

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT6656437

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
AYAN SENGUPTA	03/02/2021
ALBERTO RICO ALVARINO	03/23/2021
PETER GAAL	03/02/2021
TAO LUO	03/04/2021
KAZUKI TAKEDA	03/03/2021
JUAN MONTOJO	03/02/2021
LE LIU	03/02/2021
XIAOXIA ZHANG	03/04/2021
WANSHI CHEN	03/03/2021
UMESH PHUYAL	03/03/2021
PRASAD REDDY KADIRI	03/09/2021
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	QUALCOMM INCORPORATED
<b>Street Address:</b>	5775 MOREHOUSE DRIVE
<b>City:</b>	SAN DIEGO
<b>State/Country:</b>	CALIFORNIA
<b>Postal Code:</b>	92121-1714
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	17188128
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<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>	
<b>Phone:</b>	303-473-2700
<b>Email:</b>	jdlafleur@hollandhart.com
<b>Correspondent Name:</b>	HOLLAND & HART LLP/QUALCOMM
<b>Address Line 1:</b>	P.O. BOX 11583
<b>Address Line 4:</b>	SALT LAKE CITY, UTAH 84147

<b>ATTORNEY DOCKET NUMBER:</b>	PS100.01 (107922.1097)
<b>NAME OF SUBMITTER:</b>	MICHAEL L. DRAPKIN
<b>SIGNATURE:</b>	/Michael L. Drapkin/
<b>DATE SIGNED:</b>	04/14/2021

**Total Attachments: 14**

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**ASSIGNMENT**

WHEREAS, WE,

1. **Ayan SENGUPTA**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,
2. **Alberto RICO ALVARINO**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,
3. **Peter GAAL**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,
4. **Tao LUO**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,
5. **Kazuki TAKEDA**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,
6. **Juan MONTOJO**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,
7. **Le LIU**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,
8. **Xiaoxia ZHANG**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,
9. **Wanshi CHEN**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,
10. **Umesh PHUYAL**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,
11. **Prasad Reddy KADIRI**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121**,

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 **CONTROL CHANNEL RESOURCES FOR GROUP-FEEDBACK IN MULTI-CAST** (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). 17/188,128** filed **March 01, 2021**, **Qualcomm Reference Number 202530**, together with **U.S Provisional Application No(s). 62/985,545**, filed **March 05, 2020**, **Qualcomm Reference Number 202530P1**, (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 SANDIEGO, CA, USA, on 03/02/2021  
City, State, Country Date

  
Ayan SENGUPTA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

Alberto RICO ALVARINO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

Peter GAAL

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

Tao LUO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

Kazuki TAKEDA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

Juan MONTOJO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

Le LIU

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

\_\_\_\_\_  
Ayan SENGUPTA

Done at San Diego, CA, on 3/23/21  
City, State, Country Date

\_\_\_\_\_  
Alberto RICO-ALVARINO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

\_\_\_\_\_  
Peter GAAL

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

\_\_\_\_\_  
Tao LUO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

\_\_\_\_\_  
Kazuki TAKEDA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

\_\_\_\_\_  
Juan MONTOJO

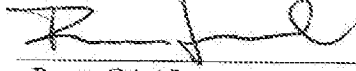
Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

\_\_\_\_\_  
Le LIU

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Ayan SENGUPTA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Alberto RICO ALVARINO

Done at San Diego, CA, USA, on 03/02/2021  
City, State, Country Date   
Peter GAAL

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Tao LUO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Kazuki TAKEDA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Juan MONTOJO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Le LIU



PATENT

Quakem Reference Number: 202530

Page 4 of 5

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date  
Ayan SENGUPTA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date  
Alberto RICO ALVARINO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date  
Peter GAAL

Done at \_\_\_\_\_, on 03/08/2021  
City, State, Country Date  
Tao LUO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date  
Kazuki TAKEDA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date  
Juan MONTORO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date  
Le LIU

PATENT

REEL: 055918 FRAME: 0771

PATENT

Qualcomm Reference Number: 202530

Page 4 of 5

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Ayan SENGUPTA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Alberto RICO ALVARINO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Peter GAAL

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Tao LUO

Done at Tokyo, Japan, on Mar 3, 2021  
City, State, Country Date Kazuki Takeda  
Kazuki TAKEDA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Juan MONTOJO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Le LIU

PATENT

REEL: 055918 FRAME: 0772

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

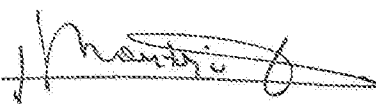
Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Ayan SENGUPTA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Alberto RICO ALVARINO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Peter GAAL

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Tao LUO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Kazuki TAKEDA

Done at San Diego, CA, USA, on 3/2/21  
City, State, Country Date   
Juan MONTOJO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Le LIU

PATENT

Qualcomm Reference Number: 202530

Page 4 of 5

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Ayan SENGUPTA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Alberto RICO ALVARINO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Peter GAAL

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Tao LUO

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Kazuki TAKEDA

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Juan MONTOJO

Done at Santa Clara, CA, on 3/2/2021  
City, State, Country Date Le LIU

PATENT

REEL: 055918 FRAME: 0774

PATENT

Quadrant Reference Number 202530

Page 5 of 5

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

Done at Sao Paulo, on 02/04/2021  
City, State, Country Date

Xinmin ZHANG  
Xinmin ZHANG

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

Wanshi CHEN

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

Umash PHUYAL

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date

Prasad Reddy KADHRI

PATENT

Quotation Reference Number: 202539

Page 5 of 5

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Xiaoxia ZHANG

Done at Sandiego CA, on 3/2/2017  
City, State, Country Date Wanshi CHEN

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Omesh PHU/VAL

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Prasad Reddy KADHRI

PATENT

Qualcomm Reference Number: 202530

Page 5 of 5

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Xinxi ZHANG

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Wanshi CHEN

Done at San Diego, CA, on 03/03/2021  
City, State, Country Date Umesh PHUYAL

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Prasad Reddy KADIRI



PATENT

REEL: 055918 FRAME: 0777

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

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Xiaoxia ZHANG

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Wanshi CHEN

Done at \_\_\_\_\_, on \_\_\_\_\_  
City, State, Country Date Umesh PHUYAL

Done at San Diego, CA, USA, on 03/09/2021  
City, State, Country Date Prasad  
Prasad Reddy KADIRI