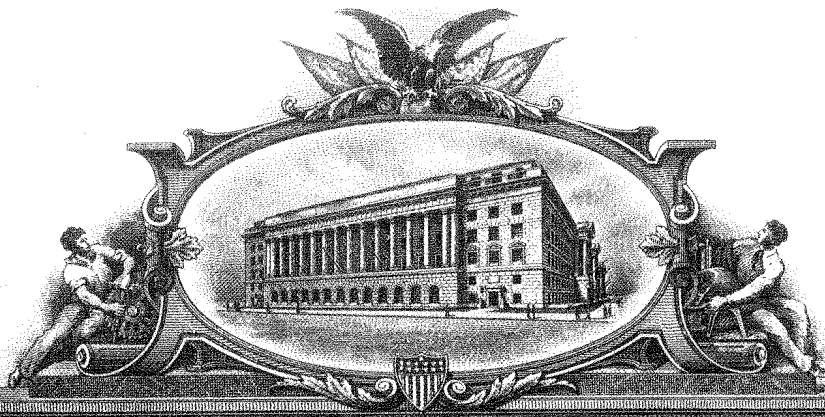


A 2022880



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

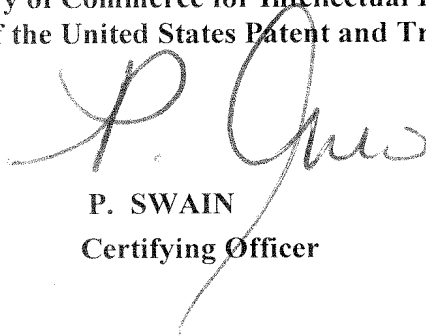
United States Patent and Trademark Office

January 16, 2018

THIS IS TO CERTIFY THAT ANNEXED IS A TRUE COPY FROM THE
RECORDS OF THIS OFFICE OF A DOCUMENT RECORDED ON
JUNE 29, 2016.

By Authority of the

Under Secretary of Commerce for Intellectual Property
and Director of the United States Patent and Trademark Office



P. SWAIN

Certifying Officer



PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT3942380

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
GEORGE CHERIAN	06/15/2016
SIMONE MERLIN	06/15/2016
GWENDOLYN DENISE BARRIAC	06/27/2016
ALFRED ASTERJADHI	06/17/2016
RECEIVING PARTY DATA	
Name:	QUALCOMM INCORPORATED
Street Address:	5775 MOREHOUSE DRIVE
City:	SAN DIEGO
State/Country:	CALIFORNIA
Postal Code:	92121-1714
PROPERTY NUMBERS Total: 2	
Property Type	Number
Application Number:	15145756
Application Number:	62157921
CORRESPONDENCE DATA	
Fax Number:	(202)857-6395
<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:	213-629-7400
Email:	ocpat_uspto@qualcomm.com
Correspondent Name:	ARENT FOX, LLP AND QUALCOMM, INCORPORATE
Address Line 1:	1717 K STREET, NW
Address Line 4:	WASHINGTON, D.C. 20006-5344
ATTORNEY DOCKET NUMBER:	030284.11761/153407
NAME OF SUBMITTER:	RACHELE WITTWER
SIGNATURE:	/Rachele Wittwer/
DATE SIGNED:	06/29/2016
Total Attachments: 6	
source=153407 Signed Assignment__#page1.tif	

source=153407 Signed Assignment__#page2.tif
source=153407 Signed Assignment__#page3.tif
source=153407 Signed Assignment__#page4.tif
source=153407 Signed Assignment__#page5.tif
source=153407 Signed Assignment__#page6.tif

ASSIGNMENT

WHEREAS, WE,

1. **George CHERIAN**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714, and a resident of San Diego, California,
2. **Simone MERLIN**, a citizen of Italy, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714, and a resident of San Diego, California,
3. **Gwendolyn Denise BARRIAC**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714, and a resident of Encinitas, California,
4. **Alfred ASTERJADHI**, a citizen of Albania, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714, 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 **BLOCK ACKNOWLEDGEMENT MECHANISM FOR ACKNOWLEDGING DL-MU DATA ON UL-MU WIRELESS COMMUNICATION SYSTEM** (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). 15/145,756 filed May 3, 2016, Qualcomm Reference No. 153407, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 62/157,921, filed May 6, 2015, Qualcomm Reference No. 153407P1, (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;

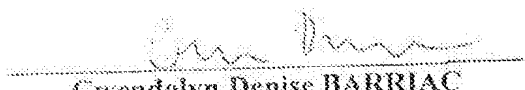
AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at San Diego, on 6/15/16
LOCATION DATE

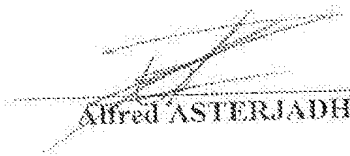

George CHERIAN

Done at _____, on _____
LOCATION DATE

Done at San Diego, on 6/27/16
LOCATION DATE


Gwendolyn Denise BARRIAC

Done at SAN DIEGO, on 06/17/2016
LOCATION DATE


Alfred ASTERJADHI

ASSIGNMENT

WHEREAS, WE,

1. **George CHERIAN**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714, and a resident of San Diego, California,
2. **Simone MERLIN**, a citizen of Italy, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714, and a resident of San Diego, California,
3. **Gwendolyn Denise BARRIAC**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714, and a resident of Encinitas, California,
4. **Alfred ASTERJADHI**, a citizen of Albania, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714, 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 **BLOCK ACKNOWLEDGEMENT MECHANISM FOR ACKNOWLEDGING DL-MU DATA ON UL-MU WIRELESS COMMUNICATION SYSTEM** (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). 15/145,756 filed May 3, 2016, Qualcomm Reference No. 153407, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 62/157,921, filed May 6, 2015, Qualcomm Reference No. 153407P1, (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 been 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

George CHERIAN

Done at SAR 51600, on 6/29/16
LOCATION DATE

Simone Merlin
Simone MERLIN

Done at _____, on _____
LOCATION DATE

Gwendolyn Denise BARRIAC

Done at _____, on _____
LOCATION DATE

Alfred ASTERJADHI

A 2022880

ESTADOS UNIDOS DE AMÉRICA
A QUIEN CORRESPONDA:
DEPARTAMENTO DE COMERCIO DE LOS ESTADOS UNIDOS DE AMÉRICA
Oficina de Patentes y Marcas de los Estados Unidos de América

16 de enero de 2018

POR LA PRESENTE SE CERTIFICA QUE SE ADJUNTA UNA COPIA FIEL DE UN DOCUMENTO QUE CONSTA EN LAS ACTAS DE ESTA OFICINA REGISTRADO EL 29 DE JUNIO DE 2016.

**Autorizado por el Subsecretario de Comercio de Propiedad Intelectual
y Director de la Oficina de Patentes y Marcas de los Estados Unidos**

[Firma ilegible]

P. SWAIN

Funcionario autorizante



CARÁTULA DE CESIÓN DE PATENTE

Versión electrónica v1.1

Versión de estilo de hoja v1.2

EPAS (Identificación del sistema electrónico de cesión de patentes) PAT3942380

TIPO DE PRESENTACIÓN	NUEVA CESIÓN
NATURALEZA DE LA TRANSFERENCIA	CESIÓN
DATOS DE LA PARTE TRANSFERENTE	
Nombre	Fecha de formalización
GEORGE CHERIAN	15/06/2016
SIMONE MERLIN	15/06/2016
GWENDOLYN DENISE BARRIAC	27/06/2016
ALFRED ASTERJADHI	17/06/2016
DATOS DE LA PARTE RECEPTORA	
Nombre	QUALCOMM INCORPORATED
Dirección:	5775 MOREHOUSE DRIVE
Ciudad:	SAN DIEGO
Estado/País:	CALIFORNIA
Código postal:	92121-1714
CANTIDAD TOTAL DE PROPIEDADES: 2	
Tipo de propiedad	Número
Número de solicitud:	15145756
Número de solicitud:	62157921
DATOS DE CORRESPONDENCIA	
Número de fax: (202)857-6395	
La correspondencia se enviará en primer lugar a la dirección de correo electrónico; si el intento no fuere exitoso, se enviará por fax, si se proporciona; si dicho intento no fuere exitoso, se enviará por correo postal de los Estados Unidos de América.	
Teléfono: 213-629-7400	
Correo electrónico: ocpat_uspto@qualcomm.com	

Nombre del destinatario: ARENT FOX, LLP y QUALCOMM, INCORPORATE	
Dirección línea 1: 1717 K STREET, NW	
Dirección línea 4: WASHINGTON, D.C. 20006-5344	
N.º DE EXPEDIENTE DEL ABOGADO:	030284.11761/153407
NOMBRE DEL DEPOSITANTE:	RACHELE WITTWER
FIRMA:	/Rachele Wittwer/
FECHA:	29/06/2016
Total de anexos: 6 source=153407 Signed Assignment____#page1.tif source=153407 Signed Assignment____#page2.tif source=153407 Signed Assignment____#page3.tif source=153407 Signed Assignment____#page4.tif source=153407 Signed Assignment____#page5.tif source=153407 Signed Assignment____#page6.tif	

PATENTE
ROLLO: 039209 MARCO: 0618

PATENTE.

N.º de ref. de QUALCOMM: 153407.

CESIÓN

POR CUANTO, NOSOTROS,

1. **George CHERIAN**, ciudadano estadounidense, con dirección postal en 5775 Morehouse Drive, San Diego, CA 92121-1714 y con domicilio en San Diego, California,
 2. **Simone MERLIN**, ciudadano italiano, con dirección postal en 5775 Morehouse Drive, San Diego, CA 92121-1714 y con domicilio en San Diego, California,
 3. **Gwendolyn Denise BARRIAC**, ciudadano estadounidense, con dirección postal en 5775 Morehouse Drive, San Diego, CA 92121-1714 y con domicilio en Encinitas, California, y
 4. **Alfred ASTERJADHI**, ciudadano estadounidense, con dirección postal en 5775 Morehouse Drive, San Diego, CA 92121-1714 y con domicilio en San Diego, California,
- hemos creado uno o más procesos, métodos, máquinas, artículos de fabricación, diseños, composiciones de materia, invenciones, descubrimientos o mejoras novedosas o útiles en relación con **MECANISMO DE RECONOCIMIENTO DE BLOQUEO PARA EL RECONOCIMIENTO DE DATOS DE DL-MU EN UN SISTEMA DE COMUNICACIÓN INALÁMBRICA UL-MU** (en conjunto, las “**INVENCIONES**”) para las que suscribimos y/o podríamos suscribir una o más solicitudes de patente.

POR CUANTO, QUALCOMM Incorporated (en adelante, el “**CESIONARIO**”), sociedad constituida en Delaware, con sede social en 5775 Morehouse Drive, San Diego, California 92121-1714, EE. UU., pretende adquirir o de otro modo obtener la totalidad de los derechos sobre dichas INVENCIONES, incluidas todas las invenciones relacionadas con estas, todas las solicitudes de patente correspondientes a estas y todas las patentes que se concedieron o pudieran concederse en el futuro respecto de estas, incluso las que se identifiquen a continuación, entre otras.

POR LO TANTO, por una contraprestación susceptible de apreciación pecuniaria, de cuya recepción se deja constancia en la presente, mediante este acto reconocemos haber vendido, cedido y transferido, y por la presente, vendemos, cedemos y transferimos al CESIONARIO, sus sucesores, representantes legales y

causahabientes, la totalidad de los derechos en todo el mundo respecto de dichas INVENCIONES, lo que incluye todas las solicitudes de patente de estas que se presentaron o pudieran presentarse en el futuro para dichas INVENCIONES en los Estados Unidos de América, incluida, entre otras, la solicitud estadounidense N.º **15/145.756**, presentada el **3 de mayo de 2016**, N.º de referencia de Qualcomm **153407**, y todas las solicitudes provisionales relacionadas, junto con la solicitud provisional estadounidense N.º **62/157.921**, presentada el **6 de mayo de 2015**, N.º de referencia de Qualcomm **153407P1**, (y por la presente autorizamos al CESIONARIO y a su representante a agregar en lo sucesivo en la presente los números de solicitud y/o fechas de presentación cuando se conozcan) y todas las solicitudes divisionales, de renovación, continuación, continuación en parte y diseño subsiguientes, y todas las patentes emitidas en los Estados Unidos de América que se concedieron o que pudieran concederse, y todas las reemisiones, renovaciones, reexaminaciones y extensiones de cualquiera de las anteriores y de todas las patentes que se emitan en adelante en los Estados Unidos de América.

ASIMISMO, reconocemos y acordamos haber vendido, cedido y transferido, y por la presente, vendemos, cedemos y transferimos al CESIONARIO, sus sucesores, representantes legales y causahabientes, todos los derechos de prioridad conforme a acuerdos, tratados o convenios internacionales y la totalidad de los derechos en todo el mundo sobre dichas INVENCIONES, incluso todas las invenciones relacionadas con estas, y todas las solicitudes de patente que se presentaron o pudieran presentarse en el futuro para dichas INVENCIONES en cualquier país, países extranjeros u organizaciones de tratado o unión, y todas las solicitudes divisionales, de renovación, continuación, continuación en parte, patente de adición, confirmación, validación, modelo de utilidad y diseño subsiguientes, y todas las patentes emitidas que se concedieron o pudieran concederse para dichas INVENCIONES en cualquier país o países extranjeros a los Estados Unidos, y toda reemisión, renovación, reexaminación y extensión de estas.

POR LA PRESENTE, autorizamos y solicitamos al Comisionado de Patentes de los Estados Unidos de América, y a todo funcionario de cualquier país o países extranjeros a los Estados Unidos de América, cuyo deber sea emitir patentes sobre solicitudes o registros, a emitir todas las patentes correspondientes a dichas

INVENCIONES a favor del CESIONARIO, sus sucesores, representantes legales y causahabientes de acuerdo con los términos del presente instrumento.

POR LA PRESENTE, vendemos, cedemos y transferimos al CESIONARIO, sus sucesores, representantes legales y causahabientes, todo reclamo por daños y perjuicios, y todo recurso que derive o se relacione con una infracción sobre cualquiera de los derechos cedidos mediante la presente, y que se haya obtenido o pudiera obtenerse con anterioridad a la fecha de la cesión al CESIONARIO, o que se obtenga en el futuro, lo que incluye, entre otros, el derecho a demandar, procurar, obtener, percibir, recuperar y retener daños y perjuicios y toda regalía presente o eventual a la que pudiéramos tener derecho, o que podríamos percibir a causa de cualquier incumplimiento o de cualquier arreglo o acuerdo relacionado con cualquiera de dichas patentes antes o después de la emisión.

POR LA PRESENTE, acordamos comunicar sin demora a dicho CESIONARIO, sus sucesores, representantes legales y causahabientes, todo hecho de nuestro conocimiento referido a dichas INVENCIONES, y prestar declaración en cualquier proceso legal, firmar todos los documentos legales, tramitar todas las solicitudes y certificados, realizar todas las declaraciones y/o juramentos correspondientes, y brindar a dicho CESIONARIO, sus sucesores, representantes legales y causahabientes, toda asistencia lícita necesaria para que obtenga y exija la protección de patente para dichas INVENCIONES en todos los países.

Y POR LA PRESENTE acordamos no formalizar ningún escrito ni llevar a cabo acto alguno en conflicto con la presente.

Suscrito en (lugar) San Diego, (fecha) el 15 de junio de 2016 [Firma ilegible] **George CHERIAN**

Suscrito en (lugar) [en blanco], (fecha) [en blanco] [espacio para firmar en blanco]

Suscrito en (lugar) San Diego, (fecha) el 27 de junio de 2016 [Firma ilegible] **Gwendolyn Denise BARRIAC**

Suscrito en (lugar) San Diego, (fecha) el 17 de junio de 2016 [Firma ilegible] **Alfred ASTERJADHI**

PATENTE

FECHA DE REGISTRO: 29/06/2016

ROLLO: 039209. MARCO: 0624