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# NOTICE OF ALLOWANCE AND FEE(S) DUE

107456 7590 01/07/2021

Artegis Law Group, LLP
John Carey
7710 Cherry Park Drive Suite T #104
Houston, TX 77095

| EXAMINER |
|---|
| ZHAO, WEI |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2473 | |

DATE MAILED: 01/07/2021

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 16/410,860 | 05/13/2019 | Shawn Patrick Stapleton | DALI0004USC6 | 7070 |

TITLE OF INVENTION: DISTRIBUTED ANTENNA SYSTEM

| 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 | 04/07/2021 |

**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.**

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

**HOW TO REPLY TO THIS NOTICE:**

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

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

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

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

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

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

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



PTOL-85 (Rev. 02/11)



**CommScope v. Dali Wireless**
**CommScope Exhibit 1013**

## 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)

107456 7590 01/07/2021
Artegis Law Group, LLP
John Carey
7710 Cherry Park Drive Suite T #104
Houston, TX 77095

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

**Certificate of Mailing or Transmission**

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

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

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 16/410,860 | 05/13/2019 | Shawn Patrick Stapleton | DALI0004USC6 | 7070 |

TITLE OF INVENTION: DISTRIBUTED ANTENNA SYSTEM

| 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 | 04/07/2021 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| ZHAO, WEI | 2473 | 370-328000 |

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

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

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

1 _____
2 _____
3 _____

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

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

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

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

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

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

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

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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| EXAMINER | |
|---|---|
| ZHAO, WEI | |
| ART UNIT | PAPER NUMBER |
| 2473 | |

DATE MAILED: 01/07/2021

**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.



PTOL-85 (Rev. 02/11)



**CommScope v. Dali Wireless**
**CommScope Exhibit 1013**

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Privacy Act Statement

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

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

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



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| Notice of Allowability | Application No. 16/410,860 | Applicant(s) Stapleton et al. | |
|---|---|---|---|
| | Examiner WEI ZHAO | Art Unit 2473 | 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 12/10/2020.
   ☐ 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 2-10,12-22 and 24-25 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   **Certified copies:**

   a) ☐ All  b) ☐ Some  *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

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

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

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

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

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☑ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☑ Other PTO-2323.

/WEI ZHAO/
Primary Examiner, Art Unit 2473

U.S. Patent and Trademark Office
PTOL-37 (Rev. 08-13)  **Notice of Allowability**  Part of Paper No./Mail Date 20201214



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## DETAILED ACTION

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

### *Information Disclosure Statement*

2. Acknowledgment is made of Applicant's submission of information disclosure statement (IDS), dated on August 6, 2020. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### *Terminal Disclaimer*

3. Acknowledgment is made of Applicant's submission of terminal disclaimer, dated December 10, 2020 and is accepted.

### *Response to Amendment*

4. Acknowledgment is made of Applicant's submission of the claim amendment with remarks/arguments, dated December 10, 2020. Claims 2, 4, 12, 14, 16, and 24 have been amended; claims 11 and 23 have been cancel. Claims 2-10, 12-22, 24, and 25 are



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currently pending. This communication is considered fully responsive and sets forth below.

5. Claims Objections: in the Response, filed December 10, 2020, Applicants amended claims for the purpose of correcting the informalities. Therefore, the previous objections to the claims are withdrawn.

6. Claim 112(b) Rejection: Applicants canceled the rejected claims that obviates the basis of the previous rejection. Therefore, the previous rejection under 35 U.S.C. 112(b) is withdrawn.

7. Claim Double Patenting Rejection: Applicants submitted the terminal disclaimer in compliance with 37 C.F.R. 1.321. Therefore, the previous claim double patenting rejection is withdrawn.

***Allowable Subject Matter***

8. Claims 2-10, 12-22, 24, and 25 are allowed. The following is the reason for examiner's statement of allowance:

The closest prior art on record, Sulzberger et al. (US 2005/0152695) and Bergman et al. (US 2011/0065438) are generally directed to various aspects of the radio base station with multiple radio frequency heads; and the communications method for executing the base station carrier reallocation decision by utilizing uplink multi-carrier



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communication more efficiently and supporting fast inter-frequency handovers and other types of carrier reallocations.

However, in consideration of the claim amendments/remarks and the terminal disclaimer filed December 10, 2020, and further search, no prior art reference or a combination of prior art references disclose or suggest the combination of limitations specified in the independent claims including:

"wherein the digital access unit is configured to send a digital representation of a second set of radio resources to the first remote unit at a second point in time, the second set of radio resources for transmission at the antenna of the first remote unit;" and "wherein a number of radio resources in the first set of radio resources is different from a number of radio resources in the second set of radio resources at least based on dynamic load balancing and resource management," in claim 2.

Claim 14 includes similar limitations.

Dependent claims 3-10, 12, 13, 15-22, 24, and 25 are also allowable for incorporating the features recited in the independent claims.

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



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## *Conclusion*

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WEI ZHAO whose telephone number is (571)270-5672. The examiner can normally be reached from 8:00AM to 5:00PM Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang bin Yao can be reached on 5712723182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

/WEI ZHAO/
Primary Examiner, Art Unit 2473



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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | |
|---|---|---|
| In re Application of: | § | Confirmation No.: 7070 |
| Shawn Patrick Stapleton et al. | § | |
| | § | Group Art Unit: 2473 |
| Serial No.: 16/410,860 | § | |
| | § | Examiner: Wei Zhao |
| Filed: May 13, 2019 | § | |

For: DISTRIBUTED ANTENNA SYSTEM

MAIL STOP **A/F**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**RESPONSE TO FINAL OFFICE ACTION DATED AUGUST 10, 2020**

Dear Sir or Madam:

In response to the Final Office Action dated August 10, 2020, having a shortened statutory period for response set to expire on November 10, 2020, please enter this response and reconsider the claims pending in the application for reasons discussed below. The total fees in the amount of $220.00 for a one-month extension of time is being paid herewith via credit card. Although Applicant believes that no additional fees are due in connection with this response, the Commissioner is hereby authorized to charge counsel's Deposit Account No. 50-6640/DALI0004USC6/JCC for any fees, including extension of time fees or excess claim fees, required to make this response timely and acceptable to the Office.

**Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this paper. **Remarks/Arguments** begin on page 6 of this paper.





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**IN THE CLAIMS:**

The following listing of claims will replace all prior listings of claims submitted in the application.

1. (Cancelled)

2. (Currently Amended) A system to transport wireless communications, comprising:

a ~~baseband~~ digital access unit;

a plurality of signal sources, including at least a first signal source and a second signal source;

a plurality of remote units, including at least a first remote unit and a second remote unit; wherein the ~~baseband~~ digital access unit comprises a plurality of interfaces to communicatively couple the ~~baseband~~ digital access unit to the plurality of signal sources;

wherein the ~~baseband~~ digital access unit is configured to receive a plurality of radio resources from the first signal source and the second signal source;

wherein the ~~baseband~~ digital access unit is configured to send a digital representation of a first set of radio resources to the first remote unit at a first point in time, the first set of radio resources for transmission at an antenna of the first remote unit;

wherein the ~~baseband~~ digital access unit is configured to send a digital representation of a second set of radio resources to the first remote unit at a second point in time, the second set of radio resources for transmission at the antenna of the first remote unit;

wherein a number of radio resources in the first set of radio resources is different from a number of radio resources in the second set of radio resources at least based on dynamic load balancing and resource management; and

wherein the ~~baseband~~ digital access unit is configured to receive digital signals from each of the plurality of remote units.





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3. (Previously Presented) The system of claim 2, wherein the system determines load and selects traffic paths based at least in part on the determined load.

4. (Currently Amended) The system of claim 2, wherein the dynamic load balancing and resource management controls routes from a ~~baseband~~ digital access unit port to a remote unit port.

5. (Previously Presented) The system of claim 2, wherein the dynamic load balancing and resource management dynamically adjusts a capacity of at least the first remote unit.

6. (Previously Presented) The system of claim 2, wherein the dynamic load balancing and resource management uses uplink summing to combine signals from at least the first and second remote units.

7. (Previously Presented) The system of claim 2, wherein the dynamic load balancing and resource management uses steering to route signal traffic in the system.

8. (Previously Presented) The system of claim 2, wherein the dynamic load balancing and resource management uses capacity steering to route signal traffic in the system.

9. (Previously Presented) The system of claim 2, wherein the dynamic load balancing and resource management uses network capacity to route signal traffic in the system.

10. (Previously Presented) The system of claim 2, wherein the first remote unit is a low power radio capable of using multiple frequency bands.

11. (Cancelled)





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12. (Currently Amended) The system of claim 2, wherein the digital signals communicated between the ~~baseband~~ digital access unit and the remote units are sent via optical cables.

13. (Previously Presented) The system of claim 2, wherein the remote units are automatically configured by the system.

14. (Currently Amended) A method for wireless communications comprising:

receiving, at a ~~baseband~~ digital access unit, a plurality of radio resources from a first signal source and a second signal source, wherein the ~~baseband~~ digital access unit comprises a plurality of interfaces to communicatively couple the ~~baseband~~ digital access unit to a plurality of signal sources;

sending, by the ~~baseband~~ digital access unit, a digital representation of a first set of radio resources to a first remote unit at a first point in time, the first set of radio resources for transmission at an antenna of the first remote unit; and

sending, by the ~~baseband~~ digital access unit, a digital representation of a second set of radio resources to the first remote unit at a second point in time, the second set of radio resources for transmission at the antenna of the first remote unit,

wherein a number of radio resources in the first set of radio resources is different from a number of radio resources in the second set of radio resources at least based on dynamic load balancing and resource management.

15. (Previously Presented) The method of claim 14, further comprising determining a load and selecting traffic paths based at least in part on the determined load.

16. (Currently Amended) The method of claim 14, wherein the dynamic load balancing and resource management controls routes from a ~~baseband~~ digital access unit port to a remote unit port.





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17. (Previously Presented) The method of claim 14, wherein the dynamic load balancing and resource management dynamically adjusts a capacity of at least the first remote unit.

18. (Previously Presented) The method of claim 14, wherein the dynamic load balancing and resource management uses uplink summing to combine signals from at least the first and a second remote unit.

19. (Previously Presented) The method of claim 14, wherein the dynamic load balancing and resource management uses steering to route signal traffic.

20. (Previously Presented) The method of claim 14, wherein the dynamic load balancing and resource management uses capacity steering to route signal traffic.

21. (Previously Presented) The method of claim 14, wherein the dynamic load balancing and resource management uses network capacity to route signal traffic.

22. (Previously Presented) The method of claim 14, wherein the first remote unit is a low power radio capable of using multiple frequency bands.

23. (Cancelled)

24. (Currently Amended) The method of claim 14, wherein ~~the~~ signals communicated between the ~~baseband~~ digital access unit and remote units are sent via optical cables.

25. (Previously Presented) The method of claim 14, further comprising automatically configuring remote units.





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## REMARKS

This is intended as a full and complete response to the Final Office Action dated August 10, 2020, having a shortened statutory period for response set to expire on November 10, 2020. Claims 2-25 are pending in the application.

In the Final Office Action, the Examiner objects to claims 2-25. The Examiner rejects claims 11 and 23 under 35 U.S.C. § 112, ¶ 2 for being indefinite. The Examiner rejects claims 2 and 14 for non-statutory obviousness-type double patenting as being unpatentable over claims 1 and 14 of U.S. Patent No. 10,334,499 in view of Bergman (U.S. Pub. No. 2011/0065438). The Examiner objects to claims 2-25 as being dependent upon a rejected base claim.

In the Response, Applicant is amending various claims to clarify certain features of the claimed embodiments. Support for the claim amendments can be found at least in Figures 1-2 and ¶¶ [0028], [0063]-[0065] of the Application, as originally filed. Therefore, no new matter has been added. Applicant further submits that the Examiner should be able to consider these amendments with limited, if any, additional searching because the amended claims are similar in scope to other claims in the Application for which prior art searches have already been performed. Accordingly, Applicant respectfully requests that the Examiner enter these amendments as part of the After Final Consideration Pilot Program 2.0.

Applicant respectfully requests reconsideration and allowance of all claims in view of the following remarks.

### Claim Objections

In the Final Office Action, the Examiner objects to claims 2-25 for reciting a baseband unit. See Final Office Action at pp. 3-4. Applicant traverses. However, solely to further prosecution, Applicant has amended claims 2 and 14. Accordingly, Applicant respectfully submits that the objections to claims 2-25 be withdrawn.

### Claim Rejections under 35 U.S.C. § 112

In the Final Office Action, the Examiner rejects claims 11 and 23 under 35 U.S.C. § 112, ¶ 2 for being indefinite. See Final Office Action at p. 4. Applicant traverses.





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However, solely to further prosecution, Applicant has cancelled claims 11 and 23. Accordingly, Applicant respectfully submits that the § 112 rejections to claims 11 and 23 be withdrawn.

Double Patenting Rejections

In the Final Office Action, the Examiner rejects claims 2 and 14 for non-statutory obviousness-type double patenting as being unpatentable over claims 1 and 14 of U.S. Patent No. 10,334,499 in view of Bergman (U.S. Pub. No. 2011/0065438). See Final Office Action at pp. 6-9. Applicant traverses. However, solely to further prosecution, Applicant is filing a terminal disclaimer with respect to the '499 patent in connection with this response. Accordingly, Applicant respectfully submits that the double patenting rejections for claims 2 and 14 be withdrawn.

Allowable Subject Matter

In the Final Office Action, the Examiner objects to claims 2-25 as being be allowable if rewritten to overcome the objections, double patenting rejections, and § 112 rejections. See Final Office Action at pp. 9-10. Applicant thanks the Examiner for indicating that claims 2-25 recite allowable subject matter. For the reasons discussed above, Applicant submits that claims 2-25 have overcome the outstanding objections and rejections and are therefore allowable.



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## CONCLUSION

Based on the above remarks, Applicant believes that it has overcome all of the objections and rejections set forth in the Final Office Action dated August 10, 2020, and that the pending claims are in condition for allowance. If the Examiner has any questions, please contact the Applicant's undersigned representative at the number provided below.

Respectfully submitted,

/Sarah Mirza/

Sarah Mirza
Registration No. 74,866
ARTEGIS LAW GROUP, LLP
710 Lakeway Drive, Suite 185
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Telephone: (408) 715-3261
Facsimile: (408) 715-1201
Attorney for Applicant





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| Doc Code: DIST.E.FILE<br>Document Description: Electronic Terminal Disclaimer - Filed | PTO/SB/26<br>U.S. Patent and Trademark Office<br>Department of Commerce |
|---|---|

| | |
|---|---|
| Electronic Petition Request | **TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT** |
| Application Number | 16410860 |
| Filing Date | 13-May-2019 |
| First Named Inventor | Shawn Stapleton |
| Attorney Docket Number | DALI0004USC6 |
| Title of Invention | DISTRIBUTED ANTENNA SYSTEM |

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

| Owner | Percent Interest |
|---|---|
| Dali Wireless, Inc. | 100% |

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

10334499

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request

| | |
|---|---|
| ○ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application. | |
| Applicant claims the following fee status:<br><br>○ Small Entity<br><br>○ Micro Entity<br><br>◉ Regular Undiscounted<br><br>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon. | |
| THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES<br><br>I certify, in accordance with 37 CFR 1.4(d)(4) that I am:<br><br>◉ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application<br><br>Registration Number 74866<br><br>○ A sole inventor<br><br>○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application<br><br>○ A joint inventor; all of whom are signing this request | |
| Signature | /Sarah Mirza/ |
| Name | Sarah Mirza |

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

| Electronic Patent Application Fee Transmittal | | | | | |
|---|---|---|---|---|---|
| **Application Number:** | 16410860 | | | | |
| **Filing Date:** | 13-May-2019 | | | | |
| **Title of Invention:** | DISTRIBUTED ANTENNA SYSTEM | | | | |
| **First Named Inventor/Applicant Name:** | Shawn Patrick Stapleton | | | | |
| **Filer:** | Sarah W. Mirza/Brandon Kistler | | | | |
| **Attorney Docket Number:** | DALI0004USC6 | | | | |
| Filed as Large Entity | | | | | |
| **Filing Fees for** **Utility under 35 USC 111(a)** | | | | | |
| **Description** | | **Fee Code** | **Quantity** | **Amount** | **Sub-Total in USD($)** |
| **Basic Filing:** | | | | | |
| STATUTORY OR TERMINAL DISCLAIMER | | 1814 | 1 | 170 | 170 |
| **Pages:** | | | | | |
| **Claims:** | | | | | |
| **Miscellaneous-Filing:** | | | | | |
| **Petition:** | | | | | |
| **Patent-Appeals-and-Interference:** | | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| Extension-of-Time: | | | | |
| Miscellaneous: | | | | |
| | | | Total in USD ($) | 170 |



CommScope v. Dali Wireless
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Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 16410860

Filing Date: 13-May-2019

Applicant/Patent under Reexamination: Stapleton

Electronic Terminal Disclaimer filed on December 10, 2020

☒ APPROVED

**This patent is subject to a terminal disclaimer**

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

| Electronic Acknowledgement Receipt | |
|---|---|
| **EFS ID:** | 41353436 |
| **Application Number:** | 16410860 |
| **International Application Number:** | |
| **Confirmation Number:** | 7070 |
| **Title of Invention:** | DISTRIBUTED ANTENNA SYSTEM |
| **First Named Inventor/Applicant Name:** | Shawn Patrick Stapleton |
| **Customer Number:** | 107456 |
| **Filer:** | Sarah W. Mirza/Brandon Kistler |
| **Filer Authorized By:** | Sarah W. Mirza |
| **Attorney Docket Number:** | DALI0004USC6 |
| **Receipt Date:** | 10-DEC-2020 |
| **Filing Date:** | 13-MAY-2019 |
| **Time Stamp:** | 19:29:14 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | CARD |
| Payment was successfully received in RAM | $170 |
| RAM confirmation Number | E2020B0J29105848 |
| Deposit Account | 506640 |
| Authorized User | Brandon Kistler |
| The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:<br>37 CFR 1.21 (Miscellaneous fees and charges)<br>37 CFR 1.19 (Document supply fees) | |

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. |
|---|---|---|---|---|
| 16/410,860 | 05/13/2019 | Shawn Patrick Stapleton | 10333-22-CON-6 | 7070 |

167137 7590 08/10/2020
SHERIDAN ROSS PC
1560 Broadway
Suite 1200
Denver, CO 80202

| EXAMINER |
|---|
| ZHAO, WEI |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2473 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 08/10/2020 | 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):

jvick@sheridanross.com

PTOL-90A (Rev. 04/07)

| Office Action Summary | Application No. 16/410,860 | Applicant(s) Stapleton et al. | |
|---|---|---|---|
| | Examiner WEI ZHAO | Art Unit 2473 | AIA (FITF) Status No |

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

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

**Status**

1)☑ Responsive to communication(s) filed on 5/28/2020.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL**. 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims***

5) ☑ Claim(s) 2-25 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 2,11,14 and 23 is/are rejected.

8) ☑ Claim(s) 3-10,12-13,15-22 and 24-25 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

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

**Application Papers**

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

**Priority under 35 U.S.C. § 119**

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

**Certified copies:**

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

**Attachment(s)**

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.



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## DETAILED ACTION

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

### *Information Disclosure Statement*

2. The information disclosure statement (IDS) submitted on April 27, 2020, June 15, 2020, and July 21, 2020 was filed after the mailing date of the previous office action. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Regarding the huge volume of references Applicant submitted, it is clearly not that *"such information as may be reasonably necessary to properly examine or treat the matter," 37 C.F.R. 1.105(a)(1),* contemplates information relevant to examination either procedurally or substantively. It includes a zone of information beyond that defined by section 1.56 as material to patentability, and beyond that which is directly useful to support a rejection or conclusively decide the issue of patentability.

Consequently, the examiner suggests that the Applicant to submit a focused list of the references to replace the current one.



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## *Response to Amendment*

3. Acknowledgment is made of Applicant's submission of claims amendment with remarks, dated May 28, 2020. Claim 1 has been amended; claims 2-25 are new. Claims 2-25 are pending. This communication is considered fully responsive and sets forth below.

## *Claim Objections*

4. Claims 2-25 objected to under 37 CFR 1.75(c) because of the following informalities:

Regarding claim 2, it recites, "A system to transport wireless communications, comprising:

*a baseband unit*;

a plurality of signal sources, including at least a first signal source and a second signal source;

a plurality of remote units..."

The examiner objects to the usage of the term "a baseband unit" presented in italics above, since neither the specification nor drawings supports the usage of this limitation.



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A proper correction is anticipated.

Same objection applies to the usage of the term "a baseband unit" in claim 14 line 2.

Claims 3-13 and 15-25 are objected to since they all either depend from claim 2 or 14.

### *Claim Rejections - 35 USC § 112*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 11 and 23 rejected under the second paragraph of 35 U.S.C. 112.

Regarding claim 11, it is rejected under 35 U.S.C. 112, second paragraph, since there is a lack of antecedent basis for the usage of the ending term "the CPRI protocol."

Another issue regards to the usage of the protocol is without reference to a specific edition and/or publication date for the particular protocol. Since the underlying protocol may change over time, the scope of the claim(s) may also change over time which renders the claim(s) indefinite. Applicant may overcome this rejection by amending the claim(s) to include a specific edition and/or publication date of the particular claimed protocol.

Claim 23 is rejected for the same reason.

## *Double Patenting*

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).



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8. Claim 2 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10,334,499 in view of Bergman et al. (US 2011/0065438).

Regarding claim 2, it recites, "A system to transport wireless communications, comprising:

a baseband unit;

a plurality of signal sources, including at least a first signal source and a second signal source;

a plurality of remote units, including at least a first remote unit and a second remote unit;

wherein the baseband unit comprises a plurality of interfaces to communicatively couple the baseband unit to the plurality of signal sources;

wherein the baseband unit is configured to receive a plurality of radio resources from the first signal source and the second signal source;

wherein the baseband unit is configured to send a digital representation of a first set of radio resources to the first remote unit at a first point in time, the first set of radio resources for transmission at an antenna of the first remote unit;



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wherein the baseband unit is configured to send a digital representation of a second set of radio resources to the first remote unit at a second point in time, the second set of radio resources for transmission at the antenna of the first remote unit;

wherein a number of radio resources in the first set of radio resources is different from a number of radio resources in the second set of radio resources *at least based on dynamic load balancing and resource management*; and

wherein the baseband unit is configured to receive digital signals from each of the plurality of remote units."

Claim 1 of U.S. Patent No. 10,334,499 recites, "A system for transporting wireless communications, comprising:

a baseband unit;

a plurality of signal sources, including at least a first signal source and a second signal source;

a plurality of remote units, including at least a first remote unit and a second remote unit;

wherein the baseband unit comprises a plurality of interfaces to communicatively couple the baseband unit to the plurality of signal sources;

wherein the baseband unit is configured to receive a plurality of radio resources from the first signal source and the second signal source;



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wherein the baseband unit is configured to send a digital representation of a first set of radio resources to the first remote unit at a first point in time, the first set of radio resources for transmission at an antenna of the first remote unit;

wherein the baseband unit is configured to send a digital representation of a second set of radio resources to the first remote unit at a second point in time, the second set of radio resources for transmission at the antenna of the first remote unit;

wherein a number of radio resources in the first set of radio resources is different from a number of radio resources in the second set of radio resources; and

wherein the baseband unit is configured to receive digital signals from each of the plurality of remote units."

Based on the limitations presented above, claim 1 of U.S. Patent No. 10,334,499 claims the elements similar to the limitations of the instant claim 1 with the exception of the term "*at least based on dynamic load balancing and resource management*" as indicated in italics above.

Bergman et al. from the same or similar field of endeavor teach implementing fairness of the method, implementing the number of radio resources at least based on dynamic load balancing and resource management (paragraph [0052] lines 1-16; Examiner's Note: load control and load balancing in the prior art teaches the limitation of "dynamic load balancing and resource management;" in fact, managing uplink and downlink radio resources based on load control and load balancing in the prior art



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teaches the limitation of "implementing the number of radio resources at least based on dynamic load balancing and resource management" in the instant application).

Thus, it would have been obvious to one of ordinary skill in the art to implement the method of Bergman et al. in the system of the Patent.

The motivation for implementing the number of radio resources based on dynamic load balancing and resource management, is to furfure enhance the mechanism of executing the base station carrier reallocation decision by utilizing uplink multi-carrier communication more efficiently and supporting fast inter-frequency handovers and other types of carrier reallocations.

Same rationale applies to claim 14 as follows:

9. Claim 14 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 14 of U.S. Patent No. 10,334,499 in view of Bergman et al. (US 2011/0065438).

***Allowable Subject Matter***

10. Claims 2-25 would be allowable if rewritten or amended to overcome the claim objections and the rejections under 35 U.S.C. 112, second paragraph, and nonstatutory obviousness-type double patenting.



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Regarding claims 2-13, the prior art in single or in combination fails to teach "wherein the baseband unit is configured to send a digital representation of a second set of radio resources to the first remote unit at a second point in time, the second set of radio resources for transmission at the antenna of the first remote unit;" and "wherein a number of radio resources in the first set of radio resources is different from a number of radio resources in the second set of radio resources *at least based on dynamic load balancing and resource management*," in combination with other limitation of the claim(s).

Similar limitations are included in claims 14-25.

***Response to Remarks/Arguments***

11. Claims Objections: in the Response filed May 28, 2020, Applicants amended claims for the purpose of correcting the informalities. Therefore, the previous objections to the claims are withdrawn.

12. Claims Art Rejections: Applicants' amendments with arguments filed May 28, 2020 have been fully considered and they are persuasive. Therefore, the previous art rejections to the claims are withdrawn.

13. Claim Double Patenting Rejection: Applicants' arguments filed May 28, 2020 have been fully considered but they are moot in view of the new ground(s) of rejection.



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***Conclusion***

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

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WEI ZHAO whose telephone number is (571)270-5672. The examiner can normally be reached 8:00AM-5:00PM Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KWANG B. YAO can be reached on 5712723182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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

/WEI ZHAO/
Primary Examiner, Art Unit 2473



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|---|
| In Re the Application of: Shawn Patrick Stapleton | Group Art Unit: 2473 |
| Application No.: 16/410,860 | Examiner: ZHAO, WEI |
| Filed: May 13, 2019 | Confirmation No.: 7070 |
| Atty. File No.: 10333-22-CON-6 | |

For: DISTRIBUTED ANTENNA SYSTEM

**AMENDMENT AND RESPONSE**

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

Dear Commissioner:

Applicant submits this Amendment and Response to address the Office Action having a mailing date of January 30, 2020. Please credit any overpayment or charge any underpayment to Deposit Account No. 19-1970.

Please amend the above-identified patent application as follows:

**Amendments to the Claims** are shown in the listing of claims which begins on page 2 of this paper.

**Remarks** begin on page 6 of this paper.



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| Electronic Patent Application Fee Transmittal | | | | | |
|---|---|---|---|---|---|
| **Application Number:** | 16410860 | | | | |
| **Filing Date:** | 13-May-2019 | | | | |
| **Title of Invention:** | DISTRIBUTED ANTENNA SYSTEM | | | | |
| **First Named Inventor/Applicant Name:** | Shawn Patrick Stapleton | | | | |
| **Filer:** | Jason Vick/Joanne Vos | | | | |
| **Attorney Docket Number:** | 10333-22-CON-6 | | | | |
| Filed as Small Entity | | | | | |
| **Filing Fees for** **Utility under 35 USC 111(a)** | | | | | |
| **Description** | **Fee Code** | **Quantity** | **Amount** | **Sub-Total in USD($)** | |
| **Basic Filing:** | | | | | |
| **Pages:** | | | | | |
| **Claims:** | | | | | |
| CLAIMS IN EXCESS OF 20 | 2202 | 4 | 50 | 200 | |
| **Miscellaneous-Filing:** | | | | | |
| **Petition:** | | | | | |
| **Patent-Appeals-and-Interference:** | | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Extension-of-Time:** | | | | |
| Extension - 1 month with $0 paid | 2251 | 1 | 100 | 100 |
| **Miscellaneous:** | | | | |
| | | **Total in USD ($)** | | **300** |



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| Electronic Acknowledgement Receipt | |
|---|---|
| **EFS ID:** | 39566500 |
| **Application Number:** | 16410860 |
| **International Application Number:** | |
| **Confirmation Number:** | 7070 |
| **Title of Invention:** | DISTRIBUTED ANTENNA SYSTEM |
| **First Named Inventor/Applicant Name:** | Shawn Patrick Stapleton |
| **Customer Number:** | 167137 |
| **Filer:** | Jason Vick/Joanne Vos |
| **Filer Authorized By:** | Jason Vick |
| **Attorney Docket Number:** | 10333-22-CON-6 |
| **Receipt Date:** | 28-MAY-2020 |
| **Filing Date:** | 13-MAY-2019 |
| **Time Stamp:** | 17:03:48 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | DA |
| Payment was successfully received in RAM | $300 |
| RAM confirmation Number | E20205RH04089421 |
| Deposit Account | 191970 |
| Authorized User | Joanne Vos |
| The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:<br>37 CFR 1.16 (National application filing, search, and examination fees)<br>37 CFR 1.17 (Patent application and reexamination processing fees) | |

37 CFR 1.19 (Document supply 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 | | AMEND_01.pdf | 191372<br>e552529f656c48d57826508de170d14f3dd67630 | yes | 7 |

| | Multipart Description/PDF files in .zip description | | |
|---|---|---|---|
| | **Document Description** | **Start** | **End** |
| | Extension of Time | 7 | 7 |
| | Applicant Arguments/Remarks Made in an Amendment | 6 | 6 |
| | Claims | 2 | 5 |
| | Amendment/Req. Reconsideration-After Non-Final Reject | 1 | 1 |

**Warnings:**

**Information:**

| | | | | | |
|---|---|---|---|---|---|
| 2 | Fee Worksheet (SB06) | fee-info.pdf | 32216<br>08d47c257e1156ece2a7d93850a5d8e59814667d | no | 2 |

**Warnings:**

**Information:**

| | |
|---|---|
| **Total Files Size (in bytes):** | 223588 |



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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.

PTO/AIA/22 (03-13)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

| PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) | Docket Number (Optional) 10333-22-CON-6 |
|---|---|
| Application Number 16/410,860 | Filed May 13, 2019 |
| For DISTRIBUTED ANTENNA SYSTEM | |
| Art Unit 2473 | Examiner ZHAO, WEI |

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

| | | Fee | Small Entity Fee | Micro Entity Fee | |
|---|---|---|---|---|---|
| ☑ | One month (37 CFR 1.17(a)(1)) | $200 | $100 | $50 | $ 100 |
| ☐ | Two months (37 CFR 1.17(a)(2)) | $600 | $300 | $150 | $ |
| ☐ | Three months (37 CFR 1.17(a)(3)) | $1,400 | $700 | $350 | $ |
| ☐ | Four months (37 CFR 1.17(a)(4)) | $2,200 | $1,100 | $550 | $ |
| ☐ | Five months (37 CFR 1.17(a)(5)) | $3,000 | $1,500 | $750 | $ |

☑ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☑ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 19-1970.

☑ Payment made via EFS-Web.

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

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 45,285.

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

/Jason H. Vick/ — Signature

May 28, 2020 — Date

Jason H. Vick — Typed or printed name

303-863-9700 — Telephone Number

**NOTE:** This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). 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 6 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: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

## REMARKS

Applicant respectfully requests reconsideration of this application, as amended.

Claim 1 has been cancelled without prejudice or disclaimer in favor of the new claims presented herein. The cancellation of claim 1 renders all rejections moot.

Applicant believes all claims are distinguishable from the reference.

Should the Examiner believe the application is in condition for allowance but for a Terminal Disclaimer, the Examiner is invited to contact the undersigned who is authorized to file an eTerminal Disclaimer to overcome any potential double patenting rejection.

With all objections and rejections having been overcome, Applicant respectfully submits the application is in condition for allowance.

A prompt Notice of Allowance is respectfully solicited.

Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is encouraged to contact Applicants undersigned representative at the telephone number listed below. The Commissioner is hereby authorized to charge to deposit account number 19-1970 any fees under 37 CFR § 1.16 and 1.17 that may be required by this paper and to credit any overpayment to that Account. If any extension of time is required in connection with the filing of this paper and has not been separately requested, such extension is hereby Petitioned.

Respectfully submitted,

SHERIDAN ROSS P.C.

Date: May 28, 2020

By: /Jason H. Vick/

Jason H. Vick
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1560 Broadway, Suite 1200
Denver, Colorado 80202
Telephone: 303-863-9700
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**Amendments to the Claims:**

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

**Listing of Claims:**

1. (Cancelled)

2. (New) A system to transport wireless communications, comprising:

a baseband unit;

a plurality of signal sources, including at least a first signal source and a second signal source;

a plurality of remote units, including at least a first remote unit and a second remote unit;

wherein the baseband unit comprises a plurality of interfaces to communicatively couple the baseband unit to the plurality of signal sources;

wherein the baseband unit is configured to receive a plurality of radio resources from the first signal source and the second signal source;

wherein the baseband unit is configured to send a digital representation of a first set of radio resources to the first remote unit at a first point in time, the first set of radio resources for transmission at an antenna of the first remote unit;

wherein the baseband unit is configured to send a digital representation of a second set of radio resources to the first remote unit at a second point in time, the second set of radio resources for transmission at the antenna of the first remote unit;

wherein a number of radio resources in the first set of radio resources is different from a number of radio resources in the second set of radio resources at least based on dynamic load balancing and resource management; and

wherein the baseband unit is configured to receive digital signals from each of the plurality of remote units.

3. (New) The system of claim 2, wherein the system determines load and selects traffic paths based at least in part on the determined load.





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4. (New) The system of claim 2, wherein the dynamic load balancing and resource management controls routes from a baseband unit port to a remote unit port.

5. (New) The system of claim 2, wherein the dynamic load balancing and resource management dynamically adjusts a capacity of at least the first remote unit.

6. (New) The system of claim 2, wherein the dynamic load balancing and resource management uses uplink summing to combine signals from at least the first and second remote units.

7. (New) The system of claim 2, wherein the dynamic load balancing and resource management uses steering to route signal traffic in the system.

8. (New) The system of claim 2, wherein the dynamic load balancing and resource management uses capacity steering to route signal traffic in the system.

9. (New) The system of claim 2, wherein the dynamic load balancing and resource management uses network capacity to route signal traffic in the system.

10. (New) The system of claim 2, wherein the first remote unit is a low power radio capable of using multiple frequency bands.

11. (New) The system of claim 2, wherein the baseband unit communicates with remote units using the CPRI protocol.

12. (New) The system of claim 2, wherein the signals communicated between the baseband unit and the remote units are sent via optical cables.

13. (New) The system of claim 2, wherein the remote units are automatically configured by the system.





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14. (New) A method for wireless communications comprising:

receiving, at a baseband unit, a plurality of radio resources from a first signal source and a second signal source, wherein the baseband unit comprises a plurality of interfaces to communicatively couple the baseband unit to a plurality of signal sources;

sending, by the baseband unit, a digital representation of a first set of radio resources to a first remote unit at a first point in time, the first set of radio resources for transmission at an antenna of the first remote unit;

sending, by the baseband unit, a digital representation of a second set of radio resources to the first remote unit at a second point in time, the second set of radio resources for transmission at the antenna of the first remote unit, wherein a number of radio resources in the first set of radio resources is different from a number of radio resources in the second set of radio resources at least based on dynamic load balancing and resource management.

15. (New) The method of claim 14, further comprising determining a load and selecting traffic paths based at least in part on the determined load.

16. (New) The method of claim 14, wherein the dynamic load balancing and resource management controls routes from a baseband unit port to a remote unit port.

17. (New) The method of claim 14, wherein the dynamic load balancing and resource management dynamically adjusts a capacity of at least the first remote unit.

18. (New) The method of claim 14, wherein the dynamic load balancing and resource management uses uplink summing to combine signals from at least the first and a second remote unit.

19. (New) The method of claim 14, wherein the dynamic load balancing and resource management uses steering to route signal traffic.





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20. (New) The method of claim 14, wherein the dynamic load balancing and resource management uses capacity steering to route signal traffic.

21. (New) The method of claim 14, wherein the dynamic load balancing and resource management uses network capacity to route signal traffic.

22. (New) The method of claim 14, wherein the first remote unit is a low power radio capable of using multiple frequency bands.

23. (New) The method of claim 14, wherein the baseband unit communicates with remote units using the CPRI protocol.

24. (New) The method of claim 14, wherein the signals communicated between the baseband unit and remote units are sent via optical cables.

25. (New) The method of claim 14, further comprising automatically configuring remote units.



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