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PATENT ASSIGNMENT COVER SHEET

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| SUBMISSION TYPE: | NEW ASSIGNMENT | |
|-----------------------|----------------|--|
| NATURE OF CONVEYANCE: | ASSIGNMENT | |

CONVEYING PARTY DATA

| Name | Execution Date |
|-----------------------------|----------------|
| SEID HADI RASOULI | 12/06/2013 |
| MICHAEL JOSEPH BRUNOLLI | 01/16/2014 |
| CHRISTINE SUNG-AN HAU-RIEGE | 01/17/2014 |
| MICKAEL MALABRY | 12/06/2013 |
| SUCHETA KUMAR HARISH | 12/06/2013 |
| PRATHIBA BALASUBRAMANIAN | 01/31/2014 |
| KAMESH MEDISETTI | 01/31/2014 |
| NIKOLAY BOMSHTEIN | 12/06/2013 |
| ANIMESH DATTA | 12/06/2013 |
| OHSANG KWON | 12/09/2013 |

RECEIVING PARTY DATA

| Name: | QUALCOMM INCORPORATED | |
|-----------------|-----------------------|--|
| Street Address: | 5775 MOREHOUSE DRIVE | |
| City: | SAN DIEGO | |
| State/Country: | CALIFORNIA | |
| Postal Code: | 92121-1714 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
|---------------------|----------|--|
| Application Number: | 15927539 | |

CORRESPONDENCE DATA

Fax Number: (202)857-6395

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent

using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

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ARENT FOX, LLP Correspondent Name: Address Line 1: 1717 K STREET, NW

Address Line 4: WASHINGTON, D.C. 20006-5344

ATTORNEY DOCKET NUMBER: 030284.16105/132038C1

| NAME OF SUBMITTER: REBECCA GOLDEN | | |
|--|------------------|--|
| | | |
| SIGNATURE: | /REBECCA GOLDEN/ | |
| DATE SIGNED: 03/21/2018 | | |
| Total Attachments: 6 | | |
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| source=132038C1_SignedAssignmentFromParent#page5.tif | | |
| source=132038C1_SignedAssignmentFromParent#page6.tif | | |

ASSIGNMENT

WHEREAS, WE,

- 1. **Seid Hadi RASOULI,** a citizen of Iran, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, California,
- 2. **Michael Joseph BRUNOLLI,** a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of Escondido, California,
- 3. **Christine Sung-An HAU-RIEGE**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of Fremont, California,
- 4. **Mickael MALABRY**, a citizen of France, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, California,
- 5. **Sucheta Kumar HARISH,** a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, California,
- 6. **Prathiba BALASUBRAMANIAN**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of Bangalore, India,
- 7. **Kamesh MEDISETTI,** a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of Bangalore, India,
- 8. **Nikolay BOMSHTEIN**, a citizen of Israel, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, California,
- 9. **Animesh DATTA,** a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, California,
- 10. **Ohsang KWON**, a citizen of South Korea, having a mailing address located at 4842 Yearling Glen Road, San Diego, CA 92130 and a resident of San Diego, California,

have conceived of one or more processes, methods, machines, articles of manufacture, designs, compositions of matter, inventions, discoveries or new or useful improvements relating to **LAYOUT CONSTRUCTION FOR ADDRESSING ELECTROMIGRATION** (collectively the "**INVENTIONS**") for which WE have executed and/or may execute one or more patent applications therefor; and

WHEREAS, QUALCOMM Incorporated (hereinafter "ASSIGNEE"), a Delaware corporation, having a place of business at 5775 Morehouse Drive, San Diego, California 92121-1714, U.S.A., desires to acquire or otherwise obtain the entire right, title, and interest in and to said INVENTIONS, including all inventions related thereto or thereof, all patent applications

therefor, and all patents that have granted or may be granted hereafter thereon, including but not limited to those identified below.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, WE do hereby acknowledge that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, the entire right, title, and interest throughout the world in and to said INVENTIONS, including all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in the United States, including but not limited to U.S. Application No(s). 13/975,185 filed August 23, 2013, Qualcomm Reference No. 132038, and all provisional applications relating thereto, (and do hereby authorize ASSIGNEE and its representative to hereafter add herein such application number(s) and/or filing date(s) when known), and all divisional applications, renewal applications, continuation applications, continuation-in-part applications, and design applications thereof, and all issued patents of the United States which may have granted or may be granted hereafter thereon and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon in the United States;

AND WE further do acknowledge and agree that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, all rights of priority under International Conventions, Treaties, or Agreements, and the entire right, title, and interest throughout the world in said INVENTIONS, including all inventions related thereto or thereof, and all patent applications therefor that may have been filed or may be filed hereafter for said INVENTIONS in any foreign country, countries, or treaty/union organizations, and all divisional applications, renewal applications, continuation applications, continuation-in-part applications, patent of addition applications, confirmation applications, validation applications, utility model applications, and design applications thereof, and all issued patents which may have granted or may be granted hereafter for said INVENTIONS in any country or countries foreign to the United States, and all reissues, renewals, reexaminations, and extensions thereof;

AND WE DO HEREBY authorize and request the Commissioner of Patents of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents on applications or registrations, to issue all patents for said INVENTIONS to said ASSIGNEE, its successors, its legal representatives and its assigns, in accordance with the terms of this instrument;

AND WE DO HEREBY sell, assign, transfer, and convey to said ASSIGNEE, its successors, its legal representatives, and its assigns all claims for damages and all remedies arising out of or relating to any violation(s) of any of the rights assigned hereby that have or may have accrued prior to the date of assignment to said ASSIGNEE, or may accrue hereafter, including, but not limited to the right to sue for, seek, obtain, collect, recover, and retain damages and any ongoing or prospective royalties to which WE may be entitled, or that WE may collect for any infringement or from any settlement or agreement related to any of said patents before or after issuance;

| AND WE HEREBY covenant whatsoever conflicting with these preser | that WE will not execute any writing or do any act |
|--|--|
| Done at LOCATION DA | 7 A 3 |
| LOCATION DA | TE Scid Hadi RASOULI |
| Done at, on | TE Michael Joseph BRUNOLLI |
| LOCATION DA | TE Michael Joseph Bronoppi |
| Done at, on | TE Christine Sung-An HAU-RIEGE |
| Done at, on | 12013 |
| LOCATION DA | TE Mickael MALABRY |
| Done at AN DIEGO, on 12/0 | 6/2013 Situra |
| LOCATION DA | TE Sucheta Kumar HARISH |
| Done at, on | TE Prathiba BALASUBRAMANIAN |
| LOCATION DA | TE FRURBA DALASODRAMAMAN |
| Done at, on | TE Kamesh MEDISETTI |
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| LOCATION DA | TE Nikolay BOMSHTEIN |
| Done at San Diego, on 1240 | 313 (Safo |
| LOCATION DA | TE Animesh DATTA |
| Done at $\frac{San Diego}{1000000000000000000000000000000000000$ | 9/13 <u>(Kaaghteen</u> |
| LOCATION / DA | TE Ohsang K WON |

AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

| Done at _ | 9 | on | |
|-----------|------------|--------------|--------------------------|
| | LOCATION | DATE | Seid Hadi RASOULI |
| Done at _ | Sm. Diego, | on ///&/// | Michael Joseph BRUNOLLI |
| | | on | |
| Done at _ | LOCATION , | on | Mickael MALABRY |
| Done at _ | LOCATION , | on | Sucheta Kumar HARISH |
| Done at _ | LOCATION , | on | Prathiba BALASUBRAMANIAN |
| Done at _ | LOCATION | on | Kamesh MEDISETTI |
| Done at _ | LOCATION | on | Nikolay BOMSHTEIN |
| Done at _ | LOCATION , | on | Animesh DATTA |
| Done at _ | LOCATION | , on DATE | Ohsang KWON |

AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

| Done at | , on | ···· | |
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| LOG | , on CATION | DATE | Seid Hadi RASOULI |
| Done at | , on | | |
| LO | CATION | DATE | Michael Joseph BRUNOLLI |
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| | CATION | DATE | Christine Sung-An HAU-RIEGE |
| Done at | , on | | |
| LO | , on CATION | DATE | Mickael MALABRY |
| Done at | , on | | |
| LO | , on | DATE | Sucheta Kumar HARISH |
| Done at | , on | | |
| LO | , on CATION | DATE | Prathiba BALASUBRAMANIAN |
| Done at | , on | | |
| LO | CATION | DATE | Kamesh MEDISETTI |
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| LO | CATION | DATE | Nikolay BOMSHTEIN |
| Dawa | on. | | |
| LO LO | , on CATION | DATE | Animesh DATTA |
| Done of | Ón | | |
| Lone at | , on | DATE | Ohsang KWON |

AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

| Done at | LOCATION | on. | | |
|----------------------|-----------|--------|-------------|--|
| | LOCATION | | DATE | Seid Hadi RASOULI |
| Done at | LOCATION | on _ | 70.4 (70.0) | M' I I I I I I I I I I I I I I I I I I I |
| | LOCATION | | DATE | Michael Joseph BRUNOLLI |
| Done at | LOCATION | on _ | DATE | Christine Sung-An HAU-RIEGE |
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| Done at | LOCATION | , on _ | DATE | Mickael MALABRY |
| Done at | LOCATION | , on _ | | |
| | LOCATION | | DATE | Sucheta Kumar HARISH |
| Done at | Borgowes, | on _ | 28/31/2814 | |
| | LOCATION | | DATE | Prathiba BALASUBRAMANIAN |
| Done at | LAILANE. | on_ | 34 bil /4 | H Vanul |
| | LOCATION | | DATE | Kamesh MEDISETTI |
| Done at | LOCATION | on _ | · | |
| | LOCATION | | DATE | Nikolay BOMSHTEIN |
| Done at ₋ | LOCATION | on _ | | |
| | LOCATION | | DATE | Animesh DATTA |
| Done at _ | LOCATION | on_ | | |
| | LOCATION | | DATE | Oheano KWON |

PATENT REEL: 045304 FRAME: 0332

RECORDED: 03/21/2018