

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT4891561

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
SEYONG PARK	03/14/2018
WEI ZENG	03/19/2018
PETER GAAL	03/15/2018
HAO XU	03/22/2018
YI HUANG	03/20/2018
RENQIU WANG	03/20/2018
SONY AKKARAKARAN	03/13/2018
TAO LUO	03/14/2018
TINGFANG JI	03/13/2018
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:	15873668
Application Number:	62448363
CORRESPONDENCE DATA	
Fax Number:	(303)473-2720
<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:	303-473-2700
Email:	bmsouares@hollandhart.com
Correspondent Name:	MICHAEL DRAPKIN
Address Line 1:	P.O. BOX 11583
Address Line 4:	SALT LAKE CITY, UTAH 84147
ATTORNEY DOCKET NUMBER:	PN019.01 (93519.1065)

NAME OF SUBMITTER:	MICHAEL L. DRAPKIN
SIGNATURE:	/Michael L. Drapkin/
DATE SIGNED:	03/29/2018
Total Attachments: 6 source=171787_Assignment#page1.tif source=171787_Assignment#page2.tif source=171787_Assignment#page3.tif source=171787_Assignment#page4.tif source=171787_Assignment#page5.tif source=171787_Assignment#page6.tif	

ASSIGNMENT

WHEREAS, WE,

1. **Seyong PARK**, a citizen of the **Republic of Korea**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **San Diego, California**;
2. **Wei ZENG**, a citizen of the **People's Republic of China**, having a mailing address located at **19999 Stevens Creek Blvd. Unit 119, Cupertino, CA 95014** and a resident of **Cupertino, California**;
3. **Peter GAAL**, 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, California**,
4. **Hao XU**, 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 **Beijing, China**;
5. **Yi HUANG**, a citizen of the **People's Republic of China**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **San Diego, California**;
6. **Renqiu WANG**, a citizen of the **People's Republic of China**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **San Diego, California**;
7. **Sony AKKARAKARAN**, a citizen of **India**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **Poway, California**;
8. **Tao LUO**, 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, California**;
9. **Tingfang JI**, 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, 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 **LOW PEAK-TO-AVERAGE POWER RATIO WAVEFORM DESIGN FOR FREQUENCY MULTIPLEXING OF MULTIPLE STREAMS** (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). **15/873,668** filed **January 17, 2018** Qualcomm Reference No. **171787**, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). **62/448,363**, filed **January 19, 2017**, Qualcomm Reference No. **171787P1**, (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

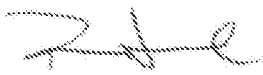
infringement or from any settlement or agreement related to any of said patents before or after issuance;

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;

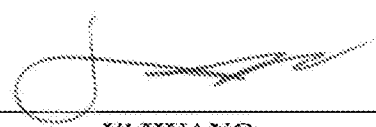
AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at San Diego, on 03/14/2018
LOCATION DATE

Seyong PARK

Done at _____, on _____
LOCATION DATE
Wei ZENG

Done at San Diego, on 03/15/2018
LOCATION DATE

Peter GAAL

Done at _____, on _____
LOCATION DATE
Hao XU

Done at San Diego, on 3/20/2018
LOCATION DATE

YI HUANG

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 Seyong PARK


Done at Cupertino, on 03/19/2018
LOCATION DATE Wei ZENG


Done at _____, on _____
LOCATION DATE Peter GAAL

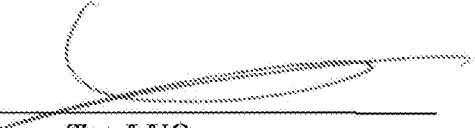
Done at _____, on _____
LOCATION DATE Hao XU

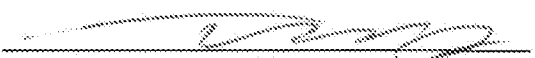
Done at _____, on _____
LOCATION DATE Yi HUANG

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 03/20/2018
LOCATION DATE

Renqiu WANG

Done at San Diego, on 3/13/2018
LOCATION DATE

Sony AKKARAKARAN

Done at San Diego, on 03/19/2018
LOCATION DATE

Tao LUO

Done at San Diego, on 3/13/2018
LOCATION DATE

Tingfang JI