#### 502336998 05/06/2013

## PATENT ASSIGNMENT

## Electronic Version v1.1 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
Michael Mao WANG	04/29/2013
Murali Ramaswamy CHARI	02/27/2013
Ashok MANTRAVADI	02/24/2013
Fuyun LING	03/29/2013
Rajiv VIJAYAN	02/20/2013
Raghuraman KRISHNAMOORTHI	04/02/2013

#### **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:	13767834

## **CORRESPONDENCE DATA**

**Fax Number**: 2028576395

Correspondence will be sent via US Mail when the fax attempt is unsuccessful.

Phone: 202.857.6395

Email: dcipdocket@arentfox.com

Correspondent Name: Arent Fox, LLP
Address Line 1: 1717 K Street, NW

Address Line 4: Washington, DISTRICT OF COLUMBIA 20036-5342

ATTORNEY DOCKET NUMBER: 030284.06103/040645U2C1B1

NAME OF SUBMITTER: Rachele Wittwer

PATENT REEL: 030358 FRAME: 0716 P \$40,00 1376783

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Signature:	/Rachele Wittwer/	
Date:	05/06/2013	
Total Attachments: 18		
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## WHEREAS, WE,

- 1. Michael Mao Wang, 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,
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- 3. Ashok Mantravadi, 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. **Fuyun Ling,** a citizen of the United States of America, having a mailing address located at 17264 Sangallo Lane, San Diego, CA, 92127, and a resident of San Diego, CA,
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- 6. Raghuraman Krishnamoorthi, 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,

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 SYSTEM AND METHOD FOR FREQUENCY DIVERSITY (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). 13/767,834 filed February 14, 2013, Qualcomm Reference No. 040645U2C1B1, and all provisional applications relating thereto,

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;

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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 represent that WE have full and exclusive, unencumbered right to sell, assign, convey and transfer all subject matter herein, and hereby covenant that WE have not and will not execute any writing or do any act whatsoever conflicting with these presents.

Done at	San Diean	on April 29	Nichael Mao Wang
	LOCATION	DATE	Michael Mao Wang
Done at _		, on	
	LOCATION	on	Murali Ramaswamy Chari
Done at		, on	
··· -	LOCATION	, on	Ashok Mantravadi
Done at _		on	Fuyun Ling
	LOCATION	DATE	Fuyun Ling
Done at		, on	Rajiv Vijayan
	LOCATION	DATE	Rajiv Vijayan
Done at _	LOCATION	_, on	Raghuraman Krishnamoorthi
	LUCATION	DATE	Raghuraman Krishnamoorthi

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# PATENT QUALCOMM Ref. No. 040645U2C1B1 Page 3 of 3

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AND WE HEREBY represent that WE have full and exclusive, unencumbered right to sell, assign, convey and transfer all subject matter herein, and hereby covenant that WE have not and will not execute any writing or do any act whatsoever conflicting with these presents.

Done at		, on		
	LOCATION		DATE	Michael Mao Wang
Done at	Sandiezo LOCATION	_, on _	2/27/20/3 DATE	Murali Ramaswamy Chari
Done at _		_, on _		Ashok Mantravadi
	LOCATION		DATE	Ashok Mantravadi
Done at _	LOCATION	_, on _	DATE	Fuyun Ling
Done at _	LOCATION	_, on _	DATE	Rajiv Vijayan
Done at _		, on _	DATE	
	LOCATION		DATE	Raghuraman Krishnamoorthi

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Done at		on		
Done ac	LOCATION		DATE	Michael Mao Wang
Done at .	LOCATION	, on	DATE	Murali Ramaswamy Chari
Done at <sub>.</sub>	SAN DIEGO LOCATION	, on <u>2</u>	24 2018 DATE	Ashok Mantravadi
Done at _	LOCATION	_, on	DATE	Fuyun Ling
Done at _	LOCATION	, on	DATE	Rajiv Vijayan
Done at _	LOCATION	, on	DATE	Raghuraman Krishnamoorthi

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## **PATENT**

QUALCOMM Ref. No. 040645U2C1B1

Page 3 of 3

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Dona at		~ ·	
Done at _	LOCATION	on	Michael Mao Wang
Done at _	LOCATION	on	Murali Ramaswamy Chari
Done at _	LOCATION	on	Ashok Mantravadi
Done at 🛓	San Dileyo, C, LOCATION	A, on 03/29/201 DATE	3 Fuyun Ling
Done at _	LOCATION	on	Rajiv Vijayan
Done at _	LOCATION	, on	Raghuraman Krishnamoorthi

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## PATENT QUALCOMM Ref. No. 040645U2C1B1 Page 3 of 3

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Done at	, on		
	LOCATION	DATE	Michael Mao Wang
Done at_	, on	Association of the state of the	Murali Ramaswamy Chari
	LOCATION	DAIL	em an Camaswamy Charl
Done at _	, on	DATE	
	LOCATION	DATE	Ashok Mantravadi
Done at	, on		
****	LOCATION on	DATE	Fuyun Ling
Done at	San Diego, CA	02-20-2013	Rajiv Vijayan
	LOCATION	DATE	Rajiv Vijayan
Done at_	, on		Raghuraman Krishnamoorthi
	LOCATION	DATE	kagnuraman Krishnamoorthi

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- 1. Michael Mao Wang, 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,
- 2. Murali Ramaswamy Chari, 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,
- 3. Ashok Mantravadi, 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. **Fuyun Ling**, a citizen of the United States of America, having a mailing address located at 17264 Sangallo Lane, San Diego, CA, 92127, and a resident of San Diego, CA,
- 5. Rajiv Vijayan, 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,
- 6. Raghuraman Krishnamoorthi, 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,

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 SYSTEM AND METHOD FOR FREQUENCY DIVERSITY (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). 13/767,834 filed February 14, 2013, Qualcomm Reference No. 040645U2C1B1, and all provisional applatent relating thereto,

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;

## **PATENT**

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AND WE HEREBY represent that WE have full and exclusive, unencumbered right to sell, assign, convey and transfer all subject matter herein, and hereby covenant that WE have not and will not execute any writing or do any act whatsoever conflicting with these presents.

Done at		, on	
	LOCATION	, on	Michael Mao Wang
Dana sik			
Done at	LOCATION	, on DATE	Murali Ramaswamy Chari
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Done at	LOCATION	, on	Ashok Mantravadi
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Done at		, on	
	LOCATION	DATE	Fuyun Ling
Done at		, on	
	LOCATION	DATE	Rajiv Vijayan
Done at	Son Dicem	on April 2	HRaghurana_
To OHO HE	LOCATION	DATE	Raghuraman Krishnamoorthi

PATENT REEL: 030358 FRAME: 0735

**RECORDED: 05/06/2013**