebolaget LM Ericsson (publ), Stockholm, SWEDEN

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of PCT/SE2018/050287 03/21/2018

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CHINA PCT/CN2017/078102 03/24/2017 No Access Code Provided

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Projected Publication Date: 04/25/2019

Non-Publication Request: No

Early Publication Request: No

Title

NR Broadcast Channel Transmission

Preliminary Class

514

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1
CONFIRMATION NO. 1087			

102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518



Date Mailed: 01/24/2019

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/hnguyen/

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Application Number (if known): 16/204,265	Filing Date: 2018-11-29
First Named Inventor: Wang	Attorney Docket Number: 1009-3048 / P71583 US1
Title (Required) NR Broadcast Channel Transmission	

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Signature / Daniel P. Homiller, Reg. # 55,275 /	Date 2019-01-22
Name (Print/Typed) Daniel P. Homiller	Practitioner Registration Number (if applicable) 55,275
Name of Assignee (if applicable)	Title (if applicable)

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Electronic Acknowledgement Receipt	
EFS ID:	34920257
Application Number:	16204265
International Application Number:	
Confirmation Number:	1087
Title of Invention:	NR Broadcast Channel Transmission
First Named Inventor/Applicant Name:	Jianfeng Wang
Customer Number:	102721
Filer:	Daniel P. Homiller/Brittany Wage
Filer Authorized By:	Daniel P. Homiller
Attorney Docket Number:	1009-3048 / P71583 US1
Receipt Date:	22-JAN-2019
Filing Date:	29-NOV-2018
Time Stamp:	14:08:27
Application Type:	Utility under 35 USC 111(a)

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Information:					
Total Files Size (in bytes):			963755		
<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>					

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		
<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.)

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Jianfeng		Wang		
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Beijing	Country of Residence ⁱ	CN		
Mailing Address of Inventor:					
Address 1	No. 5 Lize East Street, Chaoyang District				
Address 2					
City	Beijing	State/Province			
Postal Code	100102	Country ⁱ	CN		
Inventor 2					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Asbjörn		Grövlén		
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	Stockholm	Country of Residence ⁱ	SE		
Mailing Address of Inventor:					
Address 1	Lindhagensgatan 139, lgh 1403				
Address 2					
City	Stockholm	State/Province			
Postal Code	112 15	Country ⁱ	SE		
Inventor 3					Remove
Legal Name					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Henrik		Sahlin	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	Mölnlycke	Country of Residence ⁱ	SE	
Mailing Address of Inventor:				
Address 1		Kalkstensvägen 1		
Address 2				
City	Mölnlycke	State/Province		
Postal Code	435 41	Country ⁱ	SE	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. <div style="text-align: right;">Add</div>				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
<input type="checkbox"/> An Address is being provided for the correspondence information of this application.	
Customer Number	102721
Email Address	official@mbhiplaw.com <div style="float: right;"> Add Email Remove Email </div>

Application Information:

Title of the Invention	NR Broadcast Channel Transmission		
Attorney Docket Number	1009-3048 / P71583 US1	Small Entity Status Claimed <input type="checkbox"/>	
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Publication Information:

<input type="checkbox"/>	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
<input type="checkbox"/>	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative information during processing.			
Please Select One:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	102721		

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 benefit claim 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. When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	PCT/SE2018/050287	2018-03-21
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX),¹ 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).

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	<div>Remove</div> Access Code ^j (if applicable)
PCT/CN2017/078102	CN	2017-03-24	
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

<input type="checkbox"/>	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.
--------------------------	--

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant 1			
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
<input type="button" value="Clear"/>			
<input type="radio"/> Assignee	<input type="radio"/> Legal Representative under 35 U.S.C. 117	<input type="radio"/> Joint Inventor	
<input checked="" type="radio"/> Person to whom the inventor is obligated to assign.		<input type="radio"/> Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor: <input type="text"/>			
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>			
Organization Name	<input type="text" value="Telefonaktiebolaget LM Ericsson (publ)"/>		
Mailing Address Information For Applicant:			
Address 1	<input type="text" value="SE-164 83"/>		
Address 2	<input type="text"/>		
City	<input type="text" value="Stockholm"/>	State/Province	<input type="text"/>
Country	<input type="text" value="SE"/>	Postal Code	<input type="text"/>
Phone Number	<input type="text"/>	Fax Number	<input type="text"/>
Email Address	<input type="text" value="official@mbhiplaw.com"/>		
Additional Applicant Data may be generated within this form by selecting the Add button.			

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.

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
If the Assignee or Non-Applicant Assignee is an Organization check here. <input type="checkbox"/>				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country ¹		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/ Daniel P. Homiller, Reg. # 55,275 /		Date (YYYY-MM-DD)	2018-11-29
First Name	Daniel	Last Name	Homiller	Registration Number
		55275		
Additional Signature may be generated within this form by selecting the Add button.				

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

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.**

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 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.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Wang et al.

Application No./Patent No.: 16/204,265

Filed/Issue Date: 2018-11-29

Titled: NR Broadcast Channel Transmission

Telefonaktiebolaget LM Ericsson (publ), 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 047625, Frame 0361, 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: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

2. 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.

[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.**

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

STATEMENT UNDER 37 CFR 3.73(c)

3. 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.

4. 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.

5. 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.

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.

/ Daniel P. Homiller, Reg. # 55,275 /

2019-01-22

Signature

Date

Daniel P. Homiller

55,275

Printed or Typed Name

Title or Registration 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.

Doc Code: R46C.REQ

Document Description: Request under 37 CFR 1.46(c) to correct, update or change the applicant.

PTO/AIA/41 (04-15)

Approved for use through 11/30/2020. OMB 0651-0031

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

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

**REQUEST TO CORRECT OR UPDATE
THE NAME OF THE APPLICANT UNDER
37 CFR 1.46(c)(1), OR CHANGE THE
APPLICANT UNDER 37 CFR 1.46(c)(2)
(FOR USE ONLY IN APPLICATIONS FILED ON OR AFTER
SEPTEMBER 16, 2012)**

Application Number	16/204,265
Filing Date	2018-11-29
First Named Inventor	Wang
Art Unit	TBD
Examiner Name	TBD
Practitioner Docket Number	1009-3048 / P71583 US1

**To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**

Applicant hereby **requests that the name of the applicant be corrected or updated under 37 CFR 1.46(c)(1), or that the applicant be changed under 37 CFR 1.46(c)(2),** in the above-identified application. **Requests under 37 CFR 1.46(c)(1) or (c)(2) cannot be submitted after payment of the issue fee or if the application has been patented.**

Please check the applicable box(es) below.

☐ 1. This request is to **correct or update the name of the applicant (under 37 CFR 1.46(c)(1))** and includes:

☐ An application data sheet (ADS) in accordance with 37 CFR 1.76(c) with the corrected or updated information shown with markings (e.g., underlining for insertions, strikethrough for deletions). A Corrected Web-based ADS may be used.

Note: Requests under 37 CFR 1.46(c)(1) may be filed to correct typographical errors in the name of the § 1.46 applicant, or for updating the name of the § 1.46 applicant (i.e., where there is no change in the applicant itself but just in the applicant's name). See the Manual of Patent Examining Procedure (MPEP) section 605.01.

☒ 2. This request is to **change the applicant (under 37 CFR 1.46(c)(2))** and includes:

☒ An application data sheet (ADS) in accordance with 37 CFR 1.76(c) that identifies the changes with proper markings (underlining for insertions and strikethrough for deletions). A Corrected Web-based ADS may be used.

☒ A Statement Under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent). See MPEP 325.

I am the

☐ applicant*

☒ attorney or agent of record
Registration number 55,275

☐ attorney or agent acting under 37 CFR 1.34
Registration number _____

Signature / Daniel P. Homiller, Reg. # 55,275 /

Typed or printed name Daniel P. Homiller

Date 2019-01-22

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. *Juristic entities must be represented by a patent practitioner (See 37 CFR 1.31, applicable to any paper filed on or after September 16, 2012 that is presented on behalf of a juristic entity, regardless of application filing date). Submit multiple forms if more than one signature is required, see below**.

☐ ** Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.36. 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.

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

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.



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1	1087
102721	7590	01/17/2019	EXAMINER	
Murphy, Bilak & Homiller/Ericsson			ART UNIT	PAPER NUMBER
1255 Crescent Green			1629	
Suite 200			NOTIFICATION DATE	DELIVERY MODE
Cary, NC 27518			01/17/2019	ELECTRONIC

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

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

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

official@mbhiplaw.com

<i>Decision Granting Request for Prioritized Examination (Track I)</i>	Application No. 16/204,265	Applicant(s) Wang et al.	
	Examiner BRIAN W BROWN	Art Unit OPET	AIA (First Inventor to File) Status Yes
<p>1. THE REQUEST FILED <u>29 November 2018</u> IS GRANTED .</p> <p>The above-identified application has met the requirements for prioritized examination</p> <p>A. <input checked="" type="checkbox"/> for an original nonprovisional application (Track I).</p> <p>B. <input type="checkbox"/> for an application undergoing continued examination (RCE).</p> <p>2. The above-identified application will undergo prioritized examination. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:</p> <p>A. filing a <u>petition for extension of time</u> to extend the time period for filing a reply;</p> <p>B. filing an <u>amendment to amend the application to contain more than four independent claims, more than thirty total claims</u>, or a multiple dependent claim;</p> <p>C. filing a <u>request for continued examination</u> ;</p> <p>D. filing a notice of appeal;</p> <p>E. filing a request for suspension of action;</p> <p>F. mailing of a notice of allowance;</p> <p>G. mailing of a final Office action;</p> <p>H. completion of examination as defined in 37 CFR 41.102; or</p> <p>I. abandonment of the application.</p> <p>Telephone inquiries with regard to this decision should be directed to BRIAN BROWN at (571)272-5338. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.</p>			
/BRIAN W BROWN/ Petitions Examiner, OPET			



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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
16/204,265	11/29/2018	1629	3180	1009-3048 / P71583 US1	30	4

CONFIRMATION NO. 1087

UPDATED FILING RECEIPT



0000000105053411

102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

Date Mailed: 01/16/2019

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)

Jianfeng Wang, Beijing, CHINA;
Asbjörn Gröven, Stockholm, SWEDEN;
Henrik Sahlin, Mölnlycke, SWEDEN;

Applicant(s)

Jianfeng Wang, Beijing, CHINA;
Asbjörn Gröven, Stockholm, SWEDEN;
Henrik Sahlin, Mölnlycke, SWEDEN;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of PCT/SE2018/050287 03/21/2018

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

CHINA PCT/CN2017/078102 03/24/2017 No Access Code Provided

Permission to Access Application via Priority Document Exchange: No

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: 12/19/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/204,265**

Projected Publication Date: 04/25/2019

Non-Publication Request: No

Early Publication Request: No
Title

NR Broadcast Channel Transmission

Preliminary Class

514

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

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).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1
CONFIRMATION NO. 1087			

102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518



Date Mailed: 01/16/2019

**Improper Submission of Authorization to Permit
Access to Search Results under 37 CFR 1.14(h)(2)**

The Authorization to Permit Access to the Search Results from the instant application under 37 CFR 1.14(h)(2) (authorization to permit access to search results) submitted on 01/09/2019 in the above-identified application is not accepted because:

- It was not submitted as a separate document or on an ADS on filing. If applicant still wishes to provide authorization to permit access to the search results under 37 CFR 1.14(h)(2), applicant must submit an authorization on a separate document (e.g., PTO/SB/69).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/mnguyen/



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1

CONFIRMATION NO. 1087

IMPROPER CFR REQUEST



102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

Date Mailed: 01/16/2019

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Power of Attorney, Claims, Fees, System Limitations, and Miscellaneous

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- The ADS submitted on _01/09/2019_ attempts to change the applicant but cannot be entered. Any request to change the applicant once the applicant has been specified must include (1) an application data sheet specifying the new applicant in the Applicant Information section, and (2) a statement under 37 CFR 3.73(c) (USPTO Form PTO/AIA/96 or an equivalent) to show chain of title to the new applicant. The application data sheet must contain markings to show the information that is being changed, with underlining for additions and strike-through or brackets for deletions. See 37 CFR 1.76(c)(2).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/mnguyen/



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1
CONFIRMATION NO. 1087			

102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518



Date Mailed: 01/16/2019

Improper Submission of Authorization to Permit Access to Application by Participating Offices under 37 CFR 1.14(h)(1) (Priority Document Exchange)

The Authorization to Permit Access to Application-As-Filed by Participating Offices under 37 CFR 1.14(h)(1) (authorization to permit access to application via priority document exchange) submitted on 01/09/2019 in the above-identified application is not accepted because:

- It was not submitted as a separate document or on an ADS on filing. If applicant still wishes to provide authorization to permit access under 37 CFR 1.14(h)(1), applicant must submit an authorization on a separate document (e.g., PTO/SB/39).

Any authorization should be submitted prior to filing a subsequent foreign application with a participating intellectual property office in which priority is claimed to the above-identified U.S. application to ensure that it is likely that the participating foreign intellectual property office will be successful in its attempt to retrieve a copy of the U.S. priority application from the Office.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/mnguyen/

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/204,265	
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	300
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(j))	30	minus 20 = *	10			x 100 =	1000
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = *	1			x 460 =	460
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	3180
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	**	=		=
	Independent (37 CFR 1.16(h))	*	Minus	***	=		=
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				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	**	=		=
	Independent (37 CFR 1.16(h))	*	Minus	***	=		=
	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 found in the appropriate box in column 1.							

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Wang)	
)	
Serial No.: 16/204,265	)	PATENT PENDING
)	
Filed: Nov 29, 2018	)	Examiner: TBD
)	
For: NR Broadcast Channel Transmission	)	Group Art Unit: 1629
)	
Attorney's Docket No: 1009-3048 / P71583 US1	)	Confirmation No.: 1087
)	

MS MISSING PARTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE OF INCOMPLETE REPLY

In response to the Notice of Incomplete Reply mailed 28 December 2018, Application herewith submits a properly signed Application Data Sheet, with additions marked. Applicant respectfully requests entry of this form, inventor addresses, priority claim, and Authorization to Permit Access included within.

The Commissioner is hereby authorized to charge any fees that may be required or credit any overpayment to Deposit Account 50-5650.

Respectfully submitted,
Murphy, Bilak & Homiller, PLLC

/ Daniel P. Homiller, Reg. # 55,275 /

Dated: 9 January 2019

Daniel P. Homiller
Registration No.: 55,275

1255 Crescent Green, Suite 200
Cary, NC 27518

Telephone: (919) 948-3390
Facsimile: (919) 948-3357



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1

CONFIRMATION NO. 1087

FORMALITIES LETTER

102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518



Date Mailed: 12/28/2018

NOTICE OF INCOMPLETE REPLY (NONPROVISIONAL)

Filing Date Granted

The U.S. Patent and Trademark Office has received your reply on 12/21/2018 to the Notice to File Missing Parts (Notice) mailed 12/20/2018 and it has been entered into the nonprovisional application. The reply, however, does not include the following items required in the Notice. A complete reply must be timely filed to prevent ABANDONMENT of the above-identified application. Replies should be mailed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

Applicant is given **TWO MONTHS** from the date of the Notice to File Missing Parts (Notice) mailed 12/20/2018 within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- A mailing address for each inventor has not been submitted. A new application data sheet (ADS) in compliance with 37 CFR 1.76 or inventor's oath or declaration in compliance with 37 CFR 1.63 identifying the mailing address and residence (if the inventor lives at a location which is different from where the inventor customarily receives mail) is required.

Jianfeng Wang
Asbjörn Grövlén
Henrik Sahlin

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/ebekele/

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		
<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.)

Inventor Information:

Inventor 1 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Jianfeng		Wang	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	Beijing	Country of Residence ⁱ	CN	
Mailing Address of Inventor:				
Address 1		No. 5 Lize East Street, Chaoyang District		
Address 2				
City	Beijing	State/Province		
Postal Code	100102	Country ⁱ	CN	
Inventor 2 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	Asbjörn		Grövlén	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	Stockholm	Country of Residence ⁱ	SE	
Mailing Address of Inventor:				
Address 1		Lindhagensgatan 139, lgh 1403		
Address 2				
City	Stockholm	State/Province		
Postal Code	112 15	Country ⁱ	SE	
Inventor 3 Remove				
Legal Name				

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1	
		Application Number		
Title of Invention		NR Broadcast Channel Transmission		
Prefix	Given Name	Middle Name	Family Name	Suffix
	Henrik		Sahlin	
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	Mölnlycke	Country of Residence ⁱ	SE	
Mailing Address of Inventor:				
Address 1		Kalkstensvägen 1		
Address 2				
City	Mölnlycke	State/Province		
Postal Code	435 41	Country ⁱ	SE	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
<input type="checkbox"/> An Address is being provided for the correspondence information of this application.	
Customer Number	102721
Email Address	official@mbhiplaw.com Add Email Remove Email

Application Information:

Title of the Invention	NR Broadcast Channel Transmission		
Attorney Docket Number	1009-3048 / P71583 US1	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Publication Information:

<input type="checkbox"/>	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
<input type="checkbox"/>	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative information during processing.											
<table border="1"> <tr> <td>Please Select One:</td> <td><input checked="" type="radio"/> Customer Number</td> <td><input type="radio"/> US Patent Practitioner</td> <td><input type="radio"/> Limited Recognition (37 CFR 11.9)</td> </tr> <tr> <td>Customer Number</td> <td colspan="3">102721</td> </tr> </table>				Please Select One:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)	Customer Number	102721		
Please Select One:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)								
Customer Number	102721										

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 benefit claim 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.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	PCT/SE2018/050287	2018-03-21

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX),¹ 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).

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	<div>Remove</div> Access Code ^j (if applicable)
PCT/CN2017/078102	CN	2017-03-24	
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

<input type="checkbox"/> 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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant 1			
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
<input type="button" value="Clear"/>			
<input type="radio"/> Assignee	<input type="radio"/> Legal Representative under 35 U.S.C. 117	<input type="radio"/> Joint Inventor	
<input checked="" type="radio"/> Person to whom the inventor is obligated to assign.		<input type="radio"/> Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor: <input type="text"/>			
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>			
Organization Name	Telefonaktiebolaget LM Ericsson (publ)		
Mailing Address Information For Applicant:			
Address 1	SE-164 83		
Address 2			
City	Stockholm	State/Province	
Country	SE	Postal Code	
Phone Number		Fax Number	
Email Address	official@mbhiplaw.com		
Additional Applicant Data may be generated within this form by selecting the Add button.			

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.

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1	
		Application Number		
Title of Invention	NR Broadcast Channel Transmission			

Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
If the Assignee or Non-Applicant Assignee is an Organization check here. <input type="checkbox"/>				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country ⁱ		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/ Daniel P. Homiller, Reg. # 55,275 /		Date (YYYY-MM-DD)	2018-11-19
First Name	Daniel	Last Name	Homiller	Registration Number
		55275		
Additional Signature may be generated within this form by selecting the Add button.				

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

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.**

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 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.

Electronic Acknowledgement Receipt	
EFS ID:	34809563
Application Number:	16204265
International Application Number:	
Confirmation Number:	1087
Title of Invention:	NR Broadcast Channel Transmission
First Named Inventor/Applicant Name:	Jianfeng Wang
Customer Number:	102721
Filer:	Daniel P. Homiller/Brittany Wage
Filer Authorized By:	Daniel P. Homiller
Attorney Docket Number:	1009-3048 / P71583 US1
Receipt Date:	09-JAN-2019
Filing Date:	29-NOV-2018
Time Stamp:	17:02:51
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	Applicant Response to Pre-Exam Formalities Notice	Response.pdf	19840	no	1
			a378950648432fce3927b1969b71fe69228e7972		

Warnings:

Information:					
2	Applicant Response to Pre-Exam Formalities Notice	Notice.pdf	66543	no	2
			6bc4bbd7eaa2942a2cf3c4dfba3d1b77460ede19		
Warnings:					
Information:					
3	Application Data Sheet	ADS.pdf	323060	no	9
			93d6f2feff2d1e6822746893f4ae5add89b50e7a		
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
Total Files Size (in bytes):			409443		
<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

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1

CONFIRMATION NO. 1087

FORMALITIES LETTER

102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518



Date Mailed: 12/28/2018

NOTICE OF INCOMPLETE REPLY (NONPROVISIONAL)

Filing Date Granted

The U.S. Patent and Trademark Office has received your reply on 12/21/2018 to the Notice to File Missing Parts (Notice) mailed 12/20/2018 and it has been entered into the nonprovisional application. The reply, however, does not include the following items required in the Notice. A complete reply must be timely filed to prevent ABANDONMENT of the above-identified application. Replies should be mailed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

Applicant is given **TWO MONTHS** from the date of the Notice to File Missing Parts (Notice) mailed 12/20/2018 within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- A mailing address for each inventor has not been submitted. A new application data sheet (ADS) in compliance with 37 CFR 1.76 or inventor's oath or declaration in compliance with 37 CFR 1.63 identifying the mailing address and residence (if the inventor lives at a location which is different from where the inventor customarily receives mail) is required.

Jianfeng Wang
Asbjörn Grövlén
Henrik Sahlin

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/ebekele/

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/204,265	
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	300
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(i))	30	minus 20 = *	10			x 100 =	1000
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = *	1			x 460 =	460
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	3180
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	=
	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		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	=
	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		TOTAL ADD'L FEE	
<p style="font-size: x-small;">* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p style="font-size: x-small;">** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p style="font-size: x-small;">*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p style="font-size: x-small;">The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.</p>							



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1

CONFIRMATION NO. 1087

IMPROPER CFR REQUEST



102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

Date Mailed: 12/28/2018

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Power of Attorney, Claims, Fees, System Limitations, and Miscellaneous

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- The ADS submitted on 12/21/2018 was not properly marked up to show the desired changes. For information being changed relative to the information already of record, additions must be shown with underlining, and deletions must be shown with strike-through or brackets. See 37 CFR 1.76(c)(2).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/ebekele/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Wang)	
)	
Serial No.: 16/204,265	)	PATENT PENDING
)	
Filed: Nov 29, 2018	)	Examiner: TBD
)	
For: NR Broadcast Channel Transmission	)	Group Art Unit: 1629
)	
Attorney's Docket No: 1009-3048 / P71583 US1	)	Confirmation No.: 1087
)	

MS MISSING PARTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO FILE MISSING PARTS

In response to the Notice to File Missing Parts mailed 20 December 2018, Application herewith submits a properly signed Application Data Sheet. Applicant respectfully requests entry of this form, inventor addresses, priority claim, and Authorization to Permit Access included within.

The Commissioner is hereby authorized to charge any fees that may be required or credit any overpayment to Deposit Account 50-5650.

Respectfully submitted,
Murphy, Bilak & Homiller, PLLC

/ Daniel P. Homiller, Reg. # 55,275 /

Dated: 21 December 2018

Daniel P. Homiller
Registration No.: 55,275

1255 Crescent Green, Suite 200
Cary, NC 27518

Telephone: (919) 948-3390
Facsimile: (919) 948-3357



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1

CONFIRMATION NO. 1087

FORMALITIES LETTER



102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

Date Mailed: 12/20/2018

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- A mailing address for each inventor has not been submitted. A new application data sheet (ADS) in compliance with 37 CFR 1.76 or inventor's oath or declaration in compliance with 37 CFR 1.63 identifying the mailing address and residence (if the inventor lives at a location which is different from where the inventor customarily receives mail) is required.

Jianfeng Wang
Asbjörn Grövlén
Henrik Sahlin

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- The ADS received on 11/29/2018 was not properly signed. Therefore, the Office will treat it only as a transmittal letter. See 37 CFR 1.76(e). Inventorship has not been set by this document and any foreign priority or domestic benefit claims contained therein are ineffective. See 37 CFR 1.55 or 37 CFR 1.78.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/bzewdie/

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		
<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.)

Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Jianfeng		Wang		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Beijing	Country of Residence ⁱ	CN		
Mailing Address of Inventor:					
Address 1	No. 5 Lize East Street, Chaoyang District				
Address 2					
City	Beijing	State/Province			
Postal Code	100102	Country ⁱ	CN		
Inventor	2				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Asbjörn		Grövlén		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Stockholm	Country of Residence ⁱ	SE		
Mailing Address of Inventor:					
Address 1	Lindhagensgatan 139, lgh 1403				
Address 2					
City	Stockholm	State/Province			
Postal Code	112 15	Country ⁱ	SE		
Inventor	3				Remove
Legal Name					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Henrik		Sahlin	
Residence Information (Select One) US Residency <input checked="" type="radio"/> Non US Residency Active US Military Service				
City	Mölnlycke	Country of Residence ⁱ	SE	
Mailing Address of Inventor:				
Address 1	Kalkstensvägen 1			
Address 2				
City	Mölnlycke	State/Province		
Postal Code	435 41	Country ⁱ	SE	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
<input type="checkbox"/> An Address is being provided for the correspondence Information of this application.	
Customer Number	102721
Email Address	official@mbhiplaw.com Add Email Remove Email

Application Information:

Title of the Invention	NR Broadcast Channel Transmission		
Attorney Docket Number	1009-3048 / P71583 US1	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Publication Information:

<input type="checkbox"/>	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
<input type="checkbox"/>	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.											
<table border="1"> <tr> <td>Please Select One:</td> <td><input checked="" type="radio"/> Customer Number</td> <td>US Patent Practitioner</td> <td><input type="radio"/> Limited Recognition (37 CFR 11.9)</td> </tr> <tr> <td>Customer Number</td> <td colspan="3">102721</td> </tr> </table>				Please Select One:	<input checked="" type="radio"/> Customer Number	US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)	Customer Number	102721		
Please Select One:	<input checked="" type="radio"/> Customer Number	US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)								
Customer Number	102721										

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 benefit claim 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.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	<input type="text"/>	<input type="button" value="Remove"/>	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
<input type="text"/>	Continuation of <input type="text"/>	PCT/SE2018/050287	2018-03-21
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)¹ 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).

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	<div>Remove</div> Access Code ^j (if applicable)
PCT/CN2017/078102	CN	2017-03-24	
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			<div>Add</div>

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant	1		<input type="button" value="Remove"/>
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p>			
		<input type="button" value="Clear"/>	
Assignee	Legal Representative under 35 U.S.C. 117		Joint Inventor
<input checked="" type="radio"/> Person to whom the inventor is obligated to assign.		<input type="radio"/> Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>			
Name of the Deceased or Legally Incapacitated Inventor: <div style="border: 1px solid black; width: 400px; height: 20px;"></div>			
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>			
Organization Name	Telefonaktiebolaget LM Ericsson (publ)		
Mailing Address Information For Applicant:			
Address 1	SE-164 83		
Address 2			
City	Stockholm	State/Province	
Country	SE	Postal Code	
Phone Number		Fax Number	
Email Address	official@mbhiplaw.com		
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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

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.				
				<input type="button" value="Remove"/>
If the Assignee or Non-Applicant Assignee is an Organization check here.				<input type="checkbox"/>
Prefix	Given Name	Middle Name	Family Name	Suffix
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1		<input type="text"/>		
Address 2		<input type="text"/>		
City	<input type="text"/>	State/Province	<input type="text"/>	
Country i	<input type="text"/>	Postal Code	<input type="text"/>	
Phone Number	<input type="text"/>	Fax Number	<input type="text"/>	
Email Address	<input type="text"/>			
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 Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/ Daniel P. Homiller, Reg. # 55,275 /		Date (YYYY-MM-DD)	2018-11-29
First Name	Daniel	Last Name	Homiller	Registration Number
				55275
Additional Signature may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

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.**

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 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.

Electronic Acknowledgement Receipt	
EFS ID:	34679955
Application Number:	16204265
International Application Number:	
Confirmation Number:	1087
Title of Invention:	NR Broadcast Channel Transmission
First Named Inventor/Applicant Name:	Jianfeng Wang
Customer Number:	102721
Filer:	Daniel P. Homiller/Brittany Wage
Filer Authorized By:	Daniel P. Homiller
Attorney Docket Number:	1009-3048 / P71583 US1
Receipt Date:	21-DEC-2018
Filing Date:	29-NOV-2018
Time Stamp:	17:30:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	Response.pdf	19718	no	1
			3d726386d3a381a62f5b17ee910390eee7e550a7		

Warnings:

Information:					
2	Applicant Response to Pre-Exam Formalities Notice	Notice.pdf	76780	no	2
			ab487d4540c46c7d218b42388ca094908d392964		
Warnings:					
Information:					
3	Application Data Sheet	ADS.pdf	1826463	no	9
			93496b95928572a4fad5b1c6b3a532ffd260297f		
Warnings:					
Information:					
Total Files Size (in bytes):			1922961		
<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>					

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/204,265				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR 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	300			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760			
TOTAL CLAIMS (37 CFR 1.16(i))	30	minus 20 = *	10			x 100 =	1000			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = *	1			x 460 =	460			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	3180			
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=		x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
TOTAL ADD'L FEE								TOTAL ADD'L FEE		
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=		x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
TOTAL ADD'L FEE								TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1

CONFIRMATION NO. 1087

102721
Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518



Date Mailed: 12/20/2018

**Improper Submission of Authorization to Permit
Access to Search Results under 37 CFR 1.14(h)(2)**

The Authorization to Permit Access to the Search Results from the instant application under 37 CFR 1.14(h)(2) (authorization to permit access to search results) submitted on 11/29/2018 in the above-identified application is not accepted because:

- It was not properly signed. If applicant still wishes to provide authorization to permit access to the search results under 37 CFR 1.14(h)(2), applicant must submit a properly signed authorization (e.g., PTO/SB/69).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/bzewdie/



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1
CONFIRMATION NO. 1087			

102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518



Date Mailed: 12/20/2018

Improper Submission of Authorization to Permit Access to Application by Participating Offices under 37 CFR 1.14(h)(1) (Priority Document Exchange)

The Authorization to Permit Access to Application-As-Filed by Participating Offices under 37 CFR 1.14(h)(1) (authorization to permit access to application via priority document exchange) submitted on 11/29/2018 in the above-identified application is not accepted because:

- It was not properly signed. If applicant still wishes to provide authorization to permit access under 37 CFR 1.14(h)(1), applicant must submit a properly signed authorization (e.g., PTO/SB/39).

Any authorization should be submitted prior to filing a subsequent foreign application with a participating intellectual property office in which priority is claimed to the above-identified U.S. application to ensure that it is likely that the participating foreign intellectual property office will be successful in its attempt to retrieve a copy of the U.S. priority application from the Office.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/bzewdie/



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1

CONFIRMATION NO. 1087

FORMALITIES LETTER

102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518



Date Mailed: 12/20/2018

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- A mailing address for each inventor has not been submitted. A new application data sheet (ADS) in compliance with 37 CFR 1.76 or inventor's oath or declaration in compliance with 37 CFR 1.63 identifying the mailing address and residence (if the inventor lives at a location which is different from where the inventor customarily receives mail) is required.

Jianfeng Wang
Asbjörn Grövlén
Henrik Sahlin

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- The ADS received on 11/29/2018 was not properly signed. Therefore, the Office will treat it only as a transmittal letter. See 37 CFR 1.76(e). Inventorship has not been set by this document and any foreign priority or domestic benefit claims contained therein are ineffective. See 37 CFR 1.55 or 37 CFR 1.78.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

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Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://portal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/bzewdie/



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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
16/204,265	11/29/2018	1629	3180	1009-3048 / P71583 US1	30	4

CONFIRMATION NO. 1087

FILING RECEIPT



0000000104582183

102721

Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518

Date Mailed: 12/20/2018

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)

Jianfeng Wang, Residence Not Provided;
Asbjörn Grövlén, Residence Not Provided;
Henrik Sahlin, Residence Not Provided;

Applicant(s)

Jianfeng Wang, Residence Not Provided;
Asbjörn Grövlén, Residence Not Provided;
Henrik Sahlin, Residence Not Provided;

Power of Attorney: None

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

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: No

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: 12/19/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/204,265**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No
Title

NR Broadcast Channel Transmission

Preliminary Class

514

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

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).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/204,265	11/29/2018	Jianfeng Wang	1009-3048 / P71583 US1

CONFIRMATION NO. 1087
IMPROPER CPOA LETTER

102721
Murphy, Bilak & Homiller/Ericsson
1255 Crescent Green
Suite 200
Cary, NC 27518



Date Mailed: 12/20/2018

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 11/29/2018. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney has not been accepted because the party who is giving power has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A party who is not the applicant must become the applicant in accordance with 37 CFR 1.46(c) and appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. For a reissue application, reexamination proceeding, or supplemental examination proceeding, a patent owner who was not the applicant under 37 CFR 1.46 must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

/bzewdie/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby appoint the Practitioners of Murphy, Bilak & Homiller, PLLC, as associated with the following Customer Number:

102721*

as attorneys or agents 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 USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c). This appointment will automatically lapse five years after the date of execution of this document unless earlier revoked.

Assignee Name and Address:

Telefonaktiebolaget LM Ericsson (publ)
SE-164 83 Stockholm
Sweden

SIGNATURE of Assignee of Record

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

Date:

2016-04-05

Signature(s)

Gabriele Mohsler
Vice President Patent Development

Nabil Ayoub
Director Patent Unit RAN2

*As of March 14, 2016, the attorneys/agents associated with customer number 102721 include: Mark R. BILAK (Reg. No. 47,423), Daniel P. HOMILLER (Reg. No. 55,275), Phillip Marc JOHNSON (Reg. No. 72,884), Michael D. MURPHY (Reg. No. 44,958), James Michael O'NEILL (Reg. No. 69,924), and Patrick P. HANSEN (Reg. No. 57,656).

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	
	Filing Date	
	First Named Inventor	Jianfeng Wang
	Art Unit	
	Examiner Name	
	Attorney Docket Number	1009-3048

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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		
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	1	20160112221	A1	2016-04-21	ZHANG			
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Jianfeng Wang	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	1009-3048	

1	3GPP , "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Physical channels and modulation (Release 14)", 3GPP TS 36.211 V14.2.0, March 2017, 1-194.
2	UNKNOWN, AUTHOR , "Design of SS burst set and SS block index", ZTE, ZTE Microelectronics, 3GPP TSG RAN WG1 Meeting #88, R1-1701573, Athens, Greece, 13-17 February 2017, 1-5.
3	UNKNOWN, AUTHOR , "Discussion on SS burst set composition and SS block time index indication", Huawei, HiSilicon, 3GPP TSG RAN WG I Meeting #88, R1-1703353, Athens, Greece, 13-17 February 2017, 1-7.
4	UNKNOWN, AUTHOR , "Discussion on synchronization procedure in NR", Sequans Communications, 3GPP TSG-RAN WG1 #88, R1-1701850, Athens, Greece, 13-17 February 2017, 1-6.
5	3GPP , "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Study on New Radio (NR) Access Technology; Physical Layer Aspects (Release 14)", 3GPP TR 38.802 V1.2.0, February 2017, 1-83.

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

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*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	Jianfeng Wang	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	1009-3048	

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	/ Daniel P. Homiller, Reg. # 55,275 /	Date (YYYY-MM-DD)	2018-11-29
Name/Print	Daniel P. Homiller	Registration Number	55275

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.**

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 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.

**CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION
UNDER 37 CFR 1.102(e) (Page 1 of 1)**

First Named Inventor:	Jianfeng Wang	Nonprovisional Application Number (if known):	
Title of Invention:	NR Broadcast Channel Transmission		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently \$0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.
2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.
3. The applicable box is checked below:

I. ☒ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

- i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.
---OR---
(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.
- ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, or the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

- i. A request for continued examination has been filed with, or prior to, this form.
- ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
- iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
- iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
- v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature / Daniel P. Homiller, Reg. # 55,275 /	Date 2018-11-29
Name (Print/Typed) Daniel P. Homiller	Practitioner Registration Number 55,275
Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.*	
<input checked="" type="checkbox"/> *Total of <u>1</u> forms are submitted.	

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.

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		NR Broadcast Channel Transmission		
First Named Inventor/Applicant Name:		Jianfeng Wang		
Filer:		Daniel P. Homiller/Brittany Wage		
Attorney Docket Number:		1009-3048 / P71583 US1		
Filed as Large Entity				
Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
REQUEST FOR PRIORITIZED EXAMINATION	1817	1	4000	4000
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	10	100	1000
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	460	460

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous-Filing:				
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
PROCESSING FEE, EXCEPT PROV. APPLS.	1830	1	140	140
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				7320

Electronic Acknowledgement Receipt	
EFS ID:	34436389
Application Number:	16204265
International Application Number:	
Confirmation Number:	1087
Title of Invention:	NR Broadcast Channel Transmission
First Named Inventor/Applicant Name:	Jianfeng Wang
Customer Number:	102721
Filer:	Daniel P. Homiller/Brittany Wage
Filer Authorized By:	Daniel P. Homiller
Attorney Docket Number:	1009-3048 / P71583 US1
Receipt Date:	29-NOV-2018
Filing Date:	
Time Stamp:	14:52:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$7320
RAM confirmation Number	113018INTEFSW00001359505650
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	ADS.pdf	1826469	no	9
			e0f2c9a26757c06d0ced2808ce48163ace5dd61		
Warnings:					
Information:					
2		Application.pdf	619848	yes	41
			1f677741c6a798a2b5db6e1424a0b77b71a1dbd0		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	26	
	Claims		27	33	
	Abstract		34	34	
	Drawings-only black and white line drawings		35	41	
Warnings:					
Information:					
3	Oath or Declaration filed	Declaration.pdf	556691	no	3
			65a4ce2151742b637d414e24f7fc11e90c4cf0cc		
Warnings:					
Information:					
4	Power of Attorney	POA.pdf	364602	no	1
			c18cc8dfce73323f02c7c775f033e3511cf61d6		
Warnings:					
Information:					

5	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	1035349	no	4
			b1f97d08713ba6fe60807f7672729ce0c572d0b9		
Warnings:					
Information:					
6	Non Patent Literature	3GPP1.pdf	1031822	no	83
			f1d154f4f795bf27764d8da521a91899aa6fedb		
Warnings:					
Information:					
7	Non Patent Literature	3GPP2.pdf	2283118	no	194
			3075869db9fb4f69915df54f0c451cce6a45649e		
Warnings:					
Information:					
8	TrackOne Request	Track_One.pdf	125245	no	2
			2cc605d5959d7450a44d529e85902c72772939e5		
Warnings:					
Information:					
9	Non Patent Literature	R1-1701573.pdf	2192720	no	5
			a536281c87305bff1477e8f590e3f80230f7764d		
Warnings:					
Information:					
10	Non Patent Literature	R1-1701850.pdf	2792917	no	6
			0b19d0d441250ba3374ff457fa3ae79260269cfe		
Warnings:					
Information:					
11	Non Patent Literature	R1-1703353.pdf	3583760	no	7
			5decfab5e73334a9bb4debfd9dae1cd705420ae		
Warnings:					
Information:					

12	Fee Worksheet (SB06)	fee-info.pdf	43200	no	2				
			2338d1567874504b48fc75eb2e2d852e08ecc33a						
Warnings:									
Information:									
Total Files Size (in bytes):			16455741						
<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>									

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		
<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.)

Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Jianfeng		Wang		
Residence Information (Select One) US Residency <input checked="" type="radio"/> Non US Residency Active US Military Service					
City	Beijing		Country of Residenceⁱ	CN	
Mailing Address of Inventor:					
Address 1	No. 5 Lize East Street, Chaoyang District				
Address 2					
City	Beijing		State/Province		
Postal Code	100102		Countryⁱ	CN	
Inventor	2				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Asbjörn		Grövlén		
Residence Information (Select One) US Residency <input checked="" type="radio"/> Non US Residency Active US Military Service					
City	Stockholm		Country of Residenceⁱ	SE	
Mailing Address of Inventor:					
Address 1	Lindhagensgatan 139, lgh 1403				
Address 2					
City	Stockholm		State/Province		
Postal Code	112 15		Countryⁱ	SE	
Inventor	3				Remove
Legal Name					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Henrik		Sahlin	
Residence Information (Select One) US Residency <input checked="" type="radio"/> Non US Residency Active US Military Service				
City	Mölnlycke	Country of Residence ⁱ	SE	
Mailing Address of Inventor:				
Address 1	Kalkstensvägen 1			
Address 2				
City	Mölnlycke	State/Province		
Postal Code	435 41	Country ⁱ	SE	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
<input type="checkbox"/> An Address is being provided for the correspondence Information of this application.	
Customer Number	102721
Email Address	official@mbhiplaw.com Add Email Remove Email

Application Information:

Title of the Invention	NR Broadcast Channel Transmission		
Attorney Docket Number	1009-3048 / P71583 US1	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Publication Information:

<input type="checkbox"/>	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
<input type="checkbox"/>	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.											
<table border="1"> <tr> <td>Please Select One:</td> <td><input checked="" type="radio"/> Customer Number</td> <td>US Patent Practitioner</td> <td><input type="radio"/> Limited Recognition (37 CFR 11.9)</td> </tr> <tr> <td>Customer Number</td> <td colspan="3">102721</td> </tr> </table>				Please Select One:	<input checked="" type="radio"/> Customer Number	US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)	Customer Number	102721		
Please Select One:	<input checked="" type="radio"/> Customer Number	US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)								
Customer Number	102721										

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 benefit claim 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. When referring to the current application, please leave the "Application Number" field blank.			
Prior Application Status	<input type="text"/>	<input type="button" value="Remove"/>	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
<input type="text"/>	Continuation of <input type="text"/>	PCT/SE2018/050287	2018-03-21
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			<input type="button" value="Add"/>

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) ¹ 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).

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	<div>Remove</div> Access Code ^j (if applicable)
PCT/CN2017/078102	CN	2017-03-24	
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			<div>Add</div>

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	1009-3048 / P71583 US1
		Application Number	
Title of Invention	NR Broadcast Channel Transmission		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant	1		<input type="button" value="Remove"/>
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p>			
		<input type="button" value="Clear"/>	
Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor	
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Title of Invention	NR Broadcast Channel Transmission		

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NR BROADCAST CHANNEL TRANSMISSION

TECHNICAL FIELD

[0001] The invention relates to methods for transmitting system information in a synchronization signal block, as well as to a wireless device, a network node, computer programs, and computer program devices.

BACKGROUND

[0002] The fifth generation (5G) of mobile telecommunications and wireless technology is not yet fully defined but in an advanced draft stage within 3rd Generation Partnership Project (3GPP). It includes work on 5G New Radio (NR) Access Technology. Long term evolution (LTE) terminology is used in this disclosure in a forward-looking sense, to include equivalent 5G entities or functionalities although a different term is specified in 5G. A general description of the agreements on the physical layer aspects of 5G NR Access Technology so far is contained in 3GPP Technical Report 38.802 v1.2.0 (2017-02). Final specifications may be published inter alia in the future 3GPP TS 38.2** series.

[0003] Figure 1 schematically illustrates a wireless communication network, where a User Equipment UE1 is wirelessly connectable to a Base Station BS 2. The BS 2 is connected to a core network CN 3. In an NR access network, the BS may be referred to as a gNB, and the corresponding terminology for an LTE access network is an eNB. The BS 2 serves the UE 1 located within the BS's geographical area of service, called a cell.

[0004] Initial access and synchronization in cellular systems

[0005] When a wireless device (or UE) first accesses a wireless communication system, it must synchronize to the system. The synchronization is required for the UE to know when the network will transmit various signals such as broadcast of system information (SI). The UE must also synchronize to the system to understand when it should transmit uplink signals, such as the random access signals transmitted during initial access.

[0006] A wireless communication system uses different time units to keep track of time. In systems using orthogonal frequency division multiplexing (OFDM), the term OFDM symbol is used for the smallest time unit. A number of symbols may form slots, a number of slots may form subframes, and a number of subframes may form radio frames. System information and paging information are typically distributed on a time scale where a radio frame is a relevant time unit. In many cellular system standards, a radio frame is 10 milliseconds in length.

[0007] In LTE, there are two synchronization signals: Primary synchronization signal (PSS) and Secondary synchronization signal (SSS). To perform initial access, the UE must obtain at least symbol and frame synchronization. To obtain symbol synchronization, the UE searches for a special synchronization sequence, which corresponds to the PSS. The PSS is typically one symbol long. By finding that sequence, the UE can establish symbol timing. The UE may also use the received PSS to determine frame synchronization. For that to be possible, every PSS must be transmitted with a fixed timing relation to the frame start. When the UE has found the PSS, it can also read an identifier of the current cell, and very basic system information, called the master information block (MIB). The PSS and SSS are thus used to indicate the physical-layer cell identity (PCI) to a UE, besides the functionality to provide the synchronization.

[0008] In NR, the concepts of PSS and SSS are re-used to provide the initial synchronization and are referred to as NR-PSS and NR-SSS. NR-PSS is defined for initial symbol boundary synchronization to the NR cell. NR-SSS is defined for detection of NR cell identity (cell ID) or at least part of NR cell ID.

[0009] In NR, a broadcast channel referred to as NR Physical Broadcast Channel (NR-PBCH) is defined. NR-PBCH is a non-scheduled broadcast channel carrying a part of minimum system information with fixed payload size and a periodicity predefined in the specification depending on carrier frequency range. NR-PBCH contents shall include at least part of the system frame number (SFN), and a Cyclic Redundancy Check (CRC). The following is a list of options to what the NR-PBCH may carry in terms of system information:

- Option 1: NR-PBCH carries a part of essential system information for initial access including information necessary for UE to receive a channel carrying remaining essential system information;
- Option 2: NR-PBCH carries minimum information necessary for UE to perform initial UL transmission in addition to the information in Option 1 allowing for initial access; and
- Option 3: NR-PBCH carries all essential system information for initial access.

[0010] In NR, it will be possible to transmit the NR-PSS using beamforming. The NR-PSS will be transmitted in different beams at different time instants. The beams over which the NR-PSS is transmitted are chosen so that a UE at any position in the cell can receive at least one NR-PSS transmission. Sometimes, the term beam sweep is used for this procedure. To support beam sweeping of the NR-PSS, more than one NR-PSS must be transmitted in each frame, otherwise, the synchronization delay will be too long. This means that NR-PSSs transmitted in different beams will have different offsets relative to the frame start, which in turn means that the UE cannot derive the frame start only from the time when it receives the NR-PSS. Some additional information is required.

[0011] To support beam sweeping with massive Multiple Input Multiple Output (MIMO), a new concept of SS block has been defined to include some basic signals and broadcast system information. NR-PSS, NR-SSS and/or NR-PBCH can be transmitted within an SS block. However, multiplexing other signals within an SS block is not precluded. A UE shall be able to identify an OFDM symbol index, a slot index in a radio frame, and a radio frame number from an SS block.

[0012] In the 3GPP agreements for NR, a basic structure for the synchronization signals and channels has been defined. Figure 2b shows a schematic diagram of the basic structure for the synchronization signals transmission. One or multiple SS block(s) compose an SS burst. One or multiple SS burst(s) further compose an SS burst set, where the number of SS bursts within a SS burst set is finite. The number of SS block(s) composing one SS burst set is L in the example illustrated in Figure 2b, where L is a positive integer. From physical layer specification perspective, at least one periodicity of the SS burst

set is supported. From a UE perspective, an SS burst set transmission is periodic, and a UE may assume that a given SS block is repeated with a SS burst set periodicity.

[0013] 3GPP has decided that there may be up to 64 SS blocks in an SS burst set. The minimum periodicity for SS block sets is 5 ms, and a radio frame is 10 ms. Thus, the number of SS blocks in a radio frame may be up to 128.

SUMMARY

[0014] The synchronization signals, including NR-PSS and NR-SSS, would thus be comprised in an SS block, and the terminal or UE is expected to acquire downlink synchronization via successful detection of the SS block. As indicated above, it is also considered that a part of system information is delivered in the NR-PBCH, which is also comprised in the SS block.

[0015] It has been agreed to multiplex the NR-PSS, NR-SSS and NR-PBCH in the time domain, i.e., time division multiplexing (TDM) of NR-PSS, NR-SSS and NR-PBCH, in an SS block.

[0016] To indicate the boundary of an SS burst and/or an SS burst set through the SS block detection, a time index should be provided from the SS block detection. In another way of phrasing it, the time index would indicate which SS block of an SS burst or SS burst set that has been detected, and/or which SS burst of an SS burst set that has been detected. Different ways of providing the time index has been under discussion in several 3GPP contributions. An extra so-called synchronization signal in the SS block, referred to as NR tertiary synchronization signal (NR-TSS), is one solution that has been discussed. The NR-TSS would provide the time index of an SS block in an SS burst or SS burst set. Figure 2a schematically illustrates one example embodiment of an SS block comprising the system information of the NR-PBCH, the NR-TSS payload or bits, and the NR-PSS and NR-SSS, multiplexed in an SS block of a certain SS block bandwidth in the frequency dimension and an SS block size of four OFDM symbols in the time dimension. The time index provided by the NR-TSS can thus be used by the UE to determine where the boundary of the SS burst or the SS burst set is, or where the SS burst or SS burst set starts. In one example scenario, there may be up to 128 SS blocks in an SS burst or SS burst set. In order to provide

a time index indicating the boundary of the SS burst or SS burst set in this example scenario, the NR-TSS must comprise at least seven bits.

[0017] Since the number of bits of the NR-TSS may not be very large, e.g., less than ten bits, a CRC attachment on the codeword of the NR-TSS would introduce a quite large overhead. It has therefore been considered to deliver NR-TSS without a CRC attached. However, this will incur the following problems:

- The UE doesn't know whether the detection of the NR-TSS is correct or not;
- If the NR-TSS is wrongly detected, the system information delivered in the NR-PBCH of the SS block, which is e.g. needed to be able to perform a random access, cannot be decoded correctly, as the time index indicating the boundary of the SS burst or SS burst set is incorrect;
- This would in turn result in a delay for receiving the system information and performing the random access or initial access procedure.

[0018] It is therefore an object to address some of the problems outlined above, and to provide a solution making it possible for the terminal or UE to know as soon as possible whether the detected or received value of the time index, e.g. derived from NR-TSS, is correct or not, in order to avoid unnecessary overhead and delay with regards to the initial access procedure.

[0019] According to a first aspect, a method performed by a wireless device, for receiving system information from a network node of a wireless communication system is provided. The system information is received in a synchronization signal, SS, block of an SS burst set comprising at least one SS block. The system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being received. The method comprises receiving the information providing the time index. The method further comprises receiving the system information, wherein receiving comprises descrambling the system information using a scrambling sequence generated based on the information providing the time index. The method also comprises determining an accuracy of the information providing the time index, based on an error-detection code related to the received system information.

[0020] According to a second aspect, a method performed by a network node of a wireless communication network, for transmitting system information to a wireless device in a synchronization signal, SS, block of an SS burst set comprising at least one SS block is provided. The system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being transmitted. The method comprises scrambling the system information using a scrambling sequence generated based on the information providing the time index, and transmitting to the wireless device, the scrambled system information multiplexed with the information providing the time index of the SS block, wherein an error detection code is related to the system information.

[0021] According to other aspects, a wireless device, a network node, a computer program and a computer program product according to the appended claims are provided.

[0022] Generally, all terms used in the claims are to be interpreted according to their ordinary meaning in the technical field, unless explicitly defined otherwise herein. All references to "a/an/the element, apparatus, component, means, step, etc." are to be interpreted openly as referring to at least one instance of the element, apparatus, component, means, step, etc., unless explicitly stated otherwise. The steps of any method disclosed herein do not have to be performed in the exact order disclosed, unless explicitly stated.

[0023] Other objects, advantages and features of embodiments will be explained in the following detailed description when considered in conjunction with the accompanying drawings and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] The invention is now described, by way of example, with reference to the accompanying drawings, on which:

Fig. 1 is a schematic diagram illustrating an environment where embodiments presented herein can be applied;

Fig. 2a is a schematic illustration of an example of an SS block comprising NR-TSS;

Fig. 2b is a schematic diagram illustrating SS blocks, and SS burst sets;

Fig. 2c is a flowchart of the NR-PBCH scrambling procedure and an illustration of the resulting scrambled bits and symbols;

Fig. 3 is a flowchart illustrating the method in a network node according to embodiments.

Fig. 4 is a flowchart illustrating the method in a wireless device according to embodiments.

Fig. 5 is a block diagram schematically illustrating a network node according to embodiments.

Fig. 6 is a block diagram schematically illustrating a wireless device according to embodiments.

DETAILED DESCRIPTION

[0025] In the following, different aspects will be described in more detail with references to certain embodiments and to accompanying drawings. For purposes of explanation and not limitation, details are set forth, such as particular scenarios and techniques, in order to provide a thorough understanding of the different embodiments. However, other embodiments that depart from these details may also exist.

[0026] Furthermore, in some instances detailed descriptions of well-known methods, nodes, interfaces, circuits, and devices are omitted so as not to obscure the description with unnecessary detail. Those skilled in the art will appreciate that the functions described may be implemented in one or in several nodes. Some or all of the functions described may be implemented using hardware circuitry, such as analog and/or discrete logic gates interconnected to perform a specialized function, or ASICs. Likewise, some or all of the functions may be implemented using software programs and data in conjunction with one or more digital microprocessors or general purpose computers. Where nodes that communicate using the air interface are described, it will be appreciated that those nodes also have suitable radio communications circuitry. Moreover, the technology may be embodied entirely within any form of computer-readable memory, including non-transitory embodiments such as solid-state memory, magnetic disk, or optical disk containing an appropriate set of computer instructions or computer program code that would cause a processor to carry out the techniques described herein.

[0027] Hardware implementations of the present invention may include or encompass, without limitation, digital signal processor (DSP) hardware, a reduced instruction set processor, hardware (e.g.,

digital or analog) circuitry including but not limited to application specific integrated circuit(s) (ASIC) and/or field programmable gate array(s) (FPGA(s)), and where appropriate state machines capable of performing such functions.

[0028] In terms of computer implementation, a computer is generally understood to comprise one or more processors or one or more controllers, and the terms computer, processor, and controller may be employed interchangeably. When provided by a computer, processor, or controller, the functions may be provided by a single dedicated computer or processor or controller, by a single shared computer or processor or controller, or by a plurality of individual computers or processors or controllers, some of which may be shared or distributed. Moreover, the term “processor” or “controller” also refers to other hardware capable of performing such functions and/or executing software, such as the example hardware recited above.

[0029] Herein the terms user equipment (UE), terminal, and wireless device are used interchangeably to denote a device that communicates with a network infrastructure, a wireless communication network, or a radio access network. The term should not be construed as to mean any specific type of device, i.e. it applies to them all, and the embodiments described herein are applicable to all devices that use the concerned solution to solve the problems as described. Wireless devices are referred to as UE in 3GPP terminology, and may comprise, for example, cellular telephones, personal digital assistants, smart phones, laptop computers, handheld computers, machine-type communication/machine-to-machine (MTC/M2M) devices or other devices or terminals with wireless communication capabilities. Wireless devices may refer to terminals that are installed in fixed configurations, such as in certain machine-to-machine applications, as well as to portable devices, or devices installed in motor vehicles.

[0030] Similarly, a network node is intended to denote the node in the network infrastructure that communicates with the UE, sometimes also referred to as a base station (BS). Different names may be applicable depending on the radio access technology, such as eNB, and gNB. The functionality of the network node may be distributed in various ways. For example, there could be a radio head terminating parts of the radio protocols and a centralized unit that terminates other parts of the radio protocols. The

term network node will refer to all alternative architectures that can implement the concerned invention, and no distinction between such implementations will be made.

[0031] Embodiments are described in a non-limiting general context in relation to an example scenario in an NR wireless communication network or system, such as the network illustrated in Figure 1, in which a gNB (BS 2) sends system information to the UE 1 in an SS block of an SS burst set, where the SS block comprises an NR-TSS, i.e. information providing a time index of the SS block. The information providing the time index may not have any error-detection code such as a CRC attached to it. However, it should be noted that the information providing the time index of the SS block may in embodiments correspond to another type of signal than the NR-TSS, and that the embodiments may be applied to any wireless communication network implementing network synchronization through the transmission of multiple SS blocks in SS burst sets as described previously.

[0032] The problem of delays related to the process of receiving system information and performing initial access, introduced due to errors in the received NR-TSS of the SS block, is addressed by a solution allowing the accuracy or reliability of the received NR-TSS to be checked early in an initial access procedure, through a scheme comprising scrambling of the system information of the NR-PBCH with a scramble code or sequence generated by the time index indicated or provided by the NR-TSS.

[0033] In one embodiment, the scrambling is done on the coded bits of the system information, e.g. by elementwise multiplication of each bit with a pseudo-random sequence, where the pseudo-random sequence is generated based on the information providing the time index. The pseudo-random sequence may optionally also be generated based on the cell ID, alone or in combination with some other parameter or value received in the SS block.

[0034] In another embodiment, the scrambling is done on a modulation symbol level, e.g. by elementwise multiplication of each Quadrature phase-shift keying (QPSK) symbol of the system information of NR-PBCH with the pseudo-random sequence, where the pseudo-random sequence may be generated as described above.

[0035] Some advantages of embodiments of the invention is that the delay and the unnecessary transmissions that may occur due to an erroneous detection of NR-TSS and thus an incorrect time index value can be avoided.

[0036] Scrambling sequence generation

[0037] The sequence used to scramble signals may in one example embodiment be a pseudo-random sequence, which could be flexibly selected. Using the sequence defined in LTE as an example, defining a length-31 Gold sequence as the pseudo-random sequence, the output sequence $c(n)$ of length M_{PN} , where $n = 0, 1, \dots, M_{\text{PN}} - 1$, is defined by

$$\begin{aligned} c(n) &= (x_1(n + N_C) + x_2(n + N_C)) \bmod 2 \\ x_1(n + 31) &= (x_1(n + 3) + x_1(n)) \bmod 2 \\ x_2(n + 31) &= (x_2(n + 3) + x_2(n + 2) + x_2(n + 1) + x_2(n)) \bmod 2 \end{aligned}$$

where $N_C = 1600$. The first m-sequence shall be initialized with

$x_1(0) = 1, x_1(n) = 0, n = 1, 2, \dots, 30$. The initialization of the second m-sequence is denoted by

$$c_{\text{init}} = \sum_{i=0}^{30} x_2(i) \cdot 2^i \text{ with the value depending on the application of the sequence.}$$

[0038] For NR-PBCH transmissions, such as system information transmissions, the scrambling sequence could be initialized at the start of each SS block, SS burst, or SS burst set. The initialization value corresponding to c_{init} depends on the time index derived from NR-TSS, and optionally also on cell ID and other values that may be needed for generating the sequence, such as the SFN. For example, the value can be defined according to the following:

$$c_{\text{init}} = x + n_{\text{SSB}} \cdot 2^9 + N_{\text{ID}}^{\text{cell}},$$

where n_{SSB} is the SS block time index to be delivered or provided by NR-TSS, and $N_{\text{ID}}^{\text{cell}}$ is the cell ID, which is delivered by the NR-SSS and NR-PSS in the same SS block. The value of x may be regarded as other information that may be delivered in the NR-PBCH in embodiments of the invention, such as the SFN.

[0039] Scrambling the NR-PBCH information with the generated sequence

[0040] Once the scrambling sequence has been generated, the scrambling procedure of the information carried by NR-PBCH can be started. The scrambling procedure of the information may be done on different levels as illustrated in Figure 2c. The flowchart on the left-hand side of Figure 2c shows the procedure step by step, and on the right-hand side the resulting bits or symbols are shown. The procedure starts with the information bits 200 corresponding to the system information of NR-PBCH. In 240 the CRC is attached, resulting in information bits with a CRC attachment 210. In a first embodiment, the CRC bits are the only ones scrambled, illustrated in step 241, with the resulting scrambled CRC bits shown in 215. The scrambling may be done on this level, i.e. only the CRC bits of a NR-PBCH transport block are scrambled. In such an embodiment, the receiving wireless device or UE, receives the NR-PBCH information with the scrambled CRC. The UE also generates a scrambling sequence based on the time index it has received in the SS block and can thus descramble the CRC bits using the scrambling sequence. After the descrambling, the UE may perform the CRC check on the system information of the NR-PBCH received according to the time index provided by the NR-TSS. If the CRC check indicates erroneously received system information, it may be due to either that the NR-TSS has been incorrectly detected or received and thus provides an incorrect time index value, or that the reception of the system information of the NR-PBCH itself is incorrect. In either case, the following procedure of initial access would be stopped, as soon as the CRC check indicates an error, thus avoiding unnecessary delay. A new SS block could then be detected which may provide correct system information. The correctly received system information would eventually make it possible to perform a complete initial access procedure.

[0041] In a second embodiment, channel coding and rate matching in 242 is performed on the information bits with attached CRC bits. The attached CRC bits may be scrambled 215 as described above, but they may also be unscrambled. This results in coded bits 220. Bit level scrambling in 243 may be performed on the coded bits 220, resulting in scrambled coded bits 225. In this embodiment, all coded bits would be scrambled using the scrambling sequence by the network node. If the scrambling sequence is wrongly generated by the wireless device due to erroneous values of the time index provided by the

NR-TSS, the CRC check of the wireless device on the receiving side will indicate it. The wireless device may thus deduce that either the NR-TSS providing the time index is incorrect, or the system information is incorrect, in analogy with the previous example where only the CRC bits were scrambled.

[0042] Regardless of whether the coded bits have been scrambled or not, they may undergo modulation in 244, thus resulting in modulated symbols 230. In a third embodiment, the modulated symbols may undergo symbol level scrambling in 245, resulting in scrambled modulated symbols 235. In this embodiment, a CRC checking for the NR-PBCH system information performed by the receiving wireless device would indicate whether the received time index is accurate or not. As indicated above, the first, second, and third embodiments covering scrambling on different levels, can be combined in any way or implemented independently from each other. Common for them all is that the time index provided from NR-TSS is involved in each of the scrambling procedures as it is used to generate the scrambling sequence. The same or different scrambling sequences may be used for the scrambling on the different levels.

[0043] Embodiments of methods described with reference to Figures 3-4 and Figure 7

[0044] **Figure 7** is a signaling diagram schematically illustrating embodiments of the methods performed in a UE or wireless device 600 and a BS or a network node 500, such as a UE and a gNB of an NR system. The BS 500 broadcasts SS blocks in SS burst sets in a cell. When beam sweeping is used, as explained in the background section, each SS block of the SS burst set is transmitted in a respective beam, at a respective time instance of the radio frame, as illustrated in Figure 2b. A certain UE in the cell will thus receive at least one of the SS blocks, comprising NR-PSS, NR-SSS, and NR-PBCH carrying system information multiplexed with information providing the time index. The time index indicates which SS block of the SS burst set that is being received. This information is needed for the UE to be able to synchronize to the network. Based on the information providing the time index, the network node generates 310 a scrambling sequence and scrambles 320 the system information bits as described previously. The network node then transmits 330 the SS block comprising the scrambled system information multiplexed with the information providing the time index. The UE receives 410 the SS

block comprising the information providing the time index and generates 420 a scrambling sequence based on the information providing the time index. The scrambling sequence is used to receive 430 and descramble the system information. Using the error-detection code attached to the system information, the UE can then determine 440 the accuracy of the information providing the time index. The UE may assume that the information providing the time index is inaccurate if the error-detection code indicates erroneously received system information.

[0045] Figure 3 is a flowchart illustrating one embodiment of a method performed by a network node of a wireless communication network, for transmitting system information to a wireless device in a synchronization signal, SS, block of an SS burst set comprising at least one SS block. In one embodiment, the wireless device is a UE and the network node is a gNodeB. The system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being transmitted. The information providing the time index may be transmitted without any related error-detection code. The method comprises:

- 320: Scrambling the system information using a scrambling sequence generated 310 based on the information providing the time index. In embodiments, scrambling the system information comprises scrambling coded bits of the system information, as described above. However, the scrambling can be performed on different levels. Scrambling the system information may thus comprise at least one of the following: scrambling error-detection code bits related to the system information; scrambling coded bits of the system information; and scrambling modulated symbols of the system information. Generating 310 the scrambling sequence may comprise initializing the scrambling sequence at the start of the SS block. Furthermore, the scrambling sequence may be a pseudo-random sequence generated based on an identity of a cell, cell ID, related to the SS block, i.e. the cell in which the SS block is broadcasted. In other example embodiments, the scrambling sequence may be a pseudo-random sequence for which an initialization value is dependent on the time index. The initialization value may be dependent on a further parameter provided by information carried by the SS block, such as a cell ID or an SFN.

- 330: Transmitting to the wireless device, the scrambled system information multiplexed with the information providing the time index of the SS block, wherein an error detection code is related to the system information. The error detection code may be a Cyclic Redundancy Check CRC attachment to information bits corresponding to the system information

[0046] In embodiments, the SS block has a certain size in the time dimension during which synchronization signals (e.g. NR-PSS and NR-SSS), the information providing the time index (in one embodiment the NR-TSS in the SS block), and system information (in NR-PBCH) are transmitted.

[0047] **Figure 4** is a flowchart illustrating one embodiment of a method performed by a wireless device, for receiving system information from a network node of a wireless communication system, the system information being received in an SS block of an SS burst set comprising at least one SS block. In one embodiment, the wireless device is a UE and the network node is a gNodeB. The system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being received. The information providing the time index may be received without any related error-detection code. The method comprises:

- 410: Receiving the information providing the time index.

-430: Receiving the system information, wherein receiving comprises descrambling the system information using a scrambling sequence generated 420 based on the information providing the time index. Descrambling the system information may comprise descrambling coded bits of the system information. However, descrambling the received system information may comprise at least one of the following as described above: descrambling bits of the error-detection code related to the system information; descrambling coded bits of the system information; and descrambling modulated symbols of the system information. Generating 420 the scrambling sequence may comprise initializing the scrambling sequence at the start of the SS block. The scrambling sequence may be a pseudo-random sequence generated based on an identity of a cell, cell ID, related to the SS block. In embodiments, the scrambling sequence may be a pseudo-random sequence for which an initialization value is dependent on

the time index. Furthermore, the initialization value may be dependent on a further parameter provided by information carried by the SS block.

-440: Determining an accuracy of the information providing the time index, based on an error-detection code related to the received system information.

[0048] In embodiments, the error detection code may be a CRC attachment to information bits corresponding to the received system information. Determining 440 the accuracy of the information providing the time index may in these embodiments comprise:

- performing a CRC of the received system information based on the CRC attachment,
- determining that the information providing the time index is inaccurate when the performed CRC indicates erroneously received system information, and
- determining that the information providing the time index is accurate when the performed CRC indicates correctly received system information.

The method may further comprise determining 450 how to perform an initial access procedure based on the determined accuracy of the information providing the time index. The determining 450 how to perform an initial access procedure may further comprise:

- when the information providing the time index is determined to be accurate, completing the initial access procedure based on the received system information,
- when the information providing the time index is determined to be inaccurate, detecting another SS block for reception of system information and time index before completing the initial access procedure.

[0049] In embodiments, the method further comprises acquiring synchronization with the network node based on the information in the SS block.

[0050] The method may further comprise determining where the boundary of the SS burst set is or where the SS burst set starts using the information providing the time index.

[0051] In embodiments, the system information is received based on a boundary of the SS burst set indicated by the time index.

[0052] In embodiments, the SS block has a certain size in the time dimension during which synchronization signals (e.g. NR-PSS and NR-SSS), the information providing the time index (in one embodiment the NR-TSS in the SS block), and system information (in NR-PBCH) are transmitted.

[0053] Embodiments of apparatus described with reference to Figures 5-6

[0054] An embodiment of the network node 500 of a wireless communication network, configured to transmit system information to a wireless device in a synchronization signal, SS, block of an SS burst set comprising at least one SS block is illustrated in the block diagram of **Figure 5**. In embodiments, the network node is a gNodeB. The system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being transmitted. The network node is further configured to scramble the system information using a scrambling sequence generated based on the information providing the time index, and transmit to the wireless device, the scrambled system information multiplexed with the information providing the time index of the SS block, wherein an error detection code is related to the system information.

[0055] In embodiments, the network node is further configured to scramble the system information by scrambling coded bits of the system information. The error detection code may be a Cyclic Redundancy Check CRC attachment to information bits corresponding to the system information.

[0056] The network node may be configured to transmit the information providing the time index without any related error-detection code. The network node may be further configured to generate the scrambling sequence by initializing the scrambling sequence at the start of the SS block. In embodiments, the scrambling sequence is a pseudo-random sequence, and the network node may be further configured to generate the pseudo-random sequence based on an identity of a cell, cell ID, related to the SS block.

[0057] As illustrated in Figure 5, the network node 500 may comprise at least one processing circuitry 510 and optionally also a memory 530. In embodiments, the memory 530 may be placed in some other node or unit or at least separately from the network node. The network node may also comprise one or more input/output (I/O) units 520 configured to communicate with a wireless device or another network node. The input/output (I/O) unit 520 may in embodiments comprise a transceiver connected to one or

more antennas over antenna ports for wireless communication with wireless devices in the network, and/or an interface circuitry adapted for communication with other network nodes over various interfaces. The memory 530 may contain instructions executable by said at least one processing circuitry 510, whereby the network node may be configured to perform the methods described herein e.g. with reference to figure 3.

[0058] In another embodiment also illustrated in Figure 5, the network node may comprise a generating module 511, a scrambling module 512, and a transmit module 513, adapted to respectively perform the method steps illustrated in figure 3.

[0059] The network node may contain further modules adapted to perform any of the methods previously described herein.

[0060] The modules described above are functional units which may be implemented in hardware, software, firmware or any combination thereof. In one embodiment, the modules are implemented as a computer program running on the at least one processing circuitry 510.

[0061] In still another alternative way to describe the embodiment in Figure 5, the network node may comprise a Central Processing Unit (CPU) which may be a single unit or a plurality of units. Furthermore, the network node may comprise at least one computer program product (CPP) with a computer readable medium 541, e.g. in the form of a non-volatile memory, e.g. an EEPROM (Electrically Erasable Programmable Read-Only Memory), a flash memory or a disk drive. The CPP may comprise a computer program 540 stored on the computer readable medium 541, which comprises code means which when run on the CPU of the network node causes the network node to perform the methods described earlier in conjunction with Figure 3. In other words, when said code means are run on the CPU, they correspond to the at least one processing circuitry 510 of the network node in Figure 5.

[0062] An embodiment of the wireless device 600 is schematically illustrated in the block diagram in **Figure 6**. The wireless device 600 is configured to receive system information from a network node of a wireless communication system, the system information being received in a synchronization signal, SS, block of an SS burst set comprising at least one SS block. In embodiments, the wireless device is a UE.

The system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being received. The wireless device is further configured to receive the information providing the time index, receive the system information by descrambling the system information using a scrambling sequence generated based on the information providing the time index, and determine an accuracy of the information providing the time index, based on an error-detection code related to the received system information.

[0063] In embodiments, the error detection code is a Cyclic Redundancy Check CRC attachment to information bits corresponding to the received system information, and the wireless device is further configured to determine the accuracy of the information providing the time index by:

- performing a CRC of the received system information based on the CRC attachment,
- determining that the information providing the time index is inaccurate when the performed CRC indicates erroneously received system information, and
- determining that the information providing the time index is accurate when the performed CRC indicates correctly received system information.

[0064] The wireless device may be further configured to determine how to perform an initial access procedure based on the determined accuracy of the information providing the time index.

[0065] In embodiments, the wireless device is further configured to determine how to perform the initial access procedure by:

- when the information providing the time index is determined to be accurate, completing the initial access procedure based on the received system information, and
- when the information providing the time index is determined to be inaccurate, detecting another SS block for reception of system information and time index before completing the initial access procedure.

[0066] In embodiments, the wireless device is further configured to acquire synchronization with the network node based on the information in the SS block.

[0067] The wireless device may be further configured to descramble the system information by descrambling coded bits of the system information.

[0068] The wireless device may be further configured to receive the information providing the time index without any related error-detection code.

[0069] In embodiments, the wireless device is further configured to generate the scrambling sequence by initializing the scrambling sequence at the start of the SS block.

[0070] The wireless device may be further configured to determine where the boundary of the SS burst set is or where the SS burst set starts using the information providing the time index.

[0071] The wireless device may be further configured to receive the system information based on a boundary of the SS burst set indicated by the time index.

[0072] In embodiments, the scrambling sequence is a pseudo-random sequence and the wireless device is configured to generate the pseudo-random sequence based on an identity of a cell, cell ID, related to the SS block.

[0073] As illustrated in Figure 6, the wireless device 600 may comprise at least one processing circuitry 610 and optionally also a memory 630. In embodiments, the memory 630 may be placed in some other node or unit or at least separately from the wireless device 600. The wireless device 600 may also comprise one or more input/output (I/O) units 620 configured to communicate with a network node such as an gNodeB. The input/output (I/O) unit 620 may in embodiments comprise a transceiver connected to one or more antennas over antenna ports for wireless communication with network nodes in the network. The memory 630 may contain instructions executable by said at least one processing circuitry 610, whereby the wireless device 600 may be configured to perform any of the methods previously described herein, e.g. with reference to Figure 4.

[0074] In another embodiment also illustrated in Figure 6, the wireless device 600 may comprise a first receiving module 611, a generating module 612, a second receiving module 613, and a determining module 614 adapted to respectively perform the method steps of figure 4.

[0075] The wireless device 600 may contain further modules adapted to perform any of the methods previously described herein. The modules described above are functional units which may be implemented in hardware, software, firmware or any combination thereof. In one embodiment, the modules are implemented as a computer program running on the at least one processing circuitry 610.

[0076] In still another alternative way to describe the embodiment in Figure 6, the wireless device 600 may comprise a Central Processing Unit (CPU) which may be a single unit or a plurality of units. Furthermore, the wireless device 600 may comprise at least one computer program product (CPP) with a computer readable medium 641, e.g. in the form of a non-volatile memory, e.g. an EEPROM (Electrically Erasable Programmable Read-Only Memory), a flash memory or a disk drive. The CPP may comprise a computer program 640 stored on the computer readable medium 641, which comprises code means which when run on the CPU of the wireless device 600 causes the wireless device 600 to perform the methods described earlier in conjunction with Figure 4. In other words, when said code means are run on the CPU, they correspond to the at least one processing circuitry 610 of the wireless device 600 in Figure 6.

[0077] The invention has mainly been described above with reference to a few embodiments. However, as is readily appreciated by a person skilled in the art, other embodiments than the ones disclosed above are equally possible within the scope of the invention, as defined by the appended patent claims.

[0078] List of further example embodiments

[0079] E1. A method performed by a network node of a wireless communication network, for transmitting system information to a wireless device in a synchronization signal, SS, block of an SS burst comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating a boundary of the SS burst or of a set of SS bursts, the method comprising:

- generating (310) a scrambling sequence based on the information providing the time index,
- scrambling (320) the system information using the generated scrambling sequence,

- transmitting (330) to the wireless device, the scrambled system information multiplexed with the information providing the time index in the SS block.

[0080] E2. The method according to embodiment E1, wherein scrambling (320) the system information comprises at least one of the following:

- scrambling error-detection code bits related to the system information;
- scrambling coded bits of the system information;
- scrambling modulated symbols of the system information.

[0081] E3. The method according to any of the preceding embodiments, wherein the information providing the time index is transmitted without any error-detection code.

[0082] E4. The method according to any of the preceding embodiments, wherein the scrambling sequence is a pseudo-random sequence for which an initialization value is dependent on the time index.

[0083] E5. The method according to embodiment E4, wherein the initialization value is dependent on a further parameter provided by information carried by the SS block.

[0084] E6. A method performed by a wireless device, for receiving system information from a network node of a wireless communication system, the system information being received in a synchronization signal, SS, block of an SS burst comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating a boundary of the SS burst or of a set of SS bursts, the method comprising:

- receiving (410) the information providing the time index,
- generating (420) a scrambling sequence based on the information providing the time index,
- receiving (430) the system information based on the boundary of the SS burst or of the set of SS bursts indicated by the time index, wherein the receiving comprises descrambling the received system information using the generated scrambling sequence,
- determining (440) an accuracy of the information providing the time index, based on an error-detection code related to the system information.

[0085] E7. The method according to embodiment E6, further comprising:

- when the information providing the time index is determined to be accurate, initiating an initial access procedure based on the received system information,
- when the information providing the time index is determined to be inaccurate, detecting another SS block for reception of the system information.

[0086] E8. The method according to any of embodiments E6-E7, wherein descrambling the received system information comprises at least one of the following:

- descrambling bits of the error-detection code related to the system information;
- descrambling coded bits of the system information;
- descrambling modulated symbols of the system information.

[0087] E9. The method according to any of embodiments E6-E8, wherein the information providing the time index is received without any error-detection code.

[0088] E10. The method according to any of embodiments E6-E9, wherein the scrambling sequence is a pseudo-random sequence for which an initialization value is dependent on the time index.

[0089] E11. The method according to embodiment E10, wherein the initialization value is dependent on a further parameter provided by information carried by the SS block.

[0090] E12. A network node (500) of a wireless communication network, configured to transmit system information to a wireless device in a synchronization signal, SS, block of an SS burst comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating a boundary of the SS burst or of a set of SS bursts, the network node being further configured to:

- generate a scrambling sequence based on the information providing the time index,
- scramble the system information using the generated scrambling sequence,
- transmit to the wireless device, the scrambled system information multiplexed with the information providing the time index in the SS block.

[0091] E13. The network node according to embodiment E12, configured to scramble the system information in at least one of the following ways:

- scramble error-detection code bits related to the system information;
- scramble coded bits of the system information;
- scramble modulated symbols of the system information.

[0092] E14. The network node according to any of embodiments E12-E13, wherein the information providing the time index is transmitted without any error-detection code.

[0093] E15. The network node according to any of embodiments E12-E14, wherein the scrambling sequence is a pseudo-random sequence for which an initialization value is dependent on the time index.

[0094] E16. The network node according to embodiment E15, wherein the initialization value is dependent on a further parameter provided by information carried by the SS block.

[0095] E17. A wireless device (600) configured to receive system information from a network node of a wireless communication system, the system information being received in a synchronization signal, SS, block of an SS burst comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating a boundary of the SS burst or of a set of SS bursts, the wireless device being further configured to:

- receive the information providing the time index,
- generate a scrambling sequence based on the information providing the time index,
- receive the system information based on the boundary of the SS burst or of the set of SS bursts indicated by the time index, wherein the receiving comprises descrambling the received system information using the generated scrambling sequence,
- determine an accuracy of the information providing the time index, based on an error-detection code related to the system information.

[0096] E18. The wireless device according to embodiment E17, further configured to:

- when the information providing the time index is determined to be accurate, initiate an initial access procedure based on the received system information,

- when the information providing the time index is determined to be inaccurate, detect another SS block for reception of the system information.

[0097] E19. The wireless device according to any of embodiments E17-E18, further configured to descramble the received system information in at least one of the following ways:

- descramble bits of the error-detection code related to the system information;
- descramble coded bits of the system information;
- descramble modulated symbols of the system information.

[0098] E20. The wireless device according to any of embodiments E17-E19, wherein the information providing the time index is received without any error-detection code.

[0099] E21. The wireless device according to any of embodiments E17-E20, wherein the scrambling sequence is a pseudo-random sequence for which an initialization value is dependent on the time index.

[0100] E22. The wireless device according to embodiment E21, wherein the initialization value is dependent on a further parameter provided by information carried by the SS block.

[0101] E23. A network node (500) of a wireless communication network, configured to transmit system information to a wireless device in a synchronization signal, SS, block of an SS burst comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating a boundary of the SS burst or of a set of SS bursts, the network node comprising a processing circuitry (510) and a memory (530), the memory comprising instructions executable by the processing circuitry whereby the network node is configured to:

- generate a scrambling sequence based on the information providing the time index,
- scramble the system information using the generated scrambling sequence,
- transmit to the wireless device, the scrambled system information multiplexed with the information providing the time index in the SS block.

[0102] E24. The network node of embodiment E23, wherein the memory contains instructions executable by the processing circuitry, whereby the network node is configured to perform the method of any of embodiments E2-E5.

[0103] E25. A wireless device (600) configured to receive system information from a network node of a wireless communication system, the system information being received in a synchronization signal, SS, block of an SS burst comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating a boundary of the SS burst or of a set of SS bursts, the wireless device comprising a processing circuitry (610) and a memory (630), the memory containing instructions executable by the processing circuitry whereby the wireless device is configured to:

- receive the information providing the time index,
- generate a scrambling sequence based on the information providing the time index,
- receive the system information based on the boundary of the SS burst or of the set of SS bursts indicated by the time index, wherein the receiving comprises descrambling the received system information using the generated scrambling sequence,
- determine an accuracy of the information providing the time index, based on an error-detection code related to the system information.

[0104] E26. The wireless device of embodiment E25, wherein the memory contains instructions executable by the processing circuitry, whereby the wireless device is configured to perform the method of any of embodiments E7-E11.

[0105] E27. A network node (500) of a wireless communication network, configured to transmit system information to a wireless device in a synchronization signal, SS, block of an SS burst comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating a boundary of the SS burst or of a set of SS bursts, the network node comprising:

- a generating module (511) adapted to generate a scrambling sequence based on the information providing the time index,
- a scrambling module (512) adapted to scramble the system information using the generated scrambling sequence,
- a transmit module (513) adapted to transmit to the wireless device, the scrambled system information multiplexed with the information providing the time index in the SS block.

[0106] E28. The network node of embodiment E27, further comprising modules adapted to perform the method of any of embodiments E2-E5.

[0107] E29. A wireless device (600) configured to receive system information from a network node of a wireless communication system, the system information being received in a synchronization signal, SS, block of an SS burst comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating a boundary of the SS burst or of a set of SS bursts, the wireless device comprising:

- a first receiving module (611) adapted to receive the information providing the time index,
- a generating module (612) adapted to generate a scrambling sequence based on the information providing the time index,
- a second receiving module (613) adapted to receive the system information based on the boundary of the SS burst or of the set of SS bursts indicated by the time index, wherein the receiving comprises descrambling the received system information using the generated scrambling sequence,
- a determining module (614) adapted to determine an accuracy of the information providing the time index, based on an error-detection code related to the system information.

[0108] E30. The wireless device of embodiment E29, further comprising modules adapted to perform the method of any of embodiments E7-E11.

[0109] E31. A computer program comprising instructions which, when executed by at least one processor of a network node, causes the network node to carry out the method of any of embodiments E1-E5.

[0110] E32. A computer program comprising instructions which, when executed by at least one processor of a wireless device, causes the wireless device to carry out the method of any of embodiments E6-E11.

[0111] E33. A carrier containing the computer program of embodiment E31 or E32, wherein the carrier is one of an electronic signal, optical signal, radio signal, or computer readable storage medium.

CLAIMS

What is claimed is:

1. A method performed by a wireless device, for receiving system information from a network node of a wireless communication system, the system information being received in a synchronization signal (SS) block of an SS burst set comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being received, the method comprising:
 - receiving, from the network node, the information providing the time index;
 - receiving the system information, wherein receiving comprises descrambling the system information using a scrambling sequence generated based on the information providing the time index; and
 - determining an accuracy of the information providing the time index, based on an error-detection code related to the received system information.
2. The method of claim 1, wherein the error detection code is a Cyclic Redundancy Check (CRC) attachment to information bits corresponding to the received system information, and wherein determining the accuracy of the information providing the time index comprises:
 - performing a CRC of the received system information based on the CRC attachment,
 - determining that the information providing the time index is inaccurate when the performed CRC indicates erroneously received system information, and
 - determining that the information providing the time index is accurate when the performed CRC indicates correctly received system information.
3. The method of claim 1, further comprising determining how to perform an initial access procedure based on the determined accuracy of the information providing the time index, wherein determining how to perform the initial access procedure comprises:

- when the information providing the time index is determined to be accurate, completing the initial access procedure based on the received system information,
- when the information providing the time index is determined to be inaccurate, detecting another SS block for reception of system information and time index before completing the initial access procedure.
4. The method of claim 1, wherein the information providing the time index is received without any related error-detection code.
 5. The method of claim 1, wherein generating the scrambling sequence comprises initializing the scrambling sequence at the start of the SS block.
 6. The method of claim 1, further comprising determining where the boundary of the SS burst set is or where the SS burst set starts using the information providing the time index.
 7. A method performed by a network node of a wireless communication network, for transmitting system information to a wireless device in a synchronization signal (SS) block of an SS burst set comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being transmitted, the method comprising:
 - scrambling the system information using a scrambling sequence generated based on the information providing the time index, and
 - transmitting, to the wireless device, the scrambled system information multiplexed with the information providing the time index of the SS block, wherein an error detection code is related to the system information.

8. The method of claim 7, wherein scrambling the system information comprises scrambling coded bits of the system information.
9. The method of claim 7, wherein the error detection code is a Cyclic Redundancy Check (CRC) attachment to information bits corresponding to the system information.
10. The method of claim 7, wherein the information providing the time index is transmitted without any related error-detection code.
11. The method of claim 7, wherein the SS block has a certain size in the time dimension during which synchronization signals, the information providing the time index, and system information are transmitted.
12. The method of claim 7, wherein the information providing the time index is a tertiary synchronization signal (TSS) in the SS block.
13. A wireless device configured to receive system information from a network node of a wireless communication system, the system information being in a synchronization signal (SS) block of an SS burst set comprising at least one SS block, wherein the system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being received, the wireless device comprising:
 - a processing circuitry; and
 - a memory, the memory containing instructions executable by the processing circuitry whereby the wireless device is configured to:
 - receive, from the network node, the information providing the time index,

receive the system information by descrambling the system information using a scrambling sequence generated based on the information providing the time index, and
determine an accuracy of the information providing the time index, based on an error-detection code related to the received system information.

14. The wireless device of claim 13, wherein the error detection code is a Cyclic Redundancy Check (CRC) attachment to information bits corresponding to the received system information, and wherein the wireless device is further configured to determine the accuracy of the information providing the time index by:

performing a CRC of the received system information based on the CRC attachment,
determining that the information providing the time index is inaccurate when the performed CRC indicates erroneously received system information, and
determining that the information providing the time index is accurate when the performed CRC indicates correctly received system information.

15. The wireless device of claim 13, wherein the wireless device is further configured to:
determine how to perform an initial access procedure based on the determined accuracy of the information providing the time index.

16. The wireless device of claim 15, wherein the wireless device is configured to determine how to perform the initial access procedure by:
when the information providing the time index is determined to be accurate, completing the initial access procedure based on the received system information,

when the information providing the time index is determined to be inaccurate, detecting another SS block for reception of system information and time index before completing the initial access procedure.

17. The wireless device of claim 13, wherein the wireless device is further configured to:
acquire synchronization with the network node based on the information in the SS block.
18. The wireless device of claim 13, wherein the wireless device is configured to descramble the system information by descrambling coded bits of the system information.
19. The wireless device of claim 13, wherein the wireless device is further configured to receive the information providing the time index without any related error-detection code.
20. The wireless device of claim 13, wherein the wireless device is configured to generate the scrambling sequence by initializing the scrambling sequence at the start of the SS block.
21. The wireless device of claim 13, wherein the wireless device is further configured to determine where the boundary of the SS burst set is or where the SS burst set starts using the information providing the time index.
22. The wireless device of claim 13, wherein the wireless device is further configured to receive the system information based on a boundary of the SS burst set indicated by the time index.
23. The wireless device of claim 13, wherein the scrambling sequence is a pseudo-random sequence and wherein the wireless device is configured to generate the pseudo-random sequence based on an identity of a cell related to the SS block.

24. The wireless device of claim 13, wherein the wireless device is a User Equipment (UE).
25. A network node of a wireless communication network, the network node comprising:
- a processing circuitry; and
 - a memory, the memory comprising instructions executable by the processing circuitry whereby the network node is configured to:
 - scramble the system information using a scrambling sequence generated based on the information providing the time index, and
 - transmit to the wireless device, in a synchronization signal (SS) block of an SS burst set comprising at least one SS block, the scrambled system information multiplexed with the information providing the time index of the SS block, wherein an error detection code is related to the system information.
26. The network node of claim 25, wherein the network node is configured to scramble the system information by scrambling coded bits of the system information.
27. The network node of claim 25, wherein the error detection code is a Cyclic Redundancy Check (CRC) attachment to information bits corresponding to the system information.
28. The network node of claim 25, wherein the network node is configured to transmit the information providing the time index without any related error-detection code.
29. The network node of claim 25, wherein the network node is configured to generate the scrambling sequence by initializing the scrambling sequence at the start of the SS block.

30. The network node of claim 25, wherein the scrambling sequence is a pseudo-random sequence, the network node being further configured to generate the pseudo-random sequence based on an identity of a cell related to the SS block.

ABSTRACT

The disclosure relates to a method performed by a wireless device, for receiving system information from a network node of a wireless communication system. The system information is received in a synchronization signal (SS) block of an SS burst set comprising at least one SS block. The system information is multiplexed with information providing a time index indicating which SS block of the SS burst set that is being received. The method comprises receiving the information providing the time index, and receiving the system information, which comprises descrambling the system information using a scrambling sequence generated based on the information providing the time index. The method also comprises determining an accuracy of the information providing the time index, based on an error-detection code related to the received system information. The disclosure also relates to corresponding network node method and apparatus.

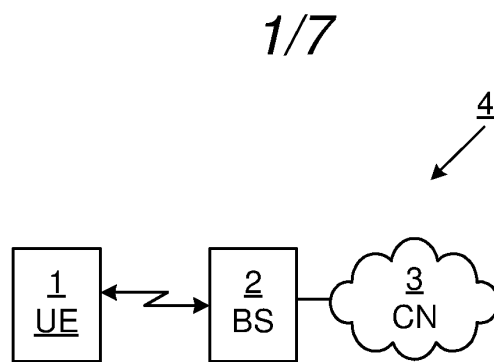


Figure 1

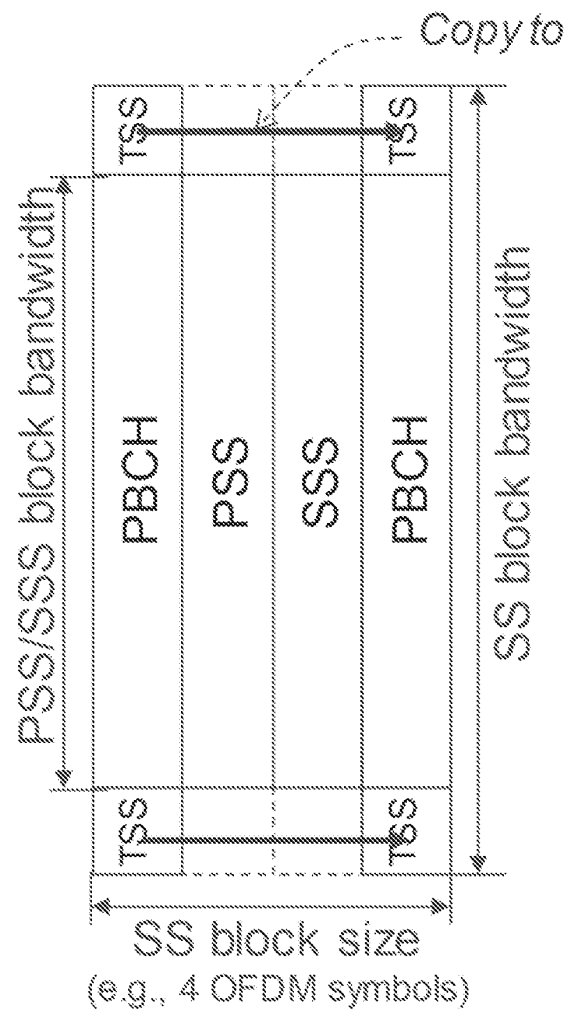


Figure 2a

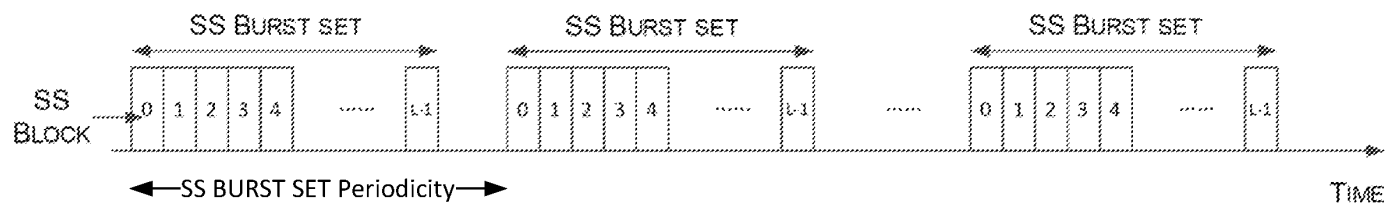


Figure 2b

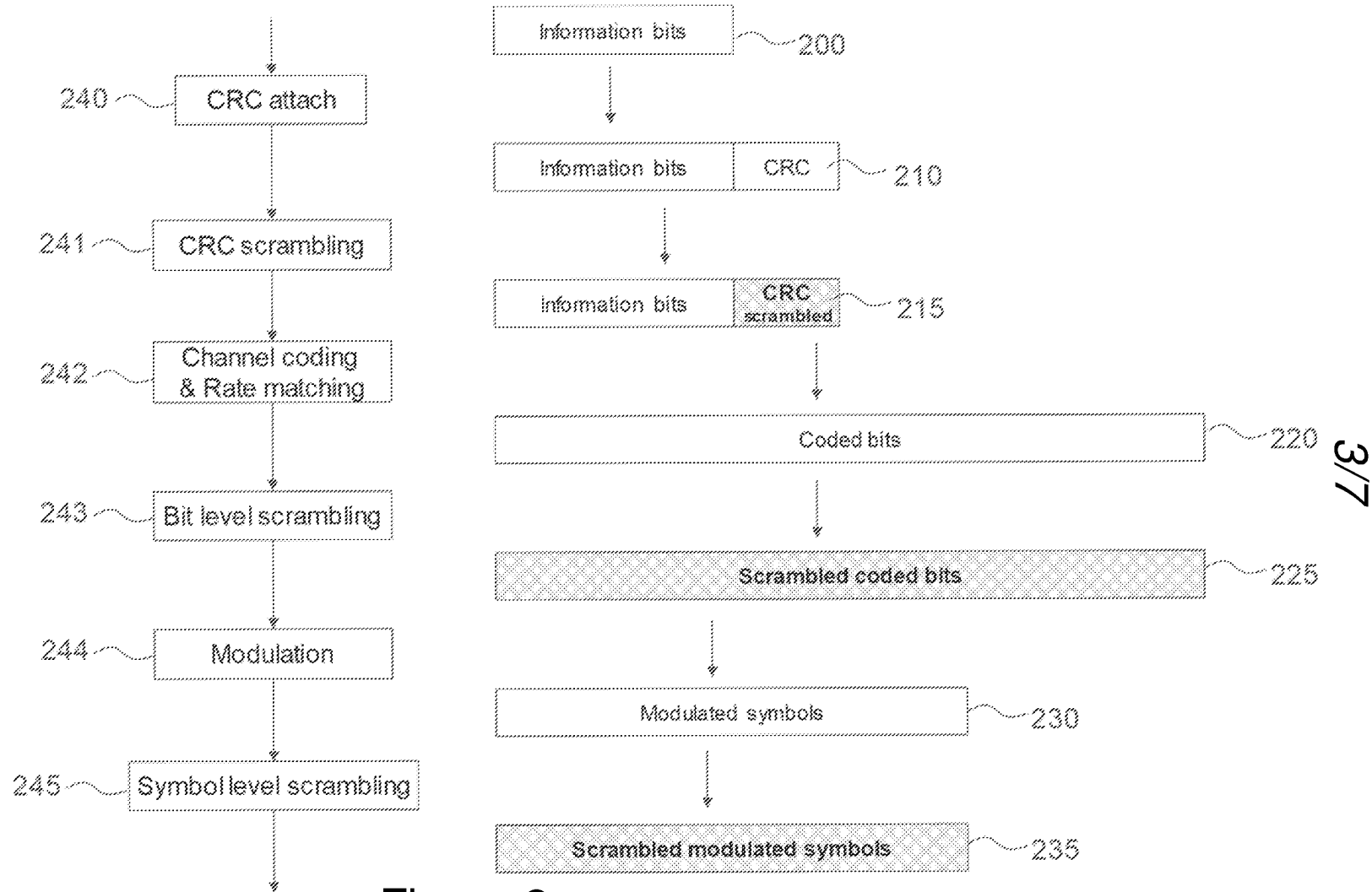
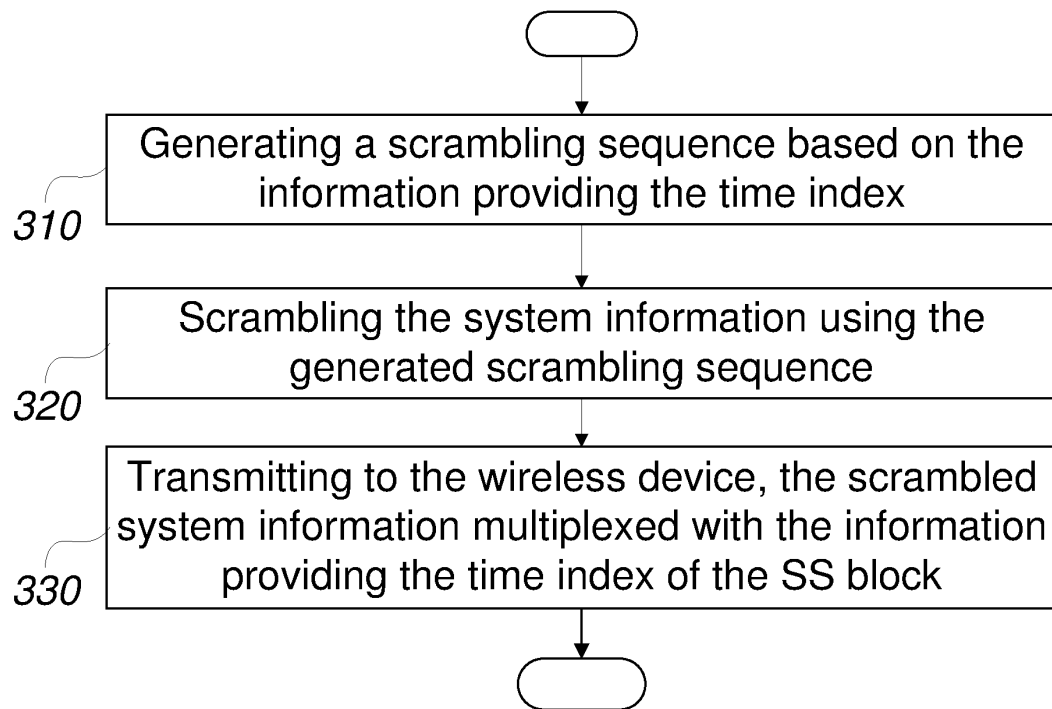


Figure 2c

*Figure 3*

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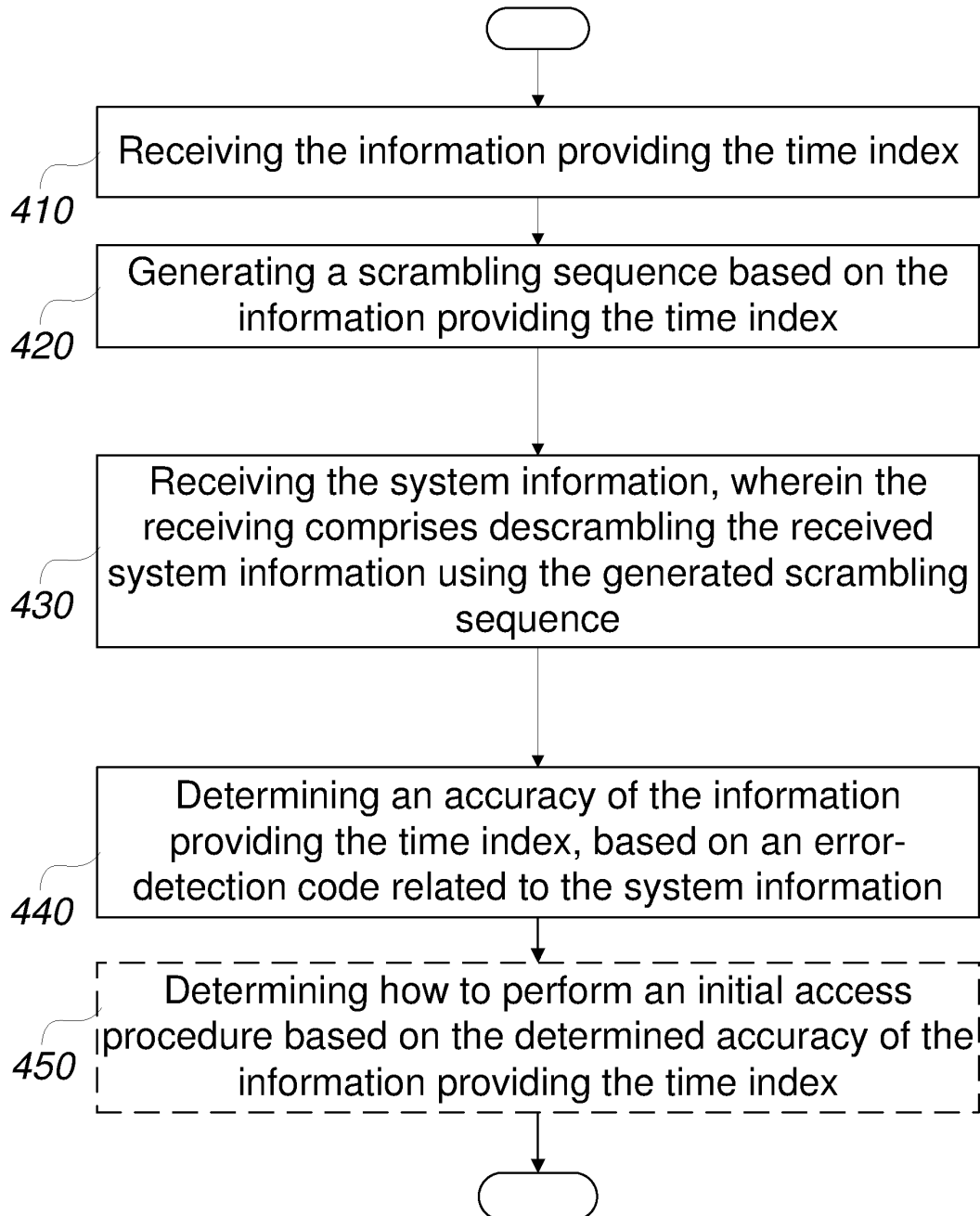


Figure 4

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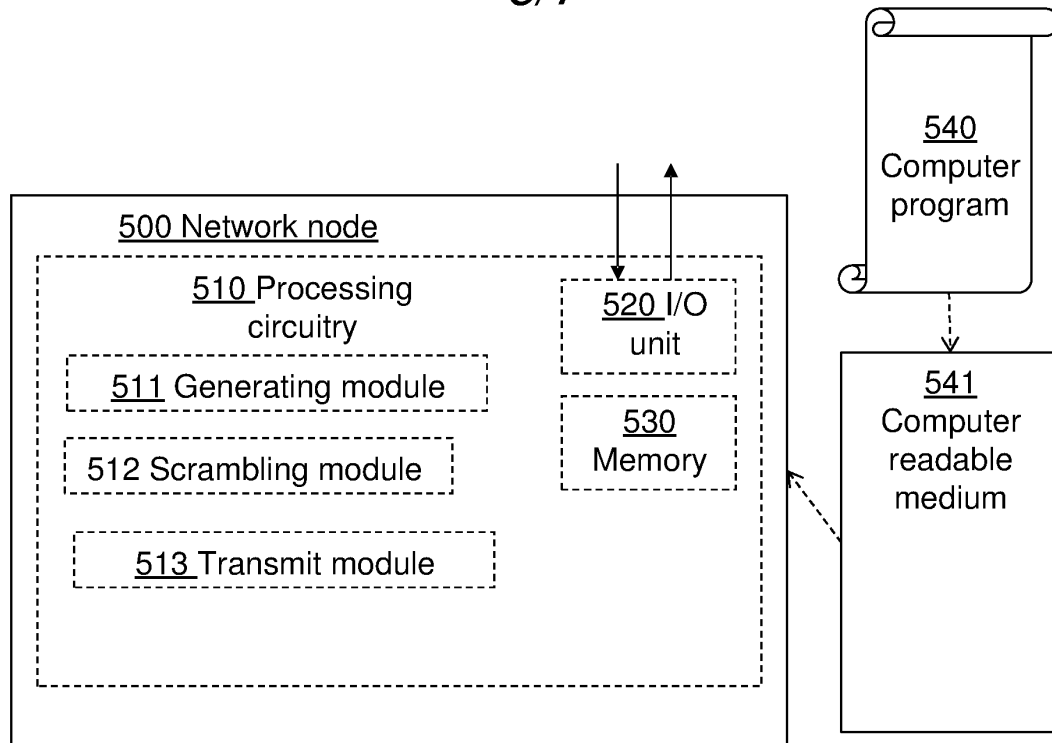


Figure 5

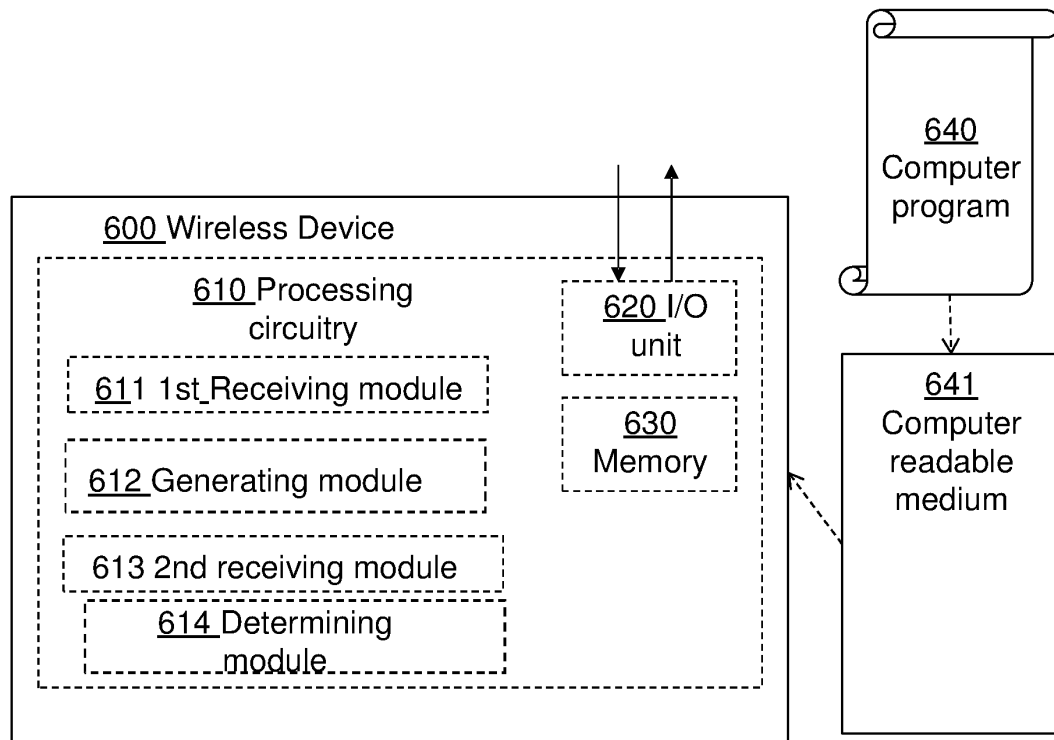
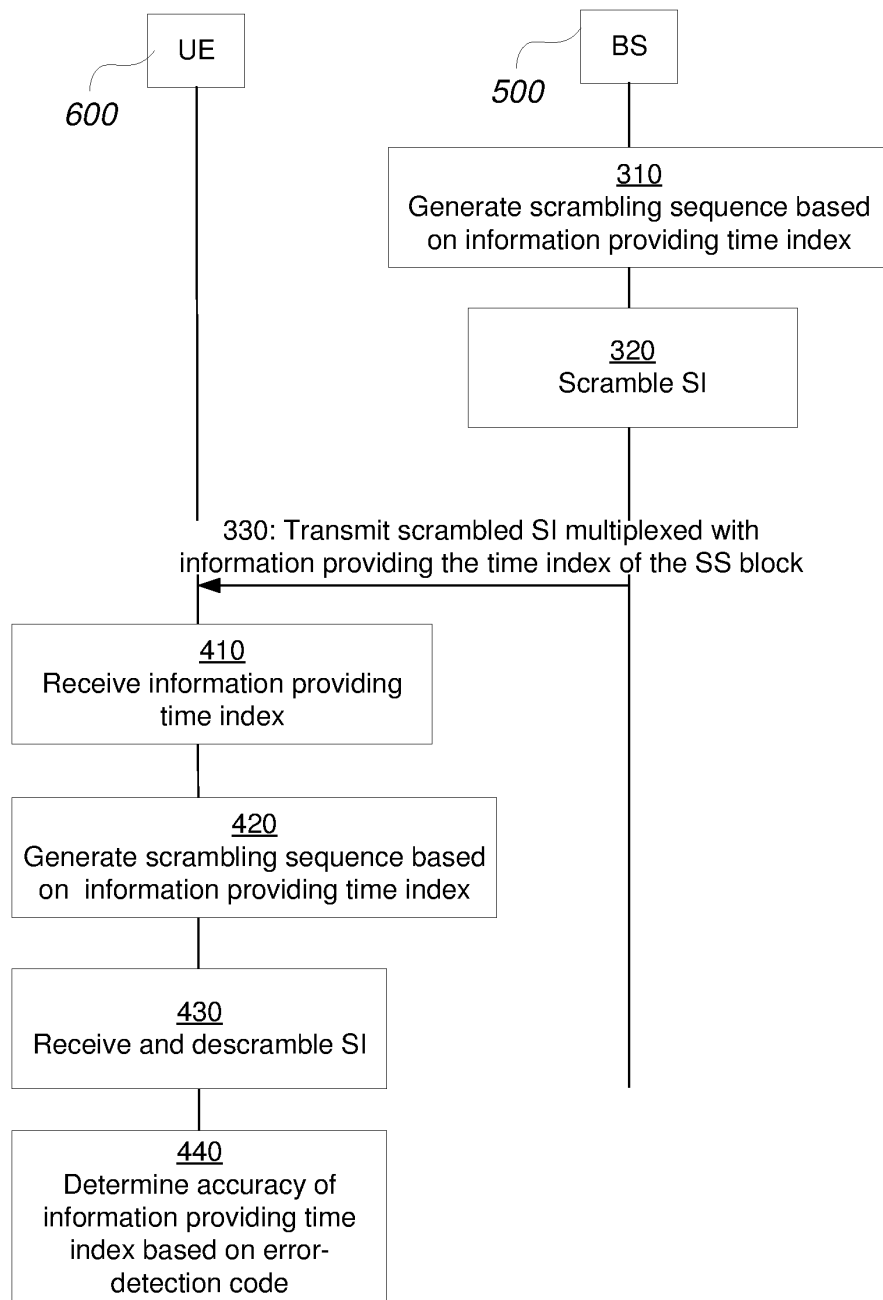
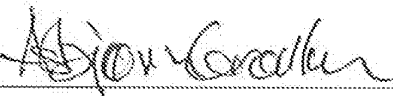


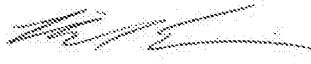
Figure 6

*Figure 7*


DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)	Attorney Docket Number	P71583 WO2
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Title of Invention	NR BROADCAST CHANNEL TRANSMISSION
<p>As the below named inventor, I hereby declare that:</p> <p>This declaration is directed to:</p> <p> <input type="checkbox"/> The attached application, or <input checked="" type="checkbox"/> United States application or PCT international application number PCT/SE2018/050287, filed on March 21, 2018 </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, as amended by any amendment specifically referred to above.</p> <p>I am aware of the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.</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>LEGAL NAME OF INVENTOR</p> <p>Inventor: Asbjörn Gröven</p> <p>Signature: </p> <p>Date (Optional): 2018-04-05</p>	

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)	Attorney Docket Number	P71583 WO2
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<p>LEGAL NAME OF INVENTOR</p> <p>Inventor: Henrik Sahlin</p> <p>Signature: </p> <p>Date (Optional): 20180322</p>	

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)	Attorney Docket Number	P71583 WO2
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<p>LEGAL NAME OF INVENTOR</p> <p>Inventor: Jianfeng Wang Date (Optional):</p> <p>Signature: </p>	

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Application Number: 16204265

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