

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT3612144

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
JIALING LI CHEN	09/10/2015
LIN YANG	09/09/2015
BIN TIAN	09/22/2015
SAMEER VERMANI	10/22/2015
RAHUL TANDRA	11/06/2015
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:	14805347
CORRESPONDENCE DATA	
Fax Number:	(949)760-9502
<i>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.</i>	
Phone:	9497600404
Email:	efiling@knobbe.com
Correspondent Name:	KNOBBE, MARTENS, OLSON & BEAR LLP
Address Line 1:	2040 MAIN STREET
Address Line 2:	14TH FLOOR
Address Line 4:	IRVINE, CALIFORNIA 92614
ATTORNEY DOCKET NUMBER:	QTELE.146A/146239
NAME OF SUBMITTER:	ERIC L. FONG
SIGNATURE:	/Eric Fong/
DATE SIGNED:	11/11/2015
Total Attachments: 15	

source=QTELE_146A-Assignment#page1.tif
source=QTELE_146A-Assignment#page2.tif
source=QTELE_146A-Assignment#page3.tif
source=QTELE_146A-Assignment#page4.tif
source=QTELE_146A-Assignment#page5.tif
source=QTELE_146A-Assignment#page6.tif
source=QTELE_146A-Assignment#page7.tif
source=QTELE_146A-Assignment#page8.tif
source=QTELE_146A-Assignment#page9.tif
source=QTELE_146A-Assignment#page10.tif
source=QTELE_146A-Assignment#page11.tif
source=QTELE_146A-Assignment#page12.tif
source=QTELE_146A-Assignment#page13.tif
source=QTELE_146A-Assignment#page14.tif
source=QTELE_146A-Assignment#page15.tif

ASSIGNMENT

WHEREAS, WE,

1. **Jialing Li Chen**, a citizen of China, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
2. **Lin Yang**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
3. **Bin Tian**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
4. **Sameer Vermani**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
5. **Rahul Tandra**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,

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 SYSTEMS AND METHODS FOR IMPROVED COMMUNICATION EFFICIENCY IN WIRELESS NETWORKS (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. 14/805,347 filed July 21, 2015, Qualcomm Reference No. 146239, and all provisional applications relating thereto, together with U.S. Provisional Application No 62/028,177, filed July 23, 2014, Qualcomm Reference No. 146239P1; U.S. Provisional Application No 62/033,350, filed August 5, 2014, Qualcomm Reference No. 146411P1; U.S. Provisional Application No 62/039,784, filed August 20, 2014, Qualcomm Reference No. 146411P2; U.S. Provisional Application No 62/064,301, filed October

15, 2014, Qualcomm Reference No. 146411P3 (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 and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates, make all rightful declarations and/or oaths, and provide all lawful assistance to said ASSIGNEE, its successors, its legal representatives and its assigns, to obtain and enforce patent protection for said INVENTIONS in all countries;

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

Done at San Diego, on 9/10/2015
LOCATION DATE


Jialing Li Chen

Done at _____, on _____
LOCATION DATE

Lin Yang

Done at _____, on _____
LOCATION DATE

Bin Tian

Done at _____, on _____
LOCATION DATE

Sameer Vermani

Done at _____, on _____
LOCATION DATE

Rahul Tandra

21499628
090215

ASSIGNMENT

WHEREAS, WE,

1. **Jialing Li Chen**, a citizen of China, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
2. **Liu Yang**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
3. **Bin Tian**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
4. **Sameer Vermani**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
5. **Rahul Tandra**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,

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 SYSTEMS AND METHODS FOR IMPROVED COMMUNICATION EFFICIENCY IN WIRELESS NETWORKS (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. 14/805,347 filed July 21, 2015, Qualcomm Reference No. 146239, and all provisional applications relating thereto, together with U.S. Provisional Application No 62/028,177, filed July 23, 2014, Qualcomm Reference No. 146239P1; U.S. Provisional Application No 62/033,350, filed August 5, 2014, Qualcomm Reference No. 146411P1; U.S. Provisional Application No 62/039,784, filed August 20, 2014, Qualcomm Reference No. 146411P2; U.S. Provisional Application No 62/064,301, filed October

15, 2014, Qualcomm Reference No. 146411P3 (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;

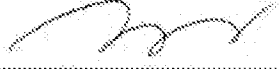
AND WE DO HEREBY authorize and request the Commissioner of Patents of the United States, and any Official of any country or countries foreign to the United States, whose duty it is to issue patents on applications or registrations, to issue all patents for said INVENTIONS to said ASSIGNEE, its successors, 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 and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates, make all rightful declarations and/or oaths, and provide all lawful assistance to said ASSIGNEE, its successors, its legal representatives and its assigns, to obtain and enforce patent protection for said INVENTIONS in all countries;

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

Done at _____, on _____
LOCATION DATE
Jialing Li Chen

Done at San Diego, on 9/9/15
LOCATION DATE

Lin Yang

Done at _____, on _____
LOCATION DATE
Bin Tian

Done at _____, on _____
LOCATION DATE
Sameer Vermani

Done at _____, on _____
LOCATION DATE
Rahul Tandra

21499526
080215

ASSIGNMENT

WHEREAS, WE,

1. **Jialing Li Chen**, a citizen of China, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
2. **Lin Yang**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
3. **Bin Tian**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
4. **Sameer Vermani**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
5. **Rahul Tandra**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,

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 SYSTEMS AND METHODS FOR IMPROVED COMMUNICATION EFFICIENCY IN WIRELESS NETWORKS (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. 14/805,347 filed July 21, 2015, Qualcomm Reference No. 146239, and all provisional applications relating thereto, together with U.S. Provisional Application No 62/028,177, filed July 23, 2014, Qualcomm Reference No. 146239P1; U.S. Provisional Application No 62/033,350, filed August 5, 2014, Qualcomm Reference No. 146411P1; U.S. Provisional Application No 62/039,784, filed August 20, 2014, Qualcomm Reference No. 146411P2; U.S. Provisional Application No 62/064,301, filed October

15, 2014, Qualcomm Reference No. 146411P3 (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 and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates, make all rightful declarations and/or oaths, and provide all lawful assistance to said ASSIGNEE, its successors, its legal representatives and its assigns, to obtain and enforce patent protection for said INVENTIONS in all countries;

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

Done at _____, on _____
LOCATION DATE Jialing Li Chen

Done at _____, on _____
LOCATION DATE Lin Yang

Done at San Diego, on 9/22/15
LOCATION DATE 
Bin Tian

Done at _____, on _____
LOCATION DATE Samcer Vermani

Done at _____, on _____
LOCATION DATE Rahul Tandra

21489526
080218

ASSIGNMENT

WHEREAS, WE,

1. **Jialing Li Chen**, a citizen of China, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
2. **Lin Yang**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
3. **Bin Tian**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
4. **Sameer Vermani**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
5. **Rahul Tandra**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,

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 SYSTEMS AND METHODS FOR IMPROVED COMMUNICATION EFFICIENCY IN WIRELESS NETWORKS (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. 14/805,347 filed July 21, 2015, Qualcomm Reference No. 146239, and all provisional applications relating thereto, together with U.S. Provisional Application No 62/028,177, filed July 23, 2014, Qualcomm Reference No. 146239P1; U.S. Provisional Application No 62/033,350, filed August 5, 2014, Qualcomm Reference No. 146411P1; U.S. Provisional Application No 62/039,784, filed August 20, 2014, Qualcomm Reference No. 146411P2; U.S. Provisional Application No 62/064,301, filed October

15, 2014, Qualcomm Reference No. 146411P3 (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 and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates, make all rightful declarations and/or oaths, and provide all lawful assistance to said ASSIGNEE, its successors, its legal representatives and its assigns, to obtain and enforce patent protection for said INVENTIONS in all countries;

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

Done at _____, on _____
LOCATION DATE Jialing Li Chen

Done at _____, on _____
LOCATION DATE Lin Yang

Done at _____, on _____
LOCATION DATE Bin Tian

Done at San Diego, on 10/22/15
LOCATION DATE Sameer Vermani

Done at _____, on _____
LOCATION DATE Rahul Tandra

21499525
090215

ASSIGNMENT

WHEREAS, WE,

1. **Jialing Li Chen**, a citizen of China, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
2. **Lin Yang**, a citizen of the United States, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
3. **Bin Tian**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
4. **Sameer Vermani**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,
5. **Rahul Tandra**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121 and a resident of San Diego, CA,

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 SYSTEMS AND METHODS FOR IMPROVED COMMUNICATION EFFICIENCY IN WIRELESS NETWORKS (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. 14/805,347 filed July 21, 2015, Qualcomm Reference No. 146239, and all provisional applications relating thereto, together with U.S. Provisional Application No 62/028,177, filed July 23, 2014, Qualcomm Reference No. 146239P1; U.S. Provisional Application No 62/033,350, filed August 5, 2014, Qualcomm Reference No. 146411P1; U.S. Provisional Application No 62/039,784, filed August 20, 2014, Qualcomm Reference No. 146411P2; U.S. Provisional Application No 62/064,301, filed October

15, 2014, Qualcomm Reference No. 146411P3 (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 and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates, make all rightful declarations and/or oaths, and provide all lawful assistance to said ASSIGNEE, its successors, its legal representatives and its assigns, to obtain and enforce patent protection for said INVENTIONS in all countries;

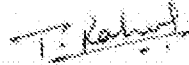
AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at _____, on _____
LOCATION DATE Jialing Li Chen

Done at _____, on _____
LOCATION DATE Lin Yang

Done at _____, on _____
LOCATION DATE Bin Tian

Done at _____, on _____
LOCATION DATE Sameer Vermani

Done at San Diego, on 11/6/2015
LOCATION DATE 
Rahul Tandra

21459526
090215