

To: eoffice@volpe-koenig.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 3624

Jul 21, 2022 04:50:13 AM

Dear PAIR Customer:

VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 3624 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:

The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
17583369	ISSUE.NTF	07/20/2022	IPW2-USCN213536

To view your correspondence online or update your email addresses, please visit us anytime at <https://portal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/583,369	08/09/2022	11411642	IPW2-USCN213536	3554

3624 7590 07/20/2022
VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103

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 Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

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

Paul Howard, Bristol, UNITED KINGDOM;

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

Intellectual Ventures II LLC, Wilmington, DE;

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

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), 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)

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

3624 7590 04/12/2022
VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103

Certificate of Mailing or Transmission

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

John D. Wilt	(Typed or printed name)
/John D. Wilt/	(Signature)
June 29, 2022	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/583,369	01/25/2022	Paul Howard	IPW2-USCN213536	3554

TITLE OF INVENTION: COMMUNICATIONS IN A WIRELESS NETWORK

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	07/12/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
ABELSON, RONALD B	2476	370-280000

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/AIA/122 or PTO/SB/122) attached.

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

2. For printing on the patent front page, list

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

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

1 Volpe Koenig
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)

INTELLECTUAL VENTURES II LLC

WILMINGTON, DE

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. 220493

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 /John D. Wilt/ Date June 29, 2022

Typed or printed name John D. Wilt Registration No. 76,110

Electronic Patent Application Fee Transmittal

Application Number:	17583369			
Filing Date:	25-Jan-2022			
Title of Invention:	COMMUNICATIONS IN A WIRELESS NETWORK			
First Named Inventor/Applicant Name:	Paul Howard			
Filer:	John D. Wilt/Caren Burgoon			
Attorney Docket Number:	IPW2-USCN213536			
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	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1200

Electronic Acknowledgement Receipt

EFS ID:	46076890
Application Number:	17583369
International Application Number:	
Confirmation Number:	3554
Title of Invention:	COMMUNICATIONS IN A WIRELESS NETWORK
First Named Inventor/Applicant Name:	Paul Howard
Customer Number:	3624
Filer:	John D. Wilt/Caren Burgoon
Filer Authorized By:	John D. Wilt
Attorney Docket Number:	IPW2-USCN213536
Receipt Date:	29-JUN-2022
Filing Date:	25-JAN-2022
Time Stamp:	17:12:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1200
RAM confirmation Number	E20226SH15041878
Deposit Account	220493
Authorized User	Caren Burgoon

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)	IPW2_USCN213536_IssueFeeTr ansmittalPayment_20220629. pdf	117684	no	1
			a3be8efdd23c5f2b115922c75322f387279f 9903		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	37973	no	2
			6b453e132230ee443f99c3760acd305e33f 4082		

Warnings:

Information:

Total Files Size (in bytes):	155657
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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.

To: eoffice@volpe-koenig.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 3624

May 13, 2022 10:42:30 AM

Dear PAIR Customer:

VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103
UNITED STATES

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Application	Document	Mailroom Date	Attorney Docket No.
17583369	NTC.PUB	05/12/2022	IPW2-USCN213536

To view your correspondence online or update your email addresses, please visit us anytime at <https://portal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

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PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM



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
17/583,369	01/25/2022	Paul Howard	IPW2-USCN213536

CONFIRMATION NO. 3554

PUBLICATION NOTICE



OC000000133816348

3624
VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103

Title:COMMUNICATIONS IN A WIRELESS NETWORK

Publication No.US-2022-0150840-A1

Publication Date:05/12/2022

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <https://portal.uspto.gov/pair/PublicPair>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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



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

NOTICE OF ALLOWANCE AND FEE(S) DUE

3624 7590 04/12/2022
VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103

EXAMINER

ABELSON, RONALD B

ART UNIT

PAPER NUMBER

2476

DATE MAILED: 04/12/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/583,369	01/25/2022	Paul Howard	IPW2-USCN213536	3554

TITLE OF INVENTION: COMMUNICATIONS IN A WIRELESS NETWORK

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	07/12/2022

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. 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

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

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

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

3624 7590 04/12/2022
VOLPE KOENIG
 30 SOUTH 17TH STREET, 18TH FLOOR
 PHILADELPHIA, PA 19103

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being 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.
17/583,369	01/25/2022	Paul Howard	IPW2-USCN213536	3554

TITLE OF INVENTION: COMMUNICATIONS IN A WIRELESS NETWORK

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	07/12/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
ABELSON, RONALD B	2476	370-280000

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/AIA/122 or PTO/SB/122) attached.

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

2. For printing on the patent front page, list

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

1 _____

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

2 _____

3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document 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
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/583,369	01/25/2022	Paul Howard	IPW2-USCN213536	3554
3624	7590	04/12/2022	EXAMINER	
VOLPE KOENIG			ABELSON, RONALD B	
30 SOUTH 17TH STREET, 18TH FLOOR			ART UNIT	
PHILADELPHIA, PA 19103			PAPER NUMBER	
			2476	
DATE MAILED: 04/12/2022				

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) 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. 17/583,369	Applicant(s) Howard, Paul	
	Examiner RONALD B ABELSON	Art Unit 2476	AIA (FITF) Status No

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

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

1. ☒ This communication is responsive to 4/7/22, 01/25/2002.
☐ 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 1-20. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

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

Certified copies:

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892) 2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date <u>4/7/22</u> . 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____. 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	5. ☐ Examiner's Amendment/Comment 6. ☒ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____.
---	--

/RONALD B ABELSON/
Primary Examiner, Art Unit 2476

Notice of Pre-AIA or AIA Status

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

Reasons for Allowance

Regarding claims 1, 7, 13, and 17, Lee (US 2002/0061005) teaches allocating, by a controller, a first time slot within a frame for a base station to transmit a beacon signal / midamble to the base station, wherein the beacon signal is separate from data signals in the frame, and includes downlink physical channel information (each of the sub-frames has uplink time slots and downlink time slots, data parts, and midamble between data parts, measuring power level depending on midamble signal, [0037]);

allocating, by the controller, a second time slot within the frame that is different to the first time slot for the UE to transmit a control signal in response to the beacon signal, the control signal for providing a basis upon which the base station adjusts a transmission parameter (creating power control command to be transmitted to Node B over an uplink time slot, [0037]); and

allocating, by the controller, other timeslots for the base station to operate in full duplex frequency division duplex (FDD) mode (FDD, [0048]).

However, none of the prior art of record teaches or fairly suggests all the limitations of the independent claims.

Conclusion

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONALD B ABELSON whose telephone number is (571)272-3165. The examiner can normally be reached M-F 8:00-4:30.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be

reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit:
<https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RONALD B ABELSON/
Primary Examiner, Art Unit 2476

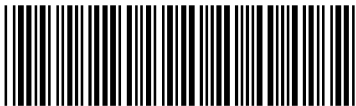
Notice of References Cited	Application/Control No. 17/583,369		Applicant(s)/Patent Under Reexamination Howard, Paul	
	Examiner RONALD B ABELSON		Art Unit 2476	Page 1 of 1

U.S. PATENT DOCUMENTS						
*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
	A	2002/0061005	05-2002	Lee	H 04 B 7/0619	
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

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

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

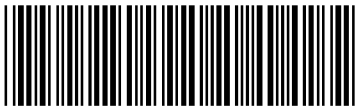
*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
 Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Issue Classification 	Application/Control No. 17/583,369	Applicant(s)/Patent Under Reexamination Howard, Paul	
	Examiner RONALD B ABELSON	Art Unit 2476	

CPC						
Symbol					Type	Version
H04B	/	7	/	2643	F	2013-01-01
H04J	/	3	/	1694	I	2013-01-01
H04L	/	5	/	0053	I	2013-01-01
H04W	/	72	/	042	I	2013-01-01
H04W	/	72	/	0406	I	2013-01-01
H04W	/	72	/	0446	I	2013-01-01
H04W	/	52	/	146	I	2013-01-01
H04W	/	72	/	121	I	2013-01-01
H04W	/	72	/	1289	I	2013-01-01
H04W	/	52	/	54	A	2013-01-01

CPC Combination Sets					
Symbol				Type	Set
	/		/		

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/RONALD B ABELSON/ Primary Examiner, Art Unit 2476 (Primary Examiner) _____ (Date) 23 March 2022		O.G. Print Claim(s) 1	O.G. Print Figure 1

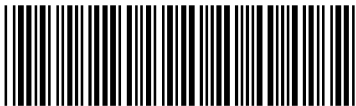
Issue Classification 	Application/Control No. 17/583,369	Applicant(s)/Patent Under Reexamination Howard, Paul
	Examiner RONALD B ABELSON	Art Unit 2476

INTERNATIONAL CLASSIFICATION					
CLAIMED					
H04B	/	7	/	26	
H04J	/	3	/	16	
H04L	/	5	/	00	
H04W	/	72	/	04	
H04W	/	72	/	14	
H04W	/	72	/	12	
NON-CLAIMED					
	/		/		

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/RONALD B ABELSON/ Primary Examiner, Art Unit 2476	23 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification 	Application/Control No. 17/583,369	Applicant(s)/Patent Under Reexamination Howard, Paul
	Examiner RONALD B ABELSON	Art Unit 2476

☐ Claims renumbered in the same order as presented by applicant
 ☐ CPA
 ☐ T.D.
 ☐ R.1.47

CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12												
4	4	13	13												
5	5	14	14												
6	6	15	15												
7	7	16	16												
8	8	17	17												
9	9	18	18												

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/RONALD B ABELSON/ Primary Examiner, Art Unit 2476	23 March 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

<i>Search Notes</i> 	Application/Control No. 17/583,369	Applicant(s)/Patent Under Reexamination Howard, Paul
	Examiner RONALD B ABELSON	Art Unit 2476

CPC - Searched*		
Symbol	Date	Examiner
h04b7/2643	03/23/2022	RA
h04j3/1694	03/23/2022	RA
h04l5/0053	03/23/2022	RA
h04w52/146 h04w72/0406 h04w72/042 h04w72/0446 h04w72/121 h04w72/1289	03/23/2022	

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
CPC combined with limited text search in PE2E	03/23/2022	RA

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<i>Search Notes</i> 	Application/Control No. 17/583,369	Applicant(s)/Patent Under Reexamination Howard, Paul
	Examiner RONALD B ABELSON	Art Unit 2476

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
h04b	7/2643	03/23/2022	RA
h04j	3/1694	03/23/2022	RA
h04l	5/0053	03/23/2022	RA
h04w	52/146, 72/0406, 72/042, 72/0446, 72/121, 72/1289	03/23/2022	RA

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<i>Index of Claims</i> 	Application/Control No. 17/583,369	Applicant(s)/Patent Under Reexamination Howard, Paul
	Examiner RONALD B ABELSON	Art Unit 2476

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM			DATE							
Final	Original		03/23/2022							
1	1	=								
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3	3	=								
4	4	=								
5	5	=								
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13	13	=								
14	14	=								
15	15	=								
16	16	=								
17	17	=								
18	18	=								
19	19	=								
20	20	=								

Bibliographic Data

Application No: 17/583,369

Foreign Priority claimed: ☐ Yes ☒ No

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

Verified and Acknowledged: /RONALD B ABELSON/

Examiner's Signature

Initials

Title:

COMMUNICATIONS IN A WIRELESS NETWORK

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
01/25/2022	370	2476	IPW2-USCN213536
RULE			

APPLICANTS

Intellectual Ventures II LLC, Wilmington, DE, UNITED STATES

INVENTORS

Paul Howard, Bristol,

CONTINUING DATA

This application is a CON of 17339550 06/04/2021 PAT 11239908

17339550 is a CON of 16682854 11/13/2019 PAT 11032000

16682854 is a CON of 14458693 08/13/2014 PAT 11044010

14458693 is a CON of 13176298 07/05/2011 PAT 8811356

13176298 is a CON of 11646692 12/27/2006 PAT 8009639

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

02/01/2022

STATE OR COUNTRY

ADDRESS

VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103
UNITED STATES

FILING FEE RECEIVED

\$6,640

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	9	11/646,692	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 07:12 AM
L2	10	"8009639"	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 07:13 AM
L3	0	2 AND (third adj1 downlink).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 07:14 AM
L4	3	2 AND (third WITH downlink).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 07:15 AM
L5	2	1 AND (third WITH downlink).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 07:16 AM
L6	4	1 AND (time adj1 slot WITH downlink WITH channel).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 07:26 AM
L7	2	"20020061005"	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 04:02 PM
L8	80312	h04b7/2643 h04j3/1694 h04I5/0053 h04w52/146 h04w72/0406 h04w72/042 h04w72/0446 h04w72/121 h04w72/1289	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 04:06 PM
L9	0	(plurality multiple) near4 (timeslot slot) WITH downlink adj1 physical adj1 control adj1 channel WITH power	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 04:07 PM
L10	5452	(plurality multiple) near4 (timeslot slot) WITH power	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 04:07 PM
L11	18	(plurality multiple) near4 (timeslot slot) WITH (downlink adj2 control) WITH power	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 04:07 PM
L12	911	(plurality multiple) near4 (timeslot slot) WITH (downlink control) WITH power	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 04:08 PM
L13	911	10 AND 12	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 04:08 PM
L14	18	10 AND 11	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/23 04:08 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

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

Application Number	17/583,369
Filing Date	2022-01-25
First Named Inventor	Howard
Art Unit	2476
Examiner Name	Ronald B. Abelson
Attorney Docket Number	IPW2-USCN213536

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		5056109	10/1991	Gilhousen et al.			
		5265119	11/1993	Gilhousen et al.			
		5485486	01/1996	Gilhousen et al.			
		6061784	05/2000	Tarsky et al.			
		6567459	05/2003	Hakkinen et al.			
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		7180902	02/2007	Raaf et al.			
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		8009639	08/2011	Howard			
		8072916	12/2011	Dateki			
		20010012276	08/2001	Tsunebara et al.			
		20010026543	10/2001	Hwang et al.			
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		20020061005	05/2002	Lee et al.			
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		20020077151	06/2002	Matthews et al.			
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		20020094834	07/2002	Baker et al.			
		20020105929	08/2002	Chen et al.			
		20020114311	08/2002	Mazur et al.			
		20020119798	08/2002	Hamabe			
		20020136193	09/2002	Chang et al.			
		20020150058	10/2002	Kim et al.			
		20020168993	11/2002	Choi et al.			
		20020172208	11/2002	Malkamaki			

**INFORMATION DISCLOSURE
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Examiner Name	Ronald B. Abelson
Attorney Docket Number	IPW2-USCN213536

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		20020196766	12/2002	Hwang et al.			
		20030022683	01/2003	Beckmann et al.			
		20030054850	03/2003	Masseroni et al.			
		20030069020	04/2003	Speight			
		20040022213	02/2004	Choi et al.			
		20040152473	08/2004	Kuwano et al.			
		20040170132	09/2004	Shin et al.			
		20040203419	10/2004	Crocker et al.			
		20050002360	01/2005	Lamontagne et al.			
		20050013287	01/2005	Wallentin et al.			
		20050022098	01/2005	Vayanos et al.			
		20050058103	03/2005	Jeong et al.			
		20050222948	10/2005	Sato et al.			
		20060093026	05/2006	Montejo et al.			
		20060211417	09/2006	Pedlar			
		20060221809	10/2006	Malladi et al.			
		20070058595	03/2007	Classon et al.			
		20070173256	07/2007	Laroia et al.			
		20070177656	08/2007	Maruta et al.			
		20070265017	11/2007	Ishii et al.			
		20080090528	04/2008	Malladi			
		20080144600	06/2008	Anderson			
		20090262711	10/2009	Ahn et al.			

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
		10201270	08/2002	DE				
		1467582	10/2004	EP				
		1615384	01/2006	EP				

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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First Named Inventor	Howard
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Examiner Name	Ronald B. Abelson
Attorney Docket Number	IPW2-USCN213536

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
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		1681780	07/2006	EP				
		11261544	09/1999	JP				
		2006197318	07/2006	JP				
		2006019263	02/2006	WO				
		2006063138	06/2006	WO				
		2006015984	02/2006	WO				
		2005083897	09/2005	WO				

OTHER DOCUMENTS

EXAMINER INITIAL		DESCRIPTION (Including Author, Title, Date, Pertinent Pages, Etc.)
		"3 UMTS Interfaces," UMTS Protocols and Protocol Testing, pp. 9-14, located at < http://www.tek.com/Measurement/App.sub.--Notes/2F.sub.--14251/eng/in!-erfaces.pdf >.
		"3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Feasibility Study for Evolved UTRA and UTRAN (Release 7)," (Mar. 2006). 3GPP: Valbonne, France, TS 25.912 v0.0.4:1-13.
		"3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; 3GPP System Architecture Evolution: Report on Technical Options and Conclusions (Release 7)," (Jul. 2005). 3GPP: Valbonne, France, TS 23.882 v0.3.0:1-13.
		"3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; General UMTS Architecture (3G TS23.101 version 3.0.1)," (Apr. 1999). 3GPP: Valbonne, France, TS 23.101 v3.0.1, 1-13.
		"3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Multimedia Broadcast/Multicast Service (MBMS); Architecture and Functional Description (Release 6); 3GPP: Valbonne, France; 3GPP TS 23.246 v.6.4.0 (2004-09).
		"UMTS Protocols and Protocol Testing," Tektronix, The International Engineering Consortium, pp. 1-45, located at < http://www.rfpeople.com/docs/umts.pdf >.
		3RD GENERATION PARTNERSHIP PROJECT. "Technical Specification Group Radio Access Network; Radio Resource Control (RRC); Protocol Specification (Release 7)," 3GPP TS 25.331 V7.3.0, December 2006.
		ADVISORY ACTION, U.S. Patent Application No. 14/458,693, dated August 25, 2016.

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

Application Number	17/583,369
Filing Date	2022-01-25
First Named Inventor	Howard
Art Unit	2476
Examiner Name	Ronald B. Abelson
Attorney Docket Number	IPW2-USCN213536

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	Ghadiy, Z. "Tutorial: Medium Access Control (MAC) in 3G/UMTS Protocol Stack," located at < http://www.3g4g.co.uk/Tutorial/ZG/zg.sub.--mac.html > visited on Jun. 20, 2007. (9 pages).
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		NON-FINAL REJECTION, U.S. Patent Application No. 14/458,693, dated October 23, 2017.
		NON-FINAL REJECTION, U.S. Patent Application No. 16/682,854, dated February 7, 2020.
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	*	NOTICE OF ALLOWANCE, U.S. Patent Application No. 17/339,550, dated September 30, 2021.
		OFFICE ACTION, Japanese Patent Application No. 2009-543459, dated December 18, 2012.
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2 (Release 8)," 3GPP TS 36.300 V0.3.1 (November 2006).

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		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Physical layer procedures (Release 8)," 3GPP TS 36.213 V0.1.0 (October 2006).
		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Multiplexing and channel coding (Release 8)," 3GPP TS 36.212 V0.2.1 (November 2006).

/RONALD B ABELSON/

04/08/2022

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17583369	NOA	04/12/2022	IPW2-USCN213536
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U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		5056109	10/1991	Gilhousen et al.			
		5265119	11/1993	Gilhousen et al.			
		5485486	01/1996	Gilhousen et al.			
		6061784	05/2000	Tarsky et al.			
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		6611509	08/2003	Hayashi et al.			
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		20090262711	10/2009	Ahn et al.			

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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
		10201270	08/2002	DE				
		1467582	10/2004	EP				
		1615384	01/2006	EP				

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Attorney Docket Number	IPW2-USCN213536

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
		1681780	07/2006	EP				
		11261544	09/1999	JP				
		2006197318	07/2006	JP				
		2006019263	02/2006	WO				
		2006063138	06/2006	WO				
		2006015984	02/2006	WO				
		2005083897	09/2005	WO				

OTHER DOCUMENTS

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		"3 UMTS Interfaces," UMTS Protocols and Protocol Testing, pp. 9-14, located at < http://www.tek.com/Measurement/ App.sub. --Notes/2F.sub. --14251 /eng/in!- erfaces.pdf >.
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		THIRD GENERATION PARTNERSHIP PROJECT, "Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2 (Release 8)," 3GPP TS 36.300 V0.3.1 (November 2006).

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EXAMINER

ABELSON, RONALD B

ART UNIT

PAPER NUMBER

2476

DATE MAILED: 09/30/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/339,550	06/04/2021	Paul Howard	IPW2-USCN213479	9798

TITLE OF INVENTION: COMMUNICATIONS IN A WIRELESS NETWORK

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	12/30/2021

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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/339,550	06/04/2021	Paul Howard	IPW2-USCN213479	9798

TITLE OF INVENTION: COMMUNICATIONS IN A WIRELESS NETWORK

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	12/30/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
ABELSON, RONALD B	2476	370-280000

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(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. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/339,550	06/04/2021	Paul Howard	IPW2-USCN213479	9798
3624	7590	09/30/2021	EXAMINER	
VOLPE KOENIG			ABELSON, RONALD B	
30 SOUTH 17TH STREET, 18TH FLOOR			ART UNIT	
PHILADELPHIA, PA 19103			PAPER NUMBER	
			2476	
DATE MAILED: 09/30/2021				

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) 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. 17/339,550	Applicant(s) Howard, Paul	
	Examiner RONALD B ABELSON	Art Unit 2476	AIA (FITF) Status No

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

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

1. ☒ This communication is responsive to 9/16/21, 8/27/21, 6/4/21.
☐ 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 1-19. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

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

Certified copies:

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892) 2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date <u>8/27/21</u> . 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____. 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	5. ☐ Examiner's Amendment/Comment 6. ☐ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____.
---	---

/ RONALD B ABELSON/
Primary Examiner, Art Unit 2476

Notice of Pre-AIA or AIA Status

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

Reasons for Allowance

Regarding claims 1, 9, and 15, Ishii US 20070265017 teaches a user equipment (UE) comprising:

a receiver and processor are configured to receive resource allocation information associated with an uplink physical control channel (uplink control channel, [0207]), wherein the uplink physical control channel and a physical uplink shared channel / PUSCH have different resources;

a transmitter and the processor are configured to send, over the physical uplink shared channel, data in assigned time intervals (uplink control channel can be one of two types, a channel to be time-multiplexed with physical uplink shared channel PUSCH and a channel to be frequency-multiplexed with it, [0207]).

However, none of the prior art of record teaches or fairly suggests all the limitations of the independent claims.

Conclusion

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONALD B ABELSON whose telephone number is (571)272-3165. The examiner can normally be reached on M-F 8:00-4:30.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through

Art Unit: 2476

Private PAIR only. For more information about the PAIR system, see <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RONALD B ABELSON/
Primary Examiner, Art Unit 2476

<i>Notice of References Cited</i>	Application/Control No. 17/339,550	Applicant(s)/Patent Under Reexamination Howard, Paul	
	Examiner RONALD B ABELSON	Art Unit 2476	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
	A	20070265017	11-2007	Ishii	H04W 28/16	
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

Electronic Acknowledgement Receipt

EFS ID:	45422253
Application Number:	17583369
International Application Number:	
Confirmation Number:	3554
Title of Invention:	COMMUNICATIONS IN A WIRELESS NETWORK
First Named Inventor/Applicant Name:	Paul Howard
Customer Number:	3624
Filer:	John D. Wilt/Caren Burgoon
Filer Authorized By:	John D. Wilt
Attorney Docket Number:	IPW2-USCN213536
Receipt Date:	07-APR-2022
Filing Date:	25-JAN-2022
Time Stamp:	17:03:19
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	Transmittal Letter	IPW2_USCN213536_IDStranmittal_20220407.pdf	89627 e78c516561eeacb2cff257704d7d680398de2d3f	no	2

Warnings:

IPW2025-00221

Exhibit 2011

Page 49 of 110

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	IPW2_USCN213536_MasterList _20220407.pdf	144835 b4e69199f632caf6019fba7557350d4e12f9 7c95	no	6
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Non Patent Literature	NPL01-17_339_550- NOA-20210930.pdf	441170 ea2e4f7166511550d226e8a4b67a93aa525 1b201	no	9
Warnings:					
Information:					
Total Files Size (in bytes):			675632		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:

Paul Howard

Application No.: 17/583,369

Confirmation No.: 3554

Filed: January 25, 2022

For: COMMUNICATIONS IN A WIRELESS
NETWORK

Group: 2476

Examiner: Ronald B. Abelson

Our File: IPW2-USCN213536

Date: April 7, 2022

INFORMATION DISCLOSURE STATEMENT

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

Further to Applicant's Duty of Disclosure pursuant to 37 C.F.R. §1.56, Applicant wishes to bring to the Examiner's attention the material cited on the enclosed Information Disclosure Statement Form.

This Application is a continuation of U.S. Patent Application No. 17/339,550, filed June 4, 2021, which issued February 1, 2022 as U.S. Patent No. 11,239,908, which is a continuation of U.S. Patent Application No. 16/682,854, filed November 13, 2019, which issued June 8, 2021 as U.S. Patent No. 11,032,000, which is a continuation of U.S. Patent Application No. 14/458,693, filed August 13, 2014, which issued June 22, 2021 as U.S. Patent No. 11,044,010, which is a continuation of U.S. 7307765.1

Patent Application No. 13/176,298, filed July 5, 2011, which issued August 19, 2014 as U.S. Patent No. 8,811,356, which is a continuation of U.S. Patent Application No. 11/646,692, filed December 27, 2006, which issued August 30, 2011 as U.S. Patent No. 8,009,639.

Pursuant to 37 C.F.R. §1.98(d) copies of documents cited in the parent application are not enclosed, but copies will be provided upon request. Documents that were not cited in the parent application are indicated by an asterisk (*) on the enclosed Information Disclosure Statement Form. Copies of the cited references are enclosed.

It is respectfully requested that the Examiner consider these documents and return an initialed copy of the Information Disclosure Statement Form indicating consideration of the cited materials.

Respectfully submitted,

Intellectual Ventures II LLC

By /John D. Wilt/
John D. Wilt
Registration No. 76,110
(215) 568-6400

Volpe Koenig
United Plaza
30 South 17th Street
Philadelphia, PA 19103

JDW/PCK
Enclosures

7307765.1

To: eoffice@volpe-koenig.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 3624

Mar 08, 2022 04:50:20 AM

Dear PAIR Customer:

VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 3624 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:

The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
17583369	TRACK1.GRANT	03/07/2022	IPW2-USCN213536

To view your correspondence online or update your email addresses, please visit us anytime at <https://portal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/583,369	01/25/2022	Paul Howard	IPW2-USCN213536	3554
3624	7590	03/07/2022	EXAMINER	
VOLPE KOENIG			CENTRAL, DOCKET	
30 SOUTH 17TH STREET, 18TH FLOOR				
PHILADELPHIA, PA 19103				
			ART UNIT	PAPER NUMBER
			OPAP	
			NOTIFICATION DATE	DELIVERY MODE
			03/07/2022	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):

eoffice@volpe-koenig.com

<i>Decision Granting Request for Prioritized Examination (Track I)</i>	Application No. 17/583,369	Applicant(s) Howard, Paul	
	Examiner CHERYL P GIBSON BAYLOR	Art Unit OPET	AIA (FITF) Status No

1. THE REQUEST FILED 25 January 2022 IS **GRANTED** .

The above-identified application has met the requirements for prioritized examination

A. ☒ for an original nonprovisional application (Track I).

B. ☐ for an application undergoing continued examination (RCE).

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:

A. filing a **petition for extension of time** to extend the time period for filing a reply;

B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims**, or a multiple dependent claim;

C. filing a **request for continued examination** ;

D. filing a notice of appeal;

E. filing a request for suspension of action;

F. mailing of a notice of allowance;

G. mailing of a final Office action;

H. completion of examination as defined in 37 CFR 41.102; or

I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to CHERYL GIBSON BAYLOR at (571)272-3213. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.

/CHERYL GIBSON BAYLOR/ Paralegal Specialist, OPET	
--	--

To: eoffice@volpe-koenig.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 3624

Feb 02, 2022 04:25:05 AM

Dear PAIR Customer:

VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 3624 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:

The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
17583369	APP.FILE.REC	02/02/2022	IPW2-USCN213536

To view your correspondence online or update your email addresses, please visit us anytime at <https://portal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 17/583,369				
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	320			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	700			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800			
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *				x 100 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = *	1			x 480 =	480			
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	2300			
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	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
17/583,369	01/25/2022	2414	2300	IPW2-USCN213536	20	4

CONFIRMATION NO. 3554

FILING RECEIPT

3624
VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
PHILADELPHIA, PA 19103



Date Mailed: 02/02/2022

Receipt is acknowledged of this non-provisional utility 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 FIRST INVENTOR, 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 corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction 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 provided that the request is grantable.

Inventor(s)

Paul Howard, Bristol, UNITED KINGDOM;

Applicant(s)

Intellectual Ventures II LLC, Wilmington, DE;

Assignment For Published Patent Application

Intellectual Ventures II LLC, Wilmington, DE

Power of Attorney: The patent practitioners associated with Customer Number 3624

Domestic Priority data as claimed by applicant

This application is a CON of 17/339,550 06/04/2021 PAT 11239908
which is a CON of 16/682,854 11/13/2019 PAT 11032000
which is a CON of 14/458,693 08/13/2014 PAT 11044010
which is a CON of 13/176,298 07/05/2011 PAT 8811356
which is a CON of 11/646,692 12/27/2006 PAT 8009639

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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: 02/01/2022

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/583,369**

Projected Publication Date: 05/12/2022

Non-Publication Request: No

Early Publication Request: No

Title

COMMUNICATIONS IN A WIRELESS NETWORK

Preliminary Class

370

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

page 2 of 4

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

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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.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	Not Yet Known
Filing Date	January 25, 2022
First Named Inventor	Paul Howard
Title	COMMUNICATIONS IN A WIRELESS NETWORK
Art Unit	Not Yet Known
Examiner Name	Not Yet Known
Attorney Docket Number	IPW2-USCN213536

SIGNATURE of Applicant or Patent Practitioner

Signature	/John D. Wilt/	Date (Optional)	2022-01-25
Name	John D. Wilt	Registration Number	76,110
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)	Intellectual Ventures II LLC		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐

*Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

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

I hereby appoint:

☒ Practitioners associated with the Customer Number:**3624**

OR

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

Name	Registration Number	Name	Registration Number

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

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

☒ The address associated with Customer Number:**3624**

OR

☐ Firm or Individual Name

Address

City

State

Zip

Country

Telephone

Email

Assignee Name and Address:

Intellectual Ventures II LLC
251 Little Falls Drive
Wilmington, DE 19808

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

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

Signature

Date

Name

Telephone

Title

Assistant Company Secretary for Intellectual Ventures II LLC

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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

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

First Named Inventor:	Paul Howard	Nonprovisional Application Number (if known):	Not Known
Title of Invention:	COMMUNICATIONS IN A WIRELESS NETWORK		

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 <u>/John D. Wilt/</u>	Date <u>2022-01-25</u>
Name (Print/Typed) <u>John D. Wilt</u>	Practitioner Registration Number <u>76,110</u>

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.*

☐ *Total of _____ 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.

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.

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

Title of
Invention

COMMUNICATIONS IN A WIRELESS NETWORK

As the below named inventor, I hereby declare that:

This declaration
is directed to:☐

The attached application, or

☒United States application or PCT international application number 14/458,693filed on August 13, 2014

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

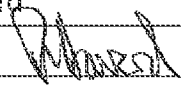
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Paul HowardDate (Optional): 22 October 2014Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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

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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.

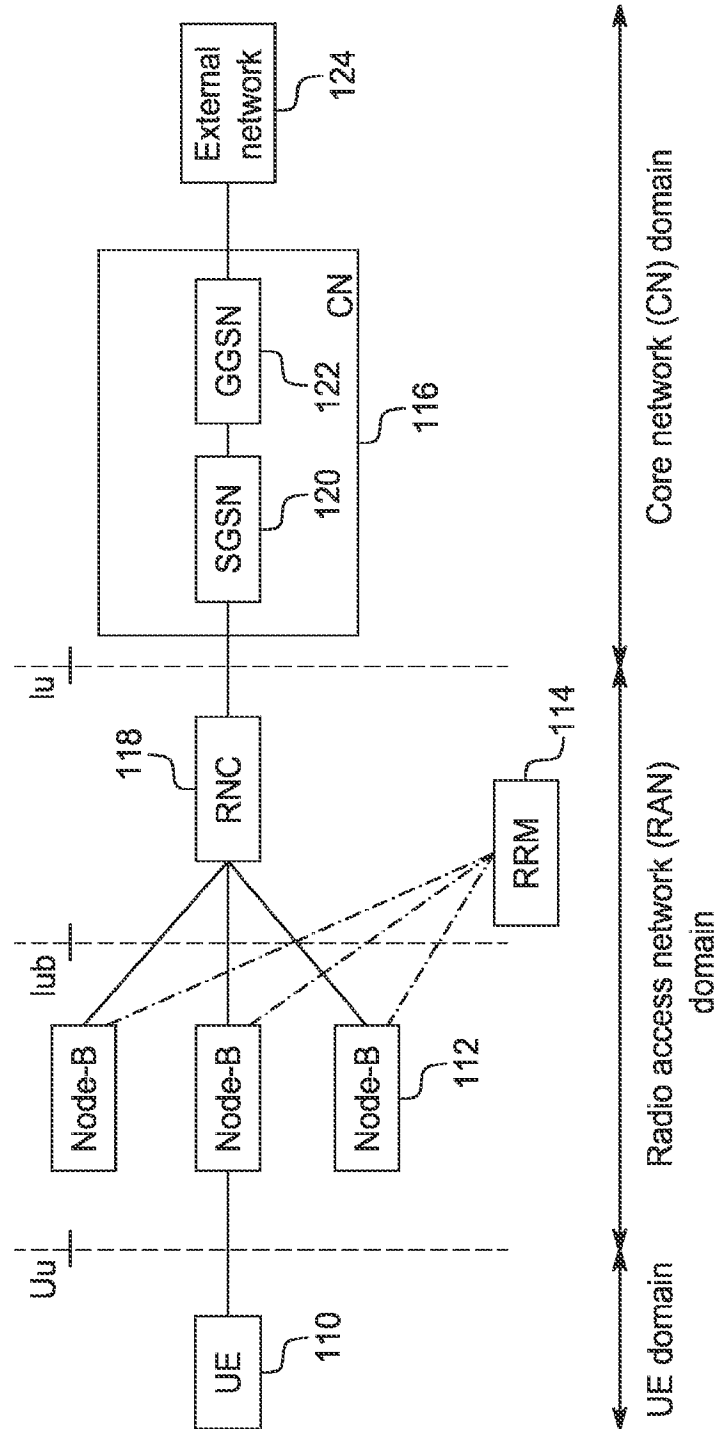


FIG. 1

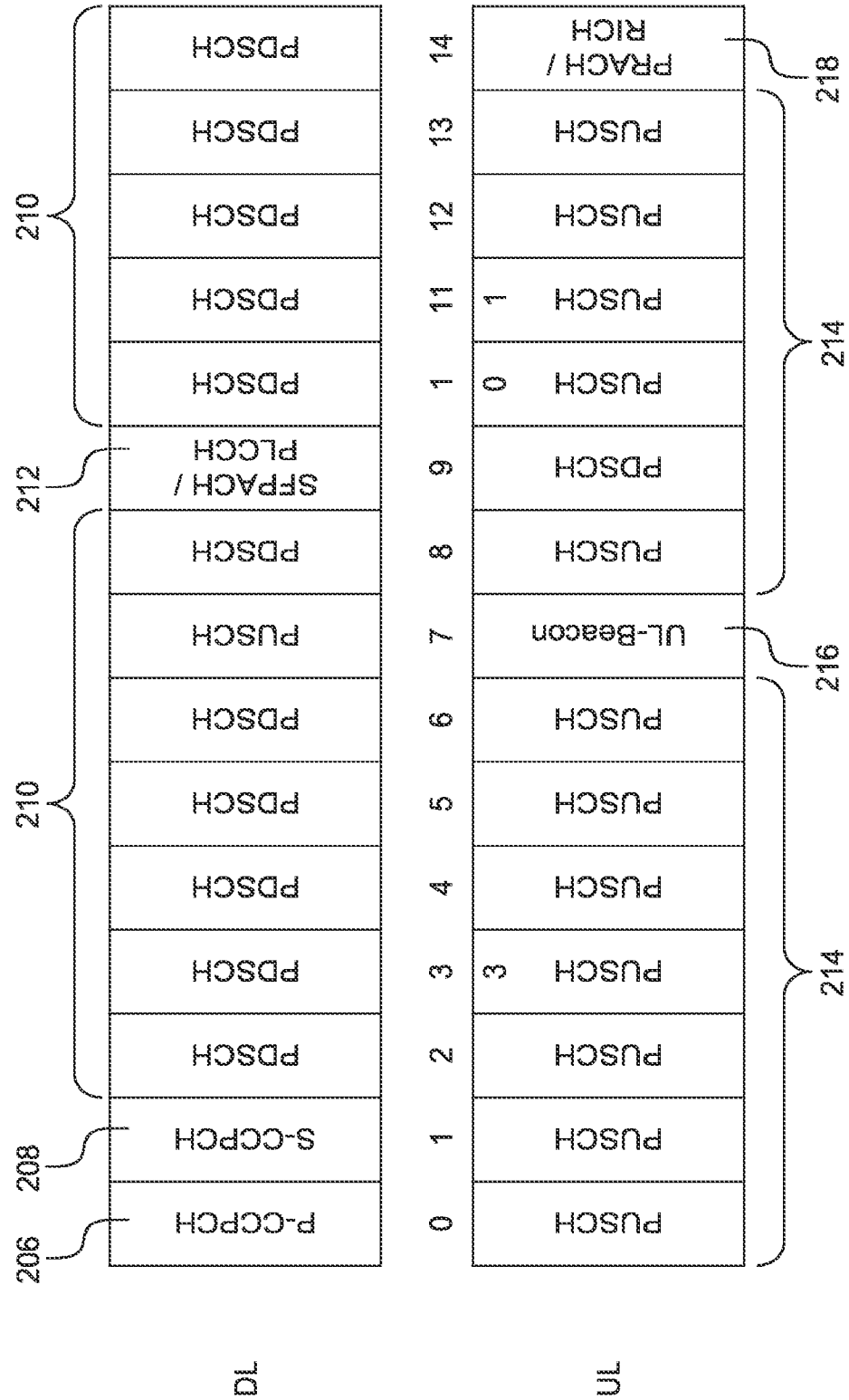


FIG. 2

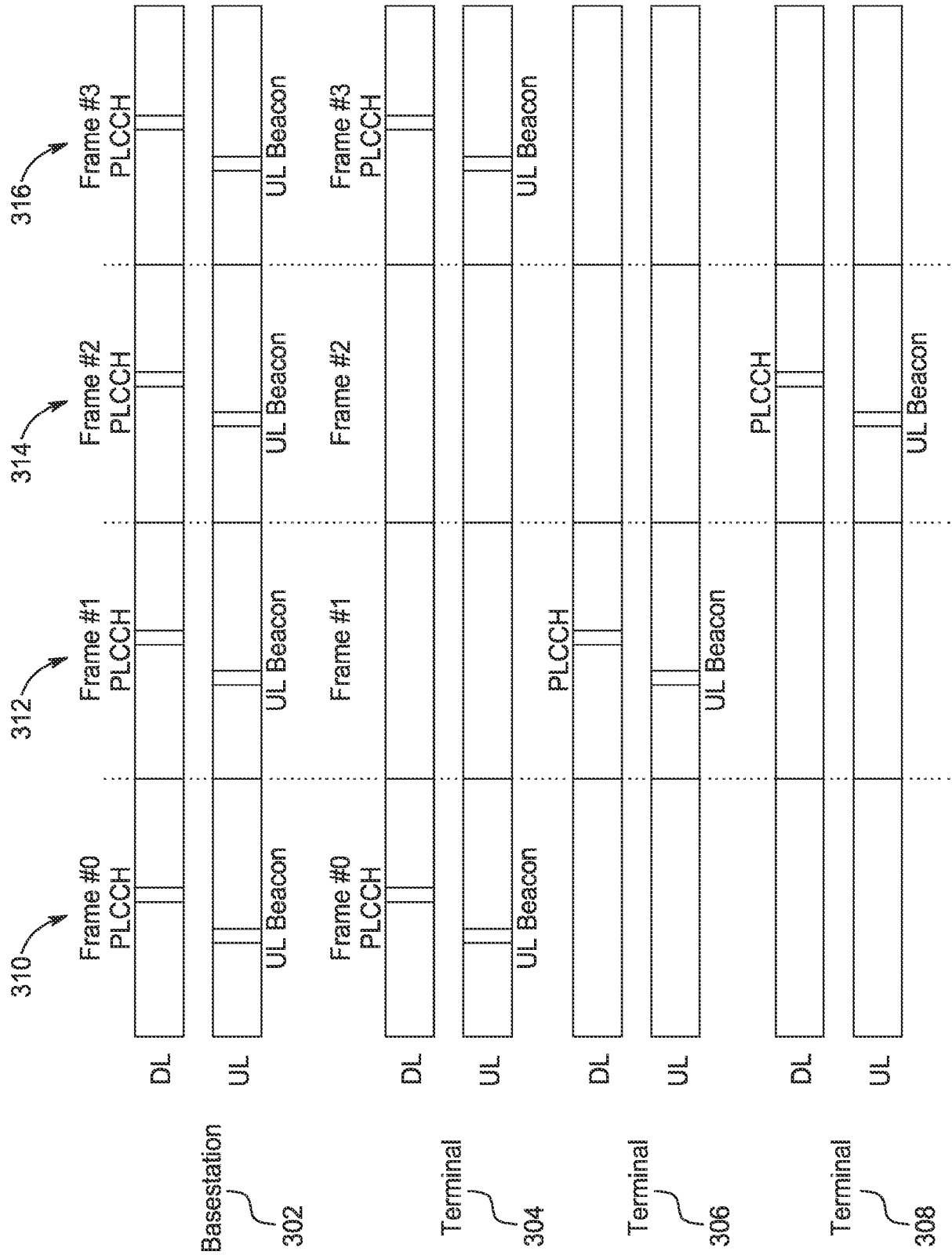


FIG. 3

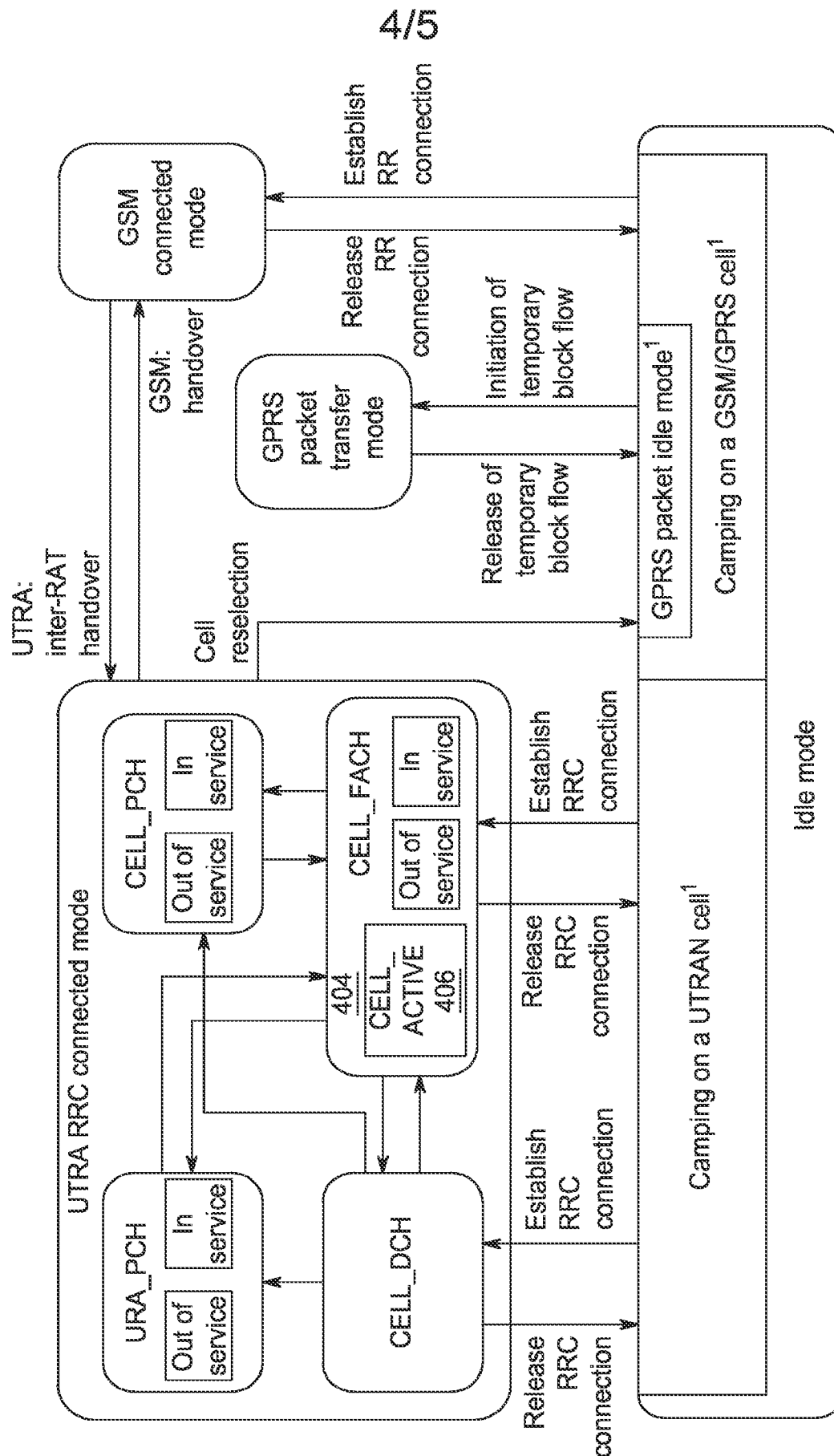


FIG. 4

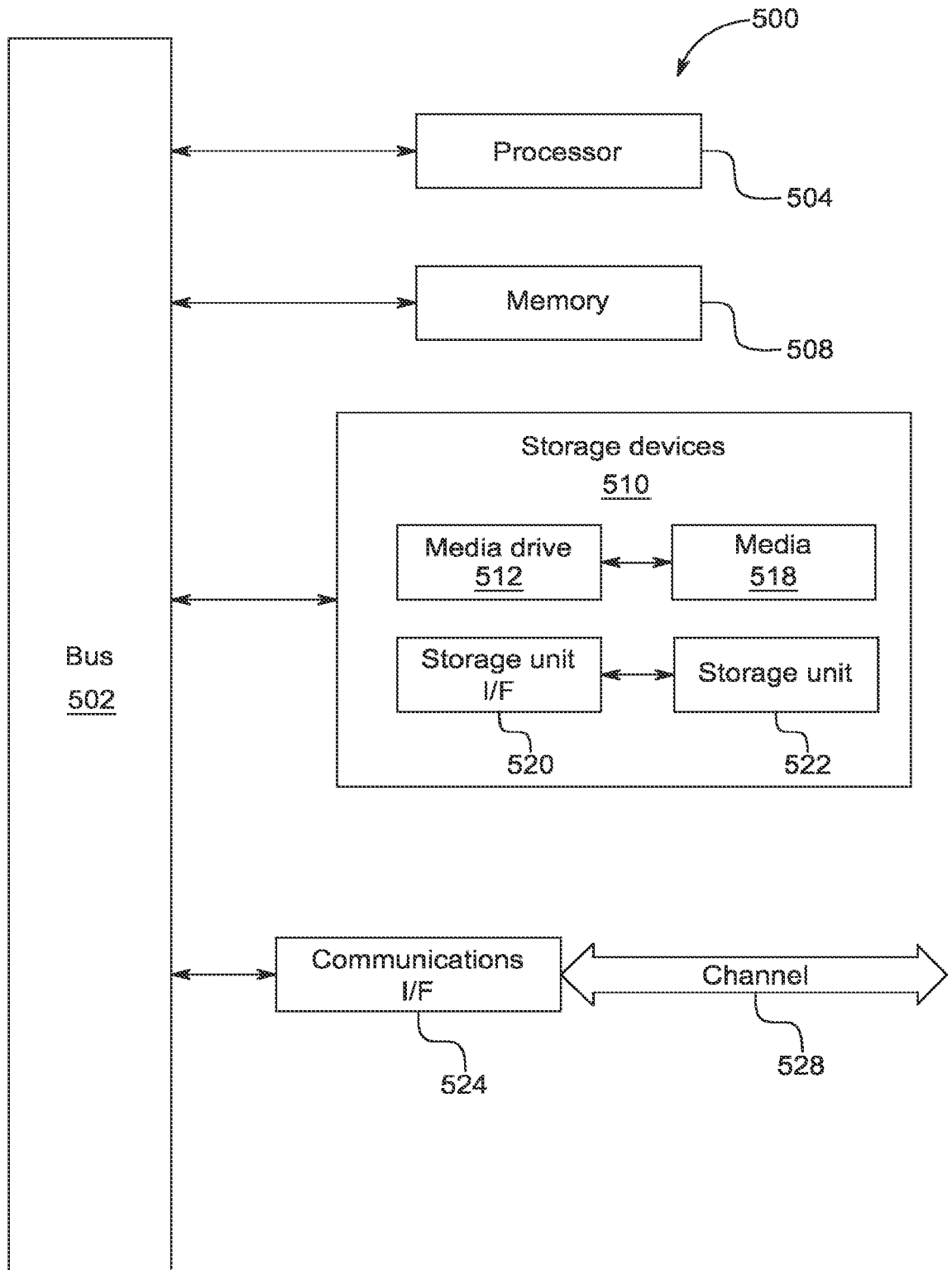


FIG. 5

COMMUNICATIONS IN A WIRELESS NETWORK

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. Patent Application Serial No. 17/339,550, filed June 4, 2021 which will issue as U.S. Patent No. 11,239,908 on February 1, 2022, which is a continuation of U.S. Patent Application No. 16/682,854, filed November 13, 2019, which issued as U.S. Patent No. 11,032,000 on June 8, 2021, which is a continuation of U.S. Patent Application Serial No. 14/458,693, filed August 13, 2014, which issued as U.S. Patent No. 11,044,010 on June 22, 2021, which is a continuation of U.S. Patent Application Serial No. 13/176,298, filed July 5, 2011, which issued as U.S. Patent No. 8,811,356 on August 19, 2014, which is a continuation of U.S. Patent Application Serial No. 11/646,692, filed December 27, 2006, which issued as U.S. Patent No. 8,009,639 on August 30, 2011, which are all incorporated by reference as if fully set forth.

BACKGROUND OF THE INVENTION

[0002] Time division-code division multiple access (TD-CDMA) is an air interface technology that combines the benefits of the three elemental concepts in a universal mobile telecommunication system (UMTS): time division multiple access (TDMA); code division multiple access (CDMA); and time division duplex (TDD). TDD, in particular, uses the same radio channel for both uplink and downlink communications, and discriminates between signals by separating the transmissions in time. One of the benefits obtained by operating both links on the same frequency is the ability to exploit channel reciprocity.

[0003] Channel reciprocity gives equipment the ability to derive information about uplink channel conditions from downlink channel conditions based upon signals received by the user equipment (UE). Pathloss is one example of channel information that can be obtained from channel reciprocity. Knowledge of the uplink pathloss enables open-loop power control to be employed for uplink transmissions.

For example, uplink power control is important for the operation of the CDMA element of TD-CDMA as it counteracts the near-far effect that would otherwise be encountered if all UEs transmitted at a fixed power regardless of the uplink pathloss.

[0004] The open-loop uplink power control feature provides a significant advantage when coupled with a multiple access data transmission system that is used for packet-based communication and/or shared channels. When access to a limited number of uplink channels is shared between a large population of terminals it is imperative that access to the channels can be switched between terminals with minimal latency. A data terminal that can derive information needed to access uplink channels from the downlink transmissions (beacon signals) has a significant advantage over a terminal that relies on the (lengthy) configuration of a dedicated channel in order to establish a feedback channel.

[0005] However, channel reciprocity cannot always be guaranteed. For example TDD transmissions may not be permitted in certain frequency spectrum allocations; this is a regulatory issue and may be used to protect other wireless equipment in the same or adjacent frequency bands. In these situations the correlation between uplink and downlink channels is lost because the channels are transported on carrier frequencies that are separated in frequency by an amount that is greater than the coherence bandwidth of the channel (usually, only a few MHz separation is sufficient to cause the uplink and downlink fading profiles to be independent).

[0006] In high speed mobile applications, the time delay between downlink and uplink transmissions may exceed the coherence time of the channel. The maximum time delay that can be tolerated is a function of the mobile speed and the RF carrier frequency used, with the coherence time reducing with increasing speed and RF carrier frequency. Also, the use of multiple transmit and/or receive antennas at the network and/or the mobile terminal can introduce unintentional decorrelation between the uplink and downlink channels.

[0007] If the TD-CDMA air interface is to be used in applications where the correlation between the uplink and downlink path loss is not guaranteed, then it would be advantageous to find a substitute for channel reciprocity.

BRIEF SUMMARY OF THE INVENTION

[0008] Although it is desirable to support air interfaces where the pathloss is not reciprocal, known conventional methods do not deal directly with the evolution or adaptation of an air interface that uses channel reciprocity to deliver key features and advantages where channel reciprocity is not guaranteed. The adaptation provided in embodiments of the invention introduces a new technique for uplink channel control that uses a feedback scheme as a substitute for the absence of channel reciprocity, with minimal impact on the ability of the air interface to support uplink shared channels.

[0009] Embodiments of the present invention enable active feedback control between a base station and user equipment (UE). In particular, the operation of a system designed for TDD, or unpaired operation, is expanded to operate in FDD, or paired, mode. For example, an uplink beacon function (for power control) and a modified random access process substitute for the information lost due to the lack of channel reciprocity in paired operation. Embodiments of the invention allow a terminal to transmit the uplink physical channel control signal (UL_Beacon) independently from the uplink physical channel. Therefore, the implementation of closed loop feedback may operate in the absence of an uplink physical channel. In one embodiment, a UE allocates a time slot for a beacon signal separated from the time slots for data in a frame. A second time slot is allocated within the frame for the base station to transmit a control signal in response to the beacon signal. The control signal instructs the UE to adjust a transmission parameter.

[0010] A UL_Beacon signal may be combined with a physical layer common control channel (PLCCH) to form a feedback system. A dedicated timeslot groups all of the UL_Beacon signals from multiple UEs in a specific uplink timeslot. By

grouping the UL_Beacon signals together, embodiments obtain separation between the UL_Beacon signals and the standard uplink physical channels. Additionally, in a synchronous system embodiments of the invention detect and cancel the UL_Beacon signals from other cell sites (inter-cell interference). The PLCCH carries feedback information to the UEs that are transmitting UL_Beacon signals. The PLCCH can share a timeslot with other physical channels by exploiting the CDMA aspect of the system.

[0011] In other embodiments, the number of supported UEs can be increased by fractionating the use of the UL_Beacon and PLCCH across a multiframe period. Fractionation may also prevent timeslot blocking where half duplex UEs have a long UL/DL switching time. Additionally, support for half duplex terminals is implicit due to the nature of the TDMA frame structure. The system may manage the allocation of resource across the population of terminals such that the full capacity of the base station can be utilized even when only half-duplex terminals are deployed. In embodiments of the invention, full-duplex terminals can be still be supported along with half duplex UEs.

[0012] Moreover, in other embodiments, a radio resource control (RRC) connected state covers the subset of terminals that are in cell forward access channel (Cell_FACH), which are also transmitting UL_Beacon and receiving PLCCH, thus creating an active control feedback channel. Management of the UEs that are in Cell_Active state may remove users that are less active, and may add users that are newly active while retaining users that may have on-going data transfer requirements.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] Figure 1 illustrates a cellular communication system according to embodiments of the invention;

[0014] Figure 2 illustrates a timeslot arrangement for uplink and downlink messages supporting the UL_Beacon and its corresponding PLCCH within a TD-

CDMA frame structure modified to support FDD according to embodiments of the invention;

[0015] Figure 3 illustrates fractionation in different frames at the base station according to embodiments of the invention;

[0016] Figure 4 illustrates UTRA RRC connected modes according to embodiments of the invention;

[0017] FIG. 5 illustrates a computer system that may be employed to implement embodiments of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0018] Figure 1 illustrates an example of a cellular communication system according to embodiments of the invention. The network includes a user equipment (UE) domain, a radio access network (RAN) domain, and a core network domain. The UE domain includes user equipment 110 that communicate with at least one base station 112 in the RAN domain via a wireless interface. The RAN domain may also include a network controller (RNC) 118 (e.g., radio network controller), such as that used in UMTS systems. Alternatively, such functionality may be distributed between the Node Bs and an access gateway (AGW) (not shown) or other controller in the core network. FIG. 1 also illustrates an optional radio resource manager (RRM) 114. The RRM may perform functions otherwise performed by the Node Bs or an AGW in some embodiments.

[0019] The core network (CN) 116 includes, in this example, a serving GPRS support node (SGSN) 120, and a gateway GPRS support node (GGSN) 122. The core network is coupled to an external network 124. The SGSN 120 is responsible for session control, including keeping track of the location of the UEs. The GGSN 122 concentrates and tunnels user data within the core network 116 to the ultimate destination (e.g., an Internet service provider) in the external network 124. Further details may be found in the 3GPP UMTS technical specifications, such as TS23.246 v6.4.0 "3rd Generation Partnership Project; Technical Specification Group Services

and System Aspects; Multimedia Broadcast/Multicast Service (MBMS); Architecture and Functional Description (Release 6)," published by the 3GPP Support Office, 650 Route des Lucioles--Sophia Antipolis, Valbonne--FRANCE, which are incorporated by reference herein.

[0020] Further details regarding exemplary communications systems that may implement embodiments of the invention may be found in 3GPP UMTS technical specifications, such as TR 23.882, "3GPP System Architecture Evolution: Report on Technical Options and Conclusions"; TR 25.912, "Feasibility Study for Evolved UTRA and UTRAN"; TS 23.101, "General Universal Mobile Telecommunications System (UMTS) Architecture," all of which are incorporated by reference herein.

TDD to FDD Evolution

[0021] A system designed for operation in Time Division Duplex (TDD) mode has base stations and terminals that transmit and receive at orthogonal points in time. In normal operation terminals are in receive mode when the base station is transmitting, and base stations are in receive mode when terminals are transmitting. In conventional TDD implementations, neither base stations nor the terminals are able to transmit and receive at the same points in time because the same frequency is used for uplink and downlink communication.

[0022] Such a system can be adjusted to operate in Frequency Division Duplex (FDD) mode, where the uplink and downlink communications occur on different frequencies. According to embodiments of the invention, to make full and efficient use of the frequency spectrum resources, the base stations are adapted to transmit and receive at the same time. This is possible since the uplink and downlink communications now occur on different frequencies. The terminals, however, retain the restriction of transmitting and receiving at orthogonal points in time to retain the simplicity of not having to transmit and receive at the same time (e.g., no duplexer

required). The full use of the frequency spectrum is then obtained by allocating the resource across a plurality of terminals.

[0023] Additional measures may be needed if there are aspects of the air interface that rely on the channel reciprocity that can be assumed for TDD systems. In the case of TD-CDMA, modifications may be made for the correct operation of uplink power control and rate adaptation. This can be achieved by defining an uplink physical control channel used for estimating the uplink channel conditions and a downlink channel used to feed back control information to the terminal. These channels may not need an associated data physical channel to be operational.

[0024] Modifications may be made to the random access channel. This may be achieved by introducing an additional indicator step at the start of any physical random access. A new uplink physical channel carries the random access indicators. A new downlink physical channel carries the response to received uplink indicators.

Uplink Physical Channel Control Signal

[0025] When pathloss reciprocity is not available, the combination of an uplink physical channel control signal with a downlink feedback channel may be used to keep the terminal informed of the condition of the uplink channel. The uplink physical control signal is referred to herein as an "Uplink Beacon" (UL_Beacon).

[0026] In general, a system that supports shared channels may also support shared access to a large number of terminals. To extract the maximum benefit from the resulting trunking gain, shared channels can be quickly and efficiently re-allocated between the population of UEs. To obtain rapid access to the uplink shared channels, terminals can transmit at the correct power with their first transmission so that latency can be kept to a minimum.

[0027] According to embodiments of the invention, the RNC or other controller (e.g., other controller having its functionality in the core network) allocates resources so that the physical channel control signal is separate from the uplink (shared)

physical channel. Thus, terminals are able to transmit an UL_Beacon independently of their access to the uplink shared channel. The system may implement a closed loop control system, in which the base station detects the received power and/or other channel information from the UL_Beacon, and sends controlling commands back to each terminal to keep the terminal informed of the channel conditions observed at the base station.

[0028] In certain embodiments, the closed loop control system is simply based on the UL_Beacon power received at the base station. The base station may send power control commands on a shared downlink channel to each terminal based on the power received from the UL_Beacon signal. Each power control command may, for example, indicate whether terminal power should be increased or decreased by a predetermined amount. This downlink channel is referred to as the "Physical Layer Control Channel" (PLCCH). The capacity of the PLCCH may be matched to the number of bits required in the feedback field and the number of UL_Beacon signals that can be simultaneously supported. That is, each UL_Beacon may correspond to one bit of the PLCCH. All terminals transmitting UL_Beacon signals may receive this channel and extract the relevant feedback field.

[0029] It is possible to extend the complexity of the control loop by sending control commands based on other aspects of the UL_Beacon signal as received by the base station, such as time-of-arrival, and channel impulse response. The amount of resource that is required for the feedback channel increases with the size (in bits) of the feedback information to each UE.

[0030] For example, for air interface technologies with a TDMA element, it is possible to adapt the TDMA frame structure to provide separation between the UL_Beacon and the normal physical channels by dedicating at least one uplink time slot per frame (or at least one time slot per multi-frame) to carrying UL_Beacon signals.

[0031] By placing UL_Beacon signals in a dedicated timeslot, a dedicated detection scheme can be applied which may include performance enhancing features

such as intra-cell cancelling (for alleviating the effects of cross-correlation interference between UL_Beacon signals transmitted by multiple terminals in the same cell), or inter-cell cancelling (for reducing the interference from neighboring cells in the case where the UL_Beacon timeslots are time synchronized). Cross-interference between UL_Beacon and normal uplink bursts is avoided by the separation obtained from the use of separate time slots.

[0032] Those skilled in the art will recognize that there are a large number of possibilities for the arrangement of a UL_Beacon and its associated PLCCH within the frame structure according to embodiments of the invention. More than one UL_Beacon and PLCCH per frame could be supported if the feedback update rate is required to be faster than the frame rate (at the expense of system capacity). For system applications that can tolerate a slower feedback rate, embodiments may fractionate the use of the UL_Beacon timeslot (and the associated PLCCH).

[0033] When fractionation is employed, the RNC or other controller may allocate the UL_Beacon timeslot in a given frame to a group of terminals depending on the current fractionation phase, thus increasing the number of terminals that can be supported with active physical channel feedback control. The maximum fractionation cycle length may be determined by the feedback update rate that the system requires in order to meet its performance targets.

[0034] Figure 2 illustrates an example of a timeslot arrangement supporting the UL_Beacon and its corresponding PLCCH within a TD-CDMA frame structure modified to support FDD. In this example, the PLCCH 212 shares a timeslot with another downlink shared channel. This is possible since normal downlink physical channels are used to transmit the PLCCH. The downlink frame also comprises a downlink beacon timeslot 206, an access control timeslot 208, and normal traffic carrying timeslots 210. The uplink frame comprises a UL_Beacon control timeslot 216, an access control timeslot 218, and normal traffic carrying timeslots 214.

[0035] Figure 3 illustrates an example where fractionation is employed. The UL_Beacon and PLCCH timeslots are active in every frame at the base station 302.

However, terminal 304, terminal 306, and terminal 308 have been assigned a different fractionation phase. Figure 3 illustrates the case where the fractionation phase is 3. For example, the fractionation phase of terminal 304 occurs in frame #0 310, the fractionation phase of terminal 306 occurs in frame #1 312, and the fractionation phase of terminal 308 occurs in frame #2 314. Since the fractionation phase is 3, the phase for terminal 304 occurs again in frame #3 316.

Half Duplex Terminals

[0036] Embodiments of the invention enable terminals to operate in half duplex or full duplex mode. In a half duplex system, base stations and terminals do not transmit and receive simultaneously. When such a system is evolved to operate in paired spectrum, it becomes inefficient if base stations retain their half duplex operation. It is not necessarily inefficient for the terminals to do so, however, since half duplex operation may have some advantages in the design and implementation of the terminal.

[0037] Nonetheless, there are some points that should be considered. For example, a single terminal may not be able to access all transmit and all receive slots. Therefore, the system may have to manage resources across the population of terminals to ensure all the available resources at the base station are efficiently utilized. To prevent blocking of timeslots, half duplex terminals may be operated with a fractionation cycle of greater than one. In particular, this may also apply for the case where there are more than one UL_Beacon timeslot per, frame. There is a time delay for half duplex terminals to switch between transmit and receive functions. In some cases this delay exceeds the guard period inserted between consecutive timeslots. In the half duplex terminal case, the terminal is unable to transmit and receive on adjacent timeslots. This will affect the locations of the UL_Beacon, PLCCH, and other common channels. Accordingly, the timeslot arrangement may be adjusted when the system is configured.

Terminal Management

[0038] Embodiments of this invention separate uplink control from the uplink physical traffic. This allows the control feedback to operate even when the terminal does not have data to send, with the consequence that uplink shared channels can be used with maximum efficiency.

[0039] To use shared channels efficiently, a relatively large user base may be needed. At the same time, the network resources required to support the control feedback channels for these terminals need to be minimized. In general, the number of users that can be supported with active control feedback channels is smaller than the typical number of users per cell. Therefore, the terminals in this active state may be managed.

[0040] In UMTS terminology, embodiments of the invention provide a new Universal Terrestrial Radio Access-Radio Resource Control-Connected (UTRA RRC-Control) sub-state into the system. UTRA systems already support the idea of different RRC-Connected states (see, TS25.331 Radio Resource Control (RRC) Protocol Specification, which is incorporated herein by reference), e.g., CELL_DCH, CELL_FACH etc. This sub-state is referred to as the CELL_ACTIVE state. Figure 4 illustrates this sub-state in context with other UTRA RRC-connected states. A UE in a Cell_Active sub-state transmits the physical channel control part of the uplink physical channel only, and nothing else (i.e., no data).

[0041] As shown in Figure 4, CELL_ACTIVE sub-state is a sub-state of CELL_FACH state 404. In general, UEs in CELL_FACH state have an RRC connection, but they may not be actively transferring data. Out of the population of UEs in CELL_FACH state 404, a smaller number of UEs, determined by the network to be the most-active UEs, are supported in a CELL_ACTIVE state 406. In this state, the UEs transmit the physical channel control signal and listen to the associated feedback channel from the network. Because the UE is aware of the uplink pathloss

conditions from the feedback channel, it can have instant access to the uplink shared channels, and the resource allocator (controller) in the network can treat the UE accordingly.

[0042] The rules governing which UEs are maintained in CELL_ACTIVE state are decided by the network (e.g., through the RNC) and may be based on factors such as the volume of data transfer required by the UE, the data transfer rate required by a UE, the frequency of short bursts of data transfer, the total number of UEs in CELL_FACH state, the time since the last data transfer, the UE power saving requirements, etc.

[0043] Note that UEs in CELL_ACTIVE state have their transmitters active, therefore it is necessary for these UEs to monitor the status of the downlink and automatically come out of CELL_ACTIVE state if the downlink is deemed to be out-of-synchronization (for example, very high downlink errors or low received signal strength). This feature prevents UEs continuing to transmit in a state where the feedback channel may be unreliable and thus causing interference.

[0044] While the invention has been described in terms of particular embodiments and illustrative figures, those of ordinary skill in the art will recognize that the invention is not limited to the embodiments or figures described. Although embodiments of the present invention are described, in some instances, using UMTS terminology, those skilled in the art will recognize that such terms are also used in a generic sense herein, and that the present invention is not limited to such systems.

[0045] Those skilled in the art will recognize that the operations of the various embodiments may be implemented using hardware, software, firmware, or combinations thereof, as appropriate. For example, some processes can be carried out using processors or other digital circuitry under the control of software, firmware, or hard-wired logic. (The term "logic" herein refers to fixed hardware, programmable logic and/or an appropriate combination thereof, as would be recognized by one skilled in the art to carry out the recited functions.) Software and firmware can be stored on computer-readable media. Some other processes can be implemented using analog

circuitry, as is well known to one of ordinary skill in the art. Additionally, memory or other storage, as well as communication components, may be employed in embodiments of the invention.

[0046] Figure 5 illustrates a typical computing system 500 that may be employed to implement processing functionality in embodiments of the invention. Computing systems of this type may be used in the radio controllers, the base stations, and the UEs, for example. Those skilled in the relevant art will also recognize how to implement the invention using other computer systems or architectures. Computing system 500 may represent, for example, a desktop, laptop, or notebook computer, hand-held computing device (PDA, cell phone, palmtop, etc.), mainframe, server, client, or any other type of special or general purpose computing device as may be desirable or appropriate for a given application or environment. Computing system 500 can include one or more processors, such as a processor 504. Processor 504 can be implemented using a general or special purpose processing engine such as, for example, a microprocessor, microcontroller or other control logic. In this example, processor 504 is connected to a bus 502 or other communications medium.

[0047] Computing system 500 can also include a main memory 508, such as random access memory (RAM) or other dynamic memory, for storing information and instructions to be executed by processor 504. Main memory 508 also may be used for storing temporary variables or other intermediate information during execution of instructions to be executed by processor 504. Computing system 500 may likewise include a read only memory ("ROM") or other static storage device coupled to bus 502 for storing static information and instructions for processor 504.

[0048] The computing system 500 may also include information storage system 510, which may include, for example, a media drive 512 and a removable storage interface 520. The media drive 512 may include a drive or other mechanism to support fixed or removable storage media, such as a hard disk drive, a floppy disk drive, a magnetic tape drive, an optical disk drive, a CD or DVD drive (R or RW), or

other removable or fixed media drive. Storage media 518, may include, for example, a hard disk, floppy disk, magnetic tape, optical disk, CD or DVD, or other fixed or removable medium that is read by and written to by media drive 512. As these examples illustrate, the storage media 518 may include a computer-readable storage medium having stored therein particular computer software or data.

[0049] In alternative embodiments, information storage system 510 may include other similar components for allowing computer programs or other instructions or data to be loaded into computing system 500. Such components may include, for example, a removable storage unit 522 and an interface 520, such as a program cartridge and cartridge interface, a removable memory (for example, a flash memory or other removable memory module) and memory slot, and other removable storage units 522 and interfaces 520 that allow software and data to be transferred from the removable storage unit 522 to computing system 500.

[0050] Computing system 500 can also include a communications interface 524. Communications interface 524 can be used to allow software and data to be transferred between computing system 500 and external devices. Examples of communications interface 524 can include a modem, a network interface (such as an Ethernet or other NIC card), a communications port (such as for example, a USB port), a PCMCIA slot and card, etc. Software and data transferred via communications interface 524 are in the form of signals which can be electronic, electromagnetic, optical or other signals capable of being received by communications interface 524. These signals are provided to communications interface 524 via a channel 528. This channel 528 may carry signals and may be implemented using a wireless medium, wire or cable, fiber optics, or other communications medium. Some examples of a channel include a phone line, a cellular phone link, an RF link, a network interface, a local or wide area network, and other communications channels.

[0051] In this document, the terms "computer program product," "computer-readable medium" and the like may be used generally to refer to media such as, for example, memory 508, storage device 518, or storage unit 522. These and other forms

of computer-readable media may store one or more instructions for use by processor 504, to cause the processor to perform specified operations. Such instructions, generally referred to as "computer program code" (which may be grouped in the form of computer programs or other groupings), when executed, enable the computing system 500 to perform functions of embodiments of the present invention. Note that the code may directly cause the processor to perform specified operations, be compiled to do so, and/or be combined with other software, hardware, and/or firmware elements (e.g., libraries for performing standard functions) to do so.

[0052] In an embodiment where the elements are implemented using software, the software may be stored in a computer-readable medium and loaded into computing system 500 using, for example, removable storage drive 522, drive 512 or communications interface 524. The control logic (in this example, software instructions or computer program code), when executed by the processor 504, causes the processor 504 to perform the functions of the invention as described herein.

[0053] It will be appreciated that, for clarity purposes, the above description has described embodiments of the invention with reference to different functional units and processors. However, it will be apparent that any suitable distribution of functionality between different functional units, processors or domains may be used without detracting from the invention. For example, functionality illustrated to be performed by separate processors or controllers may be performed by the same processor or controller. Hence, references to specific functional units are only to be seen as references to suitable means for providing the described functionality, rather than indicative of a strict logical or physical structure or organization.

[0054] Although the present invention has been described in connection with some embodiments, it is not intended to be limited to the specific form set forth herein. Rather, the scope of the present invention is limited only by the claims. Additionally, although a feature may appear to be described in connection with particular embodiments, one skilled in the art would recognize that various features of the described embodiments may be combined in accordance with the invention.

[0055] Furthermore, although individually listed, a plurality of means, elements or method steps may be implemented by, for example, a single unit or processor. Additionally, although individual features may be included in different claims, these may possibly be advantageously combined, and the inclusion in different claims does not imply that a combination of features is not feasible and/or advantageous. Also, the inclusion of a feature in one category of claims does not imply a limitation to this category, but rather the feature may be equally applicable to other claim categories, as appropriate.

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CLAIMS

What is claimed is:

1. A method comprising:
 - receiving, by a user equipment (UE), control information indicating resources in a frame to receive a downlink physical control channel;
 - determining a plurality of time slots to receive downlink physical control channels based on the received control information;
 - receiving in a first of the plurality of time slots a first downlink physical control channel including a power control command for the UE, wherein the first downlink physical control channel includes a plurality of power control commands for a plurality of UEs, wherein a number of bits carried by the first physical control channel is based on a number of the plurality of UEs, wherein the first of the plurality of time slots has a second downlink physical control channel and a downlink physical shared channel;
 - transmitting an uplink physical channel having a power level based on the received power control command for the UE; and
 - receiving in a second of the plurality of time slots a third downlink physical control channel, the third downlink physical control channel having control information for the UE based on the transmitted uplink physical channel, wherein the second of the plurality of time slots has the third downlink physical control channel and a downlink physical shared channel.

2. The method of claim 1 wherein different UEs receive different resources for physical control channels.

3. The method of claim 2 wherein the different UEs have different time slot patterns for receiving physical control channels.

4. The method of claim 1 wherein the third downlink physical control channel includes control information for transmitting an uplink physical shared channel.

5. The method of claim 4 wherein the control information includes information derived from channel measurements of the uplink physical channel.

6. The method of claim 4 further comprising, based on the control information, adjusting a time of arrival for the uplink physical shared channel.

7. A user equipment (UE) comprising:

a processor;

a receiver; and

a transmitter; wherein:

the processor and the receiver are configured to receive control information indicating resources in a frame to receive a downlink physical control channel;

the processor is configured to determine a plurality of time slots to receive downlink physical control channels based on the received control information;

the processor and the receiver are configured to receive in a first of the plurality of time slots a first downlink physical control channel including a power control command for the UE, wherein the first downlink physical control channel includes a plurality of power control commands for a plurality of UEs, wherein a number of bits carried by the first physical control channel is based on a number of the plurality of UEs, wherein the first of the plurality of time slots has a second downlink physical control channel and a downlink physical shared channel;

the processor and the transmitter are configured to transmit an uplink physical channel having a power level based on the received power control command for the UE; and

the processor and the receiver are configured to receive in a third of the plurality of time slots a third downlink physical control channel, the second downlink physical control channel having control information for the UE based on the transmitted uplink physical channel, wherein the second of the plurality of time slots has the third downlink physical control channel and a downlink physical shared channel.

8. The UE of claim 7 wherein different UEs receive different resources for physical control channels.

9. The UE of claim 8 wherein the different UEs have different time slot patterns for receiving physical control channels.

10. The UE of claim 7 wherein the third downlink physical control channel includes control information to transmit an uplink physical shared channel.

11. The UE of claim 10 wherein the control information includes information derived from channel measurements of the uplink physical channel.

12. The UE of claim 10 further comprising:
the processor and the transmitter are configured to adjust a time of arrival for the uplink physical shared channel based on the control information.

13. At least one non-transient computer readable medium containing program instructions to perform a method of:

receiving, by a user equipment (UE), control information indicating resources in a frame to receive a downlink physical control channel;

determining a plurality of time slots to receive downlink physical control channel based on the received control information;

receiving in a first of the plurality of time slots a first downlink physical control channel including a power control command for the UE, wherein the first downlink physical control channel includes a plurality of power control commands for a plurality of UEs, wherein a number of bits carried by the first physical control channel is based on a number of the plurality of UEs, wherein the first of the plurality of time slots has a second downlink physical control channel and a downlink physical shared channel;

transmitting an uplink physical channel having a power level based on the received power control command for the UE; and

receiving in a second of the plurality of time slots a third downlink physical control channel, the third downlink physical control channel having control information for the UE based on the transmitted uplink physical channel, wherein the second of the plurality of time slots has the third downlink physical control channel and a downlink physical shared channel.

14. The at least one non-transient computer readable medium of claim 13 wherein different UEs receive different resources for physical control channels.

15. The at least one non-transient computer readable medium of claim 14 wherein the different UEs have different time slot patterns for receiving physical control channels.

16. The at least one non-transient computer readable medium of claim 13 wherein the control information includes information derived from channel measurements of the uplink physical channel.

17. A user equipment (UE) comprising:

means for receiving control information indicating resources in a frame to receive a downlink physical control channel;

means for determining a plurality of time slots to receive downlink physical control channels based on the received control information;

means for receiving in a first of the plurality of time slots a first downlink physical control channel including a power control command for the UE, wherein the first physical control channel includes a plurality of power control commands for a plurality of UEs, wherein a number of bits carried by the first physical control channel is based on a number of the plurality of UEs, wherein the first of the plurality of time slots has a second downlink physical control channel and a downlink physical shared channel;

means for transmitting an uplink physical channel having a power level based on the received power control command for the UE; and

means for receiving in a second of the plurality of time slots a third downlink physical control channel, the third downlink physical control channel having control information for the UE based on the transmitted uplink physical channel, wherein

the second of the plurality of time slots has the third downlink physical control channel and a downlink physical shared channel.

18. The UE of claim 17 wherein different UEs receive different resources for physical control channels.

19. The UE of claim 17 wherein the different UEs have different time slot patterns for receiving physical control channels.

20. The UE of claim 17 wherein the control information includes information derived from channel measurements of the uplink physical channel.

ABSTRACT

A user equipment (UE) is configured to receive control information indicating resources in a frame to receive a downlink physical control channel in a plurality of time slots. Further, the UE is configured to receive a plurality of power control commands for a plurality of UEs in a first of the plurality of time slots in a first downlink physical control channel. A number of bits carried by the first physical control channel is based on a number of the plurality of UEs, wherein the first of the plurality of time slots has a second downlink physical control channel and a downlink physical shared channel. The UE is configured to transmit an uplink physical channel having a power level based on the received power control command for the UE. The UE is configured to receive in a third of the plurality of time slots a third downlink physical control channel.

Electronic Patent Application Fee Transmittal

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Title of Invention:	COMMUNICATIONS IN A WIRELESS NETWORK			
First Named Inventor/Applicant Name:	Paul Howard			
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Attorney Docket Number:	IPW2-USCN213536			
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	320	320
UTILITY SEARCH FEE	1111	1	700	700
UTILITY EXAMINATION FEE	1311	1	800	800
REQUEST FOR PRIORITIZED EXAMINATION	1817	1	4200	4200
Pages:				
Claims:				
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	480	480
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
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 (\$)				6640

Electronic Acknowledgement Receipt

EFS ID:	44824229
Application Number:	17583369
International Application Number:	
Confirmation Number:	3554
Title of Invention:	COMMUNICATIONS IN A WIRELESS NETWORK
First Named Inventor/Applicant Name:	Paul Howard
Customer Number:	3624
Filer:	John D. Wilt/Caren Burgoon
Filer Authorized By:	John D. Wilt
Attorney Docket Number:	IPW2-USCN213536
Receipt Date:	25-JAN-2022
Filing Date:	
Time Stamp:	11:36:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$6640
RAM confirmation Number	E202210B37210558
Deposit Account	220493
Authorized User	Caren Burgoon

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)

PR-2023-00221

Exhibit 201

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	Application Data Sheet	IPW2_USCN213536_ADS_20220125.pdf	2263282	no	9
			39961ea1e0c27d2ddfac424ea41d162acdec3078		
Warnings:					
Information:					
2	Power of Attorney	IPW2_USCN213536_POA_20220125.pdf	835560	no	2
			d3c0c2923660fb0c4b031de3cc136d9f3aa5be7f		
Warnings:					
Information:					
3	TrackOne Request	IPW2_USCN213536_Track1Request_20220125.pdf	143172	no	2
			c079855678c5958bd2a0d21e28cc230e215989ce		
Warnings:					
Information:					
4	Oath or Declaration filed	IPW2_USCN213536_ExecutedDeclaration_20220125.pdf	2818700	no	2
			484f5438bb56a659a5606bb504f639813cbbf0ee95		
Warnings:					
Information:					
5	Drawings-only black and white line drawings	IPW2_USCN213536_Drawings_20220125.pdf	563956	no	5
			861d43262142019dc17769989c2093edec681d56		
Warnings:					
Information:					
6		IPW2_USCN213536_ConApplication_Final_20220125.pdf	140029	yes	24
			2c21efc7410cf548e142a521c92ec5ca47ebb764		
	Multipart Description/PDF files in .zip description				
	IPR2025-00221	Document Description Exhibit 2011	Start	End Page 100 of 110	

	Specification	1	16
	Claims	17	23
	Abstract	24	24

Warnings:

Information:

7	Fee Worksheet (SB06)	fee-info.pdf	53151	no	2
			498487a5856aa41aa250e7bb60235b0717a fcc25		

Warnings:

Information:

Total Files Size (in bytes):	6817850
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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.

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	IPW2-USCN213536
		Application Number	
Title of Invention	COMMUNICATIONS IN A WIRELESS NETWORK		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Paul		Howard		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Bristol	Country of Residence ⁱ	UK		
Mailing Address of Inventor:					
Address 1	Tennyson Cottage, Tennysonn Road				
Address 2	Horfield				
City	Bristol	State/Province			
Postal Code	BS7 8SB	Country ⁱ	UK		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	3624		
Email Address	eooffice@vklaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	COMMUNICATIONS IN A WIRELESS NETWORK		
Attorney Docket Number	IPW2-USCN213536	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	5	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	IPW2-USCN213536
		Application Number	
Title of Invention	COMMUNICATIONS IN A WIRELESS NETWORK		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	3624		

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	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	17/339550	2021-06-04

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	IPW2-USCN213536
		Application Number	
Title of Invention	COMMUNICATIONS IN A WIRELESS NETWORK		

Prior Application Status		Patented			Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
17/339550	Continuation of	16/682854	2019-11-13	11032000	2021-06-08
Prior Application Status		Patented			Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16/682854	Continuation of	14/458693	2014-08-13	11044010	2021-06-22
Prior Application Status		Patented			Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/458693	Continuation of	13/176298	2011-07-05	8811356	2014-08-19
Prior Application Status		Patented			Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/176298	Continuation of	11/646692	2006-12-27	8009639	2011-08-30
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					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)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	IPW2-USCN213536
		Application Number	
Title of Invention	COMMUNICATIONS IN A WIRELESS NETWORK		

☐ 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	IPW2-USCN213536
		Application Number	
Title of Invention	COMMUNICATIONS IN A WIRELESS NETWORK		

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	IPW2-USCN213536
		Application Number	
Title of Invention	COMMUNICATIONS IN A WIRELESS NETWORK		

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	Remove
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section. Clear		
☒ Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
Name of the Deceased or Legally Incapacitated Inventor:		
If the Applicant is an Organization check here. ☒		
Organization Name	Intellectual Ventures II LLC	
Mailing Address Information For Applicant:		
Address 1	251 Little Falls Drive	
Address 2		
City	Wilmington	State/Province
Country	US	Postal Code
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. 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	IPW2-USCN213536
		Application Number	
Title of Invention	COMMUNICATIONS IN A WIRELESS NETWORK		

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.			
Remove			
If the Assignee or Non-Applicant Assignee is an Organization check here. ☒			
Organization Name	Intellectual Ventures II LLC		
Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	251 Little Falls Drive		
Address 2			
City	Wilmington	State/Province	DE
Country ⁱ	US	Postal Code	19808
Phone Number		Fax Number	
Email Address			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.		Add	

Signature:

Remove

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	/John D. Wilt/		Date (YYYY-MM-DD)	2022-01-25	
First Name	John D	Last Name	Wilt	Registration Number	76110
Additional Signature may be generated within this form by selecting the Add button.					Add

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	IPW2-USCN213536
		Application Number	
Title of Invention	COMMUNICATIONS IN A WIRELESS NETWORK		

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.