PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	

CONVEYING PARTY DATA

Name	Execution Date
VINCENT LONCKE	04/11/2018
RAGHUNATH KALAVAI	04/09/2018
YI CAO	04/09/2018
THOMAS RICHARDSON	04/09/2018
JOSEPH BINAMIRA SORIAGA	04/09/2018
SHRINIVAS KUDEKAR	04/12/2018

RECEIVING PARTY DATA

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

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15940026

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.

Phone: 2028576000

Email: patentdocket@arentfox.com

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

Address Line 4: WASHINGTON, D.C. 20006

ATTORNEY DOCKET NUMBER:	030284.16120/173427	
NAME OF SUBMITTER:	NATASHA BROWN	
SIGNATURE:	/Natasha Brown/	
DATE SIGNED:	SIGNED: 04/23/2018	

Total Attachments: 5

PATENT REEL: 045612 FRAME: 0414

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> PATENT REEL: 045612 FRAME: 0415

ASSIGNMENT

WHEREAS, WE,

- 1. Vincent LONCKE, 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 Piscataway, NJ.
- 2. Raghunath KALAVAI, 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 Bedminster, NJ,
- 3. Yi CAO, a citizen of the People's Republic of China, having a mailing address located at 5775 Morehouse Drive, San Diego, CA 92121-1714 and a resident of Parsippany, NJ,
- 4. Thomas RICHARDSON, 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 South Orange, NJ,
- 5. Joseph Binamira SORIAGA, 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, CA,
- 6. Shrinivas KUDEKAR, a citizen of India, having a mailing address located at 304 Bencer Court, Raritan, NJ 08869 and a resident of Raritan, NJ,

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 TECHNIQUES FOR RATE MATCHING AND INTERLEAVING IN WIRELESS COMMUNICATIONS (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

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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, including but not limited to, U.S. Application No(s). 15/940,026 filed March 29, 2018, Qualcomm Reference No. 173427, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 62/480,074 filed March 31, 2017, Qualcomm Reference No. 173427P1 (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 nonprovisional applications, national phase applications, 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 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

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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 Orida	CATION On	4-11-18	
Ů	OCATION	DATE	Vincent LONCKE
Done at 📉	NJ <u>Kanara</u> , on		
LĄ	DČATION	DATE	Raghunath KALAVAI
Done at LC	ALT ON SCATION	4-9-18 DATE	S.CAO 7
Done at 🖔 🖂	Izarz, NJ.	4-9-18	
FC	OCATION	DATE	Thomas RICHARDSON
	, on		
LC	OCATION	DATE	Joseph Binamira SORIAGA
Done at	, on		
1.0	OCATION	DATE	Shriniyas KUDEKAR

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	Vincent LONCKE
Done at	5 on		
	LOCATION , on	DATE	Raghunath KALAVAI
Done at	, on		
	LOCATION	DATE	Yi CAO
Davaat			
Done at	LOCATION, on	DATE	Thomas RICHARDSON
Done at	Gen Tilly M, on	4/9/2018	
	LOCATION	DATE	Joseph Binamira SORIAGA
Done at	, on		
	LOCATION	DATE	Shriniyas KUDEKAR

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PATENT REEL: 045612 FRAME: 0419

PATENT QUALCOMM Ref. No. 173427 Page 3 of 3

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		<u></u>
-	LOCATION	DATE	Vincent LONCKE
Done at	, on		
	LOCATION	DATE	Raghunath KALAVAI
Done at	5 on		
	LOCATION	DATE	Yi CAO
Done at	, on		
-	LOCATION	DATE	Thomas RICHARDSON
Done at	, on		
~ .	LOCATION	DATE	Joseph Binamira SORIAGA
Done at	RARITAN, Non	04/12/2018	@ Oudaker
Exome at	LOCATION	DATE	Shrinivas KIIDEKAR

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RECORDED: 04/23/2018

PATENT REEL: 045612 FRAME: 0420