AO 120 (Rev. 08/10)

| TO: | REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK |
|---|---|
| **Mail Stop 8<br>Director of the U.S. Patent and Trademark Office<br>P.O. Box 1450<br>Alexandria, VA 22313-1450** | |

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas on the following

☐ Trademarks or ☑ Patents. ( ☐ the patent action involves 35 U.S.C. § 292.):

| DOCKET NO. | DATE FILED | U.S. DISTRICT COURT |
|---|---|---|
| 6:21-cv-1088 | 10/19/2021 | Western District of Texas |

| PLAINTIFF | DEFENDANT |
|---|---|
| INTELLECTUAL VENTURES I LLC and INTELLECTUAL VENTURES II LLC | GENERAL MOTORS COMPANY and GENERAL MOTORS LLC |

| | PATENT OR TRADEMARK NO. | DATE OF PATENT OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK |
|---|---|---|---|
| 1 | 6,832,283 | 12/14/2004 | INTELLECTUAL VENTURES II LLC |
| 2 | 7,891,004 | 2/15/2011 | INTELLECTUAL VENTURES I LLC |
| 3 | 9,934,628 | 4/3/2018 | INTELLECTUAL VENTURES II LLC |
| 4 | 9,291,475 | 3/22/2016 | INTELLECTUAL VENTURES II LLC |
| 5 | SEE ATTACHED | | |

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

| DATE INCLUDED | INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading | |
|---|---|---|
| PATENT OR TRADEMARK NO. | DATE OF PATENT OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

In the above—entitled case, the following decision has been rendered or judgement issued:

| DECISION/JUDGEMENT |
|---|
| 6/19/23-Order granting joint motion to dismiss. Document 116. |

| CLERK | (BY) DEPUTY CLERK | DATE |
|---|---|---|
| PHILIP J. DEVLIN | NDavis | 06/20/2023 |

**Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director**
**Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy**

**IN THE UNITED STATES DISTRICT COURT**
**FOR THE WESTERN DISTRICT OF TEXAS**
**WACO DIVISION**

| | | |
|---|---|---|
| INTELLECTUAL VENTURES I LLC and INTELLECTUAL VENTURES II LLC, | ) | |
| Plaintiffs, | ) | C.A. No. 6:21-cv-1088 |
| v. | ) | |
| GENERAL MOTORS COMPANY and GENERAL MOTORS LLC, | ) | **ADDENDUM TO REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK** |
| Defendants. | ) | |

| Patent or Trademark No. | Date of Patent Or Trademark | Holder of Patent or Trademark |
|---|---|---|
| 7,382,771 | 6/3/2008 | INTELLECTUAL VENTURES II LLC |
| 9,232,158 | 1/5/2016 | INTELLECTUAL VENTURES II LLC |
| 9,602,608 | 3/21/2017 | INTELLECTUAL VENTURES II LLC |
| 10,292,138 | 5/14/2019 | INTELLECTUAL VENTURES II LLC |
| 7,684,318 | 3/23/2010 | INTELLECTUAL VENTURES I LLC |
| 8,953,641 | 2/10/2015 | INTELLECTUAL VENTURES II LLC |
| 9,681,466 | 6/13/2017 | INTELLECTUAL VENTURES II LLC |
| 8,811,356 | 8/19/2014 | INTELLECTUAL VENTURES II LLC |

AO 120 (Rev. 08/10)

| TO: | REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK |
|---|---|
| **Mail Stop 8<br>Director of the U.S. Patent and Trademark Office<br>P.O. Box 1450<br>Alexandria, VA 22313-1450** | |

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas, Waco Division on the following

☐ Trademarks or ☑ Patents. ( ☐ the patent action involves 35 U.S.C. § 292.):

| DOCKET NO. | DATE FILED | U.S. DISTRICT COURT |
|---|---|---|
| | 6/8/2023 | Western District of Texas, Waco Division |

| PLAINTIFF | DEFENDANT |
|---|---|
| INTELLECTUAL VENTURES I LLC and INTELLECTUAL VENTURES II LLC | VOLVO CAR CORPORATION, VOLVO CARS OF NORTH AMERICA, LLC, and VOLVO CAR USA LLC |

| | PATENT OR TRADEMARK NO. | DATE OF PATENT OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK |
|---|---|---|---|
| 1 | 6,832,283 | 12/14/2004 | INTELLECTUAL VENTURES II LLC |
| 2 | 7,484,008 | 1/27/2009 | INTELLECTUAL VENTURES I LLC |
| 3 | 7,684,318 | 2/23/2010 | INTELLECTUAL VENTURES I LLC |
| 4 | 7,891,004 | 2/15/2011 | INTELLECTUAL VENTURES I LLC |
| 5 | SEE ATTACHED | | |

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

| DATE INCLUDED | INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading | |
|---|---|---|
| PATENT OR TRADEMARK NO. | DATE OF PATENT OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

In the above—entitled case, the following decision has been rendered or judgement issued:

| DECISION/JUDGEMENT |
|---|
| |

| CLERK | (BY) DEPUTY CLERK | DATE |
|---|---|---|
| | | |

**Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director**
**Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy**

**IN THE UNITED STATES DISTRICT COURT**
**FOR THE WESTERN DISTRICT OF TEXAS**
**WACO DIVISION**

INTELLECTUAL VENTURES I LLC and INTELLECTUAL VENTURES II LLC,

*Plaintiffs*,

v.

VOLVO CAR CORPORATION, VOLVO CARS OF NORTH AMERICA, LLC, and VOLVO CAR USA LLC,

*Defendants.*

C.A. No. 6:23-cv-00429

**ADDENDUM TO REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK**

| Patent or Trademark No. | Date of Patent Or Trademark | Holder of Patent or Trademark |
|---|---|---|
| 8,953,641 | 2/10/2015 | INTELLECTUAL VENTURES II LLC |
| 9,232,158 | 1/5/2016 | INTELLECTUAL VENTURES II LLC |
| 9,602,608 | 3/21/2017 | INTELLECTUAL VENTURES II LLC |
| 10,292,138 | 5/14/2019 | INTELLECTUAL VENTURES II LLC |

Trials@uspto.gov
571-272-7822

Paper 8
Entered: February 7, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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AMERICAN HONDA MOTOR CO., INC.,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

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IPR2023-00020
Patent 10,292,138 B2

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Before SCOTT A. DANIELS, FREDERICK C. LANEY, and MATTHEW S. MEYERS, *Administrative Patent Judges.*

DANIELS, *Administrative Patent Judge*.

DECISION
*Settlement Prior to Institution of Trial*
*37 C.F.R. § 42.74*

With our authorization, the parties filed a Joint Motion to Terminate Proceeding. Paper 6. The parties assert that they "have resolved their dispute and jointly request termination of IPR2023-00020 under 35 U.S.C. § 317(a)." *Id.* at 1. The parties represent that, as a result of the parties' resolution of their dispute, they also are filing a motion to dismiss the co-pending lawsuit related to U.S. Patent No. 10,292,138 B2 ("the '138 Patent"), which is the patent at issue in this proceeding. *Id.* at 3. The parties also represent that "[a] true copy of the document resolving the disputes related to the '138 Patent is filed concurrently herewith," which was filed as Exhibit 2001. *Id.* at 4. We have reviewed that "Resolution Document," which indicates that it is the entire agreement between the parties.

In a separate paper, the parties also jointly request that the Board "treat the [Resolution Document] resolving the proceeding . . . as business confidential information" and "that the confidential Resolution Document be kept separate from the file of the subject patent in the captioned proceeding and be made available only to Federal Government agencies on written request or to persons showing good cause." Paper 7, 1.

The Board has not yet entered a decision on institution of a trial, and we determine that good cause exists to dismiss the Petition (Paper 2) and to terminate the preliminary proceeding. *See* 37 C.F.R. § 42.74. After reviewing the parties' Resolution Document, we find that the agreement contains confidential business information regarding the terms of settlement, and we determine that good cause exists to treat the Resolution Document as business confidential information.

It is

ORDERED that the Joint Motion to Terminate Proceeding is *granted*;

FURTHER ORDERED that the Petition (Paper 2) is *dismissed* and the preliminary proceeding is *terminated*; and

FURTHER ORDERED that the filed confidential Resolution Document (Ex. 2001) be treated as business confidential information pursuant to 37 C.F.R. § 42.74(c) and also remain designated as available only to "Parties and Board" in the Board's E2E system.

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571-272-7822

Paper 14
Date: January 3, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TOYOTA MOTOR CORP.,
Petitioner,

v.

INTELLECTUAL VENTURES II LLC,
Patent Owner.

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IPR2022-01127
U.S. Patent No. 10,292,138 B2

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Before SCOTT A. DANIELS, FREDERICK C. LANEY, and MATTHEW S. MEYERS, *Administrative Patent Judges.*

DANIELS, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
*35 U.S.C. § 314*

## I. INTRODUCTION

Toyota Motor Corp. ("Petitioner"), filed a Petition requesting *inter partes* review ("IPR") of claims 1–14 of U.S. Patent No. 10,292,138 B2

(Ex. 1001, "the '138 patent"). Paper 1 ("Pet."). Intellectual Ventures II LLC ("Patent Owner") filed a Preliminary Response to the Petition. Paper 10 ("Prelim. Resp."). Petitioner filed a Reply to the Preliminary Response. Paper 12 ("Reply"). Patent Owner filed a Sur-Reply to Petitioner's Reply. Paper 13 ("Sur-Reply").

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted "unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." Upon consideration of the arguments and evidence presented by Petitioner, we are not persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the challenged claims. *See* 35 U.S.C. § 314(a). Accordingly, we do not institute an *inter partes* review of the challenged claims.

*A. Real Parties in Interest*

Petitioner states that Toyota Motor Corp., Toyota Motor North America, Inc., Toyota Motor Engineering & Manufacturing North America, Inc., and Toyota Motor Sales, U.S.A., Inc., are the real parties in interest. Pet. 73. Patent Owner states that Intellectual Ventures II LLC is the real party in interest. Paper 5, 2.

*B. Related Matters*

The parties indicate that the '138 patent is asserted in the following lawsuits, including, I*ntellectual Ventures I LLC et al. v. Toyota Motor Corp. et al.*, 2:21-cv-00389 in the U.S. District Court for the Eastern District of Texas; *Intellectual Ventures I LLC et al. v. General Motors Company*, 6:21-cv-01088 in the U.S. District Court for the Western District of Texas; and *Intellectual Ventures I LLC et al. v. Honda Motor Company, Ltd. et al.*, 3:22-cv-00761 in the U.S. District Court for the Northern District of Texas;

and *Intellectual Ventures I LLC and Intellectual Ventures II LLC, v. Honda Motor Co., Ltd. et al.* 2:21-cv-00390 in the U.S. District Court for the Eastern District of Texas.

Petitioner also indicates that the '138 patent has been involved in the following *inter partes* review proceedings: *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, IPR2018-01289; and *Sprint Spectrum L.P., SprintCom, Inc., TMobile USA, Inc., and T-Mobile US, Inc. v. Intellectual Ventures II LLC*, IPR2018-01765. Pet. 74.

*C. The '138 Patent (Ex. 1001)*

The '138 patent, titled "Determining Buffer Occupancy and Selecting Data for Transmission on a Radio Bearer," relates to allocation of bandwidth resources for Internet Protocol data flows in a wireless network. Ex. 1001 code 54, 1:23–25. The '138 patent explains that "[t]he invention is applicable to, but not limited to, gateway queuing algorithms in packet data transmissions, for example, for use in the universal mobile telecommunication standard." *Id.* at 1:25–28.

Figure 1 of the '138 patent, as annotated by Petitioner, is reproduced below illustrating standard radio access network system 100. *Id.* at 6:12–13.

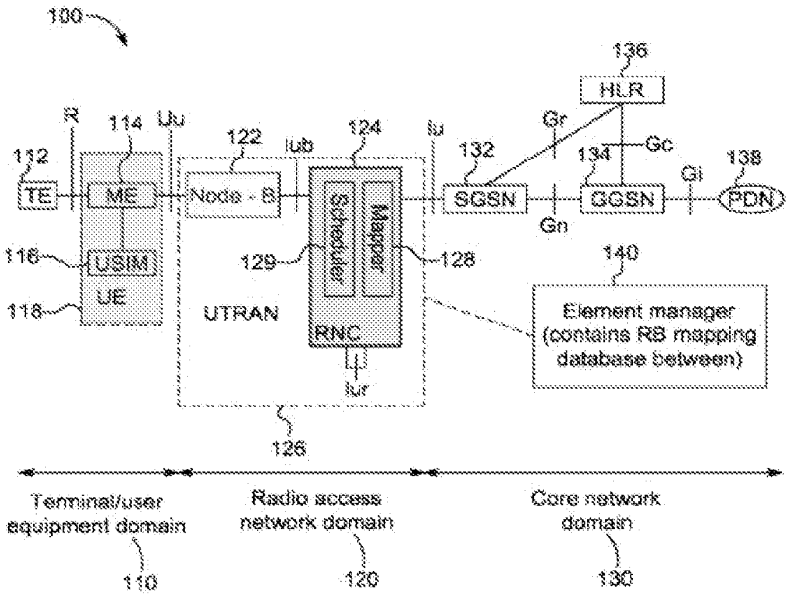



FIG. 1

Figure 1 illustrates user equipment (UE) 118 communicating data with Node – B 122 which, in turn, communicates data with radio network controller (RNC) 124 within UTRAN (UMTS Radio Access Network) 126. The '138 patent explains that

> [t]he UE may be for example a remote unit, a mobile station, a communication terminal, a personal digital assistant, a laptop computer, an embedded communication processor or any communication element communicating over the air interface of the cellular communication system.

*Id.* at 6:22–27. The '138 patent describes that within the RNC 124, "a Mapper 128 is responsible for mapping IP packets to separate RBs [radio bearer's] . . . [a] scheduler 129 is responsible *for allocating a certain proportion of the radio resource to each of the RBs*."[1] *Id.* at 7:49–53. (emphasis added). In addition, the '138 patent provides that

[1] Radio bearers, "RBs," are also understood by those of ordinary skill in the art as Radio Access Bearer's, "RABs." Ex. 1003 ¶ 39.

> element manager logic 140 has been incorporated into the system, which is used to contain the database that defines the mapping characteristics for IP packets to RBs. The element manager logic 140 also contains the values of the queue weighting parameters, $S_{tier}$, as 60 described in more detail later.

*Id.* at 7:56–61.

The '138 patent describes a particular embodiment of the radio resource allocation in Figures 5 and 6 reproduced below.

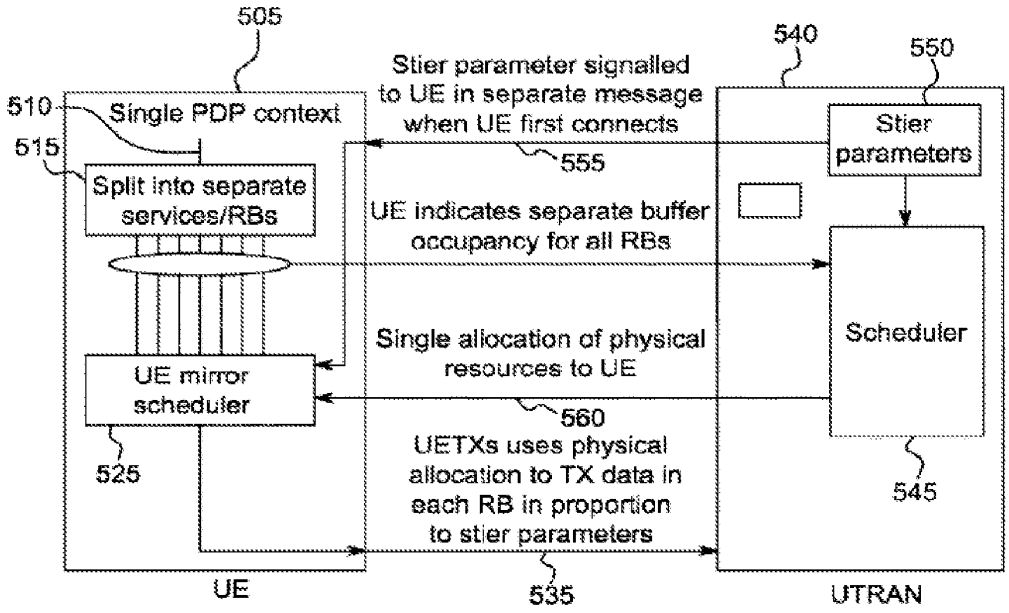



FIG. 5

Figure 5 illustrates "the communication between an UE 505 and the UTRAN 540 to support an uplink scenario." *Id.* at 10:3–5. The '138 patent explains that "the UE 505 may receive a single PDP [packet data protocol] context 510 and split the single PDP context 510 into separate services on individual radio bearers in divider logic 515." *Id.* at 10:5–8. The UE then informs scheduler 545 of buffer occupancies for the individual radio bearers, and scheduler 545 returns a single allocation of physical resources to UE based

on $S_{tier}$ parameters 550. *Id.* at 10:8–18. Subsequently, "[t]he UE mirror scheduler 525 is then able to inform the UTRAN 540 in a message 535 on its use of the physical allocation, in order to transmit data in each radio bearer in proportion to the informed $S_{tier}$ parameters 550." *Id.* at 10:18–22.

The '138 patent describes that $W'_{tier}$ weight values are computed for each radio bearer data queue from the $S_{tier}$ parameter (*id.* at 8:44–54) and that uplink data for each radio bearer is transmitted by dividing up the allocated bandwidth based on the $W'_{tier}$ values (*id.* at 8:55–59, 10:23–28).

Figure 6, reproduced below as annotated by the Board, is a flow chart illustrating algorithm 600 that "describes one mechanism to limit a number of queues served at a single instant of time." *Id.* at 10:49–50.

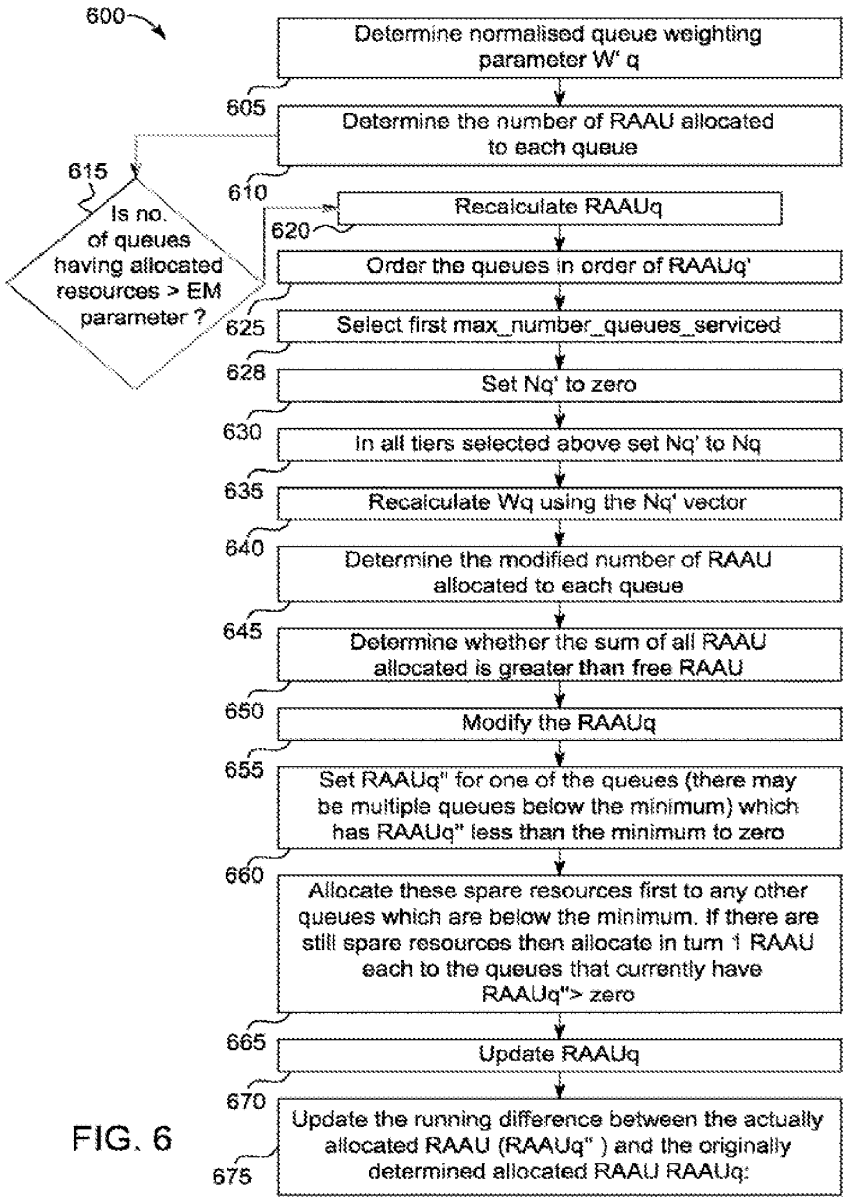



FIG. 6

Figure 6 details an algorithm that is run "when a number of active users (i.e. those users known to have a buffer occupancy greater than zero in any queue) is greater than a known fixed parameter, for example 'max_number_queues_serviced', as defined by the Element Manager (EM)."

*Id.* at 10:51–55. After determining the number of resources RAAU allocated to each queue at step 610,

> [t]he algorithm may then determine whether the number of queues that have resources allocated greater than the EM parameter-max_number_queues_serviced, as shown in step 615. If the number of queues that have resources allocated is greater than a threshold, for example the EM parameter max_number_queues_serviced, the process moves to step 620.

*Id.* at 11:11–17.

As depicted in Figure 6, from step 620 in a first iteration the algorithm begins a scheduling process for data packets where an amount of resources RAAU$q$ are allocated according to a weighted average of the priority level of each input flow. *Id.* at 10:47–11:10. The weighting of each input flow using a counter or running backlog, running_RAAU_delta, tracks flows that have been previously denied transmission. *Id.* at 11:22–11:30. In a second iteration, the running backlog, added to the resources (RAAU$q$) allocated to a given radio bearer provides an adjusted RAAU$q'$ at step 625. *Id.* at 11:31–33. Then, flows with lowest adjusted resource allocations RAAU$q'$ are dropped, and the remaining resources RAAU$q'$ are divided up among the surviving radio bearers. *Id.* at 11:38–44.

*D. Illustrative Claim*

Claims 1 and 8 are independent. Claims 2–7 each depend directly from claim 1, and claims 9–14 each depend directly from claim 8. Claim 1 is a method claim and illustrates the claimed subject matter and is reproduced below:

> 1. 1[preamble] A user equipment (UE) comprising:
>
> 1[a] a processor communicatively coupled to a transmitter and circuitry configured to receive; and

> the processor is configured to:
>
> 1[b] cause the circuitry to receive parameters associated with a plurality of radio bearers,
>
> 1[c] determine a plurality of buffer occupancies, wherein each of the plurality of buffer occupancies is associated with one or more radio bearers of the plurality of radio bearers,
>
> 1[d] cause the transmitter to transmit a message including the plurality of buffer occupancies to a network,
>
> 1[e] cause the circuitry to receive a single allocation of uplink resources,
>
> 1[f] select data from the plurality of radio bearers for transmission using the single allocation of uplink resources, wherein the selection of the data occurs using a first iteration and a second iteration,
>
> 1[g] wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters,
>
> 1[h] wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers, and
>
> 1[i] cause the transmitter to transmit a signal including the selected data.

Ex. 1001, 13:58–14:16.[2] Independent claim 8 is a method claim reciting "[a] method performed by a user equipment (UE), the method comprising." *Id.* at 14:33–34. Otherwise, independent claim 8 contains the same and similar limitations as claim 1, for example limitation 8[b] "receiving, by the UE, parameters associated with a plurality of radio bearers." *Id.* at 14:35–36.

[2] For consistency, we refer to Petitioner's claim limitations references 1[preamble]–1[i].

*E. Prior Art and Asserted Grounds*

Petitioner asserts that claims 1–14 would have been unpatentable based on the following grounds:[3]

| Ground | Claim(s) Challenged | 35 U.S.C. § | Reference(s)/Basis |
|---|---|---|---|
| 1 | 1–4, 6–11, and 13–14. | 102[4] | Peisa[5] |
| 2 | 1–4, 6–11, and 13–14. | 103(a) | Peisa |
| 3 | 1–4, 6–11, and 13–14. | 103(a) | Peisa and Heo[6] |
| 4 | 5, 12 | 103(a) | Peisa and TS 24.008[7] |

## II. ANALYSIS

*A. Legal Standards*

A "prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements 'arranged as in the claim.'" *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)). "A single prior art reference may anticipate without disclosing a feature of the claimed invention if such feature is necessarily present, or

[3] Petitioner supports its challenges with a Declaration of Robert Akl, Ph.D. (Ex. 1003). *See infra*.

[4] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011 amended 35 U.S.C. §§ 102–103, effective March 16, 2013. Because the application from which the '138 patent issued has an effective filing date prior to March 16, 2013, the pre-AIA version of §§ 102–103 applies. *See* Ex. 1001, code (63).

[5] Ex. 1004, US Patent No. 6,850,540 B1 (Feb. 1, 2005).

[6] Ex. 1029, US Patent Publ'n No. 2005/0047416A1 (Mar. 3, 2005).

[7] Ex. 1005, 3RD GENERATION PARTNERSHIP PROJECT; TECHNICAL SPECIFICATION GROUP CORE NETWORK; MOBILE RADIO INTERFACE LAYER 3 SPECIFICATION; CORE NETWORK PROTOCOLS; STAGE 3 (Release 6), Global System for Mobile Communications, (2004).

inherent, in that reference." *Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 958 (Fed. Cir. 2014).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. § 103; *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). "[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result." *KSR*, 550 U.S. at 416 (citing *United States v. Adams*, 383 U.S. 39, 50–51 (1966)). The question of obviousness is resolved based on underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

*B. Level of Ordinary Skill in the Art*

Petitioner asserts that a person of ordinary skill in the art at the time of the '138 patent

> [w]ould would have had a Bachelor of Science in electrical engineering, computer engineering, or an equivalent field, as well as three years of experience in wireless communication technology, or a master's degree in electrical engineering, or other equivalent degree . . . [a]dditional education could substitute for professional experience and vice versa.

Pet. 3 (citing Ex. 1003 ¶¶ 47–49).

Patent Owner does not expressly dispute Petitioner's definition of a person of ordinary skill in the art. *See generally* Prelim. Resp.

On this record, Petitioner's proposed level of ordinary skill in the art is not disputed and is consistent with our review and understanding of the technology and descriptions in the '138 patent and the asserted prior art references. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). For purposes of this Decision, we rely on Petitioner's proposed level of ordinary skill in the art.

*C. Claim Construction*

We interpret a claim "using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b) (2020). Under this standard, we construe the claim "in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent." *Id.* Furthermore, at this stage in the proceeding, we expressly construe the claims only to the extent necessary to determine whether to institute *inter partes* review. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) ("[W]e need only construe terms 'that are in controversy, and only to the extent necessary to resolve the controversy.'" (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

Petitioner contends that "[h]ere, no terms need construction because the claims read on the prior art identified below under any construction consistent with *Phillips*." Pet. 4. Patent Owner, on the other hand, proposes that the claim term "a subset of the plurality of radio bearers" means "less than all of the plurality of radio bearers." Prelim. Resp. 12. Patent Owner argues that

> [t]he "subset of the plurality of radio bearers" referred to in independent claim 1 of the '138 Patent (and independent claim 8) corresponds to the 'max_number_queues_serviced' parameter discussed above in connection with, e.g., Step 628. The 'max_number_queues_serviced' value clearly corresponds to *less than all* queues, because it is used when the number of active users "*is greater than*" the 'max_number_queues_serviced' value.

*Id.* at 13 (citing Ex. 1001, 10:52–54). Based on the written description, Patent Owner's declarant, Dr. Lomp testifies that the subset of radio bearers corresponds to "the 'max_number_queues_serviced' parameter discussed above in connection with, e.g., Step 628." Ex. 2001 ¶ 47. Dr. Lomp testifies further that "[t]he 'max_number_queues_serviced' value corresponds to *less than all* queues, because it is used when the number of active users '*is greater than*' the 'max_number_queues_serviced' value." *Id.* (citing Ex. 1001, 10:52–54). Dr. Lomp concludes that "[a] person of ordinary skill in the art, reading the claim in light of the specification, would understand the 'subset of the plurality of radio bearers' referred to in Claim 1 to mean 'less than all of the plurality of radio bears.'" *Id.*

Petitioner responds, arguing that "Patent Owner's plain-meaning construction in district court covers *both* less than and *all of the plurality of radio bearers*." Reply 1. Petitioner argues, specifically, that Patent Owner has indicated by its infringement contentions, that "subset" covers even the situation where, in the accused instrumentalities, "[a]ll the logical channels with Bj>0 are allocated resources in a decreasing priority order." *Id.* (citing Ex. 1008, 30). We appreciate that within the context of its infringement contentions Patent Owner may be advocating for a broader scope of "subset" in the district court litigation, perhaps in an attempt to encompass certain accused devices and functionality. Ex. 1008, 30. However, such

infringement contentions, and any relevant claim constructions with respect to infringement, are the purview of the district court. Our jurisdiction is confined mainly to patentability, and in this proceeding Patent Owner expressly argues that the "subset" limitation means "less than all of the plurality of radio bearers." For the reasons below, we agree with Patent Owner's proposed construction that "a subset of the plurality of radio bearers," means "less than all of the plurality of radio bearers."

First, the plain language itself supports Patent Owner's construction. *See TQ Delta, LLC v. DISH Network LLC*, 929 F.3d 1350, 1357 (Fed. Cir. 2019) ("We begin our analysis with the claim language."). Read in context, claim 1 recites in part:

> the processor is configured to:
>
> 1[b] cause the circuitry to receive parameters associated with *a plurality of radio bearers*,
>
> . . .
>
> 1[f] select data *from the plurality of radio bearers* for transmission using the single allocation of uplink resources, wherein the selection of the data occurs using a first iteration and a second iteration,
>
> 1[g] wherein in the first iteration, the selection of the data is selected *from a subset of the plurality of radio bearers* based on the received parameters,

*Id.* at 13:61–14:11 (emphasis added).

Claim 1 initially recites "a plurality of radio bearers" in limitation 1[b] which plainly means more than one radio bearer. *Id.* at 13:63. With this antecedent basis, the processor will at limitation 1[f] "select data from the plurality of radio bearers." *Id.* at 13:6. What is not clear, initially, is whether data is required to be selected from all radio bearers, or less than all radio bearers, because the claim does not specify, e.g., "all," "each," or "at

least one of" the plurality of radio bearers. A plain reading of the claim, up until this point, is that the processor can select data from all *or* less than all radio bearers. *Id.* at 14:5–6.

The following limitation 1[g], however, provides that "in the first iteration . . . data is selected from *a subset* of the plurality of radio bearers." *Id.* at 14:10–11 (emphasis added). This clause does not simply reiterate "the plurality of radio bearers," but expressly adds "a subset." The word "subset" plainly modifies "a plurality of radio bearers," and must have some limiting meaning. For example, if we were to interpret "subset" as encompassing all or less than all of the radio bearers as Petitioner asserts, than the word, i.e., limitation, "subset" is entirely unnecessary, given that the claim already provides such broader meaning. *See Stumbo v. Eastman Outdoors, Inc.*, 508 F.3d 1358, 1362 (Fed. Cir. 2007) (denouncing claim constructions that render phrases in claims superfluous). *See Bicon Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) ("[C]laims are interpreted with an eye toward giving effect to all terms in the claim"). Indeed, if "a subset" can include data selected from *all the radio bearer's* then Petitioner's interpretation reads the term "subset" essentially, if not entirely, out of the claim.

We acknowledge that dictionary definitions of "subset" often provide two interpretations. For example, Dictionary.com provides that subset means "a set that is a part of a larger set," and alternatively, in mathematics, "a set consisting of elements of a given set that can be the same as the given set or smaller." https://www.dictionary.com/browse /subset (last visited December 26, 2022). Despite the mathematical concept that a subset can include *all*, or fewer, members of a given set, a plain reading of claim 1 is that "subset" must be something less than all radio bearer's, at least because as discussed above, we give credence to the word

"subset" as an express claim limitation. *See Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1257 (Fed. Cir. 2010) (The Federal Circuit refusing to adopt a claim construction which would render a claim limitation meaningless).

In addition, we disagree with Petitioner that Patent Owner's construction "imports a limitation" from the specification of the '138 patent. Reply 2. For one thing, Patent Owner's construction relies specifically on the word "subset," which is expressly recited in the claim. Furthermore, the specification provides an embodiment, i.e., the algorithm in Figure 6, where data is selected from a "limit[ed]" number of radio bearers. Ex. 1001, 10:37–42. The '138 patent describes "in an enhanced embodiment of the present invention, a mechanism to implement additional functionality to limit a total number of queues served, . . . this algorithm limits a number [of] queues that can be allocated resource at any one instance." *Id.* For Figure 6, the '138 patent further explains that

> [t]he algorithm [600] describes one mechanism to limit a number of queues served at a single instant of time. The algorithm may be run when a number of active users (i.e. those users known to have a buffer occupancy greater than zero in any queue) is greater than a known fixed parameter, for example 'max_number_queues_serviced', as defined by the Element Manager (EM).

*Id.* at 10:48–55. The '138 patent then explains that at step 615 "[i]f the number of queues that have resources allocated *is greater* than a threshold, for example the EM parameter max_number_queues_serviced, the process moves to step 620." *Id.* at 11:14–17 (emphasis added). Steps 605–630 from Figure 6, as highlighted by the Board, are reproduced below.

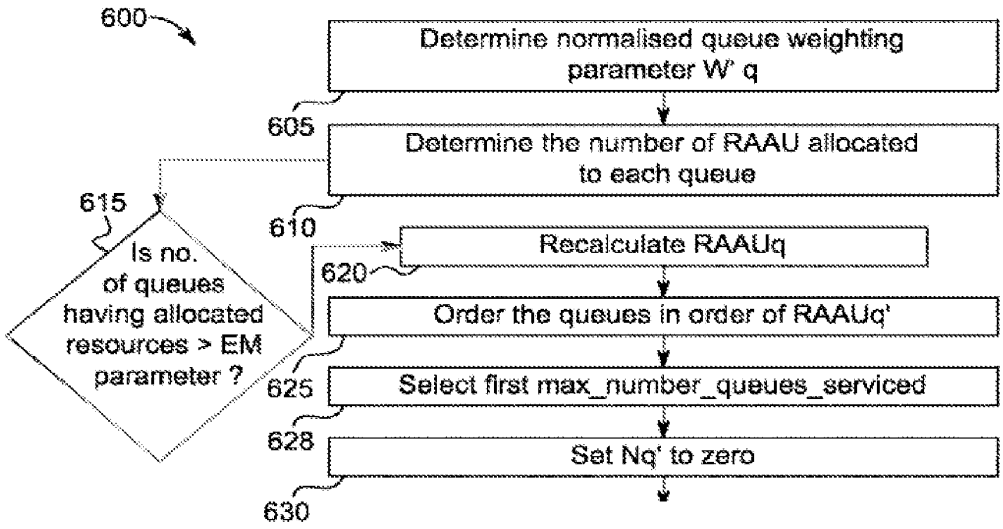



Figure 6 illustrates steps 605–630, where step 615, highlighted yellow, permits the continuation of algorithm 600 only where number of queues having allocated resources *is greater* than max_number_queues_serviced. Importantly, this embodiment does not describe that the algorithm continues where the number of queues with allocated resources is greater than *or equal* to the EM parameter, i.e., a threshold, but simply greater than the EM parameter. Then, to begin the claimed "first iteration" at step 628 the algorithm selects_max_number_queues_serviced (which is logically, and by operation of the algorithm at step 615, less then, i.e. a subset, of the number of queues having allocated resources). *Id.* at 10:65–66.

Consistent with the written description in the '138 patent specification, we credit Dr. Lomp's testimony explaining that

> [t]he "subset of the plurality of radio bearers" referred to in Claim 1 (and Claim 8) corresponds to the 'max_number_queues _serviced' parameter discussed above in connection with, e.g., Step 628. The 'max_number_queues_serviced' value corresponds to *less than all* queues, because it is used when the number of active users "*is greater than*" the 'max_number _queues_serviced' value.

Ex. 1002 ¶ 47 (citing Ex. 1001, 10:52–54). Dr. Lomp explains persuasively why a person of ordinary skill in the art "reading the claim in light of the specification, would understand the 'subset of the plurality of radio bearers' referred to in Claim 1 to mean 'less than all of the plurality of radio bears.'" *Id.* In this case, Patent Owner does not "improperly import[] a supposed limitation from the specification's discussion," as Petitioner argues, mainly because, the limitation is in fact in the claim—that is "a subset" is expressly recited as a specific limiting embodiment, as disclosed in Figure 6, which describes limiting allocation resources to less than all queues where the number of active users exceeds a threshold, "max_number_queues_ serviced."

Petitioner argues that the '138 patent "discusses that resources *may* be allocated to less than all queues *if* the number of active users exceeds a threshold, "max_number_queues_serviced." Reply 2. This alternative to which Petitioner refers, considers for example, if at step 615 the number of queues with allocated resources is equal to, or less than EM parameter. In this case, the algorithm in Figure 6 ends, and the process reverts to a different prior art process which is not incorporated in any relevant part in the algorithm of Figure 6 or independent claims 1 and 8. *See* Ex. 1001, 11:17–21. (The '138 patent explaining that "[i]f the number of queues that have resources allocated is not greater than the EM parameter max_number_queues_serviced then the process may operate as normal as described in the PCT publication WO 03/049320.").

Overall, we find Patent Owner's claim construction and Dr. Lomp's testimony the most persuasive and consistent with the express claim language itself, the written description and the algorithm and embodiment depicted in Figure 6. Accordingly, we determine that "a subset of the

plurality of radio bearers" means "less than all of the plurality of radio bearers." Prelim. Resp. 12.

*D. Ground 1: Claims 1–4, 6–11, and 13–14 – Alleged Anticipation by Peisa (Ex. 1004)*

On this record, Petitioner has not established a reasonable likelihood of prevailing on its assertion that at least one of claims 1–4, 6–11, and 13–14 are anticipated by Peisa, for the reasons explained below.

*1. Peisa (Ex. 1004)*

Peisa is titled "Packet Scheduling in a Communications System" and describes allocation of bandwidth resources where certain "embodiment(s) of the present invention enable packet scheduling in accordance with quality of Service (QoS) constraints for data flows in communications Systems." Ex. 1004, code 54, 2:49–51. Peisa's Figure 1 is reproduced below.

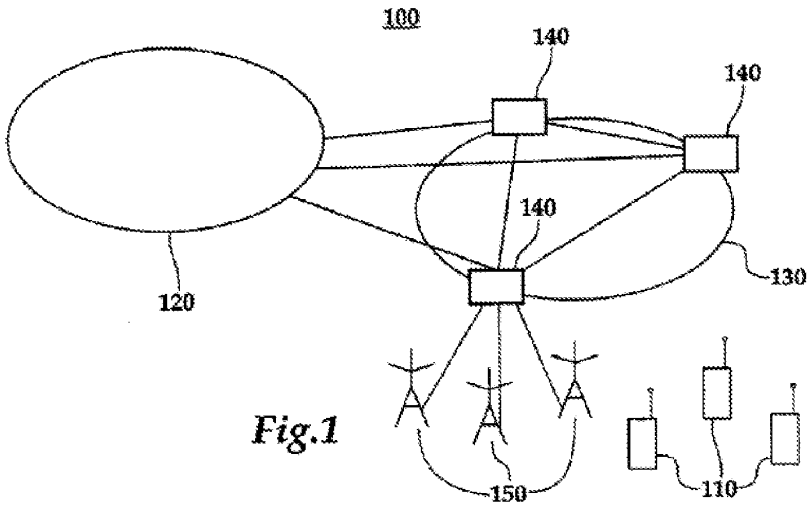



*Fig.1*

Figure 1 illustrates wireless communications network 100 including core network 120, user equipment ("UEs") 110 communicating with Node Bs 150, i.e., network towers, and radio network controllers ("RNC") 140

"responsible for routing user and signaling data between that Node B 150 and the core network 120." *Id.* at 2:6–8.

Peisa explains that "[u]ser and signaling data may be carried between an RNC 140 and a UE 110 using Radio Access Bearers (RABs)," and that "[t]ypically, a UE 110 is allocated one or more RABs, each of which is capable of carrying a flow of user or signaling data." *Id. at* 4:28–34. Peisa explains further that RNC 140 includes a media access layer ("MAC") that is responsible for scheduling, or prioritizing, packets to be sent to the UE. *Id.* at 4:34–40. As Peisa describes, "[p]riorities may be determined at the MAC entity (e.g., MAC-c or MAC-d) on the basis of RAB parameters." *Id.* at 5:14–16. RAB parameters include quality of service ("QoS"), where "a high QoS should be transmitted over the air interface at a high priority whilst packets corresponding to a RAB that has been allocated a low QoS should be transmitted over the air interface at a lower priority." *Id.* at 5:10–14. Peisa explains that "[p]referably, a packet received at the controlling RNC 140 is placed in a queue . . . where the queue corresponds to the priority level attached to the packet as well as to the size of the packet." *Id.* at 5:34–37.

Peisa describes a problem with known priority determination algorithms—namely that "it is possible that flows that have lower priorities are not allowed to transmit for prolonged periods of time. This can result in extremely poor performance if the flow control mechanism of a lower priority flow reacts to this." *Id.* at 8:12–16. To address this drawback, Peisa proposes "maintaining a backlog counter which keeps track of the backlog of unsent data for a given input flow to the MAC entity. The backlog is taken into account when determining an appropriate TFC for that input flow for a subsequent frame." *Id.* at 9:4–8.

An embodiment disclosed by Peisa for allocating bandwidth resources to data flow streams is shown by flowchart 400 in Figure 4, reproduced below.

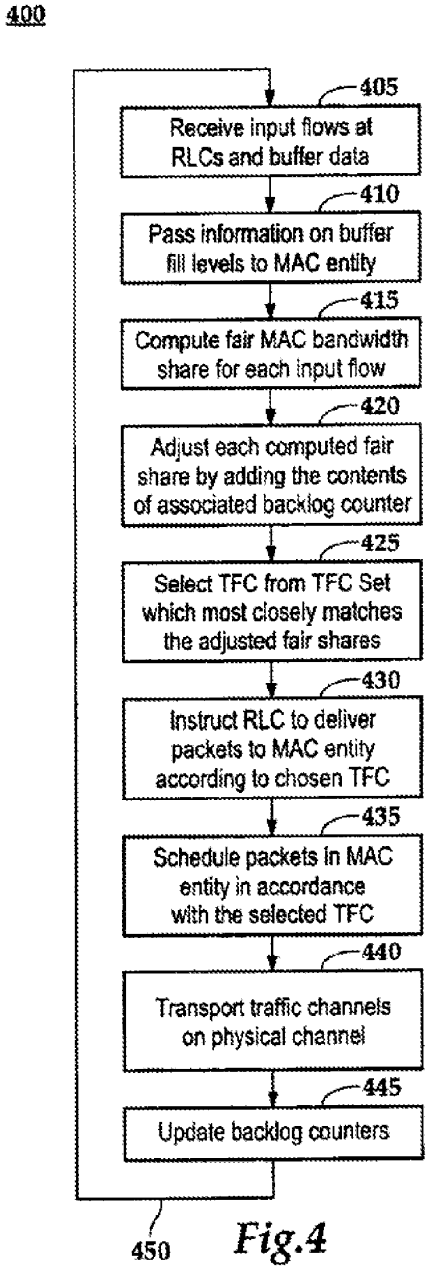



*Fig.4*

Figure 4 illustrates a "flow diagram of a method of allocating bandwidth resources to, for example, the input flow Streams of a MAC entity." *Id.* at 10:33–35. After receiving input flows and buffering data, step 405, and passing the buffer fill level information to the MAC, step 410, the fair share of MAC bandwidth is determined at step 415. *Id.* at 10:37–42. Peisa explains that "[t]he computed fair share of each is then adjusted by adding the contents of an associated backlog counter to the respective computed fair share (step 420)." *Id.* at 10:42–44. The "fair share" of bandwidth resources is determined by "the weighting given to that flow as a fraction of the sum of the weights given to all the input flows. The fair share may then be determined by multiplying the total output bandwidth by the determined fraction." *Id.* at 9:45–47.

Importantly, considering steps 420–450, Peisa addresses the case where there is a backlog of data packets, that is data in a particular input flow which, due to prioritization inefficiencies, did not get sent in a previous frame. *Id.* at 8:63–9:3. The backlog can occur because the MAC (by selecting an appropriate transport format combination ("TFC" or "TFCS")) determines how much data is transmitted from each flow. Peisa explains that "[s]uch a backlog may exist due to the finite number of data transmission possibilities provided for by the TFCS." *Id.* at 9:28–30. Peisa explains further with respect to steps 420 and 425,

> adding to a backlog counter associated with each input flow the difference between the data transmission rate for the flow resulting from the selected TFC and the determined fair share, if the data transmission rate is less than the determined fair share, where the first processor means is arranged to take into account the value of the backlog counters when selecting a TFC for the subsequent frame of the output data flow.

*Id.* at 10:5–12. After instructing RLC to deliver packets to MAC and schedule delivery of packets based on TFC at steps 430 and 435, the packets are transported on physical channels at step 440. *Id.* at 10:47–52. Peisa describes that "[o]nce packet traffic has been transported, the backlog counters should be updated (Step 445). The process may continue (via arrow 450) when new input flows are received at the RLCs, which buffer the data (at step 405)." *Id.* at 10:52–56.

*2. Independent Claim 1*

We consider specifically the elements of limitation 1[g], because it is dispositive as to anticipation of claim 1 by Peisa.

*a) Petitioner's Arguments*

*(1) Preamble – 1[g] wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters*

*(a) Petitioner's Arguments*

Petitioner argues that Peisa's Figure 4, and related description, disclose all the elements of limitation of 1[g]. Pet. 47–50. Petitioner argues that Peisa discloses the first iteration at step 415 where "the scheduling algorithm computes a 'fair MAC bandwidth share' for each input flow of data." *Id.* at 47 (citing Ex. 1004, 10:40–42). Although not immediately relevant to limitation 1[g], Petitioner argues that "the second iteration" recited in limitation 1[h] is disclosed by Peisa where "the backlog counters are updated in step 445 of the *first iteration* for use in step 420 of the *second iteration.*" *Id.* at 50 (citing Ex. 1004, Fig. 4).

Regarding the first iteration, Petitioner argues that "*Peisa* discloses that this computation of [fair] shares [distribution] is based on the 'weights' for each input flow as defined by the RNC," and that the "weighting for each

input flow is determined using 'RAB parameters,' such as an RAB's Quality of Service." *Id.* at 47 (citing Ex. 1004, 9:40–46; Ex. 1003 ¶ 138). Then, according to Petitioner, "in step 430, the RLC is 'instructed to deliver packets to the MAC entity according to the selected TFC.'" *Id.* at 49 (citing Ex. 1004, 10:47–49).

With respect to selecting data "*from a subset* of the plurality of radio bearers based on the received parameters," Petitioner argues that "for each input flow in the first iteration that transmitted less than its 'determined fair distribution,' the backlog counter will be incremented to reflect that the input flow had buffered data that was not transmitted." *Id.* (citing Ex. 1004 9:19–24). Based on this, Petitioner argues that Peisa discloses that, "in the first iteration of *Peisa*'s scheduling algorithm, 'the selection of data is selected from a subset of the plurality of' RABs (where the non-selected radio bearers will be tracked using a running backlog counter).'" *Id.* Petitioner's declarant, Dr. Akl, testifies, similarly, that "for each input flow in the first iteration that transmitted less than its 'determined fair distribution,' the backlog counter will be incremented to reflect that the input flow had buffered data that was not transmitted." Ex. 1003 ¶ 139.

*(b) Patent Owner's Arguments*

Patent Owner argues that in the '138 patent, based on the proper claim construction of "subset," "the first iteration is limited to selecting data from some – *but less than all* – of the radio bearers." Prelim. Resp. 14. Given this claim construction, Patent Owner responds to Petitioner's assertions, arguing that Peisa fails to disclose selecting data from a subset, i.e., less than all, of the plurality of radio bearer's, as recited in independent claims 1[g] and 8[f]. *Id.* at 14–16. Patent Owner argues, specifically, that different from the claimed invention, "Peisa's discussion of Fig. 4 discloses a scheduling

algorithm that computes a 'fair MAC bandwidth share' for *each* input flow of data." *Id.* at 15.

Patent Owner argues that Petitioner's assertion that "'the selection of data is selected from a *subset* of the plurality of' RABs (*where the non-selected radio bearers* will be tracked using a running backlog counter)' . . . is not supported by any disclosure in Peisa and literally comes out of nowhere." *Id.* at 16 (quoting Pet. 49–50). According to Patent Owner, "[t]he Petition contains no prior discussion of 'non-selected radio bearers' in Peisa. And more importantly, the Petition fails to explain where Peisa discloses any such 'non-selected radio bearers.'" *Id.*

*(c) Analysis*

We agree with Patent Owner that there is a dearth of direct, substantive explanation and analysis in the Petition regarding the "subset" limitation. Petitioner did not, in its Petition, raise any claim construction issue with respect to selecting data "*from a subset* of the plurality of radio bearers based on the received parameters." *See* Pet. 3 ("[N]o terms need construction because the claims read on the prior art identified below under any construction consistent with *Phillips*."). Petitioner also does not, in its subsequent application of Peisa to the claim limitation 1[g] of the '138 patent, indicate with particular clarity where Peisa discloses the "subset" limitation. *See* Pet. 11–18; 47–50. We do, however, recognize an argument in the Petition that attempts to address this limitation.

In the Petition, Petitioner concludes that Peisa's data is selected from "a subset" of a plurality of RABs, and that "non-selected radio bearers will be tracked using a running backlog counter," apparently, because there are "input flow[s] in [Peisa's] first iteration that transmitted less than its 'determined fair distribution.'" Pet. 49. In other words, Petitioner argues

that in Peisa's first iteration some data in certain input flows is not transmitted based on selected TFC parameters, but the other input flows that *do* transmit all their data, are "a subset of a plurality of radio bearers" as recited in claim. 1. *Id.* In support of this argument Dr. Akl testifies that "for each input flow in the first iteration that transmitted less than its 'determined fair distribution,' the backlog counter will be incremented to reflect that the input flow had buffered data that was not transmitted." Ex. 1003 ¶ 140.

This argument and Dr. Akl's testimony is problematic because it does not explain technically, or logically, why input flows that transmit less than "a determined fair distribution" are "non-selected." Neither the arguments in the Petition, nor Dr. Akl's testimony, fully address this particular jump in logic. Even if the input flow transmits less than its fair distribution of bandwidth, (and a backlog counter is incremented to reflect that the input flow has buffered data that was not transmitted), this does not explain that a particular radio bearer is excluded from being allocated bandwidth resources such that it is "non-selected," i.e., that resources are applied only to less than all of the radio bearers. The Petition even tacitly acknowledges that each input flow in Peisa transmits data, explaining that "[w]hen the scheduling algorithm *does* reach step 445 in the first iteration, it will 'update' the 'backlog counters' for each input flow that did not get to transmit all of its data during the first iteration." *Id.* at 49 (citing Ex. 1004, 9:1–34).

Peisa describes that using a backlog counter to account for unsent data can alleviate the problem where, for example "the actual amount of data sent for an input stream in a given frame either may fall below the optimized rate or may exceed that optimized rate. In the former case, a backlog of unsent data may build up for the input flow." Ex. 1004, 8:63–67. Peisa explains that an important part of its invention is "maintaining a backlog counter

which keeps track of the backlog of unsent data for a given input flow to the MAC entity. The backlog is taken into account when determining an appropriate TFC for that input flow for a subsequent frame." *Id.* at 9:4–8. This does not, based on a fair reading of Peisa, describe that any of the input flows are "non-selected." In fact, Peisa consistently describes applying its bandwidth optimization process and method to "each" input flow. *See, e.g.*, *id.* at 10:40–64 (Peisa explaining that [a]fter the information on buffer fill levels is passed, the fair MAC bandwidth share for *each* input flow is computed (step 415). The computed fair share of *each* is then adjusted by adding the contents of an associated backlog counter to the respective computed fair share (step 420) . . . and by keeping track of how far behind *each* flow is from the optimal bandwidth allocation using respective backlog counters.") (emphasis added).

We find Patent Owner's position here persuasive and consistent with a reasonable reading of Peisa—that is, "Peisa's discussion of Fig. 4 discloses a scheduling algorithm that computes a 'fair MAC bandwidth share' for *each* input flow of data, after which the contents of a backlog counter are *added* 'to the respective computed fair share.'" Prelim. Resp. 15 (citing Pet. 48). Also, we credit Patent Owner's declarant, Dr. Lomp, who testifies persuasively that

> [t]he aspects of Peisa mapped to the claimed "first iteration" (Peisa, Steps 415-445; Pet., 47-50) fail to meet the requirement that data be selected from a subset of radio bearers, because step 415 of Peisa allocates a fair share to every radio bearer and then adds the contents of a backlog counter thereto. Peisa contains no disclosure that steps 415-445 are applied to only a *subset* (*i.e.*, less than all) of the radio bearers, as required by the Challenged Claims.

Ex. 2001 ¶ 52.

In its Reply to Patent Owner's Preliminary Response, Petitioner argues that "[e]ven under Patent Owner's improper narrow construction, *Peisa* teaches selecting data for transmission in 'first iteration' from less than all of a UE's radio bearers (or transport channels), for two reasons." Reply 3. Because these arguments pertain to the proper claim construction as we determined in Section II.C., we address both arguments in turn.

Petitioner first argues in its Reply that "*Peisa* discloses transport formats (TF) in which a transport channel is allocated 0 packets. *See id.* at 7:37–8:2 (identifying transport formats such as (80, 0), and discussing an example in which 'nothing is transmitted from the first transport channel'). Thus, according to Petitioner, *Peisa* discloses that in the first iteration data can be selected for transmission from less than all of a UE's radio bearers." Reply 3.

This argument is not persuasive because the claim requires the processor to "select data from the plurality of radio bearers" and "transmit a signal including the selected data." Ex. 1001, 14:5–16. Patent Owner responds in its Sur-Reply that Petitioner's argument improperly interprets "the data" recited in claim 1 to include "no data." *See* Sur-Reply 3 (Patent Owner arguing that "[t]he Reply posits that these limitations would be met in a scenario where no data is transmitted by Piesa."). We agree with Patent Owner's position here. Petitioner has not pointed to any evidence in the '138 patent that the selection of data from the plurality of radio bearers, encompasses "no data" transported in certain input flows. Ex. 1001, 14:5–8. Particularly, where, on its face, claim 1 requires the processor to "select data . . . for transmission." *Id.* at 14:5–6. Petitioner has not sufficiently explained how, or why, a processor would be configured to "cause the

transmitter to transmit a signal including the selected data," as required by claim 1, where there is no data to transmit.

Petitioner next argues that

> *Peisa*'s use of a backlog counter further confirms that, in a first iteration, rather than select any data for transmission from a transport channel, *Peisa* can instead update its backlog counter, and use the backlog counter in a subsequent iteration to select a transport format combination (TFC) to later allocate resources to the transport channel.

Reply 3–4 (citing Ex. 1004, 10:29–54). In other words, Petitioner argues that Peisa's process in a first iteration can essentially choose *not* to select data for transmission from a transport channel, thereby selecting data from "less than all of the radio bearers." *Id.* at 4.

This argument is not persuasive for similar reasons as discussed above with respect to Peisa's teaching to provide each input flow with a "fair share" of the available bandwidth. What Peisa actually discloses is that in a first iteration after input flows are received and the data is buffered at step 405 "the fair MAC bandwidth share for *each* input flow is computed (step 415)." Ex. 1004, 10:40–42. Then, in a subsequent iteration "[t]he computed fair share of *each* is then adjusted by adding the contents of an associated backlog counter to the respective computed fair share (step 420)." *Id.* at 10:42–44.

Even considering the arguments in Petitioner's Reply, Petitioner has failed to provide sufficient evidence or point to persuasive disclosure in Peisa that the asserted first iteration in Peisa's process, described in Figure 4 at steps 415–445, are applied to "a subset of the plurality of radio bearers based on the received parameters," as required by independent claim 1.

*3. Independent Claim 8*

We next consider limitation 8[h], because it corresponds exactly to limitation 1[g] discussed above, and is dispositive as to anticipation of independent claim 8 by Peisa.

> *Limitation 8[h] – wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters;*

Petitioner argues limitation 8[h] in conjunction with, and based on the same evidence including Peisa and Dr. Akl's testimony, as discussed above with respect to limitation 1[g]. *See* Pet. 47–50 (arguing that Peisa anticipates the elements of limitations 1[g]/8[h] for the same reasons). For the same reasons as discussed above with respect to limitation 1[g], we are not persuaded that Petitioner has shown a reasonable likelihood that Peisa anticipates independent claim 8.

*4. Dependent claims 2–4, 6–7, 11, 13, and 14.*

Claims 2–4, 6, and 7 each depend directly from independent claim 1, and claims 11, 13, and 14 each depend directly from independent claim 8 and are thus also not anticipated by Peisa. Ex. 1001, 14:17–32, 14:63–15:6.

*5. Conclusion as to claims 1–4, 6–11, 13, and 14*

We have considered and do not find persuasive Petitioner's arguments and supporting evidence that claims 1–4, 6–11, 13, and 14 are anticipated by Peisa. Accordingly, we determine that Petitioner has not shown a reasonable likelihood that Peisa anticipates claims 1–4, 6–11, 13, and 14.

### *E. Ground 2: Claims 1–4, 6–11, 13, and 14 – Alleged Obviousness over Peisa (Ex. 1004)*

On this record, Petitioner has not established a reasonable likelihood of prevailing on its assertion that at least one of claims 1–4, 6–11, 13, and 14 would have been obvious over Peisa for the reasons explained below.

Petitioner argues that to the extent "*Peisa* does not disclose a 'processor' configured to perform the claimed functions, it would have been obvious to a person of ordinary skill in the art to implement *Peisa's* MAC scheduler using a processor configured to perform the functions." Pet. 61 (citing Ex. 1002 ¶ 170). Petitioner argues specifically that a person of ordinary skill in the art would have understood that "[i]mplementing *Peisa's* MAC scheduler on a processor configured to perform such functions would merely be a matter of using a well-known technique (using a processor configured to execute wireless protocols) to improve a similar device in the same way (by making Peisa's UE easily reprogrammable using software)." *Id.* at 62 (citing *KSR*, 550 U.S. at 416).

Apart from "a processor," Petitioner does not discuss or analyze any additional limitations, including limitations 1[g] and 8[h], with respect to obviousness. *See* Pet. 63 ("Thus, the "processor" and 'processor configured to . . .' limitations of claims 1 and 8 would have at least been obvious based on *Peisa*."). Petitioner relies on its evidence and arguments with respect to ground 1 for the remainder of the obviousness ground. *See id.* (The Petitioner states "given the above-discussed disclosures of *Peisa* in Ground 1 for the other limitations of claims 1–4, 6–11 and 13–14, *Peisa* would have at least rendered obvious claims 1–4, 6–11 and 13–14) (citing Ex. 1003 ¶¶ 169–73). Petitioner's obviousness ground based on Peisa, thus does not provide persuasive evidence or arguments that a person of ordinary skill in

the art would have understood Peisa to disclose the limitations in limitations 1[g] and 8[h].

Accordingly, based on the arguments and evidence of parties on the record before us, we determine that Petitioner has not established a reasonable likelihood of showing any of the challenged claims as obvious over Peisa.

*F. Ground 3: Claims 1–4, 6–11, 13, and 14 – Alleged Obviousness over Peisa and Heo (Ex. 1029)*

On this record, Petitioner has not established a reasonable likelihood of prevailing on its assertion that at least one of claims 1–4, 6–11, 13, and 14 would have been obvious over Peisa and Heo for the reasons explained below.

Petitioner argues that "persons of ordinary skill would have understood that *Peisa* discloses that the UE's processor is configured to transmit a message including its plurality of buffer occupancies to a network, or would have at least found this obvious." Pet. 64. Petitioner addresses, specifically in this regard, claim limitations 1[c]–[d] and 8[b]–[c]

> Limitation 1[c]: determine a plurality of buffer occupancies, wherein each of the plurality of buffer occupancies is associated with one or more radio bearers of the plurality of radio bearers,
>
> Limitation 1[d]: cause the transmitter to transmit a message including the plurality of buffer occupancies to a network,

Ex. 1001, 13:64–14:2.

Petitioner argues that "*Peisa* teaches that a UE 'passes' its buffer fill levels to its MAC entity on each iteration and that its MAC entity, in turn, transmits messages and data to the network." Pet. 63 (citing Ex. 1004, 1:64–2:2; 4:20–47, Ex. 1003 ¶ 175). Petitioner argues that "[t]o the extent it is argued that *Peisa* does not disclose the *literal message itself* that the UE's

MAC entity transmits to the network including those buffer occupancies, other references make plain this feature of UMTS . . . *Heo* is one such reference." Pet. 64 (citing Ex. 1004, 1:64–2:2). According to Petitioner, Heo describes with respect to Figure 3,

> that "[i]n order to request a scheduling assignment from the Node B, the MAC-eu layer 500 transmits scheduling information, which contain a *buffer status representing the amount of the data stored in the priority queues 504* and a channel status representing the transmission quality of an uplink, through an EUDCH related uplink 510."

*Id.* at 66 (quoting *Heo* ¶ 53). Petitioner concludes that, "[a]ccordingly, *Peisa* and *Heo* render obvious claim limitations claim 1[d] and 8[c] obvious." *Id.* at 69 (citing Ex. 1003 ¶¶ 167–184).

Apart from limitations 1[d] and 8[c], Petitioner does not discuss or analyze any additional limitations, including limitations 1[g] and 8[h], with respect to obviousness over Peisa and Heo. *See* Pet. 69 ("*Peisa* discloses the remaining claim limitations of Claims 1 and 8 and dependent claims 2–4, 6–7, 9–11 and 13–14 for the same reasons discussed in Ground 1 with respect to those limitations.") (citing Ex. 1003 ¶¶ 181–184). Petitioner's obviousness ground based on Peisa and Heo thus does not provide persuasive evidence or arguments that a person of ordinary skill in the art would have understood Peisa, either alone or as combined with Heo, to disclose at least the elements in limitations 1[g] and 8[h].

Accordingly, based on the arguments and evidence of parties on the record before us, we determine that Petitioner has not established a reasonable likelihood of showing any of the challenged claims as obvious over Peisa and Heo.

### *G. Ground 4: Dependent Claims 5 and 12 – Alleged Obviousness over Peisa and TS 24.008 (Ex. 1005)*

Claims 5 and 12 each depend directly from independent claims 1 and 8 respectively. Ex. 1001, 14:24–26, 65–67. Petitioner's obviousness ground based on Peisa and TS 24.008 does not provide persuasive evidence or arguments that a person of ordinary skill in the art would have understood Peisa, either alone or as combined with TS 24.008, to disclose at least the elements in limitations 1[g] and 8[h] for the same reasons as discussed for ground 1.

Accordingly, for the same reasons as discussed above relative to independent claims 1 and 8 in view of Peisa, we are not persuaded that the Petition supports a reasonable likelihood that claims 5 and 12 would have been unpatentable as obvious over Peisa and TS 24.008.

## III. CONCLUSION

For the above reasons, we decline to institute *inter partes* review of any of the challenged claims of the '138 patent.

## IV. ORDER

Accordingly, it is:

ORDERED that the Petition is denied.

For PETITIONER:

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Joshua Goldberg
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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | 3059.7360004 |

**CONFIRMATION NO. 9700**

26111
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

**POWER OF ATTORNEY NOTICE**

*OC000000136679492*

Date Mailed: 11/03/2022

## NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/18/2022.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

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

/sstephanos/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | IPW2-USCN212644 |

**CONFIRMATION NO. 9700**

3624
VOLPE KOENIG
30 SOUTH 17TH STREET, 18TH FLOOR
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**POA ACCEPTANCE LETTER**

*OC000000136679498*

Date Mailed: 11/03/2022

## NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/18/2022.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

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

/sstephanos/

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
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# 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 | 15/618,669 |
| Filing Date | June 9, 2017 |
| First Named Inventor | Timothy J. Speight |
| Title | DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER |
| Art Unit | 2411 |
| Examiner Name | N/A |
| Attorney Docket Number | IPW2-USCN212644 |

**SIGNATURE of Applicant or Patent Practitioner**

| | | | |
|---|---|---|---|
| Signature | /John D. Wilt/ | Date (Optional) | 2022-10-18 |
| 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:

[x] 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:

[x] 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 | [signature] | Date | 1/9/2020 |
| Name | Michelle Macartney | 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.**

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# STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: INTELLECTUAL VENTURES II LLC

Application No./Patent No.: 15/618,669 Filed/Issue Date: 2017-06-09

Titled: DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER

INTELLECTUAL VENTURES II LLC, a corporation

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

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

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

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

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

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

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

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

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: TIMOTHY J. SPEIGHT To: IPWIRELESS, INC.

   The document was recorded in the United States Patent and Trademark Office at
   Reel 047123, Frame 0613, or for which a copy thereof is attached.

2. From: IPWIRELESS, INC. To: NORTHROP GRUMMAN INFORMATION TECHNOLOGY, INC.

   The document was recorded in the United States Patent and Trademark Office at
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3. From: NORTHROP GRUMMAN INFORMATION TECHNOLOGY, INC. To: IPWIRELESS, INC.

The document was recorded in the United States Patent and Trademark Office at
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4. From: DITROMOSSI REMOTE BV, L.L.C. To: IPWIRELESS, INC.

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5. From: IPWIRELESS, INC. To: INTELLECTUAL VENTURES HOLDING 81 LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 047790, Frame 0073, or for which a copy thereof is attached.

6. From: INTELLECTUAL VENTURES HOLDING 81 LLC To: INTELLECTUAL VENTURES II LLC

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☑ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

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

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

| /John D. Wilt/ | 2022-10-18 |
|---|---|
| Signature | Date |
| John D. Wilt | 76,110 |
| Printed or Typed Name | Title or Registration Number |

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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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.
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# STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: INTELLECTUAL VENTURES II LLC

Application No./Patent No.: 15/618,669 Filed/Issue Date: 2017-06-09

Titled: DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER

INTELLECTUAL VENTURES II LLC, a corporation

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

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

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

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

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

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

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

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

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: INTELLECTUAL VENTURES HOLDING 81 LLC To: INTELLECTUAL VENTURES II LLC

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

   Reel 047124, Frame 0413, or for which a copy thereof is attached.

2. From: _____ To: _____

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

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4. From: _____ To: _____

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5. From: _____ To: _____

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

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

6. From: _____ To: _____

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

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

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

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

| | |
|---|---|
| /John D. Wilt/ | 2022-10-18 |
| Signature | Date |
| John D. Wilt | 76,110 |
| Printed or Typed Name | Title or Registration Number |

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

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 46840966 |
| **Application Number:** | 15618669 |
| **International Application Number:** | |
| **Confirmation Number:** | 9700 |
| **Title of Invention:** | DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Customer Number:** | 26111 |
| **Filer:** | John D. Wilt/Caren Burgoon |
| **Filer Authorized By:** | John D. Wilt |
| **Attorney Docket Number:** | 3059.7360004 |
| **Receipt Date:** | 18-OCT-2022 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 16:55:29 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Power of Attorney | IPW2_USCN212644_POA_20221018.pdf | 817671<br>52b012ebece2b354948dc26d5f25eb82ffc5a34f | no | 2 |
| **Warnings:** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Information:** | | | | | |
| 2 | Assignee showing of ownership per 37 CFR 3.73 | IPW2-USCN212644_373Doc1_20221018.pdf | 136644<br>b3312c836e9be0af0af95d7d5116b4a516d5a2f1 | no | 3 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Assignee showing of ownership per 37 CFR 3.73 | IPW2-USCN212644_373Doc2_20221018.pdf | 133025<br>cbf66218af873886f5e357b75456c45fd09b3762 | no | 3 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 1087340 | | |

**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.**

The United States Patent and Trademark Office
PATENT TRIAL AND APPEAL BOARD

A petition has been filed in Patent Number 10,292,138, Application Number 15/618,669 on 6/10/2022 (Date).

The Case Number is IPR2022-01127.
(IPR, CBM, PGR, DER #)

To view the documents filed in this petition, go to https://ptab.uspto.gov.

Use the Search PTAB tab and enter the Patent Number or the Trial or Case Number and select the Search button.

Questions regarding this notice should be directed to the Patent Trial and Appeal Board at 571-272-7822.

AO 120 (Rev. 08/10)

| TO: | **Mail Stop 8**<br>**Director of the U.S. Patent and Trademark Office**<br>**P.O. Box 1450**<br>**Alexandria, VA 22313-1450** | **REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK** |
|---|---|---|

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☑ Trademarks or ☐ Patents. ( ☐ the patent action involves 35 U.S.C. § 292.):

| DOCKET NO. | DATE FILED | U.S. DISTRICT COURT<br>Eastern District of Texas |
|---|---|---|
| PLAINTIFF<br>INTELLECTUAL VENTURES I LLC and INTELLECTUAL VENTURES II LLC | | DEFENDANT<br>HONDA MOTOR COMPANY, LTD.; AMERICAN HONDA MOTOR COMPANY, INC.; AMERICAN HONDA FINANCE CORP.; HONDA OF AMERICA MANUFACTURING, INC., et al. |

| | PATENT OR TRADEMARK NO. | DATE OF PATENT OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK |
|---|---|---|---|
| 1 | 6,832,283 | 12/14/2004 | INTELLECTUAL VENTURES II LLC |
| 2 | 9,602,608 | 3/21/2017 | INTELLECTUAL VENTURES II LLC |
| 3 | 7,891,004 | 2/15/2011 | INTELLECTUAL VENTURES I LLC |
| 4 | 9,291,475 | 3/22/2016 | INTELLECTUAL VENTURES II LLC |
| 5 | SEE ATTACHED | | |

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

| DATE INCLUDED | INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading | |
|---|---|---|
| PATENT OR TRADEMARK NO. | DATE OF PATENT OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

In the above—entitled case, the following decision has been rendered or judgement issued:

| DECISION/JUDGEMENT |
|---|
| |

| CLERK | (BY) DEPUTY CLERK | DATE |
|---|---|---|
| | | |

**Copy 1—Upon initiation of action, mail this copy to Director** **Copy 3—Upon termination of action, mail this copy to Director**
**Copy 2—Upon filing document adding patent(s), mail this copy to Director** **Copy 4—Case file copy**

**IN THE UNITED STATES DISTRICT COURT**
**FOR THE EASTERN DISTRICT OF TEXAS**
**MARSHALL DIVISION**

| | | |
|---|---|---|
| INTELLECTUAL VENTURES I LLC and INTELLECTUAL VENTURES II LLC, | ) | |
| Plaintiffs, | ) | C.A. No. 2:21-cv-390 |
| v. | ) | |
| HONDA MOTOR COMPANY, LTD.; AMERICAN HONDA MOTOR COMPANY, INC.; AMERICAN HONDA FINANCE CORP.; HONDA OF AMERICA MANUFACTURING, INC.; HONDA MANUFACTURING OF ALABAMA, LLC; and HONDA MANUFACTURING OF INDIANA, LLC, | ) | **ADDENDUM TO REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK** |
| Defendants. | ) | |

| Patent or Trademark No. | Date of Patent Or Trademark | Holder of Patent or Trademark |
|---|---|---|
| 7,382,771 | 6/3/2008 | INTELLECTUAL VENTURES II LLC |
| 9,232,158 | 1/5/2016 | INTELLECTUAL VENTURES II LLC |
| 9,681,466 | 6/13/2017 | INTELLECTUAL VENTURES II LLC |
| 10,292,138 | 5/14/2019 | INTELLECTUAL VENTURES II LLC |
| 7,684,318 | 3/23/2010 | INTELLECTUAL VENTURES I LLC |
| 8,953,641 | 2/10/2015 | INTELLECTUAL VENTURES II LLC |
| 8,811,356 | 8/19/2014 | INTELLECTUAL VENTURES II LLC |

AO 120 (Rev. 08/10)

| TO: | **Mail Stop 8**<br>**Director of the U.S. Patent and Trademark Office**<br>**P.O. Box 1450**<br>**Alexandria, VA 22313-1450** | **REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK** |
|---|---|---|

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☑ Trademarks or ☐ Patents. ( ☐ the patent action involves 35 U.S.C. § 292.):

| DOCKET NO. | DATE FILED | U.S. DISTRICT COURT<br>Eastern District of Texas |
|---|---|---|
| PLAINTIFF<br>INTELLECTUAL VENTURES I LLC and INTELLECTUAL VENTURES II LLC | | DEFENDANT<br>TOYOTA MOTOR CORP.; TOYOTA MOTOR NORTH AMERICA, INC.; TOYOTA MOTOR ENGINEERING & MANUFACTURING NORTH AMERICA, INC.; and TOYOTA MOTOR SALES, U.S.A., INC. |

| | PATENT OR TRADEMARK NO. | DATE OF PATENT OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK |
|---|---|---|---|
| 1 | 6,832,283 | 12/14/2004 | INTELLECTUAL VENTURES II LLC |
| 2 | 7,484,008 | 1/27/2009 | INTELLECTUAL VENTURES I LLC |
| 3 | 9,291,475 | 3/22/2016 | INTELLECTUAL VENTURES II LLC |
| 4 | 7,382,771 | 6/3/2008 | INTELLECTUAL VENTURES II LLC |
| 5 | SEE ATTACHED | | |

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

| DATE INCLUDED | INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading | |
|---|---|---|
| PATENT OR TRADEMARK NO. | DATE OF PATENT OR TRADEMARK | HOLDER OF PATENT OR TRADEMARK |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |

In the above—entitled case, the following decision has been rendered or judgement issued:

| DECISION/JUDGEMENT |
|---|
| |

| CLERK | (BY) DEPUTY CLERK | DATE |
|---|---|---|
| | | |

**Copy 1—Upon initiation of action, mail this copy to Director** **Copy 3—Upon termination of action, mail this copy to Director**
**Copy 2—Upon filing document adding patent(s), mail this copy to Director** **Copy 4—Case file copy**

**IN THE UNITED STATES DISTRICT COURT**
**FOR THE EASTERN DISTRICT OF TEXAS**
**MARSHALL DIVISION**

| | | |
|---|---|---|
| INTELLECTUAL VENTURES I LLC and INTELLECTUAL VENTURES II LLC, | ) | |
| Plaintiffs, | ) | C.A. No. 2:21-cv-389 |
| v. | ) | |
| TOYOTA MOTOR CORP.; TOYOTA MOTOR NORTH AMERICA, INC.; TOYOTA MOTOR ENGINEERING & MANUFACTURING NORTH AMERICA, INC.; and TOYOTA MOTOR SALES, U.S.A., INC., | ) | **JURY TRIAL DEMANDED** |
| Defendants. | ) | |

| Patent or Trademark No. | Date of Patent Or Trademark | Holder of Patent or Trademark |
|---|---|---|
| 9,232,158 | 1/5/2016 | INTELLECTUAL VENTURES II LLC |
| 9,602,608 | 3/21/2017 | INTELLECTUAL VENTURES II LLC |
| 10,292,138 | 5/14/2019 | INTELLECTUAL VENTURES II LLC |
| 7,684,318 | 3/23/2010 | INTELLECTUAL VENTURES I LLC |
| 8,953,641 | 2/10/2015 | INTELLECTUAL VENTURES II LLC |
| 9,681,466 | 6/13/2017 | INTELLECTUAL VENTURES II LLC |
| 8,811,356 | 8/19/2014 | INTELLECTUAL VENTURES II LLC |

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. |
|---|---|---|---|---|
| 15/618,669 | 05/14/2019 | 10292138 | 3059.7360004 | 9700 |

26111 7590 04/24/2019

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

# ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

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

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

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

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

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

Timothy J. Speight, Bristol, UNITED KINGDOM;
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.

**ROSS G. HICKS**
DIRECTOR
(202) 772-8578
RHICKS@STERNEKESSLER.COM

April 8, 2019

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

***Confirmation No. 9700***
***Mail Stop Issue Fee***

Re: Allowed U.S. Utility Patent Application
Appl. No. 15/618,669; Filed: June 9, 2017
For: **Determining Buffer Occupancy and Selecting Data for Transmission on a Radio Bearer**
Inventor: Timothy J. SPEIGHT
Our Ref: 3059.7360004

Commissioner:

In response to the **Notice of Allowance and Fee(s) Due** dated January 8, 2019, the following documents are transmitted for appropriate action by the U.S. Patent and Trademark Office:

1. Online Credit Card Payment Authorization for $1,000.00 to cover: $1,000.00 - Issue Fee;
2. Issue Fee Transmittal (Form PTOL-85); and
3. Comments on Statement of Reasons for Allowance.

The above-listed documents are filed electronically.

Fee payment is provided through online credit card payment. The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

/Ross G. Hicks, #56,374/

Ross G. Hicks
Attorney for Applicant
Registration No. 56,374

RGH/lam
Enclosures

12953840_1.docx

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|---|
| Inventor: Timothy J. SPEIGHT | Confirmation No.: 9700 |
| Applicant: Intellectual Ventures II LLC | Art Unit: 2411 |
| Application No.: 15/618,669 | Examiner: Lee, Andrew Chung Cheung |
| Filing Date: June 9, 2017 | Atty. Docket: 3059.7360004 |

Title: **Determining Buffer Occupancy and Selecting Data for Transmission on a Radio Bearer**

## Comments on Statement of Reasons for Allowance

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

***Mail Stop: Issue Fee***

Commissioner:

Applicant thanks the Examiner for indicating the allowability of claims 9-22 in the Notice of Allowance dated January 8, 2019.

***Comments on Statement of Reasons for Allowance***

Applicant notes the Examiner's Statement of Reasons for Allowance presented on pages 2–3 of the Notice of Allowance. Applicant reserves the right to demonstrate claims 9-22 are allowable over the art made of record for further reasons related to any of their recited features. Applicant further contends that reservation of this right does not give rise to any implication regarding whether the Applicant agrees with or acquiesces in the reasoning provided by the Examiner.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

/Ross G. Hicks, #56,374/

Ross G. Hicks
Attorney for Applicant
Registration No. 56,374

Date: April 8, 2019

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600

12953865_1.docx

## 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)

26111 7590 01/08/2019
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

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. |
|---|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | 3059.7360004 | 9700 |

TITLE OF INVENTION: DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | UNDISCOUNTED | $1000 | $0.00 | $0.00 | $1000 | 04/08/2019 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| LEE, ANDREW CHUNG CHEUNG | 2411 | 370-329000 |

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 **Sterne, Kessler, Goldstein & Fox P.L.L.C.**
2
3

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document 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: **Intellectual Ventures II LLC**

(B) RESIDENCE: (CITY and STATE OR COUNTRY): **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. **19-0036**

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 /Ross G. Hicks, #56,374/ Date 08-April-2019

Typed or printed name **Ross G. Hicks** Registration No. **56,374**



PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 15618669 |
| **Filing Date:** | 09-Jun-2017 |
| **Title of Invention:** | DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Filer:** | Ross Gordon Hicks/Lynette Miller |
| **Attorney Docket Number:** | 3059.7360004 |

Filed as Large Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| UTILITY APPL ISSUE FEE | 1501 | 1 | 1000 | 1000 |

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

| Electronic Acknowledgement Receipt | |
|---|---|
| **EFS ID:** | 35659617 |
| **Application Number:** | 15618669 |
| **International Application Number:** | |
| **Confirmation Number:** | 9700 |
| **Title of Invention:** | DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Customer Number:** | 26111 |
| **Filer:** | Ross Gordon Hicks/Kim Perry |
| **Filer Authorized By:** | Ross Gordon Hicks |
| **Attorney Docket Number:** | 3059.7360004 |
| **Receipt Date:** | 08-APR-2019 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 19:24:50 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | CARD |
| Payment was successfully received in RAM | $1000 |
| RAM confirmation Number | 040919INTEFSW19253600 |
| Deposit Account | |
| Authorized User | |
| The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: | |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Miscellaneous Incoming Letter | 2019-04-08-Cover-Letter-3059-7360004.pdf | 213729<br>368f4362f3b67d1f37445e3fba3ad47e77a24e7a | no | 1 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Miscellaneous Incoming Letter | 2019-04-08-Comments_Reasons-Allowance-3059-7360004.pdf | 88522<br>b68b5ca166af05190d411a03989765f31b4bf17e | no | 1 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Issue Fee Payment (PTO-85B) | 2019-04-08-Issue-Fee-3059-7360004.pdf | 1632718<br>6dd45ab08ef4c4f4f496d536897f77baafaee3ca | no | 1 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 4 | Fee Worksheet (SB06) | fee-info.pdf | 30627<br>379b0f8ae6eea21cba6150b94caa0dff96b2fcbe | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 1965596 | | |

**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.**

UNITED STATES PATENT AND TRADEMARK OFFICE

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

# NOTICE OF ALLOWANCE AND FEE(S) DUE

26111 7590 01/08/2019

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

| EXAMINER |
|---|
| LEE, ANDREW CHUNG CHEUNG |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2411 | |

DATE MAILED: 01/08/2019

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | 3059.7360004 | 9700 |

TITLE OF INVENTION: DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | UNDISCOUNTED | $1000 | $0.00 | $0.00 | $1000 | 04/08/2019 |

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

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

**HOW TO REPLY TO THIS NOTICE:**

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

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

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

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

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

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

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

## PART B - FEE(S) TRANSMITTAL

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

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

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

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)

26111 7590 01/08/2019

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

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. |
|---|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | 3059.7360004 | 9700 |

TITLE OF INVENTION: DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | UNDISCOUNTED | $1000 | $0.00 | $0.00 | $1000 | 04/08/2019 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| LEE, ANDREW CHUNG CHEUNG | 2411 | 370-329000 |

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

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

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

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

1 _____
2 _____
3 _____

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

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

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

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

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

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

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

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

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

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

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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26111 7590 01/08/2019

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WASHINGTON, DC 20005

| EXAMINER | |
|---|---|
| LEE, ANDREW CHUNG CHEUNG | |
| ART UNIT | PAPER NUMBER |
| 2411 | |

DATE MAILED: 01/08/2019

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

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

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

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



PTOL-85 (Rev. 02/11)

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

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

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

## Privacy Act Statement

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

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

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

| Notice of Allowability | Application No. 15/618,669 | Applicant(s) Speight, Timothy J. | |
|---|---|---|---|
| | Examiner ANDREW C LEE | Art Unit 2411 | AIA 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 12/11/2018.
   ☐ 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 9-22 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   **Certified copies:**

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

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

   * Certified copies not received: _____ .

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

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

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

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

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 12/11/2018.
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 _____.

| /ANDREW C LEE/<br>Examiner, Art Unit 2411 | /ANDREW LAI/<br>Supervisory Patent Examiner, Art Unit 2411 |
|---|---|

## DETAILED ACTION

### *Notice of Pre-AIA or AIA Status*

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

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 12/11/2018 has been entered.

### *Information Disclosure Statement*

2. The information disclosure statement (IDS) submitted on 12/11/2018 was filed, and the submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### *Allowable Subject Matter*

3. **Claims 9 – 22** renumbered **Claims 1 – 14** are re-allowed.

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

The prior art of the reference being relied upon and made of record, in single or in combination, does not disclose explicitly the limitations of:

"select data from the plurality of radio bearers for transmission using the single allocation of uplink resources, wherein the selection of the data occurs using a first iteration and a second iteration, wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters, wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers, and cause the transmitter to transmit a signal including the selected data" as disclosed **in Claim 9**.

"selecting, by the processor, data from the plurality of radio bearers for transmission using the single allocation of uplink resources, wherein the selection of the data occurs using a first iteration and a second iteration; wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters; wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers; and transmitting, by the transmitter, a signal including the selected data" as disclosed **in Claim 16.**

5. Additionally, all of the further limitations in Claims 10 – 15, 17 – 22 are allowable, since the claims are dependent upon independent claims, respectively.

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

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW CHUNG CHEUNG LEE whose telephone number is (571)272-3131. The examiner can normally be reached on 8:30am--6:00pm.

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, ANDREW LAI can be reached on 571-272-9741. 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.

| | |
|---|---|
| /ANDREW C LEE/<br>Examiner, Art Unit 2411<br><1Q19::12_19_18> | /ANDREW LAI/<br>Supervisory Patent Examiner, Art Unit 2411 |

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/618,669 | Speight, Timothy J. |
| | Examiner | Art Unit |
| | ANDREW C LEE | 2411 |

| CPC - Searched* | | |
|---|---|---|
| **Symbol** | **Date** | **Examiner** |
| H04W72/1268 | 12/25/2017 | ACL |
| H04W72/1268 | 08/26/2018 | ACL |
| H04W72/1268 | 12/19/2018 | ACL |

| CPC Combination Sets - Searched* | | |
|---|---|---|
| **Symbol** | **Date** | **Examiner** |
| H04L47/10, H04L47/14, H04L47/2425, H04L47/30, H04W28/14, H04W72/04 | 12/25/2017 | ACL |
| H04L47/10, H04L47/14, H04L47/2425, H04L47/30, H04W28/14, H04W72/04 | 08/26/2018 | ACL |
| H04L47/10, H04L47/14, H04L47/2425, H04L47/30, H04W28/14, H04W72/04 | 12/19/2018 | ACL |

| 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.

| | |
|---|---|
| | /ANDREW C LEE/<br>Examiner, Art Unit 2411 |

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/618,669 | Speight, Timothy J. |
| | Examiner | Art Unit |
| | ANDREW C LEE | 2411 |

| Search Notes | | |
|---|---|---|
| **Search Notes** | **Date** | **Examiner** |
| EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JOP; DERWENT; IBM_TDB) Search and CPC Classification Search -- See Search History Printout | 12/25/2017 | ACL |
| Inventor(s) and Assignee Search in East -- See Search History Printout | 12/25/2017 | ACL |
| EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JOP; DERWENT; IBM_TDB) Search and CPC Classification Search Updated-- See Search History Printout | 08/26/2018 | ACL |
| Inventor(s) and Assignee Search in East Updated -- See Search History Printout | 08/26/2018 | ACL |
| Interference Search History Printout | 08/26/2018 | ACL |
| EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JOP; DERWENT; IBM_TDB) Search and CPC Classification Search Updated-- See Search History Printout | 12/19/2018 | ACL |
| Inventor(s) and Assignee Search in East Updated -- See Search History Printout | 12/19/2018 | ACL |
| Interference Search History Printout | 12/19/2018 | ACL |

| Interference Search | | | |
|---|---|---|---|
| **US Class/CPC Symbol** | **US Subclass/CPC Group** | **Date** | **Examiner** |
| 370 / H04W | Interference Search History Printout | 08/26/2018 | ACL |
| 370 / H04W | Interference Search History Printout | 12/19/2018 | ACL |

| | |
|---|---|
| | /ANDREW C LEE/<br>Examiner, Art Unit 2411 |

| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/618,669 | Speight, Timothy J. |
| | **Examiner** | **Art Unit** |
| | ANDREW C LEE | 2411 |

| CPC | | | | | | | |
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| **Symbol** | | | | | | **Type** | **Version** |
| H04W | / | 72 | / | 04 | | F | 2013-01-01 |
| H04L | / | 47 | / | 10 | | I | 2013-01-01 |
| H04L | / | 47 | / | 14 | | I | 2013-01-01 |
| H04L | / | 47 | / | 2425 | | I | 2013-01-01 |
| H04L | / | 47 | / | 30 | | I | 2013-01-01 |
| H04W | / | 28 | / | 14 | | I | 2013-01-01 |
| H04W | / | 72 | / | 1268 | | I | 2013-01-01 |
| H04W | / | 76 | / | 10 | | A | 2018-02-01 |
| H04W | / | 8 | / | 24 | | A | 2013-01-01 |
| H04W | / | 72 | / | 0453 | | A | 2013-01-01 |

| CPC Combination Sets | | | | | | | | |
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| **Symbol** | | | | | **Type** | **Set** | **Ranking** | **Version** |
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| /ANDREW C LEE/<br>Examiner, Art Unit 2411<br>(Assistant Examiner) | 19 December 2018<br>(Date) | **Total Claims Allowed:**<br>14 | |
|---|---|---|---|
| /ANDREW LAI/<br>SPE, Art Unit 2411<br>(Primary Examiner) | 19 December 2018<br>(Date) | O.G. Print Claim(s)<br>8 | O.G. Print Figure<br>6 |

U.S. Patent and Trademark Office — Part of Paper No.: 20181219

| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/618,669 | Speight, Timothy J. |
| | **Examiner** | **Art Unit** |
| | ANDREW C LEE | 2411 |

| INTERNATIONAL CLASSIFICATION | | | | |
|---|---|---|---|---|
| **CLAIMED** | | | | |
| H04W | / | 72 | / | 12 |

| NON-CLAIMED | | | | |
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| US ORIGINAL CLASSIFICATION | |
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| **CLASS** | **SUBCLASS** |
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| CROSS REFERENCES(S) | | | | | | |
|---|---|---|---|---|---|---|
| **CLASS** | **SUBCLASS (ONE SUBCLASS PER BLOCK)** | | | | | |
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| /ANDREW C LEE/<br>Examiner, Art Unit 2411<br>(Assistant Examiner) | 19 December 2018<br>(Date) | **Total Claims Allowed:**<br>14 | |
|---|---|---|---|
| /ANDREW LAI/<br>SPE, Art Unit 2411<br>(Primary Examiner) | 19 December 2018<br>(Date) | O.G. Print Claim(s)<br>8 | O.G. Print Figure<br>6 |

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| | ANDREW C LEE | 2411 |

☐ 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 |
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| /ANDREW C LEE/<br>Examiner, Art Unit 2411 | 19 December 2018 | **Total Claims Allowed:** | |
| (Assistant Examiner) | (Date) | 14 | |
| /ANDREW LAI/<br>SPE, Art Unit 2411 | 19 December 2018 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 8 | 6 |

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| | Examiner | Art Unit |
| | ANDREW C LEE | 2411 |

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| ✓ | 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 | 12/25/2017 | 08/26/2018 | 12/19/2018 | | | | | | |
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| | 6 | ✓ | - | - | | | | | | |
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| | | | | Filing Date | June 9, 2017 |
| | | | | First Named Inventor | Timothy J. SPEIGHT |
| *(Use as many sheets as necessary)* | | | | Art Unit | 2411 |
| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 1 | of | 1 | Attorney Docket Number | 3059.7360004 |

**U.S. PATENT DOCUMENTS**

| Examiner initials* | Cite No.[1] | Document Number Number-Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|
| /A.C.L/ | US1 | 6,157,614 | 12-05-2000 | Pasternak et al. | |
| /A.C.L/ | US2 | 7,512,065 B1 | 03-31-2009 | Phadnis et al. | |
| /A.C.L/ | US3 | 7,807,970 B2 | 10-05-2010 | Richard | |
| /A.C.L/ | US4 | 9,320,018 B2 | 04-19-2016 | Speight | |
| /A.C.L/ | US5 | 9,681,466 B2 | 06-13-2017 | Speight | |
| /A.C.L/ | US6 | 2004/0210619 A1 | 10-21-2004 | Balachandran et al. | |
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**FOREIGN PATENT DOCUMENTS**

| Examiner initials* | Cite No.[1] | Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
|---|---|---|---|---|---|---|
| | FP1 | WO 2006/037492 A1 | 04-13-2006 | MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD | | |
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| Examiner Signature | /ANDREW C LEE/ | Date Considered | 12/19/2018 |
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| | | | | First Named Inventor | Timothy J. SPEIGHT |
| *(Use as many sheets as necessary)* | | | | Art Unit | 2411 |
| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 1 | of | 11 | Attorney Docket Number | 3059.7360004 |

| NON PATENT LITERATURE DOCUMENTS | | | |
|---|---|---|---|
| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published | T[2] |
| /A.C.L/ | NPL1 | Petition for Inter Partes Review, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Paper 1, filed September 20, 2018; 74 pages. | |
| /A.C.L/ | NPL2 | File History for the 9,681,466 Patent, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1002, filed September 20, 2018; 161 pages. | |
| /A.C.L/ | NPL3 | Declaration of Andrew Singer, Ph.D., filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1003, filed September 20, 2018; 118 pages. | |
| /A.C.L/ | NPL4 | U.S. Provisional Application No. 60/792,012 to Vincent Park entitled "Method and Apparatus for Static Quality of Service" ("Park Provisional"), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1007, filed September 20, 2018; 54 pages. | |
| /A.C.L/ | NPL5 | 3GPP TS 23.107 v6.1.0 (2004-03) "Technical Specification Group Services and System Aspects; Quality of Service (QoS) concepts and Architecture," filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1009, filed September 20, 2018; 41 pages. | |
| /A.C.L/ | NPL6 | IV's Brief in Opposition to the T-Mobile and Sprint Defendants' Motion to Dismiss, filed in Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al., 2:17-cv-662, Dkt. 59 (E.D. Tex., January 5, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1010, filed September 20, 2018; 37 pages. | |
| /A.C.L/ | NPL7 | IV's Infringement Contentions, Exhibit G, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1011, filed September 20, 2018; 64 pages. | |
| /A.C.L/ | NPL8 | File History for U.S. Patent No. 8,428,026, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1012, filed September 20, 2018; 448 pages. | |
| /A.C.L/ | NPL9 | File History for U.S. Patent No. 8,005,041, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1013, filed September 20, 2018; 499 pages. | |
| /A.C.L/ | NPL10 | Exhibit A to P.R. 4-3 Joint Claim Construction and Prehearing Statement, filed in Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al., 2:17-cv-662, Dkt. 175-1 (E.D. Tex., August 10, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1014, filed September 20, 2018; 9 pages. | |

| Examiner Signature | /ANDREW C LEE/ | Date Considered | 12/19/2018 |
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| | | | | Art Unit | 2411 |
| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 2 | of | 11 | Attorney Docket Number | 3059.7360004 |

| NON PATENT LITERATURE DOCUMENTS | | | |
|---|---|---|---|
| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published | T[2] |
| /A.C.L/ | NPL11 | File History for U.S. Application No. 11/718,492 to Joachim Lohr et al., entitled "HARQ Protocol Optimization for Packet Data Transmission," filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1015, filed September 20, 2018; 279 pages. | |
| /A.C.L/ | NPL12 | Patent Owner's Preliminary Response, IPR2018-01185, Paper 6 (September 5, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1016, filed September 20, 2018; 43 pages. | |
| /A.C.L/ | NPL13 | Petition for Inter Partes Review, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Paper 1, filed September 20, 2018; 74 pages. | |
| /A.C.L/ | NPL14 | File History for the '018 Patent, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1002, filed September 20, 2018; 156 pages. | |
| /A.C.L/ | NPL15 | Declaration of Andrew Singer, Ph.D., filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1003, filed September 20, 2018; 123 pages. | |
| /A.C.L/ | NPL16 | U.S. Provisional Application No. 60/792,012 to Vincent Park entitled "Method and Apparatus for Static Quality of Service" ("Park Provisional"), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1007, filed September 20, 2018; 54 pages. | |
| /A.C.L/ | NPL17 | 3GPP TS 23.107 v6.1.0 (2004-03) "Technical Specification Group Services and System Aspects; Quality of Service (QoS) concepts and Architecture," filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1009, filed September 20, 2018; 41 pages. | |
| /A.C.L/ | NPL18 | IV's Brief in Opposition to the T-Mobile and Sprint Defendants' Motion to Dismiss, filed in Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al., 2:17-cv-662, Dkt. 59 (E.D. Tex, January 5, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1010, filed September 20, 2018; 37 pages. | |
| /A.C.L/ | NPL19 | IV's Infringement Contentions, Exhibit G, filed in Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al., 2:17-cv-662, Dkt. 59 (E.D. Tex, January 5, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1011, filed September 20, 2018; 64 pages. | |
| /A.C.L/ | NPL20 | File History for U.S. Patent No. 8,428,026, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1012, filed September 20, 2018; 448 pages. | |

| Examiner Signature | /ANDREW C LEE/ | Date Considered | 12/19/2018 |
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| Sheet | 3 | of | 11 | Attorney Docket Number | 3059.7360004 |

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| /A.C.L/ | NPL21 | File History for U.S. Patent No. 8,005,041, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1013, filed September 20, 2018; 499 pages. | |
| /A.C.L/ | NPL22 | Exhibit A to P.R. 4-3 Joint Claim Construction and Prehearing Statement (filed in *Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al.*, 2:17-cv-662, Dkt. 175-1 (E.D. Tex, August 10, 2018)), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1014, filed September 20, 2018; 9 pages. | |
| /A.C.L/ | NPL23 | File History for U.S. Application No. 11/718,492 to Joachim Lohr et al., entitled "HARQ Protocol Optimization for Packet Data Transmission," filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1015, filed September 20, 2018; 279 pages. | |
| /A.C.L/ | NPL24 | Patent Owner's Preliminary Response, IPR2018-01185, Paper 6 (September 5, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1016, filed September 20, 2018; 43 pages. | |
| /A.C.L/ | NPL25 | Petition for Inter Partes Review, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Paper 1, filed May 31, 2018; 77 pages. | |
| /A.C.L/ | NPL26 | CV of Tony Acampora, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1002, filed May 31, 2018; 52 pages. | |
| /A.C.L/ | NPL27 | Expert Declaration of Tony Acampora, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1003, filed May 31, 2018; 100 pages. | |
| /A.C.L/ | NPL28 | Improving Traffic Scheduling in Wireless ATM Networks by Nikos Passas et al. ("Passas-I"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1004, filed May 31, 2018; 18 pages. | |
| /A.C.L/ | NPL29 | MAC Protocol and Traffic Scheduling for Wireless ATM Networks, by Nikos Passas et al. ("Passas-II"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1005, filed May 31, 2018; 20 pages. | |
| /A.C.L/ | NPL30 | Meeting the Challenge: Congestion and Flow Control Strategies for Broadband Information Transport by A.E. Eckberg, Jr. ("Eckberg"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1006, filed May 31, 2018; 25 pages. | |

| Examiner Signature | /ANDREW C LEE/ | Date Considered | 12/19/2018 |
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| /A.C.L/ | NPL31 | IV's Infringement Contentions, Exhibit F, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1007, filed May 31, 2018; 47 pages. | |
| /A.C.L/ | NPL32 | Design of Call Control Signaling in Wireless ATM Networks by Loukas et al. ("Loukas"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1008, filed May 31, 2018; 6 pages. | |
| /A.C.L/ | NPL33 | Telephony's Dictionary, Second Edition, by Graham Langley ("Langley"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1009, filed May 31, 2018; 5 pages. | |
| /A.C.L/ | NPL34 | IV's Opposition to Defendants' Motion to Dismiss, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1010, filed May 31, 2018; 37 pages. | |
| /A.C.L/ | NPL35 | 3GPP TS 25.401 v7.0.0 (2006-03), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1011, filed May 31, 2018; 48 pages. | |
| /A.C.L/ | NPL36 | 3GPP TS 25.990 v3.0.0 (1999-10), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1012, filed May 31, 2018; 20 pages. | |
| /A.C.L/ | NPL37 | 3GPP TS 21.905 v6.0.0 (2002-09), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1013, filed May 31, 2018; 51 pages. | |
| /A.C.L/ | NPL38 | Expert Declaration of Dr. Sylvia Hall-Ellis, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1014, filed May 31, 2018; 104 pages. | |
| /A.C.L/ | NPL39 | "An Introduction to Broadband Networks: LANs, MANs, ATM, BISDN, and Optical Networks for Integrated Multimedia Telecommunications," by Tony Acampora ("Acampora text"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1015, filed May 31, 2018; 51 pages. | |
| /A.C.L/ | NPL40 | Patent Owner Intellectual Ventures II LLC's Preliminary Response to Petition, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Paper 6, filed September 5, 2018; 43 pages. | |

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| | | | | Filing Date | June 9, 2017 |
| | | | | First Named Inventor | Timothy J. SPEIGHT |
| | | | | Art Unit | 2411 |
| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 5 | of | 11 | Attorney Docket Number | 3059.7360004 |

| NON PATENT LITERATURE DOCUMENTS | | | |
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| /A.C.L/ | NPL41 | Nikos Passas, Lazaros Merakos, Dimitris Skyrianoglous, "Traffic Scheduling in Wireless ATM Networks," Communication Networks Laboratory, Dept. of Informatics, U. of Athens, IEEE 0- 7803-4196-1, 1997, pp. 391-400, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 2001, filed September 5, 2018; 10 pages. | |
| /A.C.L/ | NPL42 | IEEE 100, The Authoritative Dictionary of IEEE Standards, 7th Ed., Standards Information Network, IEEE Press, The Institute of Electrical and Electronics Engineering, New York, NY, 2000, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 2002, filed September 5, 2018; 5 pages. | |
| /A.C.L/ | NPL43 | The New Oxford Dictionary of English, Oxford University Press, Inc., New York, 2001, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 2003, filed September 5, 2018; 5 pages. | |
| /A.C.L/ | NPL44 | UTRAN Overall Description, Release 7, 3rd Generation Partnership Project, Technical Specification Group Radio Access Network, 2006, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 2004, filed September 5, 2018; 48 pages. | |
| /A.C.L/ | NPL45 | Decision, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Paper 7, filed December 3, 2018; 25 pages. | |
| /A.C.L/ | NPL46 | Petition for Inter Partes Review, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Paper 1, filed June 20, 2018; 74 pages. | |
| /A.C.L/ | NPL47 | CV of Anthony Acampora, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1002, filed June 20, 2018; 52 pages. | |
| /A.C.L/ | NPL48 | Expert Declaration of Anthony Acampora, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1003, filed June 20, 2018; 99 pages. | |
| /A.C.L/ | NPL49 | Improving Traffic Scheduling in Wireless ATM Networks by Nikos Passas et al. ("Passas-I"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1004, filed June 20, 2018; 18 pages. | |
| /A.C.L/ | NPL50 | MAC Protocol and Traffic Scheduling for Wireless ATM Networks, by Nikos Passas et al. ("Passas-II"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1005, filed June 20, 2018; 20 pages. | |

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| | | | | First Named Inventor | Timothy J. SPEIGHT |
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| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 6 | of | 11 | Attorney Docket Number | 3059.7360004 |

| NON PATENT LITERATURE DOCUMENTS | | | |
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| /A.C.L/ | NPL51 | Meeting the Challenge: Congestion and Flow Control Strategies for Broadband Information Transport by A.E. Eckberg, Jr. ("Eckberg"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1006, filed June 20, 2018; 25 pages. | |
| /A.C.L/ | NPL52 | IV's Infringement Contentions, Exhibit G, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1007, filed June 20, 2018; 63 pages. | |
| /A.C.L/ | NPL53 | IV's Opposition to Defendants' Motion to Dismiss, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1008, filed June 20, 2018; 37 pages. | |
| /A.C.L/ | NPL54 | Expert Declaration of Dr. Sylvia Hall-Ellis (exhibit previously filed as Exhibit 1014 in IPR2018-1185 with respect to U.S. Pat. 9,320,018), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1009, filed June 20, 2018; 104 pages. | |
| /A.C.L/ | NPL55 | "An Introduction to Broadband Networks: LANs, MANs, ATM, BISDN, and Optical Networks for Integrated Multimedia Telecommunications," by Anthony S. Acampora ("Acampora text"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1010, filed June 20, 2018; 51 pages. | |
| /A.C.L/ | NPL56 | Encyclopedia of Electronics (First Ed. 1985), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1013, filed June 20, 2018; 4 pages. | |
| /A.C.L/ | NPL57 | Patent Owner Intellectual Ventures II LLC's Preliminary Response to Petition, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Paper 6, filed October 19, 2018; 35 pages. | |
| /A.C.L/ | NPL58 | Nikos Passas, Lazaros Merakos, Dimitris Skyrianoglous, "Traffic Scheduling in Wireless ATM Networks," Communication Networks Laboratory, Dept. of Informatics, U. of Athens, IEEE 0- 7803-4196-1, 1997, pp. 391-400, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 2001, filed October 19, 2018; 10 pages. | |
| /A.C.L/ | NPL59 | IEEE 100, The Authoritative Dictionary of IEEE Standards, 7th Ed., Standards Information Network, IEEE Press, The Institute of Electrical and Electronics Engineering, New York, NY, 2000, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 2002, filed October 19, 2018; 5 pages. | |
| /A.C.L/ | NPL60 | The New Oxford Dictionary of English, Oxford University Press, Inc., New York, 2001, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 2003, filed October 19, 2018; 5 pages. | |

| Examiner Signature | /ANDREW C LEE/ | Date Considered | 12/19/2018 |
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| | | | | Filing Date | June 9, 2017 |
| | | | | First Named Inventor | Timothy J. SPEIGHT |
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| | | | | Examiner Name | LEE, Andrew Chung Cheung |
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| /A.C.L/ | NPL61 | Complaint [1], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed September 21, 2017; 43 pages. | |
| /A.C.L/ | NPL62 | The T-Mobile and Sprint Defendants' Motion to Dismiss [20], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed December 7, 2017; 36 pages. | |
| /A.C.L/ | NPL63 | Ericsson's Motion to Dismiss [22], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed December 7, 2017; 15 pages. | |
| /A.C.L/ | NPL64 | Defendants' T-Mobile UAS, Inc. and T-Mobile US, INC. Notice of Joinder [27], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed December 7, 2017; 2 pages. | |
| /A.C.L/ | NPL65 | Nokia of America Corporation's Answer and Affirmative Defenses [Null], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed April 12, 2018; 57 pages. | |
| /A.C.L/ | NPL66 | Order Denying Defendants' Motion to Dismiss [60], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed September 18, 2018; 8 pages. | |
| /A.C.L/ | NPL67 | Order and Opinion on Deffendants' Motions to Dismiss [62], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed September 24, 2018; 19 pages. | |
| /A.C.L/ | NPL68 | Complaint [1], filed by Intellectual Ventures II, LLC, filed in Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al., Case No. TXED-2-17-cv-00662, filed September 21, 2017; 44 pages. | |
| /A.C.L/ | NPL69 | T-Mobile and Sprint Defendants' Motion to Dismiss [26], filed in Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al., Case No. TXED-2-17-cv-00662, filed December 7, 2017; 36 pages. | |
| /A.C.L/ | NPL70 | Ericsson's Motion to Dismiss [28], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed December 7, 2017; 15 pages. | |

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| /A.C.L/ | NPL71 | Defendant Alcatel-Lucent USA, Inc.'s Answer and Affirmative Defense [33], filed by Intellectual Ventures II, LLC, filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed December 7, 2017; 58 pages. | |
| /A.C.L/ | NPL72 | Intellectual Ventures II LLC's Answer to Alcatel-Lucent USA, Inc.'s Counterclaims [54], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed December 29, 2017; 7 pages. | |
| /A.C.L/ | NPL73 | Order [115], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed April 2, 2018; 1 pages. | |
| /A.C.L/ | NPL74 | Nokia of America Corporation's Answer and Affirmative Defense [118], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed April 12, 2018; 57 pages. | |
| /A.C.L/ | NPL75 | Plaintiff Intellectual Ventures II LLC's Answer to Nokia of America [120], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed April 12, 2018; 7 pages. | |
| /A.C.L/ | NPL76 | Plaintiff Intellectual Ventures' Opening Supplemental Brief [126], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed April 24, 2018; 21 pages. | |
| /A.C.L/ | NPL77 | The T-Mobile and Sprint Defendants' Response to Plaintiff Intellectual Ventures' Opening Supplemental Brief [134], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed May 15, 2018; 22 pages. | |
| /A.C.L/ | NPL78 | The T-Mobile and Sprint Defendants' Sur-Reply to Plaintiff [139], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed May 29, 2018; 10 pages. | |
| /A.C.L/ | NPL79 | Plaintiff Intellectual Ventures II LLC's Notice of Supplemental Authority [141], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed June 5, 2018; 4 pages. | |
| /A.C.L/ | NPL80 | The T-Mobile and Sprint Defendants' Response to IV's Notice of Supplemental Authority [143], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, June 7, 2018; 5 pages. | |

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| /A.C.L/ | NPL81 | Ericsson's Sur-Sur-reply [144], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed June 11, 2018; 6 pages. | |
| /A.C.L/ | NPL82 | Defendants' Unopposed Motion for Leave to Amend Invalidity Contentions [153], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, June 28, 2018; 6 pages. | |
| /A.C.L/ | NPL83 | The T-Mobile and Sprint Defendants' Notice of Supplemental Authority [154], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed June 29, 2018; 4 pages. | |
| /A.C.L/ | NPL84 | Order [157], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed June 29, 2018; 1 page. | |
| /A.C.L/ | NPL85 | Plaintiff Intellectual Ventures II LLC's Response to the T-Mobile and Sprint Defendants' Notice of Supplemental Authority [160], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed July 5, 2018; 4 pages. | |
| /A.C.L/ | NPL86 | Plaintiff Intellectual Ventures II LLC's Unopposed Motion For Leave to Amend Infringement Contentions [161], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed July 9, 2018; 4 pages. | |
| /A.C.L/ | NPL87 | Order [163], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed July 10, 2018; 1 page. | |
| /A.C.L/ | NPL88 | P.R. 4-3 Joint Claim Construction and Prehearing Statement [175], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed August 10, 2018; 7 pages. | |
| /A.C.L/ | NPL89 | Joint Motion for Leave to Amend P.R. 4-3 Joint Claim Construction and Prehearing Statement [176], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 10, 2018; 7 pages. | |
| /A.C.L/ | NPL90 | Order Granting Joint Motion for Leave to Amend P.R. 4-3 [177], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 12, 2018; 2 pages. | |

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|---|---|---|---|
| /A.C.L/ | NPL91 | Plaintiff Intellectual Ventures II LLC's Opening Claim Construction Brief [180], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 14, 2018; 29 pages. | |
| /A.C.L/ | NPL92 | Order Denying Deffendants' Motions to Dismiss [183], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 18, 2018; 8 pages. | |
| /A.C.L/ | NPL93 | Order and Opinion on Deffendants' Motion to Dismiss [189], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 24, 2018; 19 pages. | |
| /A.C.L/ | NPL94 | Defendants' Responsive Claim Construction Brief [194], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 3, 2018; 36 pages. | |
| /A.C.L/ | NPL95 | Ericsson's Answer to IV's Complaint [201], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 10, 2018; 62 pages. | |
| /A.C.L/ | NPL96 | Ericsson's Answer to IV's Complaint [202], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 10, 2018; 56 pages. | |
| /A.C.L/ | NPL97 | Plaintiff's Reply Claim Construction Brief [207], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 15, 2018; 14 pages. | |
| /A.C.L/ | NPL98 | Sprint's Sealed Answer, Affirmative Defenses, and Counterclaims [208], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 17, 2018; 54 pages. | |
| /A.C.L/ | NPL99 | T-Mobile USA, Inc., and T-Mobile US, Inc.'s [redacted] Answer and Counterclaims to IV's Complaint [209], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 17, 2018; 57 pages. | |
| /A.C.L/ | NPL100 | P.R. 4-5 Joint Claim Construction Chart [210], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 17, 2018; 33 pages. | |

| Examiner Signature | /ANDREW C LEE/ | Date Considered | 12/19/2018 |
|---|---|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional). [2] Applicant is to place a check mark here if English language Translation is attached.

Equivalent of Form PTO/SB/08b (7-09)

| Substitute for form 1449/PTO | | | | *Complete if Known* | |
|---|---|---|---|---|---|
| **FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT** *(Use as many sheets as necessary)* | | | | Application Number | 15/618,669 |
| | | | | Filing Date | June 9, 2017 |
| | | | | First Named Inventor | Timothy J. SPEIGHT |
| | | | | Art Unit | 2411 |
| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 11 | of | 11 | Attorney Docket Number | 3059.7360004 |

**NON PATENT LITERATURE DOCUMENTS**

| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published | T[2] |
|---|---|---|---|
| /A.C.L/ | NPL101 | Docket History, *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed September 21, 2017; 3 pages. | |
| /A.C.L/ | NPL102 | Docket History, *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 21, 2017; 11 pages. | |
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| Examiner Signature | /ANDREW C LEE/ | Date Considered | 12/19/2018 |
|---|---|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional). [2] Applicant is to place a check mark here if English language Translation is attached.

**EAST Search History**

**EAST Search History (Prior Art)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L1 | 344 | (Speight with Timothy).inv. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/12/19 12:56 |
| L2 | 95 | (Speight with Timothy).inv. AND (channel radio near bearer) near2 (allocat$3 schedul$3 assign$3) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/12/19 12:57 |
| L3 | 12 | (Speight with Timothy).inv. AND (buffer queue$3) with (load flow traffic) with (control manag$5) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/12/19 12:57 |
| L4 | 9 | (Speight with Timothy).inv. AND (buffer queue$3) with (load flow traffic) with (control manag$5) and ( H04L47/10.cpc. H04L47/14cpc. H04L47/2425.cpc. H04L47/30.cpc. H04W28/14.cpc. H04W72/042.cpc. H04W72/0413.cpc. H04L5/0053.cpc. H04L5/0048.cpc.) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/12/19 12:58 |
| L5 | 80 | (INTELLECTUAL with VENTURES with HOLDING with "81" with LLC).as. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/12/19 12:58 |
| L6 | 12 | (INTELLECTUAL with VENTURES with HOLDING with "81" with LLC).as. and L1 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/12/19 12:59 |
| L7 | 205 | (network) and (radio near2 network near2 controller RNC) and (base near2 station access near2 point) AND (mobile wireless user subscriber) near2 (node unit device apparatus equipment station terminal) and (buffer queue$3) with (condition status load$3 situation value parameter control flow empty$4 full$4 threshold limit$4) and (uplink downlink) and (radio near bearer$1) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/12/19 12:59 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | and (allocat$3 schedul$3 assign$3) with (resource bandwidth capacity) and @AD<="20060508" | | | | |
| L8 | 17 | (network) and (radio near2 network near2 controller RNC) and (base near2 station access near2 point) AND (mobile wireless user subscriber) near2 (node unit device apparatus equipment station terminal) and (buffer queue$3 radio near bearer) near2 ( load$3 flow traffic) with (control manag$5) and (buffer queue$3) with( empt$5 full$4 threshold limit$4) and (uplink downlink) and service$1 and (quality QoS) and (data packet) and (allocat$3 schedul$3 assign$3) with (resource bandwidth capacity radio near bearer) and ( H04W72/1268.cpc. H04L47/10.cpc. H04L47/14.cpc. H04L47/2425.cpc. H04L47/30.cpc. H04W28/14.cpc. H04W72/04.cpc. ) and @AD<="20060508" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/12/19 12:59 |
| L9 | 12 | (unit node device apparatus equipment terminal station method) and (processor transmitter circuitry) and (receiv$3 transmit$4 determin$3 caus$3 select$3) and (radio near2 (resource$1 bearer$1)) and (parameter$1 value$1) and (buffer near2 occupanc$3) and ( (uplink UL U/L) near2 resource$1) and (allocat$3 assign$3 schedul$3) and (first near2 iteration) and (second near2 iteration) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/12/19 12:59 |
| L10 | 5 | (unit node device apparatus equipment terminal station method) and (processor transmitter circuitry) and (receiv$3 transmit$4 determin$3 caus$3 select$3) and (radio near2 (resource$1 bearer$1)) and (parameter$1 value$1) and (buffer near2 occupanc$3) and ( (uplink UL U/L) near2 resource$1) and (allocat$3 assign$3 schedul$3) and (first near2 iteration) and (second near2 iteration) and ( H04W72/1268.cpc. H04L47/10.cpc. H04L47/14.cpc. H04L47/2425.cpc. H04L47/30.cpc. H04W28/14.cpc. H04W72/04.cpc. ) and @AD<="20060508" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/12/19 12:59 |

**EAST Search History (Interference)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L11 | 0 | ( method and perform$3 and (user near2 equipment) and receiv$3 and ((radio near2 bearers near5 parameters) and determin$3 and processor and (buffer near2 occupancies) and (transmit$3 transmitter) and network and receiv$3 and uplink near2 resources with allocation) and select$3 and (first near iteration) and (second near iteration) and data ).CLM. | US-PGPUB; USPAT | OR | ON | 2018/12/19 13:00 |

**12/19/2018 1:01:43 PM**
**C:\Users\alee5\Documents\EAST\Workspaces\15618669 1Q19 Dec09_Dec22_2018_Interf.wsp**

PTO/SB/30 (11-17)
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 contains a valid OMB control number.

# Request for Continued Examination (RCE) Transmittal

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

| | |
|---|---|
| Application Number | 15/618,669 |
| Filing Date | June 9, 2017 |
| First Named Inventor | Timothy J. Speight |
| Art Unit | 2411 |
| Examiner Name | LEE, Andrew Chung Cheung |
| Attorney Docket Number | 3059.7360004 |

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

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

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

      ii. ☐ Other _____

   b. ☑ Enclosed

      i. ☐ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☑ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

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

   b. ☐ Other _____

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

   a. ☑ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 19-0036.

      i. ☑ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

   d. ☒ Payment by 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.**

***SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED***

| | | | |
|---|---|---|---|
| Signature | /Ross G. Hicks, #56,374/ | Date | December 11, 2018 |
| Name (Print/Type) | Ross G. Hicks | Registration No. | 56,374 |

***CERTIFICATE OF MAILING OR TRANSMISSION***

I hereby certify that this correspondence is being EFS-Web transmitted to the United States Patent and Trademark Office (USPTO), deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the USPTO on the date shown below.

| | | | |
|---|---|---|---|
| Signature | | | |
| Name (Print/Type) | | Date | |

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, 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.*

PTO/SB/30 (07-09)
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 contains a valid OMB control number.

# Instruction Sheet for RCEs

(not to be submitted to the USPTO)

## *NOTES:*

An RCE is not a new application, and filing an RCE will not result in an application being accorded a new filing date.

**Filing Qualifications:**

The application must be a utility or plant application filed on or after June 8, 1995. The application cannot be a provisional application, a utility or plant application filed before June 8, 1995, a design application, or a patent under reexamination. See 37 CFR 1.114(e).

**Filing Requirements:**

***Prosecution in the application must be closed.*** Prosecution is closed if the application is under appeal, or the last Office action is a final action, a notice of allowance, or an action that otherwise closes prosecution in the application (e.g., an Office action under *Ex parte Quayle*). See 37 CFR 1.114(b).

***A submission and a fee are required at the time the RCE is filed.*** If reply to an Office action under 35 U.S.C. 132 is outstanding (e.g., the application is under final rejection), the submission must meet the reply requirements of 37 CFR 1.111. If there is no outstanding Office action, the submission can be an information disclosure statement, an amendment, new arguments, or new evidence. See 37 CFR 1.114(c). The submission may be a previously filed amendment ( e.g., an amendment after final rejection).

## WARNINGS:

**Request for Suspension of Action:**

All RCE filing requirements must be met before suspension of action is granted. A request for a suspension of action under 37 CFR 1.103(c) does not satisfy the submission requirement and does not permit the filing of the required submission to be suspended.

**Improper RCE will NOT toll Any Time Period:**

***Before Appeal*** - If the RCE is improper (e.g., prosecution in the application is not closed or the submission or fee has not been filed) and the application is not under appeal, the time period set forth in the last Office action will continue to run and the application will be abandoned after the statutory time period has expired if a reply to the Office action is not timely filed. No additional time will be given to correct the improper RCE.

***Under Appeal*** - If the RCE is improper (e.g., the submission or the fee has not been filed) and the application is under appeal, the improper RCE is effective to withdraw the appeal. Withdrawal of the appeal results in the allowance or abandonment of the application depending on the status of the claims. If there are no allowed claims, the application is abandoned. If there is at least one allowed claim, the application will be passed to issue on the allowed claim(s). See MPEP 1215.01.

**See MPEP 706.07(h) for further information on the RCE practice.**

## 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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|---|
| Inventor: Timothy J. SPEIGHT | Confirmation No.: 9700 |
| Applicant: Intellectual Ventures II LLC | Art Unit: 2411 |
| Application No.: 15/618,669 | Examiner: LEE, Andrew Chung Cheung |
| Filing Date: June 9, 2017 | Atty. Docket: 3059.7360004 |

Title: **Determining Buffer Occupancy and Selecting Data for Transmission on a Radio Bearer**

## Authorization to Treat a Reply as Incorporating an Extension of Time Under 37 C.F.R. § 1.136(a)(3)

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Commissioner:

The U.S. Patent and Trademark Office is hereby authorized to treat any concurrent or future reply that requires a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. The U.S. Patent and Trademark Office is hereby authorized to charge all required extension of time fees to our Deposit Account No. 19-0036, if such fees are not otherwise provided for in such reply.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

/Ross G. Hicks, #56,374/

Ross G. Hicks
Attorney for Applicant
Registration No. 56,374

Date: December 11, 2018

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600

10397393_1.docx

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 15618669 |
| **Filing Date:** | 09-Jun-2017 |
| **Title of Invention:** | DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Filer:** | Ross Gordon Hicks/Joel Greenberg |
| **Attorney Docket Number:** | 3059.7360004 |

Filed as Large Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Miscellaneous:** | | | | |
| RCE- 1ST REQUEST | 1801 | 1 | 1300 | 1300 |
| | | **Total in USD ($)** | | **1300** |

| Electronic Acknowledgement Receipt | |
|---|---|
| **EFS ID:** | 34530816 |
| **Application Number:** | 15618669 |
| **International Application Number:** | |
| **Confirmation Number:** | 9700 |
| **Title of Invention:** | DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Customer Number:** | 26111 |
| **Filer:** | Ross Gordon Hicks/Joel Greenberg |
| **Filer Authorized By:** | Ross Gordon Hicks |
| **Attorney Docket Number:** | 3059.7360004 |
| **Receipt Date:** | 11-DEC-2018 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 17:11:23 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | CARD |
| Payment was successfully received in RAM | $1300 |
| RAM confirmation Number | 121218INTEFSW17162701 |
| Deposit Account | 190036 |
| Authorized User | Joel Greenberg |
| The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:<br>37 CFR 1.20 (Post Issuance fees)<br>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 | | 3059_7360004_Information_Disclosure_Statement_final.pdf | 372028<br>97b7e024e14a55e9d49743f5d0216195a33c2e5b | yes | 21 |

**Multipart Description/PDF files in .zip description**

| Document Description | Start | End |
|---|---|---|
| Information Disclosure Statement (IDS) Form (SB08) | 10 | 21 |
| Transmittal Letter | 3 | 9 |
| Transmittal Letter | 1 | 2 |

**Warnings:**

**Information:**

| | | | | | |
|---|---|---|---|---|---|
| 2 | Request for Continued Examination (RCE) | 3059_7360004_RCE_final.pdf | 209064<br>baa4115b8038459b0976a881d985b20535319e73 | no | 3 |

**Warnings:**

This is not a USPTO supplied RCE SB30 form.

**Information:**

| | | | | | |
|---|---|---|---|---|---|
| 3 | Extension of Time | 3059_7360004_EOT_Final.pdf | 75517<br>a0afd794252d5ef2cd0eb28bd6b470cb0199cf7a | no | 1 |

**Warnings:**

**Information:**

| | | | | | |
|---|---|---|---|---|---|
| 4 | Fee Worksheet (SB06) | fee-info.pdf | 30806<br>46d8eb73fd38473c6a47d7b4abb3a62d61fdfc27 | no | 2 |

**Warnings:**

**Information:**

| | |
|---|---|
| **Total Files Size (in bytes):** | 687415 |

**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.**

Equivalent of Form PTO/SB/08a (07-09)

Substitute for form 1449/PTO

# FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(Use as many sheets as necessary)*

Sheet 1 of 1

| *Complete if Known* | |
|---|---|
| Application Number | 15/618,669 |
| Filing Date | June 9, 2017 |
| First Named Inventor | Timothy J. SPEIGHT |
| Art Unit | 2411 |
| Examiner Name | LEE, Andrew Chung Cheung |
| Attorney Docket Number | 3059.7360004 |

## U.S. PATENT DOCUMENTS

| Examiner initials* | Cite No.[1] | Document Number Number-Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|
| | US1 | 6,157,614 | 12-05-2000 | Pasternak et al. | |
| | US2 | 7,512,065 B1 | 03-31-2009 | Phadnis et al. | |
| | US3 | 7,807,970 B2 | 10-05-2010 | Richard | |
| | US4 | 9,320,018 B2 | 04-19-2016 | Speight | |
| | US5 | 9,681,466 B2 | 06-13-2017 | Speight | |
| | US6 | 2004/0210619 A1 | 10-21-2004 | Balachandran et al. | |
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## FOREIGN PATENT DOCUMENTS

| Examiner initials* | Cite No.[1] | Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
|---|---|---|---|---|---|---|
| | FP1 | WO 2006/037492 A1 | 04-13-2006 | MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD | | |
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| **FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT** | | | | Application Number | 15/618,669 |
| | | | | Filing Date | June 9, 2017 |
| | | | | First Named Inventor | Timothy J. SPEIGHT |
| *(Use as many sheets as necessary)* | | | | Art Unit | 2411 |
| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 1 | of | 11 | Attorney Docket Number | 3059.7360004 |

| NON PATENT LITERATURE DOCUMENTS | | | |
|---|---|---|---|
| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published | T[2] |
| | NPL1 | Petition for Inter Partes Review, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Paper 1, filed September 20, 2018; 74 pages. | |
| | NPL2 | File History for the 9,681,466 Patent, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1002, filed September 20, 2018; 161 pages. | |
| | NPL3 | Declaration of Andrew Singer, Ph.D., filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1003, filed September 20, 2018; 118 pages. | |
| | NPL4 | U.S. Provisional Application No. 60/792,012 to Vincent Park entitled "Method and Apparatus for Static Quality of Service" ("Park Provisional"), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1007, filed September 20, 2018; 54 pages. | |
| | NPL5 | 3GPP TS 23.107 v6.1.0 (2004-03) "Technical Specification Group Services and System Aspects; Quality of Service (QoS) concepts and Architecture," filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1009, filed September 20, 2018; 41 pages. | |
| | NPL6 | IV's Brief in Opposition to the T-Mobile and Sprint Defendants' Motion to Dismiss, filed in Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al., 2:17-cv-662, Dkt. 59 (E.D. Tex., January 5, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1010, filed September 20, 2018; 37 pages. | |
| | NPL7 | IV's Infringement Contentions, Exhibit G, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1011, filed September 20, 2018; 64 pages. | |
| | NPL8 | File History for U.S. Patent No. 8,428,026, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1012, filed September 20, 2018; 448 pages. | |
| | NPL9 | File History for U.S. Patent No. 8,005,041, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1013, filed September 20, 2018; 499 pages. | |
| | NPL10 | Exhibit A to P.R. 4-3 Joint Claim Construction and Prehearing Statement, filed in Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al., 2:17-cv-662, Dkt. 175-1 (E.D. Tex., August 10, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1014, filed September 20, 2018; 9 pages. | |

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| | | | | Examiner Name | LEE, Andrew Chung Cheung |
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| | NPL11 | File History for U.S. Application No. 11/718,492 to Joachim Lohr et al., entitled "HARQ Protocol Optimization for Packet Data Transmission," filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1015, filed September 20, 2018; 279 pages. | |
| | NPL12 | Patent Owner's Preliminary Response, IPR2018-01185, Paper 6 (September 5, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01765 (P.T.A.B), Exhibit 1016, filed September 20, 2018; 43 pages. | |
| | NPL13 | Petition for Inter Partes Review, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Paper 1, filed September 20, 2018; 74 pages. | |
| | NPL14 | File History for the '018 Patent, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1002, filed September 20, 2018; 156 pages. | |
| | NPL15 | Declaration of Andrew Singer, Ph.D., filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1003, filed September 20, 2018; 123 pages. | |
| | NPL16 | U.S. Provisional Application No. 60/792,012 to Vincent Park entitled "Method and Apparatus for Static Quality of Service" ("Park Provisional"), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1007, filed September 20, 2018; 54 pages. | |
| | NPL17 | 3GPP TS 23.107 v6.1.0 (2004-03) "Technical Specification Group Services and System Aspects; Quality of Service (QoS) concepts and Architecture," filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1009, filed September 20, 2018; 41 pages. | |
| | NPL18 | IV's Brief in Opposition to the T-Mobile and Sprint Defendants' Motion to Dismiss, filed in Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al., 2:17-cv-662, Dkt. 59 (E.D. Tex, January 5, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1010, filed September 20, 2018; 37 pages. | |
| | NPL19 | IV's Infringement Contentions, Exhibit G, filed in Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al., 2:17-cv-662, Dkt. 59 (E.D. Tex, January 5, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1011, filed September 20, 2018; 64 pages. | |
| | NPL20 | File History for U.S. Patent No. 8,428,026, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1012, filed September 20, 2018; 448 pages. | |

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| | NPL21 | File History for U.S. Patent No. 8,005,041, filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1013, filed September 20, 2018; 499 pages. | |
| | NPL22 | Exhibit A to P.R. 4-3 Joint Claim Construction and Prehearing Statement (filed in *Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al.*, 2:17-cv-662, Dkt. 175-1 (E.D. Tex, August 10, 2018)), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1014, filed September 20, 2018; 9 pages. | |
| | NPL23 | File History for U.S. Application No. 11/718,492 to Joachim Lohr et al., entitled "HARQ Protocol Optimization for Packet Data Transmission," filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1015, filed September 20, 2018; 279 pages. | |
| | NPL24 | Patent Owner's Preliminary Response, IPR2018-01185, Paper 6 (September 5, 2018), filed in *Sprint Spectrum L.P. et al. v. Intellectual Ventures II LLC*, Case No. IPR2018-01764 (P.T.A.B), Exhibit 1016, filed September 20, 2018; 43 pages. | |
| | NPL25 | Petition for Inter Partes Review, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Paper 1, filed May 31, 2018; 77 pages. | |
| | NPL26 | CV of Tony Acampora, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1002, filed May 31, 2018; 52 pages. | |
| | NPL27 | Expert Declaration of Tony Acampora, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1003, filed May 31, 2018; 100 pages. | |
| | NPL28 | Improving Traffic Scheduling in Wireless ATM Networks by Nikos Passas et al. ("Passas-I"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1004, filed May 31, 2018; 18 pages. | |
| | NPL29 | MAC Protocol and Traffic Scheduling for Wireless ATM Networks, by Nikos Passas et al. ("Passas-II"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1005, filed May 31, 2018; 20 pages. | |
| | NPL30 | Meeting the Challenge: Congestion and Flow Control Strategies for Broadband Information Transport by A.E. Eckberg, Jr. ("Eckberg"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1006, filed May 31, 2018; 25 pages. | |

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| | NPL31 | IV's Infringement Contentions, Exhibit F, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1007, filed May 31, 2018; 47 pages. | |
| | NPL32 | Design of Call Control Signaling in Wireless ATM Networks by Loukas et al. ("Loukas"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1008, filed May 31, 2018; 6 pages. | |
| | NPL33 | Telephony's Dictionary, Second Edition, by Graham Langley ("Langley"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1009, filed May 31, 2018; 5 pages. | |
| | NPL34 | IV's Opposition to Defendants' Motion to Dismiss, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1010, filed May 31, 2018; 37 pages. | |
| | NPL35 | 3GPP TS 25.401 v7.0.0 (2006-03), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1011, filed May 31, 2018; 48 pages. | |
| | NPL36 | 3GPP TS 25.990 v3.0.0 (1999-10), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1012, filed May 31, 2018; 20 pages. | |
| | NPL37 | 3GPP TS 21.905 v6.0.0 (2002-09), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1013, filed May 31, 2018; 51 pages. | |
| | NPL38 | Expert Declaration of Dr. Sylvia Hall-Ellis, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1014, filed May 31, 2018; 104 pages. | |
| | NPL39 | "An Introduction to Broadband Networks: LANs, MANs, ATM, BISDN, and Optical Networks for Integrated Multimedia Telecommunications," by Tony Acampora ("Acampora text"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 1015, filed May 31, 2018; 51 pages. | |
| | NPL40 | Patent Owner Intellectual Ventures II LLC's Preliminary Response to Petition, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Paper 6, filed September 5, 2018; 43 pages. | |

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| | NPL41 | Nikos Passas, Lazaros Merakos, Dimitris Skyrianoglous, "Traffic Scheduling in Wireless ATM Networks," Communication Networks Laboratory, Dept. of Informatics, U. of Athens, IEEE 0- 7803-4196-1, 1997, pp. 391-400, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 2001, filed September 5, 2018; 10 pages. | |
| | NPL42 | IEEE 100, The Authoritative Dictionary of IEEE Standards, 7th Ed., Standards Information Network, IEEE Press, The Institute of Electrical and Electronics Engineering, New York, NY, 2000, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 2002, filed September 5, 2018; 5 pages. | |
| | NPL43 | The New Oxford Dictionary of English, Oxford University Press, Inc., New York, 2001, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 2003, filed September 5, 2018; 5 pages. | |
| | NPL44 | UTRAN Overall Description, Release 7, 3rd Generation Partnership Project, Technical Specification Group Radio Access Network, 2006, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Exhibit 2004, filed September 5, 2018; 48 pages. | |
| | NPL45 | Decision, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01185 (P.T.A.B), Paper 7, filed December 3, 2018; 25 pages. | |
| | NPL46 | Petition for Inter Partes Review, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Paper 1, filed June 20, 2018; 74 pages. | |
| | NPL47 | CV of Anthony Acampora, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1002, filed June 20, 2018; 52 pages. | |
| | NPL48 | Expert Declaration of Anthony Acampora, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1003, filed June 20, 2018; 99 pages. | |
| | NPL49 | Improving Traffic Scheduling in Wireless ATM Networks by Nikos Passas et al. ("Passas-I"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1004, filed June 20, 2018; 18 pages. | |
| | NPL50 | MAC Protocol and Traffic Scheduling for Wireless ATM Networks, by Nikos Passas et al. ("Passas-II"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1005, filed June 20, 2018; 20 pages. | |

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| | NPL51 | Meeting the Challenge: Congestion and Flow Control Strategies for Broadband Information Transport by A.E. Eckberg, Jr. ("Eckberg"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1006, filed June 20, 2018; 25 pages. | |
| | NPL52 | IV's Infringement Contentions, Exhibit G, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1007, filed June 20, 2018; 63 pages. | |
| | NPL53 | IV's Opposition to Defendants' Motion to Dismiss, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1008, filed June 20, 2018; 37 pages. | |
| | NPL54 | Expert Declaration of Dr. Sylvia Hall-Ellis (exhibit previously filed as Exhibit 1014 in IPR2018-1185 with respect to U.S. Pat. 9,320,018), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1009, filed June 20, 2018; 104 pages. | |
| | NPL55 | "An Introduction to Broadband Networks: LANs, MANs, ATM, BISDN, and Optical Networks for Integrated Multimedia Telecommunications," by Anthony S. Acampora ("Acampora text"), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1010, filed June 20, 2018; 51 pages. | |
| | NPL56 | Encyclopedia of Electronics (First Ed. 1985), filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 1013, filed June 20, 2018; 4 pages. | |
| | NPL57 | Patent Owner Intellectual Ventures II LLC's Preliminary Response to Petition, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Paper 6, filed October 19, 2018; 35 pages. | |
| | NPL58 | Nikos Passas, Lazaros Merakos, Dimitris Skyrianoglous, "Traffic Scheduling in Wireless ATM Networks," Communication Networks Laboratory, Dept. of Informatics, U. of Athens, IEEE 0- 7803-4196-1, 1997, pp. 391-400, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 2001, filed October 19, 2018; 10 pages. | |
| | NPL59 | IEEE 100, The Authoritative Dictionary of IEEE Standards, 7th Ed., Standards Information Network, IEEE Press, The Institute of Electrical and Electronics Engineering, New York, NY, 2000, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 2002, filed October 19, 2018; 5 pages. | |
| | NPL60 | The New Oxford Dictionary of English, Oxford University Press, Inc., New York, 2001, filed in *Ericsson Inc. and Telefonaktiebolaget LM Ericsson v. Intellectual Ventures II LLC*, Case No. IPR2018-01289 (P.T.A.B), Exhibit 2003, filed October 19, 2018; 5 pages. | |

| Examiner Signature | | Date Considered | |
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[1] Applicant's unique citation designation number (optional). [2] Applicant is to place a check mark here if English language Translation is attached.

Equivalent of Form PTO/SB/08b (7-09)

| Substitute for form 1449/PTO | | | | *Complete if Known* | |
|---|---|---|---|---|---|
| **FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT** | | | | Application Number | 15/618,669 |
| | | | | Filing Date | June 9, 2017 |
| | | | | First Named Inventor | Timothy J. SPEIGHT |
| *(Use as many sheets as necessary)* | | | | Art Unit | 2411 |
| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 7 | of | 11 | Attorney Docket Number | 3059.7360004 |

| NON PATENT LITERATURE DOCUMENTS | | | |
|---|---|---|---|
| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published | T[2] |
| | NPL61 | Complaint [1], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed September 21, 2017; 43 pages. | |
| | NPL62 | The T-Mobile and Sprint Defendants' Motion to Dismiss [20], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed December 7, 2017; 36 pages. | |
| | NPL63 | Ericsson's Motion to Dismiss [22], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed December 7, 2017; 15 pages. | |
| | NPL64 | Defendants' T-Mobile UAS, Inc. and T-Mobile US, INC. Notice of Joinder [27], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed December 7, 2017; 2 pages. | |
| | NPL65 | Nokia of America Corporation's Answer and Affirmative Defenses [Null], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed April 12, 2018; 57 pages. | |
| | NPL66 | Order Denying Defendants' Motion to Dismiss [60], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed September 18, 2018; 8 pages. | |
| | NPL67 | Order and Opinion on Deffendants' Motions to Dismiss [62], filed in *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed September 24, 2018; 19 pages. | |
| | NPL68 | Complaint [1], filed by Intellectual Ventures II, LLC, filed in Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al., Case No. TXED-2-17-cv-00662, filed September 21, 2017; 44 pages. | |
| | NPL69 | T-Mobile and Sprint Defendants' Motion to Dismiss [26], filed in Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al., Case No. TXED-2-17-cv-00662, filed December 7, 2017; 36 pages. | |
| | NPL70 | Ericsson's Motion to Dismiss [28], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed December 7, 2017; 15 pages. | |

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| Sheet | 8 | of | 11 | Attorney Docket Number | 3059.7360004 |

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| | NPL71 | Defendant Alcatel-Lucent USA, Inc.'s Answer and Affirmative Defense [33], filed by Intellectual Ventures II, LLC, filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed December 7, 2017; 58 pages. | |
| | NPL72 | Intellectual Ventures II LLC's Answer to Alcatel-Lucent USA, Inc.'s Counterclaims [54], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed December 29, 2017; 7 pages. | |
| | NPL73 | Order [115], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed April 2, 2018; 1 pages. | |
| | NPL74 | Nokia of America Corporation's Answer and Affirmative Defense [118], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed April 12, 2018; 57 pages. | |
| | NPL75 | Plaintiff Intellectual Ventures II LLC's Answer to Nokia of America [120], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed April 12, 2018; 7 pages. | |
| | NPL76 | Plaintiff Intellectual Ventures' Opening Supplemental Brief [126], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed April 24, 2018; 21 pages. | |
| | NPL77 | The T-Mobile and Sprint Defendants' Response to Plaintiff Intellectual Ventures' Opening Supplemental Brief [134], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed May 15, 2018; 22 pages. | |
| | NPL78 | The T-Mobile and Sprint Defendants' Sur-Reply to Plaintiff [139], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed May 29, 2018; 10 pages. | |
| | NPL79 | Plaintiff Intellectual Ventures II LLC's Notice of Supplemental Authority [141], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed June 5, 2018; 4 pages. | |
| | NPL80 | The T-Mobile and Sprint Defendants' Response to IV's Notice of Supplemental Authority [143], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, June 7, 2018; 5 pages. | |

| Examiner Signature | | Date Considered | |
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| | | | | Filing Date | June 9, 2017 |
| | | | | First Named Inventor | Timothy J. SPEIGHT |
| | | | | Art Unit | 2411 |
| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 9 | of | 11 | Attorney Docket Number | 3059.7360004 |

| NON PATENT LITERATURE DOCUMENTS | | | |
|---|---|---|---|
| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published | T[2] |
| | NPL81 | Ericsson's Sur-Sur-reply [144], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed June 11, 2018; 6 pages. | |
| | NPL82 | Defendants' Unopposed Motion for Leave to Amend Invalidity Contentions [153], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, June 28, 2018; 6 pages. | |
| | NPL83 | The T-Mobile and Sprint Defendants' Notice of Supplemental Authority [154], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed June 29, 2018; 4 pages. | |
| | NPL84 | Order [157], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed June 29, 2018; 1 page. | |
| | NPL85 | Plaintiff Intellectual Ventures II LLC's Response to the T-Mobile and Sprint Defendants' Notice of Supplemental Authority [160], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed July 5, 2018; 4 pages. | |
| | NPL86 | Plaintiff Intellectual Ventures II LLC's Unopposed Motion For Leave to Amend Infringement Contentions [161], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed July 9, 2018; 4 pages. | |
| | NPL87 | Order [163], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed July 10, 2018; 1 page. | |
| | NPL88 | P.R. 4-3 Joint Claim Construction and Prehearing Statement [175], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed August 10, 2018; 7 pages. | |
| | NPL89 | Joint Motion for Leave to Amend P.R. 4-3 Joint Claim Construction and Prehearing Statement [176], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 10, 2018; 7 pages. | |
| | NPL90 | Order Granting Joint Motion for Leave to Amend P.R. 4-3 [177], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 12, 2018; 2 pages. | |

| Examiner Signature | | Date Considered | |
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| | | | | Filing Date | June 9, 2017 |
| | | | | First Named Inventor | Timothy J. SPEIGHT |
| *(Use as many sheets as necessary)* | | | | Art Unit | 2411 |
| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 10 | of | 11 | Attorney Docket Number | 3059.7360004 |

| NON PATENT LITERATURE DOCUMENTS | | | |
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| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published | T[2] |
| | NPL91 | Plaintiff Intellectual Ventures II LLC's Opening Claim Construction Brief [180], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 14, 2018; 29 pages. | |
| | NPL92 | Order Denying Deffendants' Motions to Dismiss [183], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 18, 2018; 8 pages. | |
| | NPL93 | Order and Opinion on Deffendants' Motion to Dismiss [189], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 24, 2018; 19 pages. | |
| | NPL94 | Defendants' Responsive Claim Construction Brief [194], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 3, 2018; 36 pages. | |
| | NPL95 | Ericsson's Answer to IV's Complaint [201], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 10, 2018; 62 pages. | |
| | NPL96 | Ericsson's Answer to IV's Complaint [202], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 10, 2018; 56 pages. | |
| | NPL97 | Plaintiff's Reply Claim Construction Brief [207], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 15, 2018; 14 pages. | |
| | NPL98 | Sprint's Sealed Answer, Affirmative Defenses, and Counterclaims [208], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 17, 2018; 54 pages. | |
| | NPL99 | T-Mobile USA, Inc., and T-Mobile US, Inc.'s [redacted] Answer and Counterclaims to IV's Complaint [209], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 17, 2018; 57 pages. | |
| | NPL100 | P.R. 4-5 Joint Claim Construction Chart [210], filed in *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed October 17, 2018; 33 pages. | |

| Examiner Signature | | Date Considered | |
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| | | | | Filing Date | June 9, 2017 |
| | | | | First Named Inventor | Timothy J. SPEIGHT |
| | | | | Art Unit | 2411 |
| | | | | Examiner Name | LEE, Andrew Chung Cheung |
| Sheet | 11 | of | 11 | Attorney Docket Number | 3059.7360004 |

| NON PATENT LITERATURE DOCUMENTS | | | |
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| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume number, publisher, city and/or country where published | T[2] |
| | NPL101 | Docket History, *Intellectual Ventures II LLC v. T-Mobile USA, Inc. f/k/a MetroPCS Communications, Inc. et al*, Case No. TXED-2-17-cv-00661, filed September 21, 2017; 3 pages. | |
| | NPL102 | Docket History, *Intellectual Ventures II LLC v. Sprint Spectrum LP d/b/a Sprint PCS et al.*, Case No. TXED-2-17-cv-00662, filed September 21, 2017; 11 pages. | |
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|---|
| Inventor: Timothy J. SPEIGHT | Confirmation No.: 9700 |
| Applicant: Intellectual Ventures II LLC | Art Unit: 2411 |
| Application No.: 15/618,669 | Examiner: LEE, Andrew Chung Cheung |
| Filing Date: June 9, 2017 | Atty. Docket: 3059.7360004 |

Title: **Determining Buffer Occupancy and Selecting Data for Transmission on a Radio Bearer**

## Notice of Concurrent Litigation and First Supplemental Information Disclosure Statement

***Mail Stop RCE***

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Commissioner:

***Notice of Concurrent Litigation***

The Examiner is hereby notified that U.S. Patent Nos. 9,681,466 (the '466 patent) and 9,320,018 (the '018 patent), which are related to the present application, are involved in two litigations in the United States District Court of the Eastern District of Texas styled *Intellectual Ventures II LLC v. T-Mobile USA, Inc. et al.* (Case No. TXED-2:17-cv-00661) and *Intellectual Ventures II LLC v. Sprint Spectrum L.P. et al.* (Case No. TXED-2:17-cv-00662) (the "Litigations"). Intellectual Ventures II LLC ("Intellectual Ventures II") filed these two complaints in the Litigations on September 21, 2017, alleging patent infringement of a number of patents, including the '466 and '018 patents. The Complaints and Dockets for these litigations are being submitted herewith as NPL61 and NPL68, and NPL101 and NPL102 respectively. If upon review of the Dockets the Examiner should wish to review any other materials, information or documents from the Litigations, then the Examiner is requested to contact the undersigned.

Applicant further informs the Office of the *inter partes* reviews below, which involve the '466 and '018 patents:

| Case No. | Patent No. | Date filed | Status |
|---|---|---|---|
| IPR2018-01764 | 9,320,018 | Sept. 20, 2018 | Pending |
| IPR2018-01185 | 9,320,018 | May 31, 2018 | Institution Denied |
| IPR2018-01765 | 9,681,466 | Sept. 20, 2018 | Pending |
| IPR2018-01289 | 9,681,466 | June 20, 2018 | Pending |

***Information Disclosure Statement***

Listed on accompanying IDS Forms PTO/SB/08a equivalent and PTO/SB/08b equivalent are documents that may be considered material to the patentability of this application as defined in 37 C.F.R. §1.56, and in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.97 and 1.98.

Applicant has listed publication dates on the attached IDS Forms based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicant reserves the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith.

Applicant has checked the appropriate boxes below.

☐ 1. Statement under 37 C.F.R. 1.704(d). Each item of information contained in this Information Disclosure Statement: (i) was first cited in any communication from a patent office in a counterpart[1] foreign or international application or from the Office; and this communication was not received by any individual designated in Sec. 1.56(c) more than thirty days prior to the filing of this information disclosure statement; OR (ii) is a communication that was issued by a patent office in a counterpart foreign or international application or by the Office, and this communication was not received by any individual designated in Sec. 1.56(c) more than thirty days prior to the filing of the information disclosure statement.

☒ 2. Filing under 37 C.F.R. § 1.97(b). This Information Disclosure Statement is being filed within three months of the date of filing of a national application other than a continued prosecution application (CPA), OR within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application, OR before the mailing date of a first Office Action on the merits OR before the mailing of a first Office Action

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[1] The term counterpart foreign patent application means that a claim for priority has been made in either the U.S. application or a foreign application based on the other, or that the disclosures of the U.S. and foreign patent applications are substantively identical (e.g., an application filed in the European Patent Office claiming the same U.K. priority as claimed in the U.S. application).

after the filing of a request for continued examination under 37 C.F.R. § 1.114. No statement or fee is required.

☐ 3. Filing under 37 C.F.R. § 1.97(c). This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, or Notice of Allowance, or an action that otherwise closes prosecution in the application.

☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

☐ c. Attached is our PTO-2038 Credit Card Payment Form in the amount of $240.00 in payment of the fee under 37 C.F.R. § 1.17(p).

☐ 4. Filing under 37 C.F.R. § 1.97(d) This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or

Notice of Allowance, but on or before payment of the Issue Fee. Enclosed find our PTO-2038 Credit Card Payment Form in the amount of $240.00 in payment of the fee under 37 C.F.R. § 1.17(p); in addition:

☐ a. Statement under 37 C.F.R. § 1.97(e)(1). I hereby state that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

☐ b. Statement under 37 C.F.R. § 1.97(e)(2). I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

☐ 5. The patent family for one or more foreign language documents submitted herewith includes a United States patent, and other patent, in the English language. Copies of both the particular foreign patent(s) or published foreign patent applications cited in the foreign patent office communication, and that are not already of record in this application, are enclosed. Copies of the related United States or other English language patent or published application from the family list, if not already of record, are listed on the accompanying SB/08A form. For the purposes of a statement under 37 CFR 1.97(e)(1), the United States or

other English language patent or published application are to be construed as being cited by the foreign patent office. MPEP 609.04(b)(V).

☐ 6. The document(s) was/were cited in a search report by a foreign patent office in a counterpart foreign application. Submission of an English language version of the search report that indicates the degree of relevance found by the foreign office is provided in satisfaction of the requirement for a concise explanation of relevance. MPEP 609.04(a)(III).

☐ 7. A concise explanation of the relevance of the non-English language document(s) appears below in accordance with 37 C.F.R. § 1.98(a)(3).

☒ 8. Copies of documents **FP1** and **NPL1-NPL102** are submitted. However, in accordance with 37 C.F.R. § 1.98(a)(2)(ii), no copies of U.S. patents and patent application publications cited as documents **US1-US6** on the attached IDS Forms are submitted.

☐ 9. Copies of the _____ documents were cited by or submitted to the Office in an IDS that complies with 37 C.F.R. § 1.98(a)-(c) in Application No._____, filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

☒ 10. It is expected that the examiner will review the prosecution and cited art in the parent Application Nos. 15/131,250, filed April 18, 2016, now U.S. Patent 9,681,466; 13/858,666, filed April 8, 2013, now U.S. Patent 9,320,018; 13/212,843, filed August, 18, 2011, now U.S. Patent 8,428,026; and 11/430,421, filed May 8, 2006, now U.S. Patent 8,005,041 in accordance with MPEP 2001.06(b), and indicate in the next communication from the office

that the art cited in the earlier prosecution history has been reviewed in connection with the present application.

☐ 11. In accordance with the Federal Circuit decision in *Dayco Prods., Inc. v. Total Containment, Inc.* 329 F.3d 1358 (Fed. Cir. 2003), Applicants submit herewith Office Actions from the co-pending U.S. Patent Application No._____, filed _____, as documents _____ to _____. The identification of these Office Actions is not to be construed as a waiver of secrecy as to those applications now or upon issuance of the present application as a patent. The Examiner is respectfully requested to consider the cited applications and the art cited therein during examination.

It is respectfully requested that the Examiner initial and return a copy of the enclosed IDS Forms, and indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

/Ross G. Hicks, #56,374/

Ross G. Hicks
Attorney for Applicant
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Date: December 11, 2018

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December 11, 2018

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

*Confirmation No. 9700*
*Art Unit 2411*
*Attn: Mail Stop RCE*

Re: U.S. Utility Patent Application
Application No. 15/618,669; Filing Date: June 9, 2017
For: **Determining Buffer Occupancy and Selecting Data for Transmission on a Radio Bearer**
Inventor: Timothy J. SPEIGHT
Our Ref: 3059.7360004

Commissioner:

Transmitted herewith for appropriate action are the following documents:

1. Online Credit Card Payment Authorization in the amount of **$1,300.00** to cover RCE Fee required under 37 C.F.R. § 1.17(e)(2);
2. Authorization to Treat a Reply As Incorporating An Extension of Time Under 37 C.F.R. § 1.136(a)(3);
3. Request for Continued Examination (RCE) Transmittal;
4. First Supplemental Information Disclosure Statement;
5. Form PTO/SB/08a (1 sheet) listing 7 documents (**US1-US6** and **FP1**);
6. Form PTO/SB/08b (11 sheets) listing 102 documents (**NPL1-NPL102**); and
7. Copies of cited documents (**FP1** and **NPL1-NPL102**).

In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

/Ross G. Hicks, #56,374/

Ross G. Hicks
Attorney for Applicant
Registration No. 56,374

RGH/jrg
Enclosures

10400992_1.docx

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 34534472 |
| **Application Number:** | 15618669 |
| **International Application Number:** | |
| **Confirmation Number:** | 9700 |
| **Title of Invention:** | DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Customer Number:** | 26111 |
| **Filer:** | Ross Gordon Hicks/Joel Greenberg |
| **Filer Authorized By:** | Ross Gordon Hicks |
| **Attorney Docket Number:** | 3059.7360004 |
| **Receipt Date:** | 11-DEC-2018 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 17:22:43 |
| **Application Type:** | Utility under 35 USC 111(a) |

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## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
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| 1 | Non Patent Literature | NPL52_1007_IV_Infringement_Contentions.pdf | 5405091<br>3f7337eda426af3a20bf61e3e889c7212d457eae | no | 63 |

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| 2 | Non Patent Literature | NPL53_1008_IV_Opposition_to_Defendant.pdf | 3383208<br>5594e8da922be698e77de264c6b638c85004af97 | no | 37 |
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| 3 | Non Patent Literature | NPL54_1009_Expert_Declaration_Hall-Ellis.pdf | 6937741<br>4c7ba387f97f1bfa01843d8ee46ad55979c44c0d | no | 104 |
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| 4 | Non Patent Literature | NPL55_1010_An_introduction_to_Broadband.pdf | 15654778<br>96f0e2fd3b2e8edaf6874c7b5530283a392ee2ff | no | 51 |
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| 5 | Non Patent Literature | NPL56_1013_Encylopedia_Electronics.pdf | 1513851<br>edbe107ea051a2ee1c484bbb9a8b81aef864af5f | no | 4 |
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| 6 | Non Patent Literature | NPL57_6_POPR.pdf | 2218214<br>3949dde9ef1ac9d472ce149f86c21ba21cf04e1d | no | 35 |
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| 7 | Non Patent Literature | NPL58_2001_Passas.pdf | 5662939<br>9b9397d194610ca13f8065226fcaec83ec983fd6 | no | 10 |
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| 8 | Non Patent Literature | NPL59_2002_IEEE_100.pdf | 979765<br>b05c969d2b4a8fadc89e22050baac4d7df6e1a32 | no | 5 |
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| 11 | Non Patent Literature | NPL62_020_Defendents_Motion.pdf | 242381<br>e95c644f95227ba6cfedff1cb65d7a6875022a46 | no | 36 |
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| 12 | Non Patent Literature | NPL63_022_Ericcsons_Motion.pdf | 150397<br>bd5a9312483e3b1600279acc66759554984dcf05 | no | 15 |
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| 13 | Non Patent Literature | NPL64_027_Notice.pdf | 103660<br>60f0b83b1900dc3bd5129c237839fa4e4b7e3646 | no | 2 |
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| 14 | Non Patent Literature | NPL65_Nokia_Answer.pdf | 323964<br>9b83b96b22e88c1992e8b9dd3d6c2ce7523d65eb | no | 57 |
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| 15 | Non Patent Literature | NPL66_060_Order_Denying.pdf | 187898<br>0efc790f398a5b8c2f8a0fdf8987511b9e1aa250 | no | 8 |
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| 16 | Non Patent Literature | NPL67_062_Order_Granting.pdf | 270713<br>ca0dbeeb28b067fa67fd9503c64f1299647d1374 | no | 19 |
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| 17 | Non Patent Literature | NPL68_001_Complaint.pdf | 183250<br>8067c98f2501a4950960b4d0cc05f9253ee54d37 | no | 44 |
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| 18 | Non Patent Literature | NPL69_026_Motion_Dismiss.pdf | 2913741<br>237e10c94757d495f553844b0a2f3bbebf3ed2ea | no | 36 |
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| 19 | Non Patent Literature | NPL70_028_Ericsson_Motion_Dismiss.pdf | 178566<br>65752f6efcfd06a1b2e076646191e8646197d671 | no | 15 |
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| 20 | Non Patent Literature | NPL71_033_Answer_Complaint.pdf | 263759<br>ce3d8969055c64c4176fa8a4f8b575fe848106c3 | no | 58 |
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| 21 | Non Patent Literature | NPL72_054_Answer_Complaint.pdf | 466763<br>ee4b6af7f837ea1073cb537938159ab80fcecad1 | no | 7 |
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| 22 | Non Patent Literature | NPL73_115_Order.pdf | 130491<br>aa5add7a78e3eb15957e5f39db06f84400b8c5f3 | no | 1 |
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| 23 | Non Patent Literature | NPL74_118_Answer_to_Complaint_in_Civil_Action.pdf | 3090026<br>2650ffc1ba21aeceb88662331838b6840994803b | no | 57 |
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| 24 | Non Patent Literature | NPL76_126_Notice_IV.pdf | 1687185<br>238fc8b97313cde88a50f215d239ea676ff049c0 | no | 21 |
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| 25 | Non Patent Literature | NPL77_134_Response_Notice.pdf | 1820331<br>1256cc08eff6bed80c2ef4e5d0c184a4f97d0a4c | no | 22 |
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| 26 | Non Patent Literature | NPL78_139_Response_Notice.pdf | 804819<br>ead703bf4f3dae54fe2751fa6ee384cd96fc3fd8 | no | 10 |
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| 27 | Non Patent Literature | NPL79_141_Notice_IV.pdf | 306822<br>b44b1513666bee66aae1bc7a75e2b989bbe10bee | no | 4 |
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| 28 | Non Patent Literature | NPL80_143_Response.pdf | 402343<br>71436da43b69b580ef05027036d4f46646a84b42 | no | 5 |
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| 29 | Non Patent Literature | NPL81_144_Sur_Reply_to_Reply.pdf | 450470<br>f0588f90da7933002b0539ec18c809a8dda7582e | no | 6 |
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| 30 | Non Patent Literature | NPL82_153_Unopposed_Motion.pdf | 454517<br>d30f1bd0389fed2436101c90b5358276f8d55a21 | no | 6 |
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| 31 | Non Patent Literature | NPL83_154_Notice_Nextel_Operations.pdf | 350590<br>a9edfda81576c3ad390cfd6992ae63c03f917631 | no | 4 |
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| 32 | Non Patent Literature | NPL84_157_Order_Granting.pdf | 115818<br>c02cf82166543d14e337e1b3bba9a11ac6c24304 | no | 1 |
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| 33 | Non Patent Literature | NPL85_160_Response_to_Notice.pdf | 299018<br>7dd54ac79164faf56df7c0b313ab74695e556092 | no | 4 |
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| 34 | Non Patent Literature | NPL86_161_Unopposed_Motion.pdf | 274340<br>42e89143b1b224f81dbaaa8bc003c0549e435734 | no | 4 |
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| 35 | Non Patent Literature | NPL87_163_order_granting.pdf | 119572<br>574f948fdd6b99f37c1abc97c24712b8d2d07596 | no | 1 |
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| 36 | Non Patent Literature | NPL88_175_PR_4_3_Joint_Claim_Construction.pdf | 556606<br>90de4419a871ff787253b7f6fbc83bab6393b965 | no | 7 |
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| 37 | Non Patent Literature | NPL89_176_Joint_Motion_to_Amend.pdf | 556608<br>02ec819af1d91a58c73a55f90ac5dd7671fee48e | no | 7 |
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| 38 | Non Patent Literature | NPL90_177_Order_granting_176_Motion.pdf | 133596<br>e3a227416fe39ab6213b53b3cbe2596c3e1afec6 | no | 2 |
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| 39 | Non Patent Literature | NPL91_180_Opening_Claim_Construction.pdf | 2265915<br>29fdd275caf8c83cddfe728e3440c2fed4785ad8 | no | 29 |
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| 40 | Non Patent Literature | NPL92_183_Order_Denying_28_motion.pdf | 673469<br>d1a5665189984d7b2656fbedaae990617cdf4db6 | no | 8 |
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| 41 | Non Patent Literature | NPL93_189_Order_Granting_in_part.pdf | 1593611<br>26c00675f7b3b971fecf1de0a68dcc639f191d9c | no | 19 |
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| 42 | Non Patent Literature | NPL94_194_Defendants_Responsive_Claim_Construction.pdf | 3022724<br>d1a6bc50ae2a056ba3d5070be4bc75a363df7884 | no | 36 |
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| 43 | Non Patent Literature | NPL95_201_Redaction_to_196.pdf | 3931111<br>6ab61284839bd88d459f9c180907f0ef6d90993c | no | 62 |
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| 44 | Non Patent Literature | NPL96_202_Redaction_to_197.pdf | 3613952<br>d382852ea4c5168143f4d0c58d199e7540778cf1 | no | 56 |
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| 45 | Non Patent Literature | NPL97_207_reply_to_180_Opening_Claim.pdf | 1133928<br>5894ed731e5db27421e8229f9aab9a38f8b80814 | no | 14 |
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| 46 | Non Patent Literature | NPL98_208_Redaction_to_205.pdf | 3566240<br>dbeafdb37f2b48fbfefb9a731d8a9fe8a0160da8 | no | 54 |
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| 47 | Non Patent Literature | NPL99_209_Redaction_to_206.pdf | 3638743<br>6975e7645e19cfc52b8292cb4401b216adace356 | no | 57 |
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| 48 | Non Patent Literature | NPL100_210_Claim_Construction_Chart.pdf | 2156117<br>bb81d1f6bdebe96a0cd455433c39d83eeb31677e | no | 33 |
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| 49 | Non Patent Literature | NPL101_Docket_History_661.pdf | 216438<br>37ebadd20913c56d9daf584b8a2e5e6ffdf03e0f | no | 3 |
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| 50 | Non Patent Literature | NPL102_Docket_History_662.pdf | 611164<br>a110c603322108cce3288ba70d88f9ec822dcf34 | no | 11 |
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| 51 | Non Patent Literature | FP1_WO2006037492A1.pdf | 2602925<br>bda8feaa8ee173c8d7fccd970e2a48416d1e0ae2 | no | 56 |
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| 52 | Non Patent Literature | NPL75_120_Answer_to_Complaint.pdf | 469999<br>694f10b24b7f510087edcfa4c4f74adc23627175 | no | 7 |
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| | | **Total Files Size (in bytes):** | 89327731 | | |

**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.**

# Electronic Acknowledgement Receipt

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| **EFS ID:** | 34533780 |
| **Application Number:** | 15618669 |
| **International Application Number:** | |
| **Confirmation Number:** | 9700 |
| **Title of Invention:** | DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Customer Number:** | 26111 |
| **Filer:** | Ross Gordon Hicks/Joel Greenberg |
| **Filer Authorized By:** | Ross Gordon Hicks |
| **Attorney Docket Number:** | 3059.7360004 |
| **Receipt Date:** | 11-DEC-2018 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 17:18:29 |
| **Application Type:** | Utility under 35 USC 111(a) |

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## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
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| 1 | Non Patent Literature | NPL1_1_Petition.pdf | 4536932<br>586f73566cb6f53e7f528b303643a836b1becbca | no | 74 |

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| 2 | Non Patent Literature | NPL2_1002_466_File_History.pdf | 7915051<br>9cc933e95faf88e330cf351a3e814b1fed6c3c17 | no | 161 |
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| 3 | Non Patent Literature | NPL3_1003_Declaration_Answer_Singer.pdf | 9358612<br>7add36a8bbcd123757b90284217497019eae3bef | no | 118 |
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| 4 | Non Patent Literature | NPL4_1007_Prov_App_60792012.pdf | 5895257<br>f40bd1bb579878882e5f0e982c9f82c0b4c28fe5 | no | 54 |
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| 5 | Non Patent Literature | NPL5_1009_3GPP_TS_23107.pdf | 2831090<br>f429f47eb21e8cbcff07d502ed489043f5d66510 | no | 41 |
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| 6 | Non Patent Literature | NPL6_1010_IV_Brief_in_Opposition.pdf | 3580208<br>08514f731a866b8f58ceb0f7c88d5ccfe3ca76c8 | no | 37 |
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| 7 | Non Patent Literature | NPL7_1011_IV_Infringement_Contentions.pdf | 5713754<br>28994a03df6b3d09423812ac9efac4011b62f4e6 | no | 64 |
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| 8 | Non Patent Literature | NPL8_1012_026_File_History.pdf | 22146166<br>74b24f182377657a45c45182c17d9a5794f77e8e | no | 448 |
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| 12 | Non Patent Literature | NPL12_1016_Patent_Owners_Prelim_Response.pdf | 3203452<br>c7834a32002f60c3fc5ea2751f4236e72b2f8ce0 | no | 43 |
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| 13 | Non Patent Literature | NPL13_1_Petition.pdf | 4674554<br>16ba3b0bb6b59c7c3ef83812b7d4d3722ee9f316 | no | 74 |
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| 14 | Non Patent Literature | NPL14_1002_018_File_History.pdf | 7917781<br>ecc9886085f2ed60515a09c57361a15150a89a18 | no | 156 |
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| 15 | Non Patent Literature | NPL15_1003_Declaration_of_Sinnger.pdf | 9856706<br>fd68e4c60980004a6a71ab585dc05be169674dba | no | 123 |
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| 16 | Non Patent Literature | NPL16_1007_Prov_App_60792012.pdf | 5905300<br>d8188bcdb1ee07ec5936801f133bb9fab521fb7e | no | 54 |
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| 18 | Non Patent Literature | NPL18_1010_IV_Brief_in_Opposition.pdf | 3563569<br>63e68f71233a56e47860e1df7d091b497578c70f | no | 37 |
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| 19 | Non Patent Literature | NPL19_1011_IV_Infringement_Contentions.pdf | 5767516<br>9aa5df43a6babeb42edf5732e5e8869d98c4975c | no | 64 |
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| **Information:** | | | | | |
| 20 | Non Patent Literature | NPL20_1012_File_History_8428026.pdf | 22086554<br>402df3d8dad51145f3cbed33f48a496c42a7dc92 | no | 448 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 21 | Non Patent Literature | NPL21_1013_File_History_8005041.pdf | 24964067<br>819e3f74946ea61568f5f1c4ae0d9348a0c115ed | no | 499 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 22 | Non Patent Literature | NPL22_1014_Exhibit_A_to_P_R_4_3.pdf | 860878<br>430c7c24a5cc99c65c787337442482d9b60257f4 | no | 9 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |

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|---|---|---|---|---|---|
| 23 | Non Patent Literature | NPL23_1015_492_File_History.pdf | 15969912<br>6984b333adee8bbaaa12910936786af1c37c4ad3 | no | 279 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 24 | Non Patent Literature | NPL24_1016_Patent_Owners_Preliminary_Response.pdf | 3218677<br>72efe6735fd9f3bb8059e146267378f96b083fae | no | 43 |
| **Warnings:** | | | | | |
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| 25 | Non Patent Literature | NPL25_1_Petition.pdf | 4264742<br>e0b0ecd646a3e043a8077912b728338468e1cdcb | no | 77 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 26 | Non Patent Literature | NPL26_1002_Expert_CV.pdf | 2060911<br>5151cb0cc7ebc1e464d99d701971bb35593ac970 | no | 52 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 27 | Non Patent Literature | NPL27_1003_Expert_Declaration.pdf | 6271995<br>d56849909222e96d9040800f7008ee78b632ebde | no | 100 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 28 | Non Patent Literature | NPL28_1004_Improving_Traffic.pdf | 2778270<br>bfdc40e53d9c9204c55a3dfc2349ca91fd2efefe | no | 18 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 29 | Non Patent Literature | NPL29_1005_MAC_Protocol.pdf | 9991200<br>6ee1d08fce3cab87b10590d05a35d3ddce0adecc | no | 20 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |

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|---|---|---|---|---|---|
| 30 | Non Patent Literature | NPL30_1006_Meeting_the_challenge.pdf | 3383251<br>208556142ed88b4df5cfea0b0b74ce33661ba31c | no | 25 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 31 | Non Patent Literature | NPL31_1007_IV_Infringement_Contentions.pdf | 3894728<br>ca6562dece17eb35f38c02b7413c21d88add1b68 | no | 47 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 32 | Non Patent Literature | NPL32_1008_Design_of_Call_Control.pdf | 2272279<br>995817cf8c6620a164c20acab0bd88af73990201 | no | 6 |
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| **Information:** | | | | | |
| 33 | Non Patent Literature | NPL33_1009_Telephonys_Dictionary.pdf | 2327935<br>fbcefa4c1d31eb4233071d265d33042d0b75a973 | no | 5 |
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| **Information:** | | | | | |
| 34 | Non Patent Literature | NPL34_1010_IV_opposition_to_defendant.pdf | 3357355<br>3fb14e80a5ceb880602adf33f0f730c3d0b8ba65 | no | 37 |
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| 35 | Non Patent Literature | NPL35_1011_3GPP_TS_25_401.pdf | 3443791<br>2eb51c9981d4348f596c44fcf8f25b03b1abdabc | no | 48 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 36 | Non Patent Literature | NPL36_1012_3GPP_TS_25990.pdf | 1305247<br>43835aa4508b4d533549514a8cc3c575ee8b6b6a | no | 20 |
| **Warnings:** | | | | | |
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| 37 | Non Patent Literature | NPL37_1013_3GPP_TS_21_905.pdf | 3420397<br>7c8275da2edb10471f10513dc1c9b80bc91e0f69 | no | 51 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 38 | Non Patent Literature | NPL38_1014_Expert_Declaration_Hall_Ellis.pdf | 6894463<br>1a32e7cfc48ce88197523bac63636472e3fb21c1 | no | 104 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 39 | Non Patent Literature | NPL39_1015_An_Introduction_to_Broadband.pdf | 15675425<br>6f699d5bfedf69ea403b95d98c8aad4ec0fb2626 | no | 51 |
| **Warnings:** | | | | | |
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| 40 | Non Patent Literature | NPL40_6_Patent_Owners_Preliminary_Response.pdf | 2606893<br>bc9c48b85e50ad39ac614bb17d54dc2f21c507aa | no | 43 |
| **Warnings:** | | | | | |
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| 41 | Non Patent Literature | NPL41_2001_Traffic_Scheduling.pdf | 2270690<br>31f39a907dc0b7e2155b84da225ca1ec6210a4e3 | no | 10 |
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| **Information:** | | | | | |
| 42 | Non Patent Literature | NPL42_2002_IEEE_100.pdf | 865485<br>e54c3732ce3d80a7f09551194aef61e8ac9d8c9c | no | 5 |
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| **Information:** | | | | | |
| 43 | Non Patent Literature | NPL43_2003_New_Oxford_Dictionary.pdf | 1456448<br>b1d78071359cadc8ee16e993b7b2acf0b6a89040 | no | 5 |
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| 44 | Non Patent Literature | NPL44_2004_Utran_Overall_Description.pdf | 3029274<br>a122c2ae6627563d84f6669cbf8727caa09bd422 | no | 48 |
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| 45 | Non Patent Literature | NPL45_7_Decision.pdf | 1619076<br>06298ef43c1bfcbb6999be82cccc218f60dbf6d7 | no | 25 |
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| **Information:** | | | | | |
| 46 | Non Patent Literature | NPL46_1_Petition.pdf | 4202186<br>1c907159ca3854cd5966731928c4702bf61d449f | no | 74 |
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| 47 | Non Patent Literature | NPL47_1002_Acampora_CV.pdf | 2060911<br>8cced9096b137dbd512999e6fb7e7c38e650ff19 | no | 52 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 48 | Non Patent Literature | NPL48_1003_Expert_Declaration.pdf | 6266215<br>7e60ff70c755c9245db4b6fe98281c43a4ae56bd | no | 99 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 49 | Non Patent Literature | NPL49_1004_Improving_Traffic_Scheduling.pdf | 2778271<br>b82a99a69b397e952c150fb56c337a479d5aa57b | no | 18 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 50 | Transmittal Letter | NPL50_1005_MAC_Protocol.pdf | 9991200<br>a7967ae5dbc446b672be4801d0452428e5c989c1 | no | 20 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |

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| 51 | Non Patent Literature | NPL51_1006_Meeting_the_Challenge.pdf | 3383251<br>d8e0e95bb4061be984ae4f28d5d09c8e76b23a51 | no | 25 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | | **Total Files Size (in bytes):** | 326289633 | |

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**New Applications Under 35 U.S.C. 111**

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

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

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

**New International Application Filed with the USPTO as a Receiving Office**

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

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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| **PATENT APPLICATION FEE DETERMINATION RECORD**<br>Substitute for Form PTO-875 | Application or Docket Number<br>15/618,669 | Filing Date<br>06/09/2017 | ☐ To be Mailed |
|---|---|---|---|

**ENTITY**: ☒ LARGE ☐ SMALL ☐ MICRO

## APPLICATION AS FILED – PART I

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

## APPLICATION AS AMENDED – PART II

AMENDMENT **12/11/2018**

| | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA | RATE ($) | ADDITIONAL FEE ($) |
|---|---|---|---|---|---|---|
| Total (37 CFR 1.16(i)) | * 14 | Minus | ** 20 | = 0 | X $100 = | 0 |
| Independent (37 CFR 1.16(h)) | * 2 | Minus | ***3 | = 0 | X $460 = | 0 |
| ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | |
| ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | |
| | | | | | TOTAL ADD'L FEE | 0 |

AMENDMENT

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
SHERRY DAVIS

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

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

| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | 3059.7360004 |

**CONFIRMATION NO. 9700**

26111
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

**POA ACCEPTANCE LETTER**

*OC000000104029929*

Date Mailed: 11/27/2018

## NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/20/2018.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

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

/dtdinh/

UNITED STATES PATENT AND TRADEMARK OFFICE

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

| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | IPW2-USCN212644 |

**CONFIRMATION NO. 9700**

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

**POWER OF ATTORNEY NOTICE**

*OC000000104029898*

Date Mailed: 11/27/2018

## NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/20/2018.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

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

/dtdinh/

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
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NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/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 | 15/618,669 |
| Filing Date | June 9, 2017 |
| First Named Inventor | Timothy J. SPEIGHT |
| Title | Determining Buffer Occupancy and Selecting Data for Transmission on a Radio Bearer |
| Art Unit | 2411 |
| Examiner Name | Lee, Andrew Chung Cheung |
| Attorney Docket Number | 3059.7360004 |

**SIGNATURE of Applicant or Patent Practitioner**

| | | | |
|---|---|---|---|
| Signature | /Ross G. Hicks, #56,374/ | Date (Optional) | November 20, 2018 |
| Name | Ross G. Hicks | Registration Number | 56,374 |
| Title (if Applicant is a juristic entity) | Attorney for Applicant | | |
| 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 1 forms are submitted.

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Doc Code: PA..
Document Description: Power of Attorney

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# POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

| Application Number | Filing Date |
|---|---|
| | |

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 26111

**OR**

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

**Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:**

☑ The address associated with the above-mentioned Customer Number

**OR**

☐ The address associated with Customer Number: 26111

**OR**

| | | | | | |
|---|---|---|---|---|---|
| ☐ Firm or Individual Name | | | | | |
| Address | | | | | |
| City | | State | | Zip | |
| Country | | | | | |
| Telephone | | Email | | | |

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Intellectual Ventures II LLC

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

**SIGNATURE of Applicant for Patent**

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

| | | | |
|---|---|---|---|
| Signature | | Date (Optional) | 5 Nov 2018 |
| Name | Rocky Adornato | | |
| Title | Authorized Person for Intellectual Ventures II LLC | | |

**NOTE:** Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ Total of 1 forms are submitted.

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# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 34357625 |
| **Application Number:** | 15618669 |
| **International Application Number:** | |
| **Confirmation Number:** | 9700 |
| **Title of Invention:** | DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Customer Number:** | 3624 |
| **Filer:** | Ross Gordon Hicks/lynette miller |
| **Filer Authorized By:** | Ross Gordon Hicks |
| **Attorney Docket Number:** | IPW2-USCN212644 |
| **Receipt Date:** | 20-NOV-2018 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 15:43:08 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Assignee showing of ownership per 37 CFR 3.73 | 2018-11-20-Statement-Under-373C-3059-7360004.pdf | 82244<br>f77162a332ede5d31ddc747a6eca3fd3ed00012b | no | 3 |

**Warnings:**

| | | | | | |
|---|---|---|---|---|---|
| **Information:** | | | | | |
| 2 | Assignee showing of ownership per 37 CFR 3.73 | 2018-11-20-Assignment-3059-7360004.pdf | 4405472<br>5280714359549060a1e8611c2d73309c4b9e2bf4 | no | 29 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Power of Attorney | 2018-11-20-POA-82A-3059-7360004.pdf | 133758<br>1570f63901669ccef392adcffe8a0999ebac578b | no | 1 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 4 | Power of Attorney | 2018-11-20-POA-82B-3059-7360004.pdf | 1472933<br>ba15ae2f88e3578241dfc6f7c5f83da20b311580 | no | 1 |
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**New Applications Under 35 U.S.C. 111**

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

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

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

**New International Application Filed with the USPTO as a Receiving Office**

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

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. 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.

# STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Intellectual Ventures II LLC

Application No./Patent No.: 15/618,669 Filed/Issue Date: June 9, 2017

Titled: Determining Buffer Occupancy and Selecting Data for Transmission on a Radio Bearer

Intellectual Ventures II LLC, a Limited Liability Company

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

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

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

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

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

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

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

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

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Timothy SPEIGHT To: IPWIRELESS, INC.

   The document was recorded in the United States Patent and Trademark Office at
   Reel 047123, Frame 0613, or for which a copy thereof is attached.

2. From: IPWIRELESS, INC. To: Northrop Grumman Information Technology, Inc.

   The document was recorded in the United States Patent and Trademark Office at
   Reel 047255, Frame 0152, or for which a copy thereof is attached.



This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

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

PTO/AIA/96 (08-12)
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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.

## STATEMENT UNDER 37 CFR 3.73(c)

3. From: Northrop Grumman Information Technology, Inc. To: IPWIRELESS, INC.

The document was recorded in the United States Patent and Trademark Office at
Reel 047212, Frame 0057, or for which a copy thereof is attached.

4. From: IPWIRELESS, INC. To: Intellectual Ventures Holding 81 LLC

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: Intellectual Ventures Holding 81 LLC To: Intellectual Ventures II LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 047214, Frame 0413, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

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

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

| /Ross G. Hicks, #56,374/ | November 20, 2018 |
|---|---|
| Signature | Date |
| Ross G. Hicks | 56,374 |
| Printed or Typed Name | Title or Registration Number |

# Privacy Act Statement

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

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

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

**DO NOT FORWARD TO ASSIGNMENT BRANCH**
**NOT FOR RECORDATION**

*Exhibit B*

## ASSIGNMENT OF PATENT RIGHTS

For good and valuable consideration, the receipt of which is hereby acknowledged, IPWireless, Inc., a Delaware corporation, with an office at 90 New Montgomery Street, Suite 315, San Francisco, CA 94105 (***"Assignor"***), does hereby sell, assign, transfer, and convey unto Intellectual Ventures Holding 81 LLC, a Nevada limited liability company, with an address at 7251 W Lake Mead Blvd, Ste 300, Las Vegas, NV 89128 (***"Assignee"***), or its designees, all right, title, and interest that exist today and may exist in the future in and to any and all of the following (collectively, the ***"Patent Rights"***):

(a) the provisional patent applications, patent applications and patents listed in the table below (the "***Patents***");

| Patent or application no. | Country | Filing Date | Title of Patent and Inventors |
|---|---|---|---|
| CN200380102352.8 | CN | 11/3/2003 | Arrangement and method for sequence production in a spread spectrum communication system<br><br>Peter Bruce Darwood; Alan Edward Jones |
| EP03769702.6 | EP | 11/3/2003 | Arrangement and method for sequence production in a spread spectrum communication system<br><br>Peter Bruce Darwood; Alan Edward Jones |
| JP4383348<br>(JP2004-547824) | JP | 10/2/2009<br>(11/3/2003) | Sequence production in a spread spectrum communication system<br><br>Peter Bruce Darwood; Alan Edward Jones |
| KR10-1060569<br>(KR10-2005-7007395) | KR | 8/24/2011<br>(11/3/2003) | Arrangement and method for sequence production in apread spectrum communication system<br><br>Peter Bruce Darwood; Alan Edward Jones |
| 7792179<br>(10/532162) | US | 9/7/2010<br>(11/3/2003) | Arrangement and method for sequence production in a spread spectrum communication system<br><br>Peter Bruce Darwood; Alan Edward Jones |

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|---|---|---|---|
| 7062278<br>(10/279697) | US | 6/13/2006<br>(10/24/2002) | Method and arrangement for allocation of resources in a radio communication system<br><br>Timothy James Speight |
| 7286832<br>(11/241043) | US | 10/23/2007<br>(9/30/2005) | Method and arrangement for allocation of resources in a radio communication system<br><br>Timothy James Speight |
| DE60212197.3<br>(DE60212197.3) | DE | 6/7/2006<br>(10/24/2002) | Method and arrangement for allocation of resources in a radio communication system<br><br>Timothy James Speight |
| ES1477040<br>(ES02772553.0) | ES | 6/7/2006<br>(10/24/2002) | Method and arrangement for allocation of resources in a radio communication system<br><br>Timothy James Speight |
| FR1477040<br>(FR02772553.0) | FR | 6/7/2006<br>(10/24/2002) | Method and arrangement for allocation of resources in a radio communication system<br><br>Timothy James Speight |
| GB1477040<br>(GB02772553.0) | GB | 6/7/2006<br>(10/24/2002) | Method and arrangement for allocation of resources in a radio communication system<br><br>Timothy James Speight |
| IT1477040<br>(IT02772553.0) | IT | 6/7/2006<br>(10/24/2002) | Method and arrangement for allocation of resources in a radio communication system<br><br>Timothy James Speight |
| DE60321474.6<br>(DE60321474.6) | DE | 6/4/2008<br>(10/1/2003) | Arrangement and method for session control in wireless communication network<br><br>Andrew Gordon Williams |
| ES1550282<br>(ES03756551.2) | ES | 6/4/2008<br>(10/1/2003) | Arrangement and method for session control in wireless communication network |

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| | | | |
|---|---|---|---|
| | | | Andrew Gordon Williams |
| FR1550282 (FR03756551.2) | FR | 6/4/2008 (10/1/2003) | Arrangement and method for session control in wireless communication network<br><br>Andrew Gordon Williams |
| GB1550282 (GB03756551.2) | GB | 6/4/2008 (10/1/2003) | Arrangement and method for session control in wireless communication network<br><br>Andrew Gordon Williams |
| IT1550282 (IT03756551.2) | IT | 6/4/2008 (10/1/2003) | Arrangement and method for session control in wireless communication network<br><br>Andrew Gordon Williams |
| 8068421 (10/529961) | US | 11/29/2011 (10/1/2003) | Arrangement and method for session control in wireless communication network<br><br>Andrew Gordon Williams |
| 13/286825 | US | 11/1/2011 | Arrangement and method for session control in wireless communication network<br><br>Andrew Gordon Williams |
| EP05744934.0 | EP | 4/7/2005 | Determining whether to initiate a multicast service in a neighbouring cell based on a user message received from a user equipment<br><br>Derek Richards; Peter Legg |
| 7835330 (10/873065) | US | 11/16/2010 (6/21/2004) | Accessing a data network through a cellular communication system<br><br>Andrew James Parker |
| EP05760931.5 | EP | 6/16/2005 | A method and apparatus for accessing a data network through a cellular communication system<br><br>Andrew James Parker |

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|---|---|---|---|
| 10/917968 | US | 8/12/2004 | Power control in a wireless communication system<br><br>Nicholas William Anderson |
| CN200580027091.7 | CN | 8/10/2005 | Combined open loop/closed loop power control in a wireless communication system<br><br>Nicholas William Anderson |
| CN2012100740 | CN | 8/10/2005 | Combined open loop/closed loop power control in a wireless communication system<br><br>Nicholas William Anderson |
| DE602005031400.8 (DE602005031400.8) | DE | 11/23/2011 (8/10/2005) | The power control with the combination of open loop/closed loop in a wireless communication system<br><br>Nicholas William Anderson |
| ES1779545 (ES05801370.7) | ES | 11/23/2011 (8/10/2005) | The power control with the combination of open loop/closed loop in a wireless communication system<br><br>Nicholas William Anderson |
| FI1779545 (FI05801370.7) | FI | 11/23/2011 (8/10/2005) | The power control with the combination of open loop/closed loop in a wireless communication system<br><br>Nicholas William Anderson |
| FR1779545 (FR05801370.7) | FR | 11/23/2011 (8/10/2005) | The power control with the combination of open loop/closed loop in a wireless communication system<br><br>Nicholas William Anderson |
| GB1779545 (GB05801370.7) | GB | 11/23/2011 (8/10/2005) | The power control with the combination of open loop/closed loop in a wireless communication system<br><br>Nicholas William Anderson |

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| IT1779545 (IT05801370.7) | IT | 11/23/2011 (8/10/2005) | The power control with the combination of open loop/closed loop in a wireless communication system<br><br>Nicholas William Anderson |
| NL1779545 (NL05801370.7) | NL | 11/23/2011 (8/10/2005) | The power control with the combination of open loop/closed loop in a wireless communication system<br><br>Nicholas William Anderson |
| PL1779545 (PL05801370.7) | PL | 11/23/2011 (8/10/2005) | The power control with the combination of open loop/closed loop in a wireless communication system<br><br>Nicholas William Anderson |
| SE1779545 (SE05801370.7) | SE | 11/23/2011 (8/10/2005) | The power control with the combination of open loop/closed loop in a wireless communication system<br><br>Nicholas William Anderson |
| TR1779545 (TR05801370.7) | TR | 11/23/2011 (8/10/2005) | The power control with the combination of open loop/closed loop in a wireless communication system<br><br>Nicholas William Anderson |
| AT2271155 (AT10185576.5) | AT | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |
| DE602005032651.0 (DE602005032651.0) | DE | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |

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| ES2271155 (ES10185576.5) | ES | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |
| FI2271155 (FI10185576.5) | FI | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |
| FR2271155 (FR10185576.5) | FR | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |
| GB2271155 (GB10185576.5) | GB | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |
| IT2271155 (IT10185576.5) | IT | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |
| NL2271155 (NL10185576.5) | NL | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |

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| PL2271155 (PL10185576.5) | PL | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |
| SE2271155 (SE10185576.5) | SE | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |
| TR2271155 (TRE10185576.5) | TR | 2/8/2012 (8/10/2005) | Methods for combined open loop/closed loop power control in a wireless communication system, corresponding base station and remote transceiver<br><br>Nicholas William Anderson |
| JP2007-525302 | JP | 8/10/2005 | Combined open loop/closed loop power control in a wireless communication system<br><br>Nicholas William Anderson |
| JP2011-234218 | JP | 10/25/2011 | Unable to verify<br><br>Nicholas William Anderson |
| KR10-2007-7005478 | KR | 8/10/2005 | Power control in a wireless communication system<br><br>Nicholas William Anderson |
| 8098621 (11/209281) | US | 1/17/2012 (8/23/2005) | Compatible broadcast downlink and unicast uplink interference reduction for a wireless communication system<br><br>Martin W. Beale |
| CN200680038351.5 | CN | 7/20/2006 | Compatible broadcast downlink and unicast uplink interference reduction for a wireless communication system |

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| | | | M. Beale |
| EP06792532.1 | EP | 7/20/2006 | Compatible broadcast downlink and unicast uplink interference reduction for a wireless communication system<br><br>Martin Beale |
| JP4772121<br>(JP2008-527415) | JP | 7/1/2011<br>(7/20/2006) | Compatible broadcast downlink and unicast uplink interference reduction for a wireless communication system<br><br>Martin Beale |
| JP2011-097516 | JP | 4/25/2011 | Interference reduction method, base station, mobile station, and computer-readable medium<br><br>Martin Beale |
| 8005041<br>(11/430421) | US | 8/23/2011<br>(5/8/2006) | Wireless communication system, apparatus for supporting data flow and method therefor<br><br>Timothy J. Speight |
| 13/212843 | US | 8/18/2011 | Wireless communication system, apparatus for supporting data flow and method therefor<br><br>Timothy J. Speight |
| CN200780021662.5 | CN | 4/27/2007 | Mapping services to radio bearers and allocating bandwidth to the radio bearers according to weight values<br><br>Timothy Speight |
| EP07728609.4 | EP | 4/27/2007 | Mapping services to radio bearers and allocating bandwidth to the radio bearers according to weight values<br><br>Timothy Speight |

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| JP2009-508323 | JP | 4/27/2007 | Mapping services to radio bearers and allocating bandwidth to the radio bearers according to weight values<br><br>Timothy Speight |
| KR10-1118339 (KR10-2008-7029455) | KR | 2/13/2012 (4/27/2007) | Mapping services to radio bearers and allocating bandwidth to the radio bearers according to weight values<br><br>Timothy Speight |
| KR10-2011-7025396 | KR | 10/26/2011 | Mapping services to radio bearers and allocating bandwidth to the radio bearers according to weight values<br><br>Timothy Speight |
| 11/796181 | US | 4/27/2007 | Methods, base station, remote station and system for high speed downlink packet access (HSDPA) communication<br><br>Peter Jonathon Legg |
| CN200880010665.3 | CN | 4/24/2008 | Methods, base station, remote station and system for high speed downlink packet access (HSDPA) communication<br><br>Peter Legg |
| EP08736556.5 | EP | 4/24/2008 | Methods, base station, remote station and system for high speed downlink packet access (HSDPA) communication<br><br>Peter Legg |
| JP2010-504698 | JP | 4/24/2008 | Methods, base station, remote station and system for high speed downlink packet access (HSDPA) communication<br><br>Peter Legg |

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| KR10-2009-7020238 | KR | 4/24/2008 | Methods, base station, remote station and system for high speed downlink packet access (HSDPA) communication<br><br>Peter Legg |
| 11/416865 | US | 5/2/2006 | Network-initiated communication establishment in a cellular system<br><br>Chandrika K. Worrall |
| CN200780021642.8 | CN | 4/27/2007 | Network-initiated communication establishment in a cellular system<br><br>Chandrika K. Worrall |
| EP07728616.9 | EP | 4/27/2007 | Network-initiated communication establishment in a cellular system<br><br>Chandrika K. Worrall |
| JP2009-508324 | JP | 4/27/2007 | Network-initiated communication establishment in a cellular system<br><br>Chandrika K. Worrall |
| JP2011-198526 | JP | 9/12/2011 | Network-initiated communication establishment in a cellular system<br><br>Chandrika K. Worrall |
| KR10-1075925<br>(KR10-2008-7029409) | KR | 10/17/2011<br>(4/27/2007) | Network-initiated communication establishment in a cellular system<br><br>Chandrika K. Worrall |
| KR10-1099840<br>(KR10-2011-7006124) | KR | 12/21/2011<br>(3/16/2011) | Network-initiated communication establishment in a cellular system<br><br>Chandrika K. Worrall |
| KR10-1110558<br>(KR10-2011-7024572) | KR | 1/19/2012<br>(10/18/2011) | Network-initiated communication establishment in a cellular system<br><br>Chandrika K. Worrall |
| 11/502928 | US | 8/11/2006 | Application-layer combining of multimedia streams delivered over multiple radio access networks and delivery modes<br><br>Chandrika K. Worrall; Haris |

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|---|---|---|---|
| | | | Zisimopoulos; Alan Edward Jones |
| AU283554 (AU2007283554) | AU | 9/1/2011 (8/8/2007) | Application-layer combining of multimedia streams delivered over multiple radio access networks and delivery modes<br><br>Alan Edward Jones; Haris Zisimopoulos; Chandrika K. Worrall |
| AU2011213704 | AU | 8/16/2011 | Application-layer combining of multimedia streams delivered over multiple radio access networks and delivery modes<br><br>Alan Edward Jones; Haris Zisimopoulos; Chandrika K. Worrall |
| CN200780034530.6 | CN | 8/8/2007 | Application-layer combining of multimedia streams delivered over multiple radio access networks and delivery modes<br><br>C. K. Worrall; H. Zisimopoulos; A. E. Jones |
| EP07802543.4 | EP | 8/8/2007 | Application-layer combining of multimedia streams delivered over multiple radio access networks and delivery modes<br><br>Chandrika K. Worrall; Haris Zisimopoulos; Alan Edward Jones |
| JP2009-523291 | JP | 8/8/2007 | Application-layer combining of multimedia streams delivered over multiple radio access networks and delivery modes<br><br>Chandrika K. Worrall; Haris Zisimopoulos; Alan Edward Jones |
| JP2011-093137 | JP | 4/19/2011 | Service center<br><br>Chandrika K. Worrall; Haris Zisimopoulos; Alan Edward Jones |

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| KR10-1047091 (KR10-2009-7004518) | KR | 6/30/2011 (8/8/2007) | Application-layer combining of multimedia streams delivered over multiple radio access networks and delivery modes<br><br>Chandrika K. Worrall; Haris Zisimopoulos; Alan Edward Jones |
| KR10-2011-7004672 | KR | 2/25/2011 | Application-layer combining of multimedia streams delivered over multiple radio access networks and delivery modes<br><br>Chandrika K. Worrall; Haris Zisimopoulos; Alan Edward Jones |
| 11/502929 | US | 8/11/2006 | Direct user plane tunnel delivery of broadcast and multicast traffic<br><br>Haris Zisimopoulos; Chandrika K. Worrall; Alan Edward Jones |
| AU283553 (AU2007283553) | AU | 6/23/2011 (8/8/2007) | Direct user plane tunnel delivery of broadcast and multicast traffic<br><br>Alan Edward Jones; Haris Zisimopoulos; Chandrika K. Worrall |
| CN200780034620.5 | CN | 8/8/2007 | Direct user plane tunnel delivery of broadcast and multicast traffic<br><br>Haris Zisimopoulos; Chandrika K. Worrall; Alan Edward Jones |
| EP07802542.6 | EP | 8/8/2007 | Direct user plane tunnel delivery of broadcast and multicast traffic<br><br>Haris Zisimopoulos; Chandrika K. Worrall; Alan Edward Jones |
| EP10172739.4 | EP | 8/8/2007 | Direct user plane tunnel delivery of broadcast and multicast traffic<br><br>Haris Zisimopoulos; Chandrika K. Worrall; Alan Edward Jones |
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(b) all patents and patent applications (i) to which any of the Patents directly or indirectly claims priority, (ii) for which any of the Patents directly or indirectly forms a basis for priority, and/or (iii) that were commonly-owned applications that incorporate by reference, or are incorporated by reference into, the Patents;

(c) all reissues, reexaminations, extensions, continuations, continuations in part, continuing prosecution applications, requests for continuing examinations, divisions, registrations of any item in any of the foregoing categories (a) and (b);

(d) all foreign patents, patent applications, and counterparts with respect to any item in any of the foregoing categories (a) through (c), including, without limitation, certificates of invention, utility models, industrial design protection, design patent protection, and other governmental grants or issuances;

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IN WITNESS WHEREOF this Assignment of Patent Rights is executed at San Francisco, CA on April 27, 2012.

**ASSIGNOR:**

**IPWireless, Inc.**

By: _____

Name: Casey McCormick

Title: General Counsel

*(Signature MUST be attested)*

**ATTESTATION OF SIGNATURE PURSUANT TO 28 U.S.C. § 1746**

The undersigned witnessed the signature of Casey McCormick to the above Assignment of Patent Rights on behalf of IPWireless, Inc. and makes the following statements:

1. I am over the age of 18 and competent to testify as to the facts in this Attestation block if called upon to do so.
2. Casey McCormick is personally known to me (or proved to me on the basis of satisfactory evidence) and appeared before me on April 27, 2012 to execute the above Assignment of Patent Rights on behalf of IPWireless, Inc.
3. Casey McCormick subscribed to the above Assignment of Patent Rights on behalf of IPWireless, Inc.

I declare under penalty of perjury under the laws of the United States of America that the statements made in the three (3) numbered paragraphs immediately above are true and correct.

EXECUTED on April 27, 2012 (date)

_____

Print Name: Nicole Schierek

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| LEE, ANDREW CHUNG CHEUNG |

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| 15/618,669 | 06/09/2017 | Timothy J. Speight | IPW2-USCN212644 | 9700 |

TITLE OF INVENTION: DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | UNDISCOUNTED | $1000 | $0.00 | $0.00 | $1000 | 12/11/2018 |

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

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

**HOW TO REPLY TO THIS NOTICE:**

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

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

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

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

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

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

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



PTOL-85 (Rev. 02/11)

## PART B - FEE(S) TRANSMITTAL

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

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

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

3624 7590 09/11/2018
VOLPE AND KOENIG, P.C.
UNITED PLAZA
30 SOUTH 17TH STREET, 18th Floor
PHILADELPHIA, PA 19103

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

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

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

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | IPW2-USCN212644 | 9700 |

TITLE OF INVENTION: DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | UNDISCOUNTED | $1000 | $0.00 | $0.00 | $1000 | 12/11/2018 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| LEE, ANDREW CHUNG CHEUNG | 2411 | 370-329000 |

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

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

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

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

1 _____
2 _____
3 _____

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

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

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

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

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

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

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

❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

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

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____


PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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. |
|---|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | IPW2-USCN212644 | 9700 |

3624 7590 09/11/2018

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

| EXAMINER | |
|---|---|
| LEE, ANDREW CHUNG CHEUNG | |
| **ART UNIT** | **PAPER NUMBER** |
| 2411 | |

DATE MAILED: 09/11/2018

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

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

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

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



PTOL-85 (Rev. 02/11)

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

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

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

## Privacy Act Statement

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

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

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

| Notice of Allowability | Application No. 15/618,669 | Applicant(s) Speight, Timothy J. | |
|---|---|---|---|
| | Examiner ANDREW C LEE | Art Unit 2411 | AIA 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 07/12/2018.
   ☐ 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 9-22 renumbered 1-14 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   **Certified copies:**

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

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

   * Certified copies not received: _____ .

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

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

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

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

**Attachment(s)**

1. ☑ 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 _____.

| /ANDREW C LEE/<br>Examiner, Art Unit 2411 | /ANDREW LAI/<br>Supervisory Patent Examiner, Art Unit 2411 |
|---|---|

***Notice of Pre-AIA or AIA Status***

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

***Response to Amendment***

1. **Claims 1 – 8** have been cancelled.

2. **Claims 9 – 22** are newly added.

***Response to Arguments***

3. Applicant's arguments, see pages 8 and 9, filed 07/12/2018, with respect to Claims 1 – 8, then newly added 9 - 22 have been fully considered and are persuasive. The rejection of Claims 1 – 8 has been withdrawn.

***Allowable Subject Matter***

4. **Claims 9 – 22** renumbered **Claims 1 – 14** are allowed.

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

The prior art of the reference being relied upon and made of record, in single or in combination, does not disclose explicitly the limitations of:

"select data from the plurality of radio bearers for transmission using the single allocation of uplink resources, wherein the selection of the data occurs using a first iteration and a second iteration, wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters, wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers, and cause the transmitter to transmit a signal including the selected data" as disclosed **in Claim 9**.

"selecting, by the processor, data from the plurality of radio bearers for transmission using the single allocation of uplink resources, wherein the selection of the data occurs using a first iteration and a second iteration; wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters; wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers; and transmitting, by the transmitter, a signal including the selected data" as disclosed **in Claim 16.**

6. Additionally, all of the further limitations in Claims 10 – 15, 17 – 22 are allowable, since the claims are dependent upon independent claims, respectively.

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

## ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW CHUNG CHEUNG LEE whose telephone number is (571)272-3131. The examiner can normally be reached on 8:30am--6:00pm.

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, ANDREW LAI can be reached on 571-272-9741. 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.

| | |
|---|---|
| /ANDREW C LEE/<br>Examiner, Art Unit 2411<br><4Q18::08_26_18> | /ANDREW LAI/<br>Supervisory Patent Examiner, Art Unit 2411 |

| Notice of References Cited | Application/Control No. 15/618,669 | Applicant(s)/Patent Under Reexamination Speight, Timothy J. | |
|---|---|---|---|
| | Examiner ANDREW C LEE | Art Unit 2411 | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Name | CPC Classification | US Classification |
|---|---|---|---|---|---|---|
| * | A | US-20070297360-A1 | 12-2007 | Joachim; Lohr | H04W52/50 | 370/329 |
| * | B | US-20080254804-A1 | 10-2008 | Lohr; Joachim | H04W72/14 | 455/442 |
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**FOREIGN PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Country | Name | CPC Classification |
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**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. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/618,669 | Speight, Timothy J. |
| | **Examiner** | **Art Unit** |
| | ANDREW C LEE | 2411 |

| CPC | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Symbol** | | | | | | **Type** | **Version** |
| H04W | / | 72 | / | 1268 | | F | 2013-01-01 |
| H04L | / | 47 | / | 10 | | I | 2013-01-01 |
| H04L | / | 47 | / | 14 | | I | 2013-01-01 |
| H04L | / | 47 | / | 2425 | | I | 2013-01-01 |
| H04L | / | 47 | / | 30 | | I | 2013-01-01 |
| H04W | / | 28 | / | 14 | | I | 2013-01-01 |
| H04W | / | 72 | / | 04 | | I | 2013-01-01 |
| H04W | / | 76 | / | 10 | | A | 2018-02-01 |
| H04W | / | 8 | / | 24 | | A | 2013-01-01 |
| H04W | / | 72 | / | 0453 | | A | 2013-01-01 |

| CPC Combination Sets | | | | | | | | |
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| /ANDREW C LEE/<br>Examiner, Art Unit 2411 | 26 August 2018 | **Total Claims Allowed:** | |
| (Assistant Examiner) | (Date) | 14 | |
| /ANDREW LAI/<br>SPE, Art Unit 2411 | 27 August 2018 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 8 | 6 |

U.S. Patent and Trademark Office — Part of Paper No.: 20180826

| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/618,669 | Speight, Timothy J. |
| | **Examiner** | **Art Unit** |
| | ANDREW C LEE | 2411 |

| INTERNATIONAL CLASSIFICATION | | | | |
|---|---|---|---|---|
| **CLAIMED** | | | | |
| H04W | / | 72 | / | 12 |

| NON-CLAIMED | | | | |
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| US ORIGINAL CLASSIFICATION | |
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| **CLASS** | **SUBCLASS** |
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| CROSS REFERENCES(S) | | | | | | |
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| **CLASS** | **SUBCLASS (ONE SUBCLASS PER BLOCK)** | | | | | |
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| /ANDREW C LEE/<br>Examiner, Art Unit 2411 | 26 August 2018 | **Total Claims Allowed:** | |
|---|---|---|---|
| (Assistant Examiner) | (Date) | 14 | |
| /ANDREW LAI/<br>SPE, Art Unit 2411 | 27 August 2018 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 8 | 6 |

U.S. Patent and Trademark Office — Part of Paper No.: 20180826

| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/618,669 | Speight, Timothy J. |
| | **Examiner** | **Art Unit** |
| | ANDREW C LEE | 2411 |

☐ 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 |
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| /ANDREW C LEE/<br>Examiner, Art Unit 2411 | 26 August 2018 | **Total Claims Allowed:** | |
| (Assistant Examiner) | (Date) | 14 | |
| /ANDREW LAI/<br>SPE, Art Unit 2411 | 27 August 2018 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 8 | 6 |

U.S. Patent and Trademark Office Part of Paper No.: 20180826

| Index of Claims | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/618,669 | Speight, Timothy J. |
| | Examiner | Art Unit |
| | ANDREW C LEE | 2411 |

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|---|---|---|---|---|---|---|---|
| ✓ | 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 | 12/25/2017 | 08/26/2018 | | | | | | | |
| | 1 | ✓ | - | | | | | | | |
| | 2 | ✓ | - | | | | | | | |
| | 3 | ✓ | - | | | | | | | |
| | 4 | ✓ | - | | | | | | | |
| | 5 | ✓ | - | | | | | | | |
| | 6 | ✓ | - | | | | | | | |
| | 7 | ✓ | - | | | | | | | |
| | 8 | ✓ | - | | | | | | | |
| 1 | 9 | | = | | | | | | | |
| 2 | 10 | | = | | | | | | | |
| 3 | 11 | | = | | | | | | | |
| 4 | 12 | | = | | | | | | | |
| 5 | 13 | | = | | | | | | | |
| 6 | 14 | | = | | | | | | | |
| 7 | 15 | | = | | | | | | | |
| 8 | 16 | | = | | | | | | | |
| 9 | 17 | | = | | | | | | | |
| 10 | 18 | | = | | | | | | | |
| 11 | 19 | | = | | | | | | | |
| 12 | 20 | | = | | | | | | | |
| 13 | 21 | | = | | | | | | | |
| 14 | 22 | | = | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/618,669 | Speight, Timothy J. |
| | **Examiner** | **Art Unit** |
| | ANDREW C LEE | 2411 |

| CPC - Searched* | | |
|---|---|---|
| **Symbol** | **Date** | **Examiner** |
| H04W72/1268 | 12/25/2017 | ACL |
| H04W72/1268 | 08/26/2018 | ACL |

| CPC Combination Sets - Searched* | | |
|---|---|---|
| **Symbol** | **Date** | **Examiner** |
| H04L47/10, H04L47/14, H04L47/2425, H04L47/30, H04W28/14, H04W72/04 | 12/25/2017 | ACL |
| H04L47/10, H04L47/14, H04L47/2425, H04L47/30, H04W28/14, H04W72/04 | 08/26/2018 | ACL |

| 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** |
| EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JOP; DERWENT; IBM_TDB) Search and CPC Classification Search -- See Search History Printout | 12/25/2017 | ACL |
| Inventor(s) and Assignee Search in East -- See Search History Printout | 12/25/2017 | ACL |
| EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JOP; DERWENT; IBM_TDB) Search and CPC Classification Search Updated-- See Search History Printout | 08/26/2018 | ACL |
| Inventor(s) and Assignee Search in East Updated -- See Search History Printout | 08/26/2018 | ACL |
| Interference Search History Printout | 08/26/2018 | ACL |

| | |
|---|---|
| | /ANDREW C LEE/<br>Examiner.Art Unit 2411 |

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15/618,669 | Speight, Timothy J. |
| | Examiner | Art Unit |
| | ANDREW C LEE | 2411 |

| Interference Search | | | |
|---|---|---|---|
| US Class/CPC Symbol | US Subclass/CPC Group | Date | Examiner |
| 370 / H04W | Interference Search History Printout | 08/26/2018 | ACL |

| | |
|---|---|
| | /ANDREW C LEE/<br>Examiner.Art Unit 2411 |

**EAST Search History**

**EAST Search History (Prior Art)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L1 | 338 | (Speight with Timothy).inv. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | OFF | 2018/08/26 16:59 |
| L2 | 94 | (Speight with Timothy).inv. AND (channel radio near bearer) near2 (allocat$3 schedul$3 assign$3) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/08/26 16:59 |
| L3 | 12 | (Speight with Timothy).inv. AND (buffer queue$3) with (load flow traffic) with (control manag$5) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/08/26 16:59 |
| L4 | 9 | (Speight with Timothy).inv. AND (buffer queue$3) with (load flow traffic) with (control manag$5) and ( H04L47/10.cpc. H04L47/14cpc. H04L47/2425.cpc. H04L47/30.cpc. H04W28/14.cpc. H04W72/042.cpc. H04W72/0413.cpc. H04L5/0053.cpc. H04L5/0048.cpc.) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/08/26 16:59 |
| L5 | 77 | (INTELLECTUAL with VENTURES with HOLDING with "81" with LLC).as. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/08/26 17:00 |
| L6 | 12 | (INTELLECTUAL with VENTURES with HOLDING with "81" with LLC).as. and L1 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/08/26 17:00 |
| L7 | 205 | (network) and (radio near2 network near2 controller RNC) and (base near2 station access near2 point) AND (mobile wireless user subscriber) near2 (node unit device apparatus equipment station terminal) and (buffer queue$3) with (condition status load$3 situation value parameter control flow empty$4 full$4 threshold limit$4) and (uplink downlink) and (radio near bearer$1) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/08/26 17:00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | and (allocat$3 schedul$3 assign$3) with (resource bandwidth capacity) and @AD<="20060508" | | | | |
| L8 | 17 | (network) and (radio near2 network near2 controller RNC) and (base near2 station access near2 point) AND (mobile wireless user subscriber) near2 (node unit device apparatus equipment station terminal) and (buffer queue$3 radio near bearer) near2 ( load$3 flow traffic) with (control manag$5) and (buffer queue$3) with( empt$5 full$4 threshold limit$4) and (uplink downlink) and service$1 and (quality QoS) and (data packet) and (allocat$3 schedul$3 assign$3) with (resource bandwidth capacity radio near bearer) and ( H04W72/1268.cpc. H04L47/10.cpc. H04L47/14.cpc. H04L47/2425.cpc. H04L47/30.cpc. H04W28/14.cpc. H04W72/04.cpc. ) and @AD<="20060508" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/08/26 17:01 |
| L9 | 12 | (unit node device apparatus equipment terminal station method) and (processor transmitter circuitry) and (receiv$3 transmit$4 determin$3 caus$3 select$3) and (radio near2 (resource$1 bearer$1)) and (parameter$1 value$1) and (buffer near2 occupanc$3) and ( (uplink UL U/L) near2 resource$1) and (allocat$3 assign$3 schedul$3) and (first near2 iteration) and (second near2 iteration) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/08/26 17:02 |
| L10 | 5 | (unit node device apparatus equipment terminal station method) and (processor transmitter circuitry) and (receiv$3 transmit$4 determin$3 caus$3 select$3) and (radio near2 (resource$1 bearer$1)) and (parameter$1 value$1) and (buffer near2 occupanc$3) and ( (uplink UL U/L) near2 resource$1) and (allocat$3 assign$3 schedul$3) and (first near2 iteration) and (second near2 iteration) and ( H04W72/1268.cpc. H04L47/10.cpc. H04L47/14.cpc. H04L47/2425.cpc. H04L47/30.cpc. H04W28/14.cpc. H04W72/04.cpc. ) and @AD<="20060508" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2018/08/26 17:03 |

**EAST Search History (Interference)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L11 | 0 | ( method and perform$3 and (user near2 equipment) and receiv$3 and ((radio near2 bearers near5 parameters) and determin$3 and processor and (buffer near2 occupancies) and (transmit$3 transmitter) and network and receiv$3 and uplink near2 resources with allocation) and select$3 and (first near iteration) and (second near iteration) and data ).CLM. | US-PGPUB; USPAT | OR | ON | 2018/08/26 17:05 |

**8/26/2018 5:06:33 PM**
**C:\Users\alee5\Documents\EAST\Workspaces\15618669 4Q18 Aug18_Sep01_2018_Interf.wsp**

**PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|---|
| In the **PATENT APPLICATION** of: | |
| Timothy J. Speight | |
| **Application No.:** 15/618,669 | Our File: IPW2-USCN212644 |
| **Confirmation No.:** 9700 | Date: July 12, 2018 |
| **Filed:** June 9, 2017 | |
| For: SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK | |
| Group: 2411 | |
| Examiner: Andrew Chung Cheung Lee | |

**RESPONSE PURSUANT TO 37 C.F.R. § 1.111**

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

This Response is being filed in response to the Non-Final Office Action dated January 12, 2018 and is submitted in conjunction with an appropriate petition for extension of time.

Please amend the application without prejudice or disclaimer as follows:

**Amendments to the Claims**:

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

1.-8. (Canceled)

9. (New) A user equipment (UE) comprising:

a processor communicatively coupled to a transmitter and circuitry configured to receive; and

the processor is configured to:

cause the circuitry to receive parameters associated with a plurality of radio bearers,

determine a plurality of buffer occupancies, wherein each of the plurality of buffer occupancies is associated with one or more radio bearers of the plurality of radio bearers,

cause the transmitter to transmit a message including the plurality of buffer occupancies to a network,

cause the circuitry to receive a single allocation of uplink resources,

select data from the plurality of radio bearers for transmission using the single allocation of uplink resources, wherein the selection of the data occurs using a first iteration and a second iteration,

wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters,

wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers, and

cause the transmitter to transmit a signal including the selected data.

10. (New) The UE of claim 9, wherein the plurality of radio bearers are associated with a plurality of channels.

11. (New) The UE of claim 9, wherein each radio bearer of the plurality of radio bearers is associated with at least one data flow or IP flow.

12. (New) The UE of claim 9, wherein the selected data is selected based on a priority or a Quality of Service (QoS).

13. (New) The UE of claim 9, wherein the plurality of radio bearers are associated with at least one packet data protocol (PDP) context.

14. (New) The UE of claim 9, wherein the single allocation of uplink resources is received on a physical shared channel from a scheduler in the network.

15. (New) The UE of claim 9, wherein the subset of the plurality of radio bearers is associated with a Quality of Service (QoS).

16. (New) A method performed by a user equipment (UE), the method comprising:

receiving, by the UE, parameters associated with a plurality of radio bearers;

determining, by a processor of the UE, a plurality of buffer occupancies, wherein each of the plurality of buffer occupancies is associated with one or more radio bearers of the plurality of radio bearers;

transmitting, by a transmitter of the UE, a message including the plurality of buffer occupancies to a network;

receiving, by the UE, a single allocation of uplink resources;

selecting, by the processor, data from the plurality of radio bearers for transmission using the single allocation of uplink resources, wherein the selection of the data occurs using a first iteration and a second iteration;

wherein in the first iteration, the selection of the data is selected from a subset of the plurality of radio bearers based on the received parameters;

wherein in the second iteration, the selection of the data is based on buffered data for respective radio bearers; and

transmitting, by the transmitter, a signal including the selected data.

17. (New) The method of claim 16, wherein the plurality of radio bearers are associated with a plurality of channels.

18. (New) The method of claim 16, wherein each radio bearer of the plurality of radio bearers is associated with at least one data flow or IP flow.

19. (New) The method of claim 16, wherein the selected data is selected based on a priority or a Quality of Service (QoS).

20. (New) The method of claim 16, wherein the plurality of radio bearers are associated with at least one packet data protocol (PDP) context.

21. (New) The method of claim 16, wherein the single allocation of uplink resources is received on a physical shared channel from a scheduler in the network.

22. (New) The method of claim 16, wherein the subset of the plurality of radio bearers is associated with a Quality of Service (QoS).

**Amendments to the Specification:**

Please replace paragraph [0001] with the following amended paragraph:

This application is a continuation of U.S. Patent Application Serial No. 15/131,250 filed April 18, 2016, which issued as U.S. Patent No. 9,681,466 on June 13, 2017, which is a continuation of U.S. Patent Application Serial No. 13/858,666 filed April 8, 2013, which issued as U.S. Patent No. 9,320,018 on April 19, 2016, which is a continuation of U.S. Patent Application Serial No. 13/212,843 filed August 18, 2011, which issued as U.S. Patent No. 8,428,026 on April 23, 2013, which is a continuation of U.S. Patent Application Serial No. 11/430,421 filed May 8, 2006, which issued as U.S. Patent No. 8,005,041 on August 23, 2011, the contents of which are all incorporated by reference herein as if fully set forth.

Please change the title to:

~~SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK~~ DETERMINING BUFFER OCCUPANCY AND SELECTING DATA FOR TRANSMISSION ON A RADIO BEARER

Please replace the Abstract with the following new Abstract:

## ABSTRACT

A user equipment (UE) may determine and transmit to a network buffer occupancy associated with one or more radio bearers. The UE may select data for transmission from radio bearers using a received single allocation of uplink resources. The selection of the data may occur using a first iteration and a second iteration.

## REMARKS/ARGUMENTS

After the foregoing Amendment, claims 9-22 are currently pending in this application. Claims 1-8 are canceled without prejudice to, or disclaimer of, the subject matter therein. In the specification, a new abstract and title are submitted herewith. **Applicant believes that new claims 9-22 are within the same scope of search as canceled claims 1-8. Applicant invites the Examiner to an interview if a discussion regarding scope is desired.**

### *Objections to the Specification*

The Examiner objected to the specification because of informalities. The specification is amended accordingly. Withdrawal of the objection to the specification is therefore respectfully requested.

### *Double Patenting Rejection*

Claims 1-8 are rejected under the judicially created doctrine of nonstatutory double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 8,681,466. Claims 1-8 are rejected under the judicially created doctrine of nonstatutory double patenting as being unpatentable over claims 9, 10, 11, 5, 6, 12, 13, and 15 of U.S. Patent No. 9,320,018. Claims 1, 2, 6, and 7 are rejected under the judicially created doctrine of nonstatutory double patenting as being unpatentable

over claims 12, 14, 3, and 9 of U.S. Patent No. 8,428,026. Claims 1-8 are canceled, thereby rendering this rejection moot.

***Conclusion***

It should also be noted that although arguments have been presented with respect to certain claims herein, the recited subject matter as well as various other subject matter and/or combinations of subject matter may be patentable for other reasons. Further, the failure to address any statement by the Examiner herein should not be interpreted as acquiescence or agreement with such statement. The Applicant expressly reserves the right to set forth additional and/or alternative reasons for patentability and/or allowance with the present application or in any other future proceeding, and to rebut any statement presented by the Examiner in this or other papers during prosecution of the present application.

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

In view of the foregoing, Applicant respectfully submits that the present application, including claims 9-22, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

Intellectual Ventures II LLC

By: /Harry Vartanian/
Harry Vartanian
Registration No. 56,787

Volpe and Koenig, P.C.
30 South 17th Street
Philadelphia, PA 19103-4009
Telephone: (215) 568-6400
Facsimile: (215) 568-6499

HV/eam

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) IPW2-USCN212644 |
|---|---|
| Application Number 15/618,669 | Filed June 9, 2017 |
| For SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK | |
| Art Unit 2411 | Examiner Andrew Chung Cheung Lee |

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 | $ |
| ☐ | Two months (37 CFR 1.17(a)(2)) | $600 | $300 | $150 | $ |
| ☑ | Three months (37 CFR 1.17(a)(3)) | $1,400 | $700 | $350 | $ 1400 |
| ☐ | 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 220493.

☑ 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 56787.

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

/Harry Vartanian/ — Signature

July 12, 2018 — Date

Harry Vartanian — Typed or printed name

215-568-6400 — 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 _____ 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.

# Privacy Act Statement

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

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

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

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 15618669 |
| **Filing Date:** | 09-Jun-2017 |
| **Title of Invention:** | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Filer:** | Harry Vartanian |
| **Attorney Docket Number:** | IPW2-USCN212644 |

Filed as Large Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| Extension - 3 months with $0 paid | 1253 | 1 | 1400 | 1400 |
| **Miscellaneous:** | | | | |
| | | **Total in USD ($)** | | **1400** |

| Electronic Acknowledgement Receipt | |
|---|---|
| **EFS ID:** | 33164044 |
| **Application Number:** | 15618669 |
| **International Application Number:** | |
| **Confirmation Number:** | 9700 |
| **Title of Invention:** | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Customer Number:** | 3624 |
| **Filer:** | Harry Vartanian/Elizabeth McGinty |
| **Filer Authorized By:** | Harry Vartanian |
| **Attorney Docket Number:** | IPW2-USCN212644 |
| **Receipt Date:** | 12-JUL-2018 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 16:35:47 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | CARD |
| Payment was successfully received in RAM | $1400 |
| RAM confirmation Number | 071318INTEFSW16372800 |
| Deposit Account | 220493 |
| Authorized User | Elizabeth McGinty |
| 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 1.20 (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 | | IPW2-USCN212644_-_Response_to_NonFinal_-_20180712.PDF | 86510<br>592b59964567b4fe9c4cfb55b77403a14c444403 | yes | 10 |

| | Multipart Description/PDF files in .zip description | | |
|---|---|---|---|
| | **Document Description** | **Start** | **End** |
| | Amendment/Req. Reconsideration-After Non-Final Reject | 1 | 1 |
| | Claims | 2 | 5 |
| | Specification | 6 | 6 |
| | Abstract | 7 | 7 |
| | Applicant Arguments/Remarks Made in an Amendment | 8 | 10 |

**Warnings:**

**Information:**

| | | | | | |
|---|---|---|---|---|---|
| 2 | Extension of Time | IPW2-USCN212644_-_Extension_of_Time_-_20180712.PDF | 154875<br>5cb3a516515905b8d7040935e0bfa6325aa3c2d7 | no | 2 |

**Warnings:**

**Information:**

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|---|---|---|---|---|---|
| 3 | Fee Worksheet (SB06) | fee-info.pdf | 30909<br>385ace25d4f68eff658b44562bee90c606a936e7 | no | 2 |

**Warnings:**

**Information:**

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| **Total Files Size (in bytes):** | 272294 |

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**New Applications Under 35 U.S.C. 111**

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

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

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

**New International Application Filed with the USPTO as a Receiving Office**

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

PTO/SB/06 (09-11)
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| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875 | Application or Docket Number<br>15/618,669 | Filing Date<br>06/09/2017 | ☐ To be Mailed |
|---|---|---|---|

**ENTITY**: ☒ LARGE ☐ SMALL ☐ MICRO

## APPLICATION AS FILED – PART I

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

## APPLICATION AS AMENDED – PART II

AMENDMENT 07/12/2018

| | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA | RATE ($) | ADDITIONAL FEE ($) |
|---|---|---|---|---|---|---|
| Total (37 CFR 1.16(i)) | * 14 | Minus | ** 20 | = 0 | X $100 = | 0 |
| Independent (37 CFR 1.16(h)) | * 2 | Minus | ***3 | = 0 | X $460 = | 0 |
| ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | |
| ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | |
| | | | | | TOTAL ADD'L FEE | 0 |

AMENDMENT

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
SHERRY DAVIS

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | IPW2-USCN212644 |

**CONFIRMATION NO. 9700**

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

**PUBLICATION NOTICE**

*OC000000097752557*

**Title:**SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK

**Publication No.**US-2018-0063862-A1
**Publication Date:**03/01/2018

## NOTICE OF PUBLICATION OF APPLICATION

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

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

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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.

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | IPW2-USCN212644 | 9700 |

3624 7590 01/12/2018

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PHILADELPHIA, PA 19103

| EXAMINER | |
|---|---|
| LEE, ANDREW CHUNG CHEUNG | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2411 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 01/12/2018 | 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

| Office Action Summary | Application No. 15/618,669 | Applicant(s) SPEIGHT, TIMOTHY J. | |
|---|---|---|---|
| | Examiner Andrew C. Lee | Art Unit 2411 | AIA (First Inventor to File) Status No |

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

**Period for Reply**

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

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

**Status**

1)☒ Responsive to communication(s) filed on *06/09/2017*.

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

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

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

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

**Disposition of Claims***

5)☒ Claim(s) *1-8* is/are pending in the application.

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

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-8* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

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

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

**Application Papers**

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

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

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

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

**Priority under 35 U.S.C. § 119**

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

**Certified copies:**

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

**Attachment(s)**

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

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *08/10/2017*.

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

4) ☐ Other: _____.

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

## DETAILED ACTION

1. This Office Action is in response to the Application no.15618669, filed 06/09/2017, is entered; wherein 15618669 is a continuation of 15131250, filed 04/18/2016, now U.S. Patent no. 9681466; 15131250 is a continuation of 13858666, filed 04/08/2013, now U.S. Patent no. 9320018; 13858666 is a continuation of 13212843, filed 08/18/2011, now U.S. Patent no. 8428026 and having 1 RCE-type filing therein; 13212843 is a continuation of 11430421, filed 05/08/2006, now U.S. Patent no. 8005041 and having 1 RCE-type filing therein.

2. **Claims 1 – 8** are hence entered for examination.

### *Information Disclosure Statement*

3. The information disclosure statement (IDS) submitted on 08/10/2017 was filed, and the submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### *Specification*

4. The disclosure is objected to because of the following informalities:

With regard to paragraph [0001], CROSS REFERENCE TO RELATED APPLICAIONS, the paragraph should be amended and be updated to include the information of Patent no.9681466.

Appropriate correction is required.

***Double Patenting***

5. 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 double patenting rejection is appropriate where the claims at issue 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 reference 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. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

6. **Claims 1 — 8** are rejected on the ground of nonstatutory double patenting as being unpatentable over **claims 1 — 8** of U.S. **Patent No. 8681466**. Although the claims

at issue are not identical, they are not patentably distinct from each other because the current claims subject matters of current application and the cited subject matters of patented document are indicated as below:

| **Current Application no. 15618669** | **Patent No. 9681466** |
|---|---|
| 1. A user equipment (UE) comprising: circuitry configured to receive a first transmission including a first parameter for each of a plurality of channels and a second transmission with an allocation message for an uplink resource; a processor configured to allocate resources in response to the allocation message, wherein resources are allocated for each channel having a second parameter above zero prior to another channel for transmission having a third parameter less than or equal to zero; and wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. | 1. A user equipment (UE) comprising: circuitry configured to receive, from a network device, a first transmission including a first parameter corresponding to each of a plurality of channels and a second transmission including an allocation message for an uplink resource from the network device; a processor configured to allocate resources in response to the allocation message, wherein resources are allocated for data of each channel having a second parameter above zero prior to another channel's data for transmission having a third parameter less than or equal to zero; and wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. |
| 2. The UE of claim 1 further comprising: a transmitter further configured to transmit a third transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. | 2. The UE of claim 1 further comprising: a transmitter further configured to transmit a third transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. |
| 3. The UE of claim 1, wherein the second parameter is derived by multiplying the first channel's first parameter with a fourth parameter and the third parameter is derived by multiplying the second channel's first parameter with the fourth parameter. | 3. The UE of claim 1, wherein the second parameter is derived by multiplying the first channel's first parameter with a fourth parameter and the third parameter is derived by multiplying the second channel's first parameter with the fourth parameter. |

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| 4. A network device comprising:<br>a transmitter configured to transmit, to a user equipment (UE), a first transmission including a first parameter for each of a plurality of channels ;<br>the transmitter further configured to transmit a second transmission including an allocation message for an uplink resource;<br>circuitry configured to receive a third transmission on the plurality of channels in response to the allocation message, wherein allocation of resources for each channel having a second parameter above zero is provided prior to another channel for transmission having a third parameter less than or equal to zero; and<br>wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. | 4. A network device comprising: a transmitter configured to transmit, to a user equipment (UE), a first transmission including a first parameter for each of a plurality of channels; the transmitter further configured to transmit a second transmission including an allocation message for an uplink resource; circuitry configured to receive a third transmission including data from the plurality of channels in response to the allocation message, wherein allocation of resources for the data of each channel having a second parameter above zero is provided prior to another channel's data for transmission having a third parameter less than or equal to zero; and wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. |
| 5. The network device of claim 4 further comprising: the circuitry is further configured to receive a fourth transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. | 5. The network device of claim 4 further comprising: the circuitry is further configured to receive a fourth transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. |
| 6. A method performed by a user equipment (UE), the method comprising:<br>receiving a first transmission including a first parameter for each of a plurality of channels and a second transmission including an allocation message for an uplink resource;<br>allocating resources in response to the allocation message, wherein resources are allocated for each channel having a second parameter above zero prior to another channel for transmission having a third parameter less than or equal | 6. A method performed by a user equipment (UE), the method comprising: receiving, from a network device, a first transmission including a first parameter corresponding to each of a plurality of channels and a second transmission including an allocation message for an uplink resource from the network device; allocating, by a processor, resources in response to the allocation message, wherein resources are allocated for data of each channel having a second parameter above zero prior to another channel's data |

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| to zero; and wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. | for transmission having a third parameter less than or equal to zero; and wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. |
| 7. The method of claim 6 further comprising: transmitting a third transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. | 7. The method of claim 6 further comprising: transmitting a third transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. |
| 8. The method of claim 6, wherein the second parameter is derived by multiplying the first channel's first parameter with a fourth parameter and the third parameter is derived by multiplying the second channel's first parameter with the fourth parameter. | 8. The method of claim 6, wherein the second parameter is derived by multiplying the first channel's first parameter with a fourth parameter and the third parameter is derived by multiplying the second channel's first parameter with the fourth parameter. |

7. **Claims 1, 2, 3, 4, 5, 6, 7, 8** are rejected on the ground of nonstatutory double patenting as being unpatentable over **claims 9, 10, 11, 5, 6, 12, 13, 15** of U.S. **Patent No. 9320018**. Although the claims at issue are not identical, they are not patentably distinct from each other because the current claims subject matters of current application and the cited subject matters of patented document are indicated as below:

| **Current Application no. 15618669** | **Patent No. 9320018** |
|---|---|
| 1. A user equipment (UE) comprising: circuitry configured to receive a first transmission including a first parameter for each of a plurality of channels and a second transmission with an | 9. A user equipment (UE) comprising: a processor configured to utilize a plurality of radio bearers; circuitry configured to receive a first parameter from a network device corresponding to each of the |

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| allocation message for an uplink resource;<br>a processor configured to allocate resources in response to the allocation message, wherein resources are allocated for each channel having a second parameter above zero prior to another channel for transmission having a third parameter less than or equal to zero; and<br>wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. | plurality of radio bearers and receive an allocation message for an uplink resource from the network device; the processor further configured to allocate resources in response to the allocation message, wherein resources are allocated for data of each channel of a radio bearer having a second parameter above zero before another channel's data for transmission having a third parameter less than or equal to zero; and wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. |
| 2. The UE of claim 1 further comprising:<br>a transmitter further configured to transmit a third transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. | 10. The UE of claim 9 further comprising: circuitry configured to send a plurality of indications of buffer occupancies corresponding to each of the plurality of radio bearers. |
| 3. The UE of claim 1, wherein the second parameter is derived by multiplying the first channel's first parameter with a fourth parameter and the third parameter is derived by multiplying the second channel's first parameter with the fourth parameter. | 11. The UE of claim 9, wherein the second parameter is derived by multiplying the first channel's first parameter with a fourth parameter and the third parameter is derived by multiplying the second channel's first parameter with the fourth parameter. |
| 4. A network device comprising:<br>a transmitter configured to transmit, to a user equipment (UE), a first transmission including a first parameter for each of a plurality of channels ;<br>the transmitter further configured to transmit a second transmission including an allocation message for an uplink resource;<br>circuitry configured to receive a third transmission on the plurality of channels in response to the allocation message, wherein allocation of resources | 5. A wireless network device comprising: a processor configured to send a first parameter for each of a plurality of radio bearers of a user equipment (UE), wherein each of the plurality of radio bearers is associated with a channel; the processor further configured to send an allocation message for an uplink resource to the UE; circuitry configured to receive data from the plurality of radio bearers in response to the allocation message, wherein allocation of resources for the data of each channel of a |

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| for each channel having a second parameter above zero is provided prior to another channel for transmission having a third parameter less than or equal to zero; and<br>wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. | radio bearer having a second parameter above zero is provided before another channel's data for transmission having a third parameter less than or equal to zero; and wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. |
| 5. The network device of claim 4 further comprising:<br>the circuitry is further configured to receive a fourth transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. | 6. The wireless network device of claim 5 further comprising: the circuitry further configured to receive a plurality of indications of buffer occupancies corresponding to each of the plurality of radio bearers. |
| 6. A method performed by a user equipment (UE), the method comprising:<br>receiving a first transmission including a first parameter for each of a plurality of channels and a second transmission including an allocation message for an uplink resource;<br>allocating resources in response to the allocation message, wherein resources are allocated for each channel having a second parameter above zero prior to another channel for transmission having a third parameter less than or equal to zero; and<br><br>wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. | 12. A method performed by a wireless network, the method comprising: sending, by the wireless network, a first parameter for each of a plurality of radio bearers of a user equipment (UE), wherein each of the plurality of radio bearers is associated with a channel; sending, by the wireless network, an allocation message for an uplink resource to the UE; receiving, by the wireless network, data from the plurality of radio bearers in response to the allocation message, wherein allocation of resources for the data of each channel of a radio bearer having a second parameter above zero is provided before another channel's data for transmission having a third parameter less than or equal to zero; and wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. |
| 7. The method of claim 6 further comprising: | 13. The method of claim 12 further comprising: receiving, by the wireless |

| | |
|---|---|
| transmitting a third transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. | network, a plurality of indications of buffer occupancies corresponding to each of the plurality of radio bearers. |
| 8. The method of claim 6, wherein the second parameter is derived by multiplying the first channel's first parameter with a fourth parameter and the third parameter is derived by multiplying the second channel's first parameter with the fourth parameter. | 15. The method of claim 12, wherein the second parameter is derived by multiplying the first channel's first parameter with a fourth parameter and the third parameter is derived by multiplying the second channel's first parameter with the fourth parameter. |

8. **Claims 1, 2, 6, 7** are rejected on the ground of nonstatutory double patenting as being unpatentable over **claims 12, 14, 3, 9** of U.S. **Patent No. 8428026**. Although the claims at issue are not identical, they are not patentably distinct from each other because the current claims subject matters of current application and the cited subject matters of patented document are indicated as below:

| **Current Application no. 15618669** | **Patent No. 8428026** |
|---|---|
| 1. A user equipment (UE) comprising:<br>circuitry configured to receive a first transmission including a first parameter for each of a plurality of channels and a second transmission with an allocation message for an uplink resource;<br>a processor configured to allocate resources in response to the allocation message, wherein resources are allocated for each channel having a second parameter above zero prior to another channel for transmission having a third parameter less than or equal to zero; and<br>wherein the second parameter is | 12. A user equipment comprising: at least one circuit comprising a plurality of buffers, wherein each of a plurality of radio bearers is associated with a corresponding one of a plurality of buffers; the at least one circuit is further configured to receive a first parameter corresponding to each of the plurality of buffers and receive an allocation message for an uplink resource from a network device; the at least one circuit is further configured to allocate data from the plurality of buffers in response to the allocation message, wherein for each buffer with a second parameter above zero, that buffer's data is allocated before |

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| derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. | other buffer's data with other second parameters less than zero; wherein each second parameter for each buffer is derived from that buffer's first parameter; and wherein the at least one circuit is further configured to send the data. |
| 2. The UE of claim 1 further comprising: a transmitter further configured to transmit a third transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. | 14. The user equipment of claim 12 wherein the at least one circuit is further configured to send to a network a plurality of indications of buffer occupancies corresponding to each of the plurality of buffers. |
| 6. A method performed by a user equipment (UE), the method comprising: receiving a first transmission including a first parameter for each of a plurality of channels and a second transmission including an allocation message for an uplink resource; allocating resources in response to the allocation message, wherein resources are allocated for each channel having a second parameter above zero prior to another channel for transmission having a third parameter less than or equal to zero; and<br><br>wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter. | 3. A method for allocating resources, the method comprising: sending, by a wireless network for each of a plurality of buffers of a user equipment (UE), a first parameter, wherein each of a plurality of radio bearers is associated with a corresponding one of the plurality of buffers; sending, by the wireless network, an allocation message for an uplink resource to the UE; receiving, by the wireless network, data from the plurality of buffers in response to the allocation message, wherein for each buffer with a second parameter above zero, that buffer's data is allocated before other buffer's data with other second parameters less than zero; and wherein each second parameter for each buffer is derived from that buffer's first parameter. |
| 7. The method of claim 6 further comprising: transmitting a third transmission including a plurality of indications of buffer occupancies associated with the plurality of channels. | 9. The method of claim 3 further comprising receiving, by the wireless network, a plurality of indications of buffer occupancies corresponding to each of the plurality of buffers. |

***Conclusion***

9. The application might be placed in the condition of allowance if and only if objections to the specification, and nonstatutory double patenting rejection be overcome, as well as if no further prior art be located/cited after the claims be amended.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571)272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Lai can be reached on (571) 272-9741. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

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| /Andrew C Lee/<br>Examiner, Art Unit 2411<br><1Q18::12_25_17> | /Andrew Lai/<br>Supervisory Patent Examiner, Art Unit 2411 |

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**( Not for submission under 37 CFR 1.99)**

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| Application Number | 15618669 |
| Filing Date | 2017-06-09 |
| First Named Inventor | Timothy J. Speight |
| Art Unit | ~~2642~~ 2411 |
| Examiner Name | ~~Not Yet Known~~ Andrew C. Lee |
| Attorney Docket Number | IPW2-USCN212644 |

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| | First Named Inventor | Timothy J. Speight |
| | Art Unit | ~~2642~~ 2411 |
| | Examiner Name | ~~Not Yet Known~~ Andrew C. Lee |
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| | First Named Inventor | Timothy J. Speight |
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| | Examiner Name | ~~Not Yet Known~~ |
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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.

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

# BIB DATA SHEET

**CONFIRMATION NO. 9700**

| SERIAL NUMBER | FILING or 371(c) DATE | CLASS | GROUP ART UNIT | ATTORNEY DOCKET NO. |
|---|---|---|---|---|
| 15/618,669 | 06/09/2017<br>RULE | 370 | 2411 | IPW2-USCN212644 |

**APPLICANTS**
Intellectual Ventures II LLC, Wilmington, DE;

**INVENTORS**
Timothy J. Speight, Bristol, UNITED KINGDOM;

**** CONTINUING DATA ***************************
This application is a CON of 15/131,250 04/18/2016 PAT 9681466
which is a CON of 13/858,666 04/08/2013 PAT 9320018
which is a CON of 13/212,843 08/18/2011 PAT 8428026
which is a CON of 11/430,421 05/08/2006 PAT 8005041

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
06/16/2017

| Foreign Priority claimed | ☐ Yes ☑ No | ☐ Met after Allowance | STATE OR COUNTRY | SHEETS DRAWINGS | TOTAL CLAIMS | INDEPENDENT CLAIMS |
|---|---|---|---|---|---|---|
| 35 USC 119(a-d) conditions met | ☐ Yes ☑ No | | UNITED KINGDOM | 6 | 8 | 3 |
| Verified and Acknowledged | /ANDREW CHUNG CHEUNG LEE/ Examiner's Signature | Initials | | | | |

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

**TITLE**
SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK

| FILING FEE RECEIVED | | |
|---|---|---|
| 1740 | FEES: Authority has been given in Paper<br>No._____ to charge/credit DEPOSIT ACCOUNT<br>No._____ for following: | ☐ All Fees<br>☐ 1.16 Fees (Filing)<br>☐ 1.17 Fees (Processing Ext. of time)<br>☐ 1.18 Fees (Issue)<br>☐ Other _____<br>☐ Credit |

| Index of Claims | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15618669 | SPEIGHT, TIMOTHY J. |
| | **Examiner** | **Art Unit** |
| | ANDREW C LEE | 2411 |

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

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

| CLAIM | | DATE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Final | Original | 12/25/2017 | | | | | | | | |
| | 1 | ✓ | | | | | | | | |
| | 2 | ✓ | | | | | | | | |
| | 3 | ✓ | | | | | | | | |
| | 4 | ✓ | | | | | | | | |
| | 5 | ✓ | | | | | | | | |
| | 6 | ✓ | | | | | | | | |
| | 7 | ✓ | | | | | | | | |
| | 8 | ✓ | | | | | | | | |

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 15618669 | SPEIGHT, TIMOTHY J. |
| | Examiner | Art Unit |
| | ANDREW C LEE | 2411 |

| CPC- SEARCHED | | |
|---|---|---|
| Symbol | Date | Examiner |
| H04W72/1268 | 12/25/2017 | ACL |

| CPC COMBINATION SETS - SEARCHED | | |
|---|---|---|
| Symbol | Date | Examiner |
| H04L47/10, H04L47/14, H04L47/2425, H04L47/30, H04W28/14, H04W72/04 | 12/25/2017 | ACL |

| 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 |
| EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JOP; DERWENT; IBM_TDB) Search and CPC Classification Search -- See Search History Printout | 12/25/2017 | ACL |
| Inventor(s) and Assignee Search in East -- See Search History Printout | 12/25/2017 | ACL |

| INTERFERENCE SEARCH | | | |
|---|---|---|---|
| US Class/ CPC Symbol | US Subclass / CPC Group | Date | Examiner |
| | | | |

| | |
|---|---|
| /ANDREW C LEE/<br>Examiner.Art Unit 2411 | |

**EAST Search History**

**EAST Search History (Prior Art)**

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L1 | 317 | (Speight with Timothy).inv. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2017/12/25 15:50 |
| L2 | 89 | (Speight with Timothy).inv. AND (channel radio near bearer) near2 (allocat$3 schedul$3 assign$3) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2017/12/25 15:50 |
| L3 | 12 | (Speight with Timothy).inv. AND (buffer queue$3) with (load flow traffic) with (control manag$5) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2017/12/25 15:51 |
| L4 | 9 | (Speight with Timothy).inv. AND (buffer queue$3) with (load flow traffic) with (control manag$5) and ( H04W72/1268.cpc. H04L47/10.cpc. H04L47/14.cpc. H04L47/2425.cpc. H04L47/30.cpc. H04W28/14.cpc. H04W72/04.cpc. ) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2017/12/25 15:51 |
| L5 | 364 | (Intellectual with Ventures with II with LLC).as. | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2017/12/25 15:53 |
| L6 | 3 | (Intellectual with Ventures with II with LLC).as. and L1 | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2017/12/25 15:53 |
| L7 | 205 | (network) and (radio near2 network near2 controller RNC) and (base near2 station access near2 point) AND (mobile wireless user subscriber) near2 (node unit device apparatus equipment station terminal) and (buffer queue$3) with (condition status load$3 situation value parameter control flow empty$4 full$4 threshold limit$4) and (uplink downlink) and (radio near bearer$1) | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2017/12/25 15:53 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | and (allocat$3 schedul$3 assign$3) with (resource bandwidth capacity) and @AD<="20060508" | | | | |
| L8 | 17 | (network) and (radio near2 network near2 controller RNC) and (base near2 station access near2 point) AND (mobile wireless user subscriber) near2 (node unit device apparatus equipment station terminal) and (buffer queue$3 radio near bearer) near2 ( load$3 flow traffic) with (control manag$5) and (buffer queue$3) with( empt$5 full$4 threshold limit$4) and (uplink downlink) and service$1 and (quality QoS) and (data packet) and (allocat$3 schedul$3 assign$3) with (resource bandwidth capacity radio near bearer) and ( H04W72/1268.cpc. H04L47/10.cpc. H04L47/14.cpc. H04L47/2425.cpc. H04L47/30.cpc. H04W28/14.cpc. H04W72/04.cpc. ) and @AD<="20060508" | US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB | OR | ON | 2017/12/25 15:54 |

**12/ 25/ 2017 3:57:34 PM**
**C:\ Users\ alee5\ Documents\ EAST\ Workspaces\ 15618669 1Q18 Dec10_Dec23_2017.wsp**

UNITED STATES PATENT AND TRADEMARK OFFICE

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

| APPLICATION NUMBER | FILING or 371(c) DATE | GRP ART UNIT | FIL FEE REC'D | ATTY.DOCKET.NO | TOT CLAIMS | IND CLAIMS |
|---|---|---|---|---|---|---|
| 15/618,669 | 06/09/2017 | 2642 | 1740 | IPW2-USCN212644 | 8 | 3 |

**CONFIRMATION NO. 9700**

**UPDATED FILING RECEIPT**

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

OC000000093608831

Date Mailed: 11/24/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

**Inventor(s)**

Timothy J. Speight, 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 15/131,250 04/18/2016 PAT 9681466
which is a CON of 13/858,666 04/08/2013 PAT 9320018
which is a CON of 13/212,843 08/18/2011 PAT 8428026
which is a CON of 11/430,421 05/08/2006 PAT 8005041

**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:** 06/16/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/618,669**

**Projected Publication Date:** 03/01/2018

**Non-Publication Request:** No

**Early Publication Request:** No

**Title**

SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK

**Preliminary Class**

455

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

## PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

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

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## Title 37, Code of Federal Regulations, 5.11 & 5.15

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

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

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

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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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## PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 15/618,669

### APPLICATION AS FILED - PART I

| FOR | (Column 1) NUMBER FILED | (Column 2) NUMBER EXTRA | SMALL ENTITY RATE($) | SMALL ENTITY FEE($) | OR | OTHER THAN SMALL ENTITY RATE($) | OTHER THAN SMALL ENTITY FEE($) |
|---|---|---|---|---|---|---|---|
| BASIC FEE (37 CFR 1.16(a), (b), or (c)) | N/A | N/A | N/A | | | N/A | 280 |
| SEARCH FEE (37 CFR 1.16(k), (i), or (m)) | N/A | N/A | N/A | | | N/A | 600 |
| EXAMINATION FEE (37 CFR 1.16(o), (p), or (q)) | N/A | N/A | N/A | | | N/A | 720 |
| TOTAL CLAIMS (37 CFR 1.16(i)) | 8 minus 20 = | * | | | OR | x 80 = | 0.00 |
| INDEPENDENT CLAIMS (37 CFR 1.16(h)) | 3 minus 3 = | * | | | | x 420 = | 0.00 |
| APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | | | 0.00 |
| MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | | | 0.00 |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | TOTAL | | | TOTAL | 1600 |

### APPLICATION AS AMENDED - PART II

| | | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA | SMALL ENTITY RATE($) | SMALL ENTITY ADDITIONAL FEE($) | OR | OTHER THAN SMALL ENTITY RATE($) | OTHER THAN SMALL ENTITY ADDITIONAL FEE($) |
|---|---|---|---|---|---|---|---|---|---|---|
| AMENDMENT A | Total (37 CFR 1.16(i)) | * | Minus | ** | = | x = | | OR | x = | |
| | Independent (37 CFR 1.16(h)) | * | Minus | *** | = | x = | | OR | x = | |
| | Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | |

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

**PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|---|
| In the **PATENT APPLICATION** of: | |
| | Timothy J. Speight |
| **Application No.:** | 15/618,669 |
| **Confirmation No.:** | 9700 |
| **Filed:** | June 9, 2017 |
| For: | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK |
| Group: | 2642 |
| Examiner: | not yet known |

Our File: IPW2-USCN212644

Date: November 20, 2017

**RESPONSE TO NOTICE TO FILE MISSING PARTS OF NON-PROVISIONAL APPLICATION**

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

In response to the Notice to File Missing Parts dated June 20, 2017, the following are enclosed:

1. Filing fee of $280;
2. Search fee of $600;
3. Examination fee of $720;
4. Surcharge of $140;
5. Request for Extension of Time and fee of $1,400;

4960445-1

6. A copy of the Notice to File Missing Parts of Non-provisional application.

All fees are being paid by credit card via EFS payment. Please charge any fee deficiencies or credit any overpayments to Deposit Account No. 22-0493.

An early action on the merits is respectfully requested.

Respectfully submitted,

Intellectual Ventures II LLC

By /Harry Vartanian/
Harry Vartanian
Registration No. 56,787

Volpe and Koenig, P.C.
United Plaza
30 South 17th Street
Philadelphia, PA 19103-4009
Telephone: (215) 568-6400
Facsimile: (215) 568-6499

HV/eam

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 |
|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | IPW2-USCN209505 CON |

**CONFIRMATION NO. 9700**

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

**FORMALITIES LETTER**

*OC000000092163904*

Date Mailed: 06/20/2017

# NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

**FILED UNDER 37 CFR 1.53(b)**

***Filing Date Granted***

**Items Required To Avoid Abandonment:**

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

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
  The surcharge is due for any one of:
  - late submission of the basic filing fee, search fee, or examination fee,
  - late submission of inventor's oath or declaration,
  - filing an application that does not contain at least one claim on filing, or
  - submission of an application filed by reference to a previously filed application.

**SUMMARY OF FEES DUE:**

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. No entity status discount is in effect. If applicant is qualified for small entity status, a written assertion of small entity status must be submitted to establish small entity status. (See 37 CFR 1.27). If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- $ **280** basic filing fee.
- $ **140** surcharge.
- $ **600** search fee.
- $ **720** examination fee.
- $( **0**) previous unapplied payment amount.
- $ **1740** TOTAL FEE BALANCE DUE.

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

Replies should be mailed to:

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

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

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

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

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

/tgebre/

PTO/AIA/22 (03-13)
Approved for use through 7/31/2016. OMB 0651-0031
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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) IPW2-USCN212644 |
|---|---|
| Application Number 15/618,669 | Filed June 9, 2017 |
| For SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK | |
| Art Unit 2642 | Examiner not yet known |

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 | $ |
| ☐ | Two months (37 CFR 1.17(a)(2)) | $600 | $300 | $150 | $ |
| ☑ | Three months (37 CFR 1.17(a)(3)) | $1,400 | $700 | $350 | $ 1,400 |
| ☐ | 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 22-0493.

☑ 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 56,787.

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

/Harry Vartanian/ — Signature

November 20, 2017 — Date

Harry Vartanian — Typed or printed name

215-568-6400 — 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 _____ 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.

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

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

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

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 15618669 |
| **Filing Date:** | 09-Jun-2017 |
| **Title of Invention:** | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Filer:** | Harry Vartanian |
| **Attorney Docket Number:** | IPW2-USCN212644 |

Filed as Large Entity

**Filing Fees for Utility under 35 USC 111(a)**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| UTILITY APPLICATION FILING | 1011 | 1 | 280 | 280 |
| UTILITY SEARCH FEE | 1111 | 1 | 600 | 600 |
| UTILITY EXAMINATION FEE | 1311 | 1 | 720 | 720 |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| LATE FILING FEE FOR OATH OR DECLARATION | 1051 | 1 | 140 | 140 |
| **Petition:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |
| Extension - 3 months with $0 paid | 1253 | 1 | 1400 | 1400 |
| **Miscellaneous:** | | | | |
| | | **Total in USD ($)** | | **3140** |

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 30997586 |
| **Application Number:** | 15618669 |
| **International Application Number:** | |
| **Confirmation Number:** | 9700 |
| **Title of Invention:** | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Customer Number:** | 3624 |
| **Filer:** | Harry Vartanian/Elizabeth McGinty |
| **Filer Authorized By:** | Harry Vartanian |
| **Attorney Docket Number:** | IPW2-USCN212644 |
| **Receipt Date:** | 20-NOV-2017 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 15:59:13 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | CARD |
| Payment was successfully received in RAM | $3140 |
| RAM confirmation Number | 112117INTEFSW16015600 |
| Deposit Account | 220493 |
| Authorized User | Elizabeth McGinty |
| 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 1.20 (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 | Applicant Response to Pre-Exam Formalities Notice | IPW2-USCN212644_-_Response_to_Missing_Parts_-_20171120.PDF | 55637<br>2c73aae14e4d9e4a125e758c46644628b3c08e32 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Miscellaneous Incoming Letter | IPW2-USCN212644_-_Notice_to_File_Missing_Parts_-_20170620.PDF | 76570<br>1a0f396da8816401e44415d79878c3233d9e16cb | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Extension of Time | IPW2-USCN212644_-_Extension_of_Time_-_20171120.PDF | 163196<br>61f97540d1b41dd32d7c7f368dbafa73a3f5fb2a | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 4 | Fee Worksheet (SB06) | fee-info.pdf | 39020<br>717f77b12de864fff251b6fede3bbe75f2e4c1b4 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 334423 | | |

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**New Applications Under 35 U.S.C. 111**

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

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

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

**New International Application Filed with the USPTO as a Receiving Office**

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

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
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**INFORMATION DISCLOSURE STATEMENT BY APPLICANT**
**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | 15618669 |
| Filing Date | 2017-06-09 |
| First Named Inventor | Timothy J. Speight |
| Art Unit | 2642 |
| Examiner Name | Not Yet Known |
| Attorney Docket Number | IPW2-USCN212644 |

**U.S.PATENTS** Remove

| Examiner Initial* | Cite No | Patent Number | Kind Code[1] | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|---|
| | 1 | 5566175 | A | 1996-10-15 | Davis | |
| | 2 | 6845100 | BA | 2005-01-18 | Rinne | |
| | 3 | 6934250 | BA | 2005-08-23 | Kejriwal et al. | |
| | 4 | 7142548 | BB | 2006-11-28 | Fong et al. | |
| | 5 | 7372842 | BB | 2008-05-13 | Kim et al. | |
| | 6 | 7394765 | BB | 2008-07-01 | Yi et al. | |
| | 7 | 7551637 | BB | 2009-06-23 | Damnjanovic et al. | |
| | 8 | 7555010 | BB | 2009-06-30 | Chun et al. | |

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 15618669 |
| | Filing Date | 2017-06-09 |
| | First Named Inventor | Timothy J. Speight |
| | Art Unit | 2642 |
| | Examiner Name | Not Yet Known |
| | Attorney Docket Number | IPW2-USCN212644 |

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|---|---|---|---|---|---|---|
| | 9 | 7623869 | BB | 2009-11-24 | Lee et al. | |
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| | 12 | 7912471 | BB | 2011-03-22 | Kodikara Patabandi et al. | |
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| | 15 | 8175039 | B2 | 2012-05-08 | Heo et al. | |
| | 16 | 6374112 | B1 | 2002-04-16 | Widegren et al. | |
| | 17 | 6661777 | B1 | 2003-12-09 | Blanc et al. | |
| | 18 | 6078959 | A | 2000-06-20 | Wright et al. | |

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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 15618669 |
| | Filing Date | 2017-06-09 |
| | First Named Inventor | Timothy J. Speight |
| | Art Unit | 2642 |
| | Examiner Name | Not Yet Known |
| | Attorney Docket Number | IPW2-USCN212644 |

| Examiner Initial* | Cite No | Publication Number | Kind Code[1] | Publication Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|---|
| | 1 | 20040064467 | AA | 2004-04-01 | Kola et al. | |
| | 2 | 20040090974 | AA | 2004-05-13 | Balakrishnan et al. | |
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| | 10 | 20100322075 | AA | 2010-12-23 | Sindhu et al. | |

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
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| | Application Number | 15618669 |
| | Filing Date | 2017-06-09 |
| | First Named Inventor | Timothy J. Speight |
| | Art Unit | 2642 |
| | Examiner Name | Not Yet Known |
| | Attorney Docket Number | IPW2-USCN212644 |

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|---|---|---|---|---|---|---|
| | 11 | 20030117964 | A1 | 2003-06-26 | Chen et al. | |
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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 15618669 |
| | Filing Date | 2017-06-09 |
| | First Named Inventor | Timothy J. Speight |
| | Art Unit | 2642 |
| | Examiner Name | Not Yet Known |
| | Attorney Docket Number | IPW2-USCN212644 |

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|---|---|---|---|---|---|
| | 22 | 20060242319 | A1 | 2006-10-26 | Sang et al. |

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**FOREIGN PATENT DOCUMENTS** Remove

| Examiner Initial* | Cite No | Foreign Document Number[3] | Country Code[2] | Kind Code[4] | Publication Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear | T[5] |
|---|---|---|---|---|---|---|---|---|
| | 1 | 1511245 | EP | A2 | 2005-03-02 | Samsung Electronics Co., Ltd. | | |
| | 2 | 02098077 | WO | A1 | 2002-12-05 | Telefonaktiebolaget LM Ericsson | | |
| | 3 | 03049320 | WO | A1 | 2003-06-12 | IPWireless, Inc. | | |
| | 4 | 03085903 | WO | A1 | 2003-10-16 | Nokia Corporation | | |

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|---|---|---|---|
| | 1 | Non-Final Rejection issued by USPTO, dated February 6, 2009 for 11/430,421. | |
| | 2 | Non-Final Rejection issued by USPTO, dated June 26, 2009 for 11/430,421. | |

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 15618669 |
| | Filing Date | 2017-06-09 |
| | First Named Inventor | Timothy J. Speight |
| | Art Unit | 2642 |
| | Examiner Name | Not Yet Known |
| | Attorney Docket Number | IPW2-USCN212644 |

| | | | |
|---|---|---|---|
| | 3 | Final Rejection issued by USPTO, dated November 30, 2009 for 11/430,421. | |
| | 4 | Non-Final Rejection issued by USPTO, dated August 13, 2010 for 11/430,421. | |
| | 5 | Notice of Allowance issued by USPTO, dated April 11, 2011 for 11/430,421. | |
| | 6 | "3rd Generation Partnership Project; Technical Specification Group Radio Access Network; UTRAN Overall Description (Release 7)," (Mar 2006). 3GPP: Valbonne, France, TS 25.401 V7.0.0:1-48. cited by other. | |
| | 7 | "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; General Packet Radio Service (GPRS); Service Description; Stage 2 (Release 7)," (Mar. 2006). 3GPP: Valbonne, France, TS 23.060 v7.0.0:1-212. cited by other. | |
| | 8 | Chinese first Office Action (including translation) dated April 2, 2011 from Chinese Patent Application No. 200780021662.5. cited by other. | |
| | 9 | Communication pursuant to Article 94(3) EPC from European Application No. 07 728 609.4-2412 dated April 9, 2010. cited by other. | |
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| | 11 | Holma, H. ed et al., (2001) WCDMA for UMTS, Wiley & Sons, ISBN-0471486876. Cited by other. | |
| | 12 | Korean Preliminary Office Action (translation) dated Sept. 20, 2010 from Korean Patent Application No. 10-2008-7029455. cited by other. | |
| | 13 | Mouly, M. et al. (1992) The GSM System for Mobile Communications, Bay Foreign Language Books, ISBN-2950719007. cited by other. | |

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
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| | Attorney Docket Number | IPW2-USCN212644 |

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| | 14 | Zhang, H. (Oct. 1995) "Service disciplines for guaranteed performance service in packet-switching networks," Proceedings of the IEEE, 83(10):1374-1396. cited by other. | |
| | 15 | Manfredi et al.; A Channel Aware Scheduling Algorithm for HSPDA System, 2005 IEEE 16th International Symposium on Personal, Indoor, and Mobile Radio Communications; 2005. | |
| | 16 | PCT Patent Application No. PCT/EP2007/054154; Notification of Transmittal of International Search Report and Written Opinion; Dated October 16, 2007. | |
| | 17 | Non-Final Rejection issued by USPTO, dated December 9, 2011 for U.S. Patent Application No. 13/212,843. | |
| | 18 | Notice of Allowance issued by USPTO, dated September 21, 2012 for U.S. Patent Application No. 13/212,843. | |
| | 19 | Notice of Allowance issued by USPTO, dated February 6, 2013 for U.S. Patent Application No. 13/212,843. | |
| | 20 | Non-Final Rejection issued by USPTO, dated April 30, 2015, for U.S. Patent Application No. 13/858,666. | |
| | 21 | Notice of Allowance issued by USPTO, dated December 11, 2015, for U.S. Patent Application No. 13/858,666. | |
| | 22 | Non-Final Rejection issued by USPTO, dated August 12, 2016, for U.S. Patent Application No. 15/131,250. | |
| | 23 | Notice of Allowance issued by USPTO, dated February 14, 2017 for U.S. Patent Application No. 15/131,250. | |

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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 15618669 |
| | Filing Date | 2017-06-09 |
| | First Named Inventor | Timothy J. Speight |
| | Art Unit | 2642 |
| | Examiner Name | Not Yet Known |
| | Attorney Docket Number | IPW2-USCN212644 |

| EXAMINER SIGNATURE | | | |
|---|---|---|---|
| Examiner Signature | | Date Considered | |

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 15618669 |
| | Filing Date | 2017-06-09 |
| | First Named Inventor | Timothy J. Speight |
| | Art Unit | 2642 |
| | Examiner Name | Not Yet Known |
| | Attorney Docket Number | IPW2-USCN212644 |

**CERTIFICATION STATEMENT**

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

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

**OR**

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

See attached certification statement.

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

☒ A certification statement is not submitted herewith.

**SIGNATURE**

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

| Signature | /Harry Vartanian/ | Date (YYYY-MM-DD) | 2017-08-10 |
|---|---|---|---|
| Name/Print | Harry Vartanian | Registration Number | 56,787 |

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

## Privacy Act Statement

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 30039439 |
| **Application Number:** | 15618669 |
| **International Application Number:** | |
| **Confirmation Number:** | 9700 |
| **Title of Invention:** | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Customer Number:** | 3624 |
| **Filer:** | Harry Vartanian/Carey Kulp |
| **Filer Authorized By:** | Harry Vartanian |
| **Attorney Docket Number:** | IPW2-USCN212644 |
| **Receipt Date:** | 10-AUG-2017 |
| **Filing Date:** | 09-JUN-2017 |
| **Time Stamp:** | 17:27:18 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Transmittal Letter | IPW2-USCN212644-IDS_TRANSMITTAL.pdf | 58691<br>feaaad0b4126f82ec272ae61a1e5ca1da311a0c5 | no | 2 |
| **Warnings:** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Information:** | | | | | |
| 2 | Information Disclosure Statement (IDS) Form (SB08) | IPW2-USCN212644-SB08.pdf | 669273<br>40e6545148a7f465d59a97d1b421188895cc0b8d | no | 10 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Other Reference-Patent/App/Search documents | NFR_Aug2016.pdf | 590547<br>7928afb5702a96a7a04fd40224075b2fc9a51338 | no | 13 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 4 | Other Reference-Patent/App/Search documents | NOA_Feb2017.pdf | 454577<br>bfa153c1e522aa89c5767266ba6be67b0e90f422 | no | 8 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 1773088 | | |

**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.**

**PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
|---|---|
| In the **PATENT APPLICATION** of: | |
| Timothy James Speight | |
| **Application No.:** 15/618,669 | Our File: IPW2-USCN212644 |
| **Confirmation No.: 9700** | Date: August 10, 2017 |
| **Filed:** June 9, 2017 | |
| For: SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK | |
| Group: 2642 | |
| Examiner: Not Yet Known | |

**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 PTO Form SB-08.

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. Copies of newly cited references are enclosed.

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

Respectfully submitted,

Intellectual Ventures II LLC

By /Harry Vartanian/
Harry Vartanian
Registration No. 56,787
(215) 568-6400

Volpe and Koenig, P.C.
United Plaza, Suite 1600
30 South 17th Street
Philadelphia, PA 19103

HV/PCK
Enclosures (3)

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 | GRP ART UNIT | FIL FEE REC'D | ATTY.DOCKET.NO | TOT CLAIMS | IND CLAIMS |
|---|---|---|---|---|---|---|
| 15/618,669 | 06/09/2017 | 2642 | 0.00 | IPW2-USCN209505 CON | 8 | 3 |

**CONFIRMATION NO. 9700**

**FILING RECEIPT**

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

OC000000092183903

Date Mailed: 06/20/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

**Inventor(s)**

Timothy J. Speight, 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 15/131,250 04/18/2016 PAT 9681466
which is a CON of 13/858,666 04/08/2013 PAT 9320018
which is a CON of 13/212,843 08/18/2011 PAT 8428026
which is a CON of 11/430,421 05/08/2006 PAT 8005041

**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:** 06/16/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/618,669**

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

**Non-Publication Request:** No

**Early Publication Request:** No

**Title**

SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK

**Preliminary Class**

455

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

## PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

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

## LICENSE FOR FOREIGN FILING UNDER

## Title 35, United States Code, Section 184

## Title 37, Code of Federal Regulations, 5.11 & 5.15

**GRANTED**

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

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

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

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.

## PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 15/618,669

### APPLICATION AS FILED - PART I

| FOR | (Column 1) NUMBER FILED | (Column 2) NUMBER EXTRA | SMALL ENTITY RATE($) | SMALL ENTITY FEE($) | OR | OTHER THAN SMALL ENTITY RATE($) | OTHER THAN SMALL ENTITY FEE($) |
|---|---|---|---|---|---|---|---|
| BASIC FEE (37 CFR 1.16(a), (b), or (c)) | N/A | N/A | N/A | | | N/A | 280 |
| SEARCH FEE (37 CFR 1.16(k), (i), or (m)) | N/A | N/A | N/A | | | N/A | 600 |
| EXAMINATION FEE (37 CFR 1.16(o), (p), or (q)) | N/A | N/A | N/A | | | N/A | 720 |
| TOTAL CLAIMS (37 CFR 1.16(i)) | 8 minus 20 = | * | | | OR | x 80 = | 0.00 |
| INDEPENDENT CLAIMS (37 CFR 1.16(h)) | 3 minus 3 = | * | | | | x 420 = | 0.00 |
| APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | | | 0.00 |
| MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | | | 0.00 |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | TOTAL | | | TOTAL | 1600 |

### APPLICATION AS AMENDED - PART II

| | | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA | SMALL ENTITY RATE($) | SMALL ENTITY ADDITIONAL FEE($) | OR | OTHER THAN SMALL ENTITY RATE($) | OTHER THAN SMALL ENTITY ADDITIONAL FEE($) |
|---|---|---|---|---|---|---|---|---|---|---|
| AMENDMENT A | Total (37 CFR 1.16(i)) | * | Minus | ** | = | x = | | OR | x = | |
| | Independent (37 CFR 1.16(h)) | * | Minus | *** | = | x = | | OR | x = | |
| | Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | |

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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 |
|---|---|---|---|
| 15/618,669 | 06/09/2017 | Timothy J. Speight | IPW2-USCN209505 CON |

**CONFIRMATION NO. 9700**

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

**FORMALITIES LETTER**

*OC000000092163904*

Date Mailed: 06/20/2017

# NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

**FILED UNDER 37 CFR 1.53(b)**

***Filing Date Granted***

**Items Required To Avoid Abandonment:**

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

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
  The surcharge is due for any one of:
  - late submission of the basic filing fee, search fee, or examination fee,
  - late submission of inventor's oath or declaration,
  - filing an application that does not contain at least one claim on filing, or
  - submission of an application filed by reference to a previously filed application.

**SUMMARY OF FEES DUE:**

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. No entity status discount is in effect. If applicant is qualified for small entity status, a written assertion of small entity status must be submitted to establish small entity status. (See 37 CFR 1.27). If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- $ **280** basic filing fee.
- $ **140** surcharge.
- $ **600** search fee.
- $ **720** examination fee.
- $( **0**) previous unapplied payment amount.
- $ **1740** TOTAL FEE BALANCE DUE.

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

Replies should be mailed to:

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

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

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

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

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

/tgebre/

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
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.

# POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

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

I hereby appoint:

■ Practitioners associated with Customer Number: 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 assignments documents attached to this form in accordance with 37 CFR 3.73(c).

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

■ The address associated with Customer Number: 3624

OR

| | | | | |
|---|---|---|---|---|
| ☐ | Firm or Individual Name | | | |
| | Address | | | |
| | City | | State | Zip |
| | Country | | | |
| | Telephone | | Email | |

Assignee Name and Address: Intellectual Ventures II LLC
2711 Centerville Road, Suite 400
Wilmington, DE 19808

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

**SIGNATURE of Assignee of Record**

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

| | | | |
|---|---|---|---|
| Signature | Tracy Lemke | Date | 4/18/16 |
| Name | Tracy Lemke | Telephone | |
| Title | Authorized Person 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.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. 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.

# STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Intellectual Ventures II LLC

Application No./Patent No.: _____ Filed/Issue Date: _____

Titled: SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK

Intellectual Ventures II LLC, a limited liability company

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

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

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

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

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

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

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

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

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Timothy J. Speight To: IP Wireless, Inc.

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

   Reel 018954, Frame 0458, or for which a copy thereof is attached.

2. From: IP Wireless, Inc. To: Northrop Grumman Information Technology, Inc.

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

   Reel 022102, Frame 0891, or for which a copy thereof is attached.



This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

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

PTO/AIA/96 (08-12)
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## STATEMENT UNDER 37 CFR 3.73(c)

3. From: Northrop Grumman Information Technology, Inc. To: IPWireless, Inc.

The document was recorded in the United States Patent and Trademark Office at
Reel 024006, Frame 0144, or for which a copy thereof is attached.

4. From: IPWireless, Inc. To: Intellectual Ventures Holding 81 LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 030629, Frame 0241, or for which a copy thereof is attached.

5. From: Intellectual Ventures Holding 81 LLC To: Intellectual Ventures II LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 039168, Frame 0913, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

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

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

| /Harry Vartanian/ | June 9, 2017 |
|---|---|
| Signature | Date |
| Harry Vartanian | 56,787 |
| Printed or Typed Name | Title or Registration Number |

# Privacy Act Statement

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

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

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

DECLARATION REGARDING AUTHORITY TO SIGN
ON BEHALF OF A LEGAL ENTITY
37 C.F.R. 3.73(c)(1)

I, Tracy Lemke (whose title is supplied below), hereby declare that I am authorized to sign documents on behalf of Intellectual Ventures II LLC.

Tracy Lemke

Tracy Lemke
Authorized Person for Intellectual Ventures II LLC

2/17/14

Date

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 29436032 |
| **Application Number:** | 15618669 |
| **International Application Number:** | |
| **Confirmation Number:** | 9700 |
| **Title of Invention:** | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK |
| **First Named Inventor/Applicant Name:** | Timothy J. Speight |
| **Customer Number:** | 3624 |
| **Filer:** | Harry Vartanian/Elizabeth McGinty |
| **Filer Authorized By:** | Harry Vartanian |
| **Attorney Docket Number:** | IPW2-USCN209505 CON |
| **Receipt Date:** | 09-JUN-2017 |
| **Filing Date:** | |
| **Time Stamp:** | 14:42:25 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Application Data Sheet | WebADS.pdf | 126985<br>b70803998c49ecb34099a4901a4aa40d0312be13 | no | 8 |

**Warnings:**

| | | | | | |
|---|---|---|---|---|---|
| **Information:** | | | | | |
| 2 | | IPW2-USCN209505_CON_-_Application_-_20170609.PDF | 141078<br>336ea25bb7423c704014f6a5aee7f71a04ee3e56 | yes | 28 |
| | **Multipart Description/PDF files in .zip description** | | | | |
| | **Document Description** | | **Start** | **End** | |
| | Specification | | 1 | 24 | |
| | Claims | | 25 | 27 | |
| | Abstract | | 28 | 28 | |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Drawings-only black and white line drawings | IPW2-USCN209505_CON_-_Drawings_-_20170608.PDF | 1325143<br>4c0821c453d9f8a0f840d5884d6c46b969773f8b | no | 6 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 4 | Oath or Declaration filed | IPW2-USCN209505_CON_-_Parent_Declaration_-_20170608.PDF | 50162<br>17c6bd2e5ddc54c15ac4702454780951860344ad | no | 1 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 5 | Power of Attorney | IPW2-USCN209505_CON_-_PostAIA_POA_-_20170608.PDF | 147900<br>2c090f3174f817f623e9222cb7241d55a509d07c | no | 1 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 6 | Assignee showing of ownership per 37 CFR 3.73 | IPW2-USCN209505_CON_-_373c_Statement_-_20170608.PDF | 123956<br>6082ba01e82cfdb9849e871c0032f8464f565a75 | no | 3 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 7 | Assignee showing of ownership per 37 CFR 3.73 | IPW2-USCN209505_CON_-_PostAIA_DRATS_-_20170608.PDF | 23893<br>baad8a561897131ec12e9b99f64f3a11486d823e | no | 1 |

| Warnings: | |
|---|---|
| Information: | |
| Total Files Size (in bytes): | 1939117 |

**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.**

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | IPW2-USCN209505 CON |
|---|---|---|
| | Application Number | |
| Title of Invention | SCHEDULING TRANSMISSIONS ON CHANNELS 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**

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | Timothy | J. | Speight | |

**Residence Information (Select One)** ○ US Residency ◉ Non US Residency ○ Active US Military Service

| City | Bristol | Country of Residence [i] | GB |
|---|---|---|---|

**Mailing Address of Inventor:**

| | | | |
|---|---|---|---|
| **Address 1** | 47 Cotham Road | | |
| **Address 2** | Cotham | | |
| **City** | Bristol | **State/Province** | |
| **Postal Code** | BS6 6DN | **Country** [i] | GB |

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

## Correspondence Information:

**Enter either Customer Number or complete the Correspondence Information section below.**
**For further information see 37 CFR 1.33(a).**

☐ **An Address is being provided for the correspondence Information of this application.**

| | | | |
|---|---|---|---|
| **Customer Number** | 3624 | | |
| **Email Address** | eoffice@vklaw.com | Add Email | Remove Email |

## Application Information:

| | | | |
|---|---|---|---|
| **Title of the Invention** | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK | | |
| **Attorney Docket Number** | IPW2-USCN209505 CON | **Small Entity Status Claimed** | ☐ |
| **Application Type** | | | |
| **Subject Matter** | | | |
| **Total Number of Drawing Sheets (if any)** | 6 | **Suggested Figure for Publication (if any)** | 1 |

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| **Application Data Sheet 37 CFR 1.76** | Attorney Docket Number | IPW2-USCN209505 CON |
|---|---|---|
| | Application Number | |
| Title of Invention | SCHEDULING TRANSMISSIONS ON CHANNELS 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 | | |

| Prefix | **Given Name** | Middle Name | **Family Name** | Suffix | Remove |
|---|---|---|---|---|---|
| | | | | | |

| Registration Number | |
|---|---|

| Prefix | **Given Name** | Middle Name | **Family Name** | Suffix | Remove |
|---|---|---|---|---|---|
| | | | | | |

| Registration Number | |
|---|---|

Additional Representative Information blocks may be generated within this form by selecting the **Add** button.

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| **Application Data Sheet 37 CFR 1.76** | Attorney Docket Number | IPW2-USCN209505 CON |
|---|---|---|
| | Application Number | |
| Title of Invention | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK | |

## Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

| Prior Application Status | Pending | | Remove |
|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
| | Continuation of | 15131250 | 2016-04-18 |

| Prior Application Status | Patented | | | Remove | |
|---|---|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
| 15131250 | Continuation of | 13858666 | 2013-04-08 | 9320018 | 2016-04-19 |

| Prior Application Status | Patented | | | Remove | |
|---|---|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
| 13858666 | Continuation of | 13212843 | 2011-08-18 | 8428026 | 2013-04-23 |

| Prior Application Status | Patented | | | Remove | |
|---|---|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
| 13212843 | Continuation of | 11430421 | 2006-05-08 | 8005041 | 2011-08-23 |

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

## Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

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

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

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| **Application Data Sheet 37 CFR 1.76** | | Attorney Docket Number | IPW2-USCN209505 CON |
|---|---|---|---|
| | | Application Number | |
| Title of Invention | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK | | |

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

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | IPW2-USCN209505 CON |
|---|---|---|
| | Application Number | |
| Title of Invention | SCHEDULING TRANSMISSIONS ON CHANNELS 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.

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| **Application Data Sheet 37 CFR 1.76** | Attorney Docket Number | IPW2-USCN209505 CON |
|---|---|---|
| | Application Number | |
| Title of Invention | SCHEDULING TRANSMISSIONS ON CHANNELS 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**

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** | 2711 Centerville Road | | |
| Address 2 | Suite 400 | | |
| **City** | Wilmington | **State/Province** | DE |
| **Country**[i] | US | Postal Code | 19808 |
| Phone Number | | Fax Number | |
| Email Address | | | |

Additional Applicant Data may be generated within this form by selecting the Add button.

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| **Application Data Sheet 37 CFR 1.76** | Attorney Docket Number | IPW2-USCN209505 CON |
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| | Application Number | |
| Title of Invention | SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK | |

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# SCHEDULING TRANSMISSIONS ON CHANNELS IN A WIRELESS NETWORK

## CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. Patent Application Serial No. 15/131,250 filed April 18, 2016, which is a continuation of U.S. Patent Application Serial No. 13/858,666 filed April 8, 2013, which issued as U.S. Patent No. 9,320,018 on April 19, 2016, which is a continuation of U.S. Patent Application Serial No. 13/212,843 filed August 18, 2011, which issued as U.S. Patent No. 8,428,026 on April 23, 2013, which is a continuation of U.S. Patent Application Serial No. 11/430,421 filed May 8, 2006, which issued as U.S. Patent No. 8,005,041 on August 23, 2011, the contents of which are all incorporated by reference herein as if fully set forth.

## FIELD OF THE INVENTION

[0002] This invention relates to a mechanism to support Internet Protocol data flows within a wireless communication system. The invention is applicable to, but not limited to, gateway queuing algorithms in packet data transmissions, for example, for use in the universal mobile telecommunication standard.

## BACKGROUND OF THE INVENTION

[0003] In a cellular communication system, a geographical region is divided into a number of cells, each of which is served by base stations, sometimes referred to as Node-Bs. The base stations are interconnected by a fixed network which can communicate data between the base stations. A mobile station, sometimes referred to as user equipment (UE) is served via a radio communication link from the base station of the cell within which the mobile station is situated.

[0004] A typical cellular communication system extends coverage over an entire country and comprises hundreds or even thousands of cells supporting

thousands or even millions of mobile stations. Communication from a mobile station to a base station is known as the uplink, and communication from a base station to a mobile station is known as the downlink.

[0005] The fixed network interconnecting the base stations is operable to route data between any two base stations, thereby enabling a mobile station in a cell to communicate with a mobile station in any other cell. In addition, the fixed network comprises gateway functions for interconnecting to external networks such as the Internet or the Public Switched Telephone Network (PSTN), thereby allowing mobile stations to communicate with landline telephones and other communication terminals connected by a landline. Furthermore, the fixed network comprises much of the functionality required for managing a conventional cellular communication network including functionality for routing data, admission control, resource allocation, subscriber billing, mobile station authentication etc.

[0006] Currently, the most ubiquitous cellular communication system is the 2nd generation communication system known as the Global System for Mobile communication (GSM). GSM uses a technology known as Time Division Multiple Access (TDMA) wherein user separation is achieved by dividing frequency carriers into 8 discrete time slots, which individually can be allocated to a user. Further description of the GSM TDMA communication system can be found in `The GSM System for Mobile Communications` by Michel Mouly and Marie Bernadette Pautet, Bay Foreign Language Books, 1992, ISBN 2950719007.

[0007] Currently, 3rd generation systems are being rolled out to further enhance the communication services provided to mobile users. The most widely adopted 3rd generation communication systems are based on Code Division Multiple Access (CDMA) technology. Both Frequency Division Duplex (FDD) and Time Division Duplex (TDD) techniques employ this CDMA technology. In CDMA systems, user separation is obtained by allocating different spreading and scrambling codes to different users on the same carrier frequency and in the same

time intervals. In TDD, additional user separation is achieved by assigning different time slots to different users similarly to TDMA. However, in contrast to TDMA, TDD provides for the same carrier frequency to be used for both uplink and downlink transmissions. An example of a communication system using this principle is the Universal Mobile Telecommunication System (UMTS). Further description of CDMA and specifically of the Wideband CDMA (WCDMA) mode of UMTS can be found in `WCDMA for UMTS`, Harri Holma (editor), Antti Toskala (Editor), Wiley & Sons, 2001, ISBN 0471486876.

[0008] In a 3rd generation cellular communication system, the communication network comprises a core network and a Radio Access Network (RAN). The core network is operable to route data from one part of the RAN to another, as well as interfacing with other communication systems. In addition, it performs many of the operation and management functions of a cellular communication system, such as billing. The RAN is operable to support wireless user equipment over a radio link of the air interface. The RAN comprises the base stations, which in UMTS are known as Node Bs, as well as Radio Network Controllers (RNCs) which control the base stations and the communication over the air interface.

[0009] The RNC performs many of the control functions related to the air interface including radio resource management and routing of data to and from appropriate base stations. It further provides the interface between the RAN and the core network. An RNC and associated base stations are known as a Radio Network Subsystem (RNS).

[0010] 3rd generation cellular communication systems have been specified to provide a large number of different services including efficient packet data services. For example, downlink packet data services are supported within the 3GPP release 5 specifications in the form of the High Speed Downlink Packet Access (HSDPA) service. A High Speed Uplink Packet Access (HSUPA) feature is also in the process

of being standardised. This uplink packet access feature will adopt many of the features of HSDPA.

[0011] In accordance with the 3GPP specifications, the HSDPA service may be used in both Frequency Division Duplex (FDD) mode and Time Division Duplex (TDD) mode.

[0012] In HSDPA, transmission code resources are shared amongst users according to their traffic needs. The base station or "Node-B" is responsible for allocating and distributing the resources to the users, within a so-called scheduling task. Hence, for HSDPA, some scheduling is performed by the RNC whereas other scheduling is performed by the base station. Specifically, the RNC allocates a set of resources to each base station, which the base station can use exclusively for high speed packet services. The RNC furthermore controls the flow of data to and from the base stations.

[0013] Therefore, most packet based systems contain schedulers that control when the individual data packets are transmitted, in order to share the available resource, whether time-slots in a time division multiple access (TDMA) communication system or power and codes in a code division multiple access (CDMA) communication system. An introduction to schedulers can be found in `Service discipline for guaranteed performance service in packet-switching networks`, authored by Hui Zhang, and published in the Proceedings of the IEEE, volume 83, no. 10, October 1995.

[0014] U.S. Pat. No. 6,845,100 describes use of two separate schedulers; a packet scheduler and a QOS scheduler. The packet scheduler allocates resources to users and then within this user's allocation the QoS scheduler prioritizes some packets over other depending upon the radio bearer they are assigned to.

[0015] Thus, there exists a need to provide an improved mechanism to differentiate between IP data flows.

## SUMMARY OF THE INVENTION

[0016] In accordance with aspects of the present invention, there is provided a wireless communication system, an apparatus, and a method of operation therefor, as defined in the claims.

[0017] Accordingly, in one embodiment of the present invention there is provided an apparatus for use in allocating resource in a wireless communication system, the apparatus comprising mapping logic arranged to map one or more services to individual radio bearers of a plurality of radio bearers; reporting logic arranged to indicate buffer occupancy for the plurality of radio bearers; and prioritization logic arranged to prioritize the allocated resource across multiple wireless communication units on a radio bearer basis.

[0018] The provision of prioritization logic arranged to prioritize allocated resource across multiple wireless communication units enables prioritization of a particular service across users, so that for instance hyper text transport protocol (HTTP) traffic can be prioritized over file transfer protocol (FTP) traffic, whether the FTP traffic was associated with one user or a number of other users.

[0019] In one embodiment of the present invention, the apparatus comprises a database storing a plurality of service specifications, one per wireless communication unit, that define the mapping between data flow and respective radio bearers.

[0020] The provision of a database storing a plurality of service specifications provides a very wide range of mapping characteristics can be configured. Furthermore, different mappings can be achieved on a per tier or even per user basis.

[0021] In one embodiment of the present invention, the apparatus further comprises signal dividing logic operably coupled to mapping logic and arranged to split services into individual radio bearers from a single (PDP) context.

[0022] The provision of the signal dividing logic provides user equipment

with the ability to no longer need to send a secondary packet data protocol (PDP) context request to begin a new service, thereby avoiding significant latency.

[0023] In one embodiment of the present invention, the wireless communication unit is user equipment arranged to allocate resource in an uplink communication path.

[0024] In one embodiment of the present invention, the apparatus is located in a radio access network (RAN) that comprises prioritization logic arranged to allocate resource to a plurality of wireless communication units in a downlink communication path on a radio bearer basis.

[0025] In one embodiment of the present invention, a wireless communication unit of the plurality of wireless communication units comprises a signal processor arranged to identify buffer occupancy for individual radio bearers and a transmitter operably coupled to the signal processor and arranged to transmit a message to the radio access network.

[0026] The provision of a signal processor arranged to identify buffer occupancy for individual radio bearers (or services) advantageously enables any system to provide prioritization, whether within a users allocation or across users. In one embodiment of the present invention the message indicates separate buffer occupancy for each of the radio bearers.

[0027] The provision of a message that indicates separate buffer occupancy for each of the individual radio bearers provides effective prioritization, in that the allocator knows the buffer occupancy for each radio bearer (RB), in the UL direction. This supports signalling to enable the UE to report this volume.

[0028] In one embodiment of the present invention, the apparatus further comprises weighting logic operably coupled to the signal processor and the prioritization logic and arranged to provide a set of weight values for each service across a plurality of users such that the prioritization logic allocates bandwidth resource to individual radio bearers according to a set of weight values.

[0029] The provision of weighting logic operably coupled to the signal processor and the prioritization logic allows a proportion of the resource to be allocated to particular radio bearers (e.g. services). This is in contrast to the conventional prioritization scheme provided by 3GPP, which uses a simple absolute priority scheme.

[0030] In one embodiment of the present invention, the apparatus further comprises a transmitter transmitting the set of weight values to the wireless communication unit. This feature provides the advantage that the UE can then properly prioritize traffic whilst receiving a single physical allocation from the network and not have to use the simple absolute priority system defined in 3GPP.

[0031] In one embodiment of the present invention, the radio access network comprises a scheduler arranged to schedule prioritized allocated resource across multiple wireless communication units in response to the message.

[0032] In one embodiment of the present invention, the radio access network comprises a plurality of classifiers associated with the one or more services operably coupled to the mapping logic such that the mapping logic maps data packets onto respective radio bearers.

[0033] The provision of classifiers associated with the one or more services advantageously supports the filtering of services onto radio bearers.

[0034] In one embodiment of the present invention, there is provided an apparatus comprising a memory and a processor operably coupled to the memory. Program code is executable on the processor, where the program code is operable for mapping one or more services to individual radio bearers of a plurality of radio bearers; reporting buffer occupancy for the plurality of radio bearers; and prioritizing the allocated resource across multiple wireless communication units on a radio bearer basis.

[0035] In one embodiment of the present invention, a wireless communication system comprises a radio access network facilitating communication to a plurality

of wireless communication units. The wireless communication system comprises mapping logic arranged to map one or more services to individual radio bearers of a plurality of radio bearers; reporting logic arranged to indicate buffer occupancy for the plurality of radio bearers; and prioritization logic arranged to prioritize the allocated resource across multiple wireless communication units on a radio bearer basis.

[0036] In one embodiment of the present invention, a method for limiting a number of services supported at an instant of time in a wireless communication system is described. The method comprises determining a normalised service weighting parameter of allocated resources; determining a number of resource allocation units allocated to each service; and determining whether the number of services that have resources allocated is greater than a threshold. The method further comprises limiting a number of resource allocation units allocated in response to the number of services that have resources allocated is greater than a threshold; re-calculating a number of resource allocation units allocated to each service; and ordering services in an order of resource allocation units allocated to each service, and select a number from the ordered services. The method further comprises setting all services not selected to zero; determining whether the number of services that have resources allocated is greater than a threshold; and when said number of services that have resources allocated is greater than the threshold, repeating said steps of re-calculating, ordering, setting and determining.

[0037] In this manner, even when a large population of users exist, each with many services, the number of messages required to allocate the overall resource is limited to a manageable number. It is noteworthy that a single user with multiple services, each allocated resource, will only result in a single allocation message. However, by having large numbers of users with large numbers of services the chance of allocating a small amount of resource to many users is increased.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0038] Embodiments of the invention will be described, by way of example only, with reference to the accompanying drawings, in which

[0039] FIG. 1 illustrates a 3GPP cellular communication system capable of supporting embodiments of the present invention;

[0040] FIG. 2 illustrates a downlink operation to allow service prioritization across a plurality of users according to embodiments of the present invention;

[0041] FIG. 3 illustrates an example of a mechanism whereby UEs are mapped to radio bearers according to embodiments of the present invention;

[0042] FIG. 4 illustrates a tier-based weighted fair queuing system that can be utilised in embodiments of the present invention;

[0043] FIG. 5 illustrates a communication system comprising uplink scheduling, in accordance with some embodiments of the invention; and

[0044] FIG. 6 illustrates a method to limit a number of services/queues to be allocated radio bearers at a particular instant in time, in accordance with embodiments of the invention.

## DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0045] In summary, embodiments of the present invention describe an architecture for supporting IP flows with different quality of service within a wireless communications system. Embodiments of the present invention comprise a database carrying service specifications, one per user equipment, which define the mapping between IP flows and radio bearers. At the user equipment, and within the Radio Access Network, classifiers use the specifications to map IP packets onto the appropriate radio bearers. A scheduler within the Radio Access Network is configured to allocate bandwidths to the different radio bearers, according to a set of weights values. Thus, in this manner, quality of service (QoS) differentiation between different services carried over IP over the wireless network is achieved.

[0046] RAN functionality already assumes that data associated with separate service definition specifications (e.g. port numbers) is placed on separate radio bearers. However, in embodiments of the present invention, the RAN functionality is configured to allow services to be prioritized across multiple users, in contrast to prior art techniques that only allow prioritization within a user's allocation.

[0047] Referring firstly to FIG. 1, a typical, standard UMTS Radio Access Network (UTRAN) system 100 is conveniently considered as comprising: terminal/user equipment domain 110; a UMTS Terrestrial Radio Access Network domain 120; and an infrastructure domain 130.

[0048] In the terminal/user equipment domain 110, terminal equipment (TE) 112 is connected to mobile equipment (ME) 114 via the wired or wireless ***R*** interface. The ME 114 is also connected to a user service identity module (USIM) 116; the ME 114 and the USIM 116 together are considered as user equipment (UE) 118. The UE may be for example a remote unit, a mobile station, a communication terminal, a personal digital assistant, a laptop computer, an embedded communication processor or any communication element communicating over the air interface of the cellular communication system.

[0049] The UE 118 communicates data with a Node-B (base station) 122 in the radio access network domain 120 via the wireless ***Uu*** interface. Within the radio access network domain 120, the Node-B 122 communicates with a radio network controller (RNC) 124 via the ***Iub*** interface. The RNC 124 communicates with other RNCs (not shown) via the ***Iur*** interface.

[0050] The Node-B 122 and the RNC 124 together form the UTRAN 126. The RNC 124 communicates with a serving GPRS service node (SGSN) 132 in the core network domain 130 via the ***Iu*** interface. Within the core network domain 130, the SGSN 132 communicates with a gateway GPRS support node 134 via the ***Gn*** interface; the SGSN 132 and the GGSN 134 communicate with a home location register (HLR) server 136 via the ***Gr*** interface and the ***Gc*** interface respectively.

The GGSN 134 communicates with public data network 138 via the ***Gi*** interface.

[0051] Thus, the elements RNC 124, SGSN 132 and GGSN 134 are conventionally provided as discrete and separate units (on their own respective software/hardware platforms) divided across the radio access network domain 120 and the core network domain 130, as shown FIG. 1.

[0052] The RNC 124 is the UTRAN element responsible for the control and allocation of resources for numerous Node-Bs 122; typically 50 to 100 Node-Bs may be controlled by one RNC. The RNC also provides reliable delivery of user traffic over the air interfaces. RNCs communicate with each other (via the ***Iur*** interface).

[0053] The SGSN 132 is the UMTS Core Network element responsible for Session Control and interface to the HLR. The SGSN keeps track of the location of an individual UE and performs security functions and access control. The SGSN is a large centralised controller for many RNCs.

[0054] The GGSN 134 is the UMTS Core Network element responsible for concentrating and tunneling user data within the core packet network to the ultimate destination (e.g., internet service provider--ISP). Terminal equipment (TE) 112 is connected to mobile equipment (ME) 114 via the wired or wireless ***R*** interface. The ME 114 is also connected to a user service identity module (USIM) 116; the ME 114 and the USIM 116 together are considered as user equipment (UE) 118. The UE 118 communicates data with a Node-B (base station) 122 in the radio access network domain 120 via the wireless ***Uu*** interface. Within the radio access network domain 120, the Node-B 122 communicates with a radio network controller (RNC) 124 via the ***Iub*** interface. The RNC 124 communicates with other RNCs (not shown) via the ***Iur*** interface. The Node-B 122 and the RNC 124 together form the UTRAN 126. The RNC 124 communicates with a serving GPRS service node (SGSN) 132 in the core network domain 130 via the ***Iu*** interface. Within the core network domain 130, the SGSN 132 communicates with a gateway GPRS support node 134 via the ***Gn*** interface; the SGSN 132 and the GGSN 134 communicate with

a home location register (HLR) server 136 via the ***Gr*** interface and the ***Gc*** interface respectively. The GGSN 134 communicates with public data network 138 via the ***Gi*** interface.

[0055] Thus, the elements RNC 124, SGSN 132 and GGSN 134 are conventionally provided as discrete and separate units (on their own respective software/hardware platforms) divided across the radio access network domain 120 and the core network domain 130, as shown FIG. 1.

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[0058] The GGSN 134 is the UMTS Core Network element responsible for concentrating and tunneling user data within the core packet network to the ultimate destination (e.g., internet service provider--ISP).

[0059] Such a UTRAN system and its operation are described more fully in the 3rd Generation Partnership Project technical specification documents 3GPP TS 25.401, 3GPP TS 23.060, and related documents, available from the 3GPP website at www.3gpp.org, and need not be described herein in more detail.

[0060] Within the RNC 124, separate functional blocks exist that have been incorporated or adapted in accordance with embodiments of the present invention. In particular, as shown in FIG. 1, a Mapper 128 is responsible for mapping IP packets to separate RBs. The Mapper 128 is shown in greater detail in FIG. 2. A scheduler 129 is responsible for allocating a certain proportion of the radio resource

to each of the RBs, which is described in further detail with respect to FIG. 3 and FIG. 4.

[0061] Additionally, in accordance with embodiments of the present invention, element manager logic 140 has been incorporated into the system, which is used to contain the database that defines the mapping characteristics for IP packets to RBs. The element manager logic 140 also contains the values of the queue weighting parameters, Stier, as described in more detail later.

[0062] FIG. 2 illustrates a downlink operation according to one embodiment of the present invention that may allow service prioritization across a plurality of users. In this regard, processing logic 128 within the RNC comprises signal dividing logic 215, which splits services 220, 225, 230 into separate radio bearers 235, 240, 245 from a single PDP context 205. In one embodiment of the present invention, the services may be divided between separate radio bearers based on, say, port numbers.

[0063] Although eight services/radio bearers are illustrated in FIG. 2, it is envisaged that the inventive concept may be applied to any number of services/radio bearers. In this manner, for each user, the scheduler is now aware of the total amount of data present in buffers for each service.

[0064] FIG. 3 illustrates an example of a mechanism whereby a plurality of UEs is mapped to radio bearers according to embodiments of the present invention. In this example, a first UE 315, a second UE 320 and a third UE 335 are illustrated, whereby the first UE 315 and second UE 320 use a first service level agreement (SLA-1) 305 and the third UE 335 uses a second (SLA-2) 345. The first SLA-1 305 and the second SLA-2 345 employ a plurality of radio bearers that they organise packet data queues for.

[0065] In one embodiment of the present invention, it is envisaged that separate queues may be provided for the same services, but using different SLAs.

[0066] Referring now to FIG. 4, resource allocator logic associated with a

single SLA is shown, i.e. FIG. 4 provides a more detailed version of element 305 in FIG. 3. Separate reports 410, 430, 460 for RBs `1` to `8` are provided and these are associated with separate services within an SLA.

[0067] In one embodiment of the present invention, within each queue there is a single indication of the volume of data for each user (for the associated radio bearer) 420, 440, 470 rather than the data itself. Within each queue a simple round robin allocation scheme may operate, whereby when the volume indication reaches the head of the queue a fixed volume of resource is allocated to the user. When the user has been granted this resource, the user is placed at the back of the queue (assuming there is still buffer occupancy left for this user given the resource that has been allocated).

[0068] The output from the respective queues provides individual indications of an allocation for each logical channel to the UTRAN side medium access layer (MAC). The outputs are combined in a scheduler 480 that provides a DL allocation that is sent to the respective UEs in a physical shared channel allocation message.

[0069] With reference to FIG. 4, the above scheme may be supported in a mechanism that provides `tier-based, weighted fair queuing'. Briefly, in such a mechanism, each queue determines the weight value based on:

$$W'_{tier} = \frac{N_{tier} * S_{tier}}{\sum_{alltiers} (N_{tier} * S_{tier})} \qquad [1]$$

Where:

$N_{tier}$ is the number of separate users in the queue.

[0070] The overall volume of spare physical resource is then allocated to each queue in proportion to the W'tier values. As mentioned previously, a simple round robin allocation policy may also apply within each queue.

[0071] Referring back to FIG. 3 a total of 16 queue weights ($S_{tier}$) are desired.

These queue weights define the relative amount of the total resource that is allocated to each queue. Thus, the bandwidth allocated to different radio bearers is shared according to the relative weights. In the implementation, these weights are set by the element manager. However, in one embodiment of the present invention, the weights may also be configured by RADIUS, in which case the service specification is interpreted by the radio resource manager (RRM) to configure appropriate resource allocation (RA) queues and RBs.

[0072] The structure of this architecture means that it is possible to provide QoS prioritization across multiple users. Hence, for example, in a scenario where there are two users, one may have hyper-text transfer protocol (HTTP) traffic and this may be mapped to RB1, and a second user may employ file transfer protocol (FTP) traffic, which may be mapped to RB2. The $S_{tier}$ associated with RB1 ($S_{tier\ 1}$) is higher than that for RB2 ($S_{tier\ 2}$). Therefore, assuming the volume of data in the buffers for the 2 users is the same, then the ratio of the total resource allocated to RB1 may be defined as:

$$S_{tier\ 1} / (S_{tier\ 1} + S_{tier\ 2}) \qquad [3]$$

Thus, the ratio of the total resource allocated to RB2 may be defined as:

$$S_{tier\ 2} / (S_{tier\ 1} + S_{tier\ 2}) \qquad [4]$$

[0073] It is noteworthy that there is no restriction on the values associated with each queue weight value ($S_{tier}$). Therefore, in accordance with embodiments of the present invention, it may be possible to, say, set the relative weight for service 1 for SLA-2 to be higher than a number of services on SLA-1, which may nominally be a higher-priority SLA.

[0074] In accordance with one embodiment of the present invention, a

mechanism to provide prioritization of services across multiple users in an uplink direction is described. In this regard, weight values are signaled to the UE. Again, as described above with respect to a downlink direction, it is assumed that logic exists that splits data onto a number of radio bearers dependent on the type of service. It is also assumed that the UE is able to signal to the network separate buffer occupancy for each queue associated with the various RBs.

[0075] If there are multiple QoS requirements within a single 3GPP PDP context, a single physical allocation of radio resources may be made to the UE. In this manner, a single PDP context implies a single CCTrCh. This single physical allocation of radio resources provided to a UE is shared amongst a number of services, in proportion to their respective QoS requirements, for example in proportion to the signalled weight values ($S_{tier}$).

[0076] The network knows separate buffer occupancies associated with each RB. Therefore, the logic required to operate the uplink case is largely unchanged compared with the aforementioned downlink case. However, as only a single physical allocation is signaled to the UE, all the physical allocations associated with each queue are summed together. In this regard, this mechanism is unlike the downlink case where direct control of which RB is allocated physical resources is implemented.

[0077] In the uplink case, as a single physical allocation is used, the scheduler logic in the network is mirrored with similar scheduler logic in the UE, which takes the single physical allocation and splits it between different RBs using the weight, $S_{tier}$, values. In addition, in order for the UE to know the value of the $S_{tier}$ parameters that are also used at the network side, the uplink case supports signaling between the network and UE to communicate these values.

[0078] In one embodiment of the present invention, the signaling of the $S_{tier}$ parameters will typically be sent to the UE when it initially connects to the network (for example in the radio bearer setup message). If there are any modifications to

the $S_{tier}$ parameters then these may be typically signaled to the UE in dedicated control signaling (using, for example, a radio bearer reconfiguration message). However, it is also envisaged that $S_{tier}$ parameters could also be signaled to the UE using other mechanisms, such as system information.

[0079] Referring now to FIG. 5, an overview of the communication between an UE 505 and the UTRAN 540 to support an uplink scenario is illustrated. In this regard, the UE 505 may receive a single PDP context 510 and split the single PDP context 510 into separate services on individual radio bearers in divider logic 515. The UE may then transmit a message 535 indicating separate buffer occupancy for each of the radio bearers to a UTRAN scheduler 545.

[0080] The separate services on individual radio bearers are input to a UE mirror scheduler 525. In one embodiment of the present invention, the UE mirror scheduler 525 receives a $S_{tier}$ parameter 550 signalled 555 from the UTRAN 540 when the UE first connects to the UTRAN 540. The $S_{tier}$ parameters 550 within the UTRAN 540 are also input to the UTRAN scheduler 545. The UTRAN scheduler 545 is adapted to provide a single allocation of a physical resource to the UE mirror scheduler 525 within message 560. The UE mirror scheduler 525 is then able to inform the UTRAN 540 in a message 535 on its use of the physical allocation, in order to transmit data in each radio bearer in proportion to the informed $S_{tier}$ parameters 550.

[0081] Thus, within the UE 505, the $S_{tier}$ values are known, together with the total allocation of resources for the UE 505. Clearly there is only a single SLA at the UE, and $N_{tier}$ can be either a `0` or `1`. Thus, and advantageously, the overall resources allocated by the network are now split up based on the relative values of W'tier.

[0082] Furthermore, it is noteworthy that, the aforementioned structure allows the ability to prioritize QoS across users in the DL to be extended to the UL.

[0083] As each SLA is can now be split into multiple RBs it may be the case

that very small proportions of the overall resources are allocated to each RB. This may create signalling problems, as the mechanism may result in a large number of individual users being allocated some resource at any one time and each user will require a separate allocation message. Therefore, in an enhanced embodiment of the present invention, a mechanism to implement additional functionality to limit a total number of queues served, e.g. to be allocated resource allocation units, is described. Thus, this algorithm limits a number queues that can be allocated resource at any one instance, for example to an operator-specified value. The algorithm may also ensure that the ratio of allocated resource is maintained, over the long term, to the ratios specified by the Stier values.

[0084] It is noteworthy that this algorithm can be implemented in both the uplink and downlink.

[0085] Referring now to FIG. 6, an algorithm 600 employing embodiments of the present invention is illustrated. The algorithm describes one mechanism to limit a number of queues served at a single instant of time. The algorithm may be run when a number of active users (i.e. those users known to have a buffer occupancy greater than zero in any queue) is greater than a known fixed parameter, for example 'max_number_queues_serviced', as defined by the Element Manager (EM).

[0086] The process commences in step 605 by determining a normalised queue weighting parameter W'q of the allocated resources:

$$W_q' = \frac{N_q * S_q}{\sum_{q=0}^{NB\_q-1} (N_q * S_q)} \qquad [6]$$

Where:

$N_Q$ is the number of entries in queue Q (i.e. the number of UEs with data in queue q); and

NB_q is the number of queues configured at the Node-B.

[0087] The process then determines, as shown in step 610, the number of RAAU allocated to each queue, for example using:

$$RAAUq = FreeRAAU * W'_q \quad [7]$$

Where:

RAAU represents a quantum of physical resource (codes and timeslots); and

FreeRAAU is a number of free RAAU that the resource allocator (RA) can share out.

[0088] The algorithm may then determine whether the number of queues that have resources allocated greater than the EM parameter - max_number_queues_serviced, as shown in step 615. If the number of queues that have resources allocated is greater than a threshold, for example the EM parameter max_number_queues_serviced, the process moves to step 620. If the number of queues that have resources allocated is not greater than the EM parameter max_number_queues_serviced then the process may operate as normal as described in the PCT publication WO 03/049320, by the same Applicant as the present invention.

[0089] Step 620 re-calculates RAAUq as follows:

$$RAAUq' = RAAUq + running\_RAAU\_delta \quad [8]$$

Where:

RAAUq is calculated in step 610, and

running_RAAU_delta is the running difference between the number of RAAU that would be allocated without the limitation of the number of queues serviced and the number of RAAU allocated with the limitation.

[0090] Note that this algorithm is iterative and running_RAAU_delta is

determined from the previous iteration of the algorithm. Hence, although no limitation has been applied in the first iteration, on the second iteration the limitation of the number of queues in the previous iteration has meant that there are some queues that did not receive the number of RAAU that were originally determined.

[0091] In step 625, the queues are then ordered in order of RAAUq', beginning with the highest queue. The first max_number_queues_serviced queues are then selected, as shown in step 628.

[0092] In all queues not selected in step 628, the Nq' value is set to zero, as shown in step 630. In all of the tiers that were selected in step 628, Nq' is set to Nq, as shown in step 635.

[0093] In step 640, Wq (now known as $W''_q$) may be re-calculated using the Nq' vector determined in step 635, for example using:

$$W_q'' = \frac{N_q' * S_q}{\sum_{q=0}^{NB\_q-1} (N_q' * S_q)} \qquad [10]$$

The modified number of RAAU, allocated to each queue, may then be determined in step 645. For example, the modified number may be determined using:

$$RAAUq'' = round(FreeRAAU * W''q) \qquad [11]$$

where: round( . . ) rounds to the nearest integer.

[0094] The sum of all RAAU allocated may then be determined in step 650. Here, if the sum of all RAAU allocated is greater than freeRAAU (which is possible following the rounding operation in step 645) then the RAAUq'' may be modified in step 655, as also described in the PCT publication WO 03/049320, by the same Applicant as the present invention.

[0095] It is possible that the volume of resource allocated to the queue may be less than that required given the cell edge state that the UE is in. For example, if the UE is in cell edge '2' then four RAAU will be needed as a minimum. Therefore, if the amount of RAAU allocated by RAAU tier" is less than the minimum required RAAU, given the cell edge state for any q, then RAAUq" may be set for one of the queues that has RAAUq" less than the minimum to zero, as shown in step 660. Here, it is noteworthy that there may be multiple queues below the minimum.

[0096] In this scenario, any spare resources are allocated first to any other queues that are below the minimum, as shown in step 665. If there are still spare resources, then any spare resources are allocated in turn; one RAAU each to the queues that currently have RAAUq" greater than zero.

[0097] The RAAUq" value is then updated, as shown in step 670. The running difference, between the actually allocated RAAU (RAAUq") and the originally determined allocated RAAU RAAUq, is then updated, as shown in step 675. For example, in this manner:

running_RAAU_delta := running_RAAU_delta+(RAAUq-RAAUq") [12]

[0098] Thus, a mechanism is described whereby the number of queues to be allocated resources at any particular time may be limited.

[0099] In summary, the inventive concept of the present invention aims to provide at least one or more of the following features:

(i) A method to provide prioritization of services across users in the DL;

(ii) A method to provide prioritization of services across users in the UL. This requires that weight values are signalled to the UE;

(iii) A method to limit the number of queues (i.e. services) to be allocated radio resources at any one time. This functionality is provided in

the UL as well as the DL; and

(iv) The inventive concept of the present invention enables prioritization of packet types across users, as there is a single allocation process for each packet type and each user. This is particularly beneficial for packet-based, best-effort services. For instance, if a wireless communication system comprises a plurality of users that are performing very large file transfer protocol (FTP) downloads, and another user is web browsing, it is possible to prioritize the web browsing user over the others.

[00100] It is noteworthy that U.S. Pat. No. 6,845,100 is significantly different from the inventive concept herein described, which proposes a mechanism that is able to prioritize packet types across users. In one embodiment, this is achieved through provision of a single allocation process for each packet type and each user. This is particularly beneficial for packet based best-effort services. For instance if a first number of users are performing very large file transfer protocol (FTP) downloads, and another user is web browsing, it is possible to prioritize the web browsing user amongst others, in employing the inventive concept herein described, in contrast to the known prior art, such as U.S. Pat. No. 6,845,100, which will not allow this to happen.

[00101] In particular, it is envisaged that the aforementioned inventive concept can be applied by a semiconductor manufacturer to any signal processing integrated circuit (IC). It is further envisaged that, for example, a semiconductor manufacturer may employ the inventive concept in a design of a stand-alone device, or application-specific integrated circuit (ASIC) and/or any other sub-system element.

[00102] It will be appreciated that any suitable distribution of functionality between different functional units or logic elements, may be used without detracting from the inventive concept herein described. Hence, references to specific functional devices or elements 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.

[00103] Aspects of the invention may be implemented in any suitable form including hardware, software, firmware or any combination of these. Software and firmware may be stored on computer-readable media. The elements and components of an embodiment of the invention may be physically, functionally and logically implemented in any suitable way. Indeed, the functionality may be implemented in a single unit or IC, in a plurality of units or ICs or as part of other functional units.

[00104] 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. Further, although embodiments of the present invention may be described, in some instances, using terminology from a particular protocol, those skilled in the art will recognize that such terms are also used in a generic sense herein, and that, unless otherwise specified, the present invention is not limited to systems implementing a particular protocol. In the claims, the term `comprising` does not exclude the presence of other elements or steps.

[00105] Furthermore, 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 indicates that the feature is equally applicable to other claim categories, as appropriate.

[00106] Furthermore, the order of features in the claims does not imply any specific order in which the features must be performed and in particular the order of

individual steps in a method claim does not imply that the steps must be performed in this order. Rather, the steps may be performed in any suitable order. In addition, singular references do not exclude a plurality. Thus, references to "a", "an", "first", "second" etc. do not preclude a plurality.

[00107] Thus, an improved wireless communication system, apparatus, integrated circuit, and a method of operation therefor have been described, wherein the aforementioned disadvantages with prior art arrangements have been substantially alleviated.

* * *

CLAIMS

What is claimed is:

1. A user equipment (UE) comprising:

circuitry configured to receive a first transmission including a first parameter for each of a plurality of channels and a second transmission with an allocation message for an uplink resource;

a processor configured to allocate resources in response to the allocation message, wherein resources are allocated for each channel having a second parameter above zero prior to another channel for transmission having a third parameter less than or equal to zero; and

wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter.

2. The UE of claim 1 further comprising:

a transmitter further configured to transmit a third transmission including a plurality of indications of buffer occupancies associated with the plurality of channels.

3. The UE of claim 1, wherein the second parameter is derived by multiplying the first channel's first parameter with a fourth parameter and the third parameter is derived by multiplying the second channel's first parameter with

the fourth parameter.

4. A network device comprising:

a transmitter configured to transmit, to a user equipment (UE), a first transmission including a first parameter for each of a plurality of channels ;

the transmitter further configured to transmit a second transmission including an allocation message for an uplink resource;

circuitry configured to receive a third transmission on the plurality of channels in response to the allocation message, wherein allocation of resources for each channel having a second parameter above zero is provided prior to another channel for transmission having a third parameter less than or equal to zero;

and

wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter.

5. The network device of claim 4 further comprising:

the circuitry is further configured to receive a fourth transmission including a plurality of indications of buffer occupancies associated with the plurality of channels.

6. A method performed by a user equipment (UE), the method

comprising:

receiving a first transmission including a first parameter for each of a plurality of channels and a second transmission including an allocation message for an uplink resource;

allocating resources in response to the allocation message, wherein resources are allocated for each channel having a second parameter above zero prior to another channel for transmission having a third parameter less than or equal to zero; and

wherein the second parameter is derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter.

7. The method of claim 6 further comprising:

transmitting a third transmission including a plurality of indications of buffer occupancies associated with the plurality of channels.

8. The method of claim 6, wherein the second parameter is derived by multiplying the first channel's first parameter with a fourth parameter and the third parameter is derived by multiplying the second channel's first parameter with the fourth parameter.

ABSTRACT

Allocation of resources in a wireless network are described where resources are allocated for each channel having a second parameter above zero prior to another channel for transmission having a third parameter less than or equal to zero. The second parameter may be derived from a first channel's first parameter and the third parameter is derived from a second channel's first parameter.

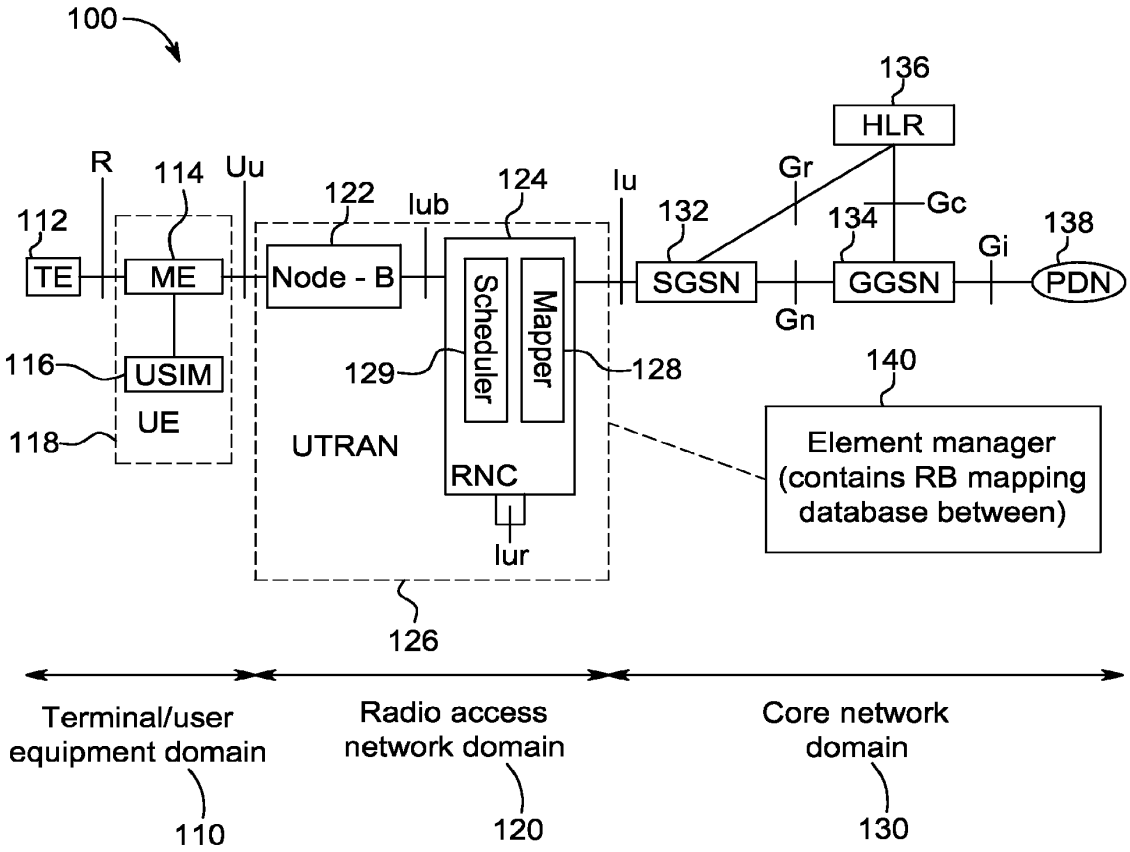

100
136
HLR
R
114
Uu
122
Iub
124
Iu
Gr
112
132
134
Gc
138
Gi
TE
ME
Node - B
Scheduler
Mapper
SGSN
GGSN
PDN
Gn
116
USIM
129
128
140
UE
118
UTRAN
RNC
Element manager
(contains RB mapping
database between)
Iur
126
Terminal/user
equipment domain
Radio access
network domain
Core network
domain
110
120
130

FIG. 1

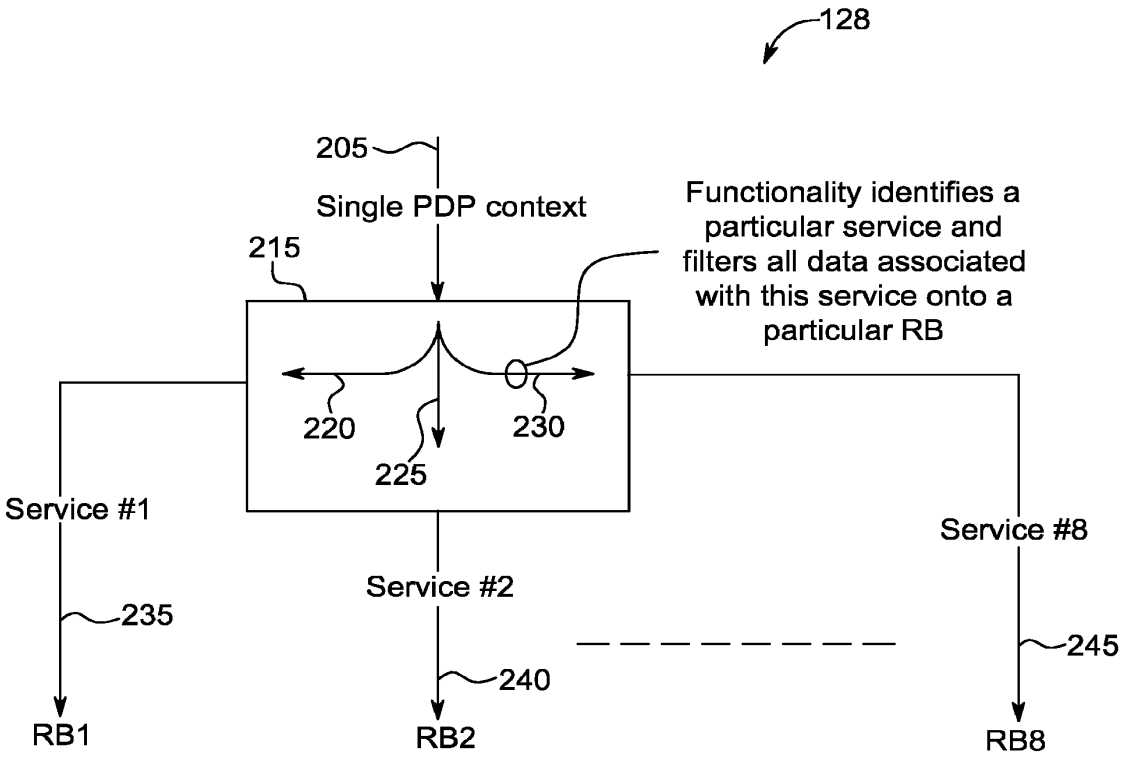

128
205
Single PDP context
215
Functionality identifies a particular service and filters all data associated with this service onto a particular RB
220
225
230
Service #1
Service #2
Service #8
235
240
245
RB1
RB2
RB8

FIG. 2

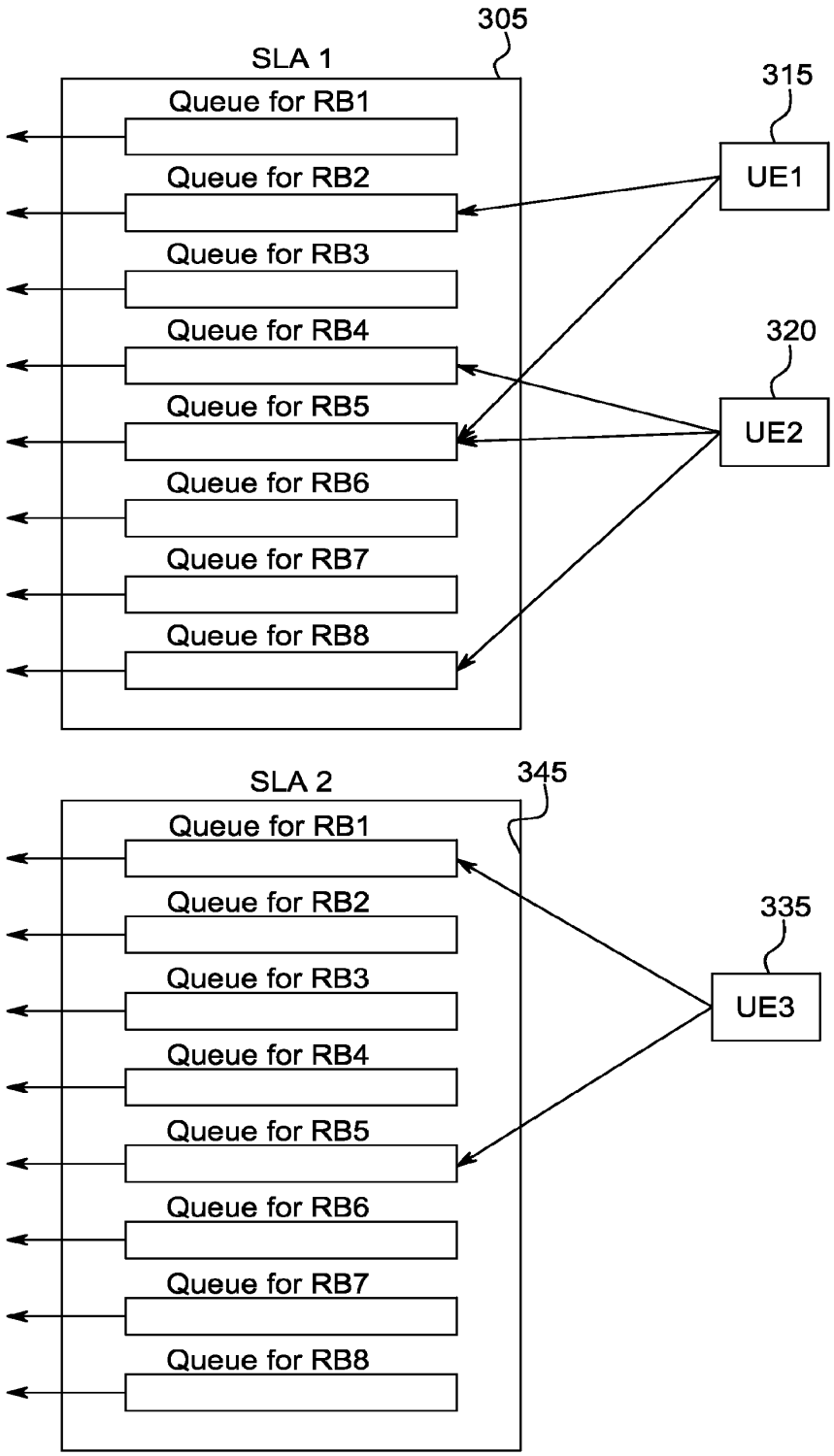

305
SLA 1
Queue for RB1
Queue for RB2
Queue for RB3
Queue for RB4
Queue for RB5
Queue for RB6
Queue for RB7
Queue for RB8
315
UE1
320
UE2
345
SLA 2
Queue for RB1
Queue for RB2
Queue for RB3
Queue for RB4
Queue for RB5
Queue for RB6
Queue for RB7
Queue for RB8
335
UE3

FIG. 3

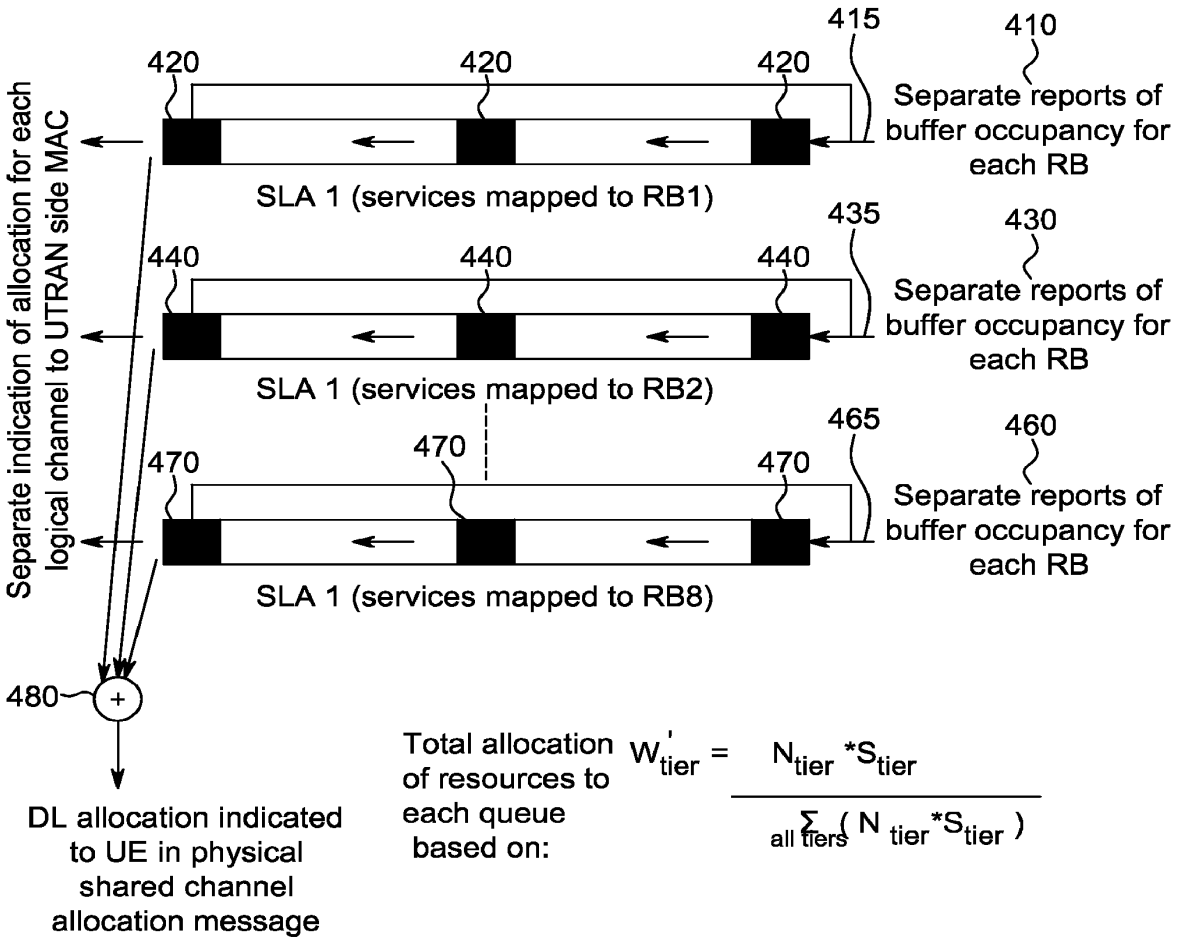

415
410
420
420
420
Separate reports of buffer occupancy for each RB
SLA 1 (services mapped to RB1)
435
430
440
440
440
Separate reports of buffer occupancy for each RB
SLA 1 (services mapped to RB2)
465
460
470
470
470
Separate reports of buffer occupancy for each RB
SLA 1 (services mapped to RB8)
Separate indication of allocation for each logical channel to UTRAN side MAC
480
+
DL allocation indicated to UE in physical shared channel allocation message
Total allocation of resources to each queue based on:
$W'_{tier} = \frac{N_{tier} * S_{tier}}{\sum_{all\ tiers} (N_{tier} * S_{tier})}$

FIG. 4

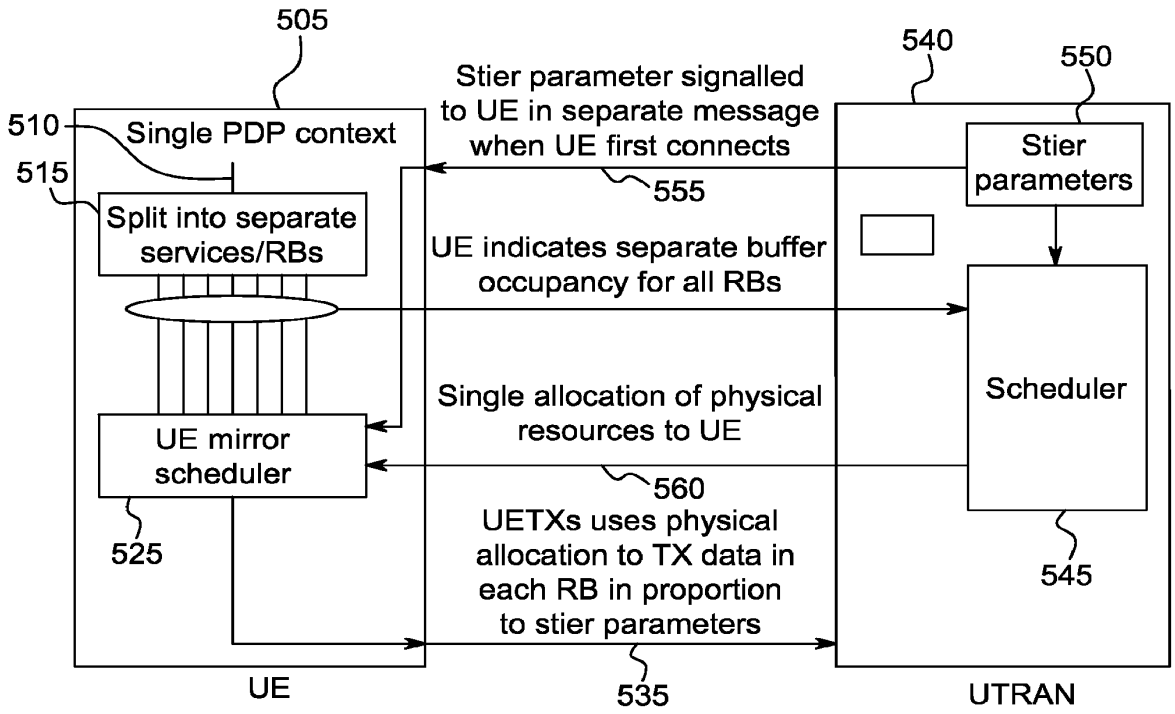

505
510
Single PDP context
515
Split into separate services/RBs
UE mirror scheduler
525
UE
Stier parameter signalled to UE in separate message when UE first connects
555
UE indicates separate buffer occupancy for all RBs
Single allocation of physical resources to UE
560
UETXs uses physical allocation to TX data in each RB in proportion to stier parameters
535
540
550
Stier parameters
Scheduler
545
UTRAN

FIG. 5

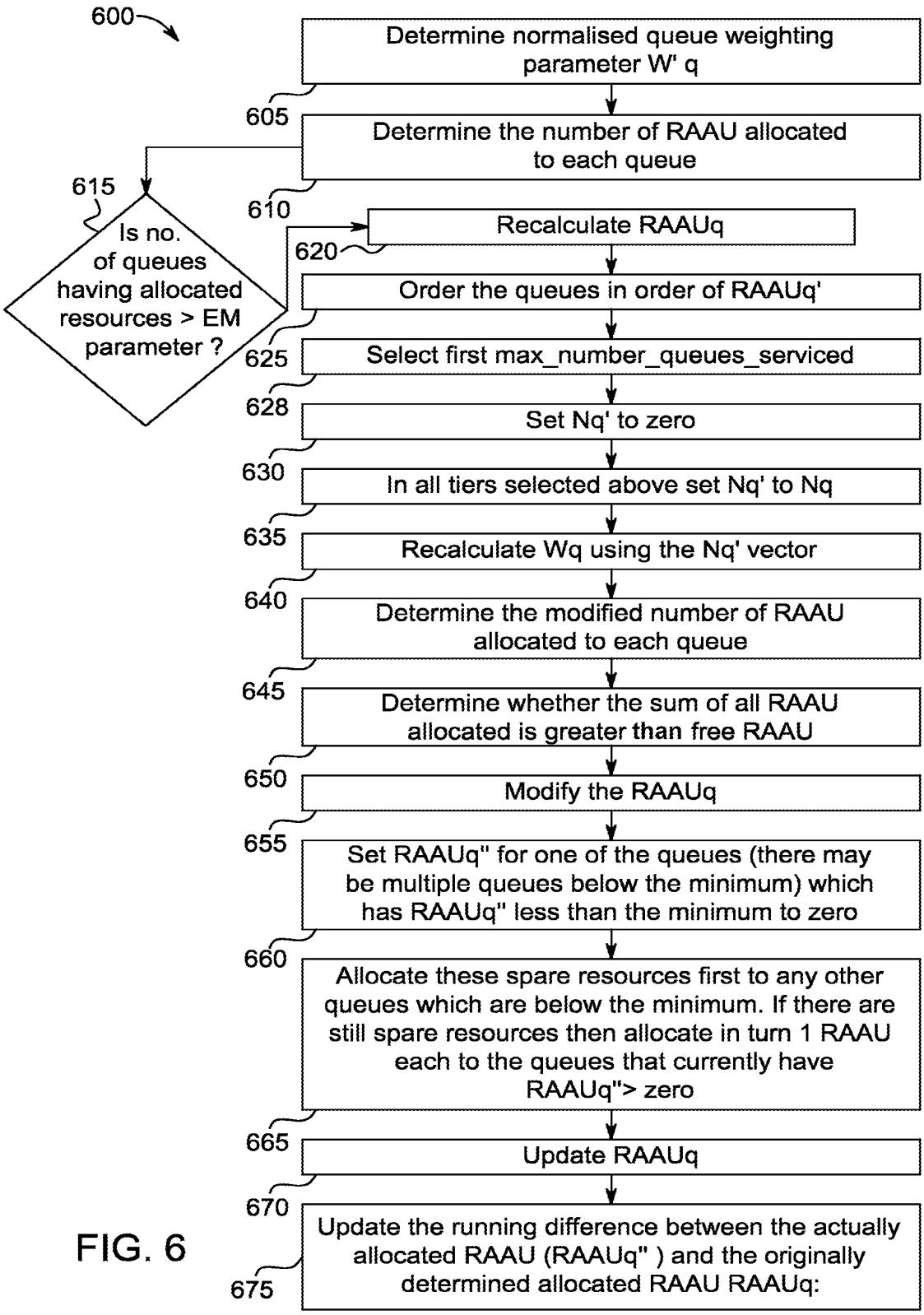

600
Determine normalised queue weighting parameter W' q
605
Determine the number of RAAU allocated to each queue
610
615
Is no. of queues having allocated resources > EM parameter ?
Recalculate RAAUq
620
Order the queues in order of RAAUq'
625
Select first max_number_queues_serviced
628
Set Nq' to zero
630
In all tiers selected above set Nq' to Nq
635
Recalculate Wq using the Nq' vector
640
Determine the modified number of RAAU allocated to each queue
645
Determine whether the sum of all RAAU allocated is greater than free RAAU
650
Modify the RAAUq
655
Set RAAUq" for one of the queues (there may be multiple queues below the minimum) which has RAAUq" less than the minimum to zero
660
Allocate these spare resources first to any other queues which are below the minimum. If there are still spare resources then allocate in turn 1 RAAU each to the queues that currently have RAAUq"> zero
665
Update RAAUq
670
Update the running difference between the actually allocated RAAU (RAAUq" ) and the originally determined allocated RAAU RAAUq:
675

FIG. 6

PTO/AIA/01 (06-12)
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# DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| **Title of Invention** | SCHEDULING DATA TRANSMISSIONS 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 _____

  filed on _____.

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

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

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

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LEGAL NAME OF INVENTOR

Inventor: Timothy James Speight  Date (Optional): 5th April 2013

Signature: T. Speight

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.

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