505126455 10/04/2018 PATENT ASSIGNMENT COVER SHEET

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| SUBMISSION TYPE: | | NEW ASSIGNMENT | | | | |
|--|----------|--|--------------------|----------------|--|--|
| NATURE OF CONVEYANCE: | | ASSIGNMENT | ASSIGNMENT | | | |
| | | | | | | |
| | | Name | | Execution Date | | |
| SAIRAMESH NAMMI | | Name | | 06/22/2018 | | |
| ARUNABHA GHOSH | | | | 05/11/2018 | | |
| | | | | 00/11/2010 | | |
| RECEIVING PARTY D | ΑΤΑ | | | | | |
| Name: | AT&T | AT&T INTELLECTUAL PROPERTY I, L.P. | | | | |
| Street Address: | 675 W | 675 W. PEACHTREE STREET | | | | |
| Internal Address: | SUITE | SUITE 4000 | | | | |
| City: | ATLAN | ATLANTA | | | | |
| State/Country: | GEOR | GEORGIA | | | | |
| Postal Code: | 30308 | | | | | |
| PROPERTY NUMBERS Total: Property Type | | Number | | | | |
| | | Number | | | | |
| Application Number: | | 15947226 | | | | |
| CORRESPONDENCE | DATA | | | | | |
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| | |) the e-mail address first; if that is I; if that is unsuccessful, it will be a | | | | |
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| Correspondent Name | : | AMIN, TUROCY AND WATSON, LLI | 2 | | | |
| | | 127 PUBLIC SQUARE | | | | |
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| Address Line 4. | | | | | | |
| ATTORNEY DOCKET NUMBER: | | 2018-0266/ATTWP1014US | | | | |
| NAME OF SUBMITTER: | | THOMAS E. WATSON | | | | |
| SIGNATURE: | | /Thomas E. Watson/ | /Thomas E. Watson/ | | | |
| DATE SIGNED: | | 10/04/2018 | | | | |
| Total Attachments: 4 | | | | | | |
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| source=2018-0266 Assi | gnment#p | age3.tii | | | | |

PATENT REEL: 047068 FRAME: 0216

ASSIGNMENT

WHEREAS I, SaiRamesh Nammi residing at 9916 Bundoran Dr., Austin, TX 78717 hereafter referred to as Assignor, am listed as an inventor on a patent application entitled "INDICATING A NUMBER OF CODEWORDS IN 5G WIRELESS COMMUNICATION SYSTEMS," having AT&T Docket No. 2018-0266, the patent application which was filed on April 6, 2018 in the United States Patent & Trademark Office as Application Serial No. 15/947,226; and

WHEREAS, AT&T INTELLECTUAL PROPERTY I, L.P., a Partnership organized and existing under the laws of Georgia and having an address at 675 W. Peachtree Street, Suite 4000, Atlanta, GA 30308 (hereinafter referred to as Assignee), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of the above provisional application (if any), as well as all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment;

AND, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other legal proceeding; sign all lawful papers when called upon to do so; execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense

incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind our heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

AND, I HEREBY consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of AT&T INTELLECTUAL PROPERTY I, L.P. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

This Assignment may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and such counterparts together shall constitute one and the same instrument. A facsimile copy of this Assignment, or any form of an electronic copy of this Assignment, including the signature pages hereto, shall be deemed to be an original.

IN TESTIMONY WHEREOF, I have hereunto set my hand this 22 day of 20NC 20 (8

N. Sai Panna SaiRamesh Nammi

State of 1 (195) County of Trayis

On this 22^{nd} of 50^{nd} , 20^{18} , before me a Notary Public in and for the above County and State, personally appeared 56^{18} are 1^{10} . And 10^{18} and 10^{18} acknowledged the execution of the foregoing assignment as his/her free act and deed for the purpose herein set forth.

<u>Amy R. Norman</u> Notary Public My Commission Expires: <u>8-10-20</u>

Page 2 of 2



PATENT REEL: 047068 FRAME: 0218

ASSIGNMENT

WHEREAS I, Arunabha Ghosh residing at 9805 Bundoran Dr, Austin, TX 78717 hereafter referred to as Assignor, am listed as an inventor on a patent application entitled "INDICATING A NUMBER OF CODEWORDS IN 5G WIRELESS COMMUNICATION SYSTEMS," having AT&T Docket No. 2018-0266, the patent application which was filed on April 6, 2018 in the United States Patent & Trademark Office as Application Serial No. 15/947,226; and

WHEREAS, AT&T INTELLECTUAL PROPERTY I, L.P., a Partnership organized and existing under the laws of Georgia and having an address at 675 W. Peachtree Street, Suite 4000, Atlanta, GA 30308 (hereinafter referred to as Assignee), desires to acquire the entire right, title and interest for the United States of America and elsewhere throughout the world in and to said invention and the patent application identified above, including any and all divisions and continuations thereof and any and all Letters Patent which may be granted thereon, including any and all renewals, reissues and prolongations thereto;

NOW THEREFORE, be it known that for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I, as Assignor, have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my entire right, title, and interest in and to this invention and this non-provisional application, and all divisions, substitutions, and continuations thereof; and all Letters Patent of the United States which may be granted thereon, and all reexaminations and reissues thereof; and all rights to claim priority on the basis of the above provisional application (if any), as well as all rights to claim priority on the basis of this application; and all applications for Letters Patent which may hereafter be filed for this invention in any foreign country and all Letters Patent which may be granted on this invention in any foreign country, including certificates of inventions, utility models, industrial design protection, design patent protection, and other governmental grants or issuances; and all extensions, renewals, prolongations, and reissues thereof; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term and terms for all such patents;

AND, I HEREBY authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any foreign country whose duty it is to issue patents on applications as described above, to issue all Letters Patent for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment;

AND, I HEREBY covenant that I have the full right to convey the interest assigned by this Assignment, and I have not executed and will not execute any assignment, sale, license, agreement, or encumbrance in conflict with this Assignment;

AND, I HEREBY further covenant and agree, for the Assignor and the Assignor's legal representatives, that I will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to us respecting this invention; assist the Assignee in the prosecution of the patent application identified above; assist in the making and prosecution of any other patent applications that the Assignee may elect to make covering the invention identified above; testify in any interference, litigation, or other legal proceeding; sign all lawful papers when called upon to do so; execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors or assigns; execute all divisional, continuation, and reissue applications; make all rightful oaths and generally do everything possible to aid Assignee, to obtain and enforce proper patent protection for this invention in the United States and any foreign country, it being understood that any expense

PATENT REEL: 047068 FRAME: 0219 incident to the execution of such papers shall be borne by the Assignee; and hereby instruct, and further covenant and agree to bind our heirs, legal representatives, and assigns, to do same, without compensation, but at the expense of Assignee or its representatives.

AND, I HEREBY consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of AT&T INTELLECTUAL PROPERTY I. L.P. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

This Assignment may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and such counterparts together shall constitute one and the same instrument. A facsimile copy of this Assignment, or any form of an electronic copy of this Assignment, including the signature pages hereto, shall be deemed to be an original.

IN TESTIMONY WHEREOF, I have hereunto set my hand this day of Mey 20 .

Ardnabha Ghosh

State of

County of <u>Jravis</u>

On this]] day of May 30_{10} , before me a Notary Public in and for the above County Arvna bha Gh 0.5 h 10.5 h 10.and State, personally appeared acknowledged the execution of the foregoing assignment as his/her free act and deed for the purpose herein set forth.

My Commission Expires: 8-10-20

Page 2 of 2



PATENT REEL: 047068 FRAME: 0220

RECORDED: 10/04/2018