502664386 02/03/2014

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

EPAS ID: PAT2710994

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
DURGA PRASAD MALLADI	11/15/2013
BYOUNG-HOON KIM	12/07/2013
JUAN MONTOJO	08/13/2013
SANDIP SARKAR	10/25/2013

RECEIVING PARTY DATA

Name:	QUALCOMM Incorporated	
Street Address:	5775 Morehouse Drive	
Internal Address:	Patent Department/Central Administration	
City:	San Diego	
State/Country:	CALIFORNIA	
Postal Code:	92121	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13958019

CORRESPONDENCE DATA

Fax Number: (858)658-2502 Phone: 858-845-4265

Email: us-docketing@qualcomm.com

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

Correspondent Name: QUALCOMM INCORPORATED Address Line 1: 5775 MOREHOUSE DR.

Address Line 1. STTS WOREHOUSE DR.

Address Line 4: SAN DIEGO, CALIFORNIA 92121

ATTORNEY DOCKET NUMBER:	072085D1
NAME OF SUBMITTER:	THOMAS COYNE

PATENT 502664386 REEL: 032124 FRAME: 0654

Signature:	/Thomas Coyne/		
Date:	02/03/2014		
Total Attachments: 12			
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WHEREAS, WE,

- 1. **Durga Prasad Malladi**, 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. **Byoung-Hoon Kim**, a citizen of Korea, having a mailing address located at Trizium APT 342-904, Jamsil 3 dong, Songpa-gu, Seoul, Korea, 138-891, and a resident of Seoul, Korea,
- 3. **Juan Montojo**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of Nuremberg, Germany,
- 4. **Sandip Sarkar,** a citizen of India, having a mailing address located at 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 **CODING AND MULTIPLEXING OF CONTROL INFORMATION IN A 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). 13/958,019 filed August 2, 2013, Qualcomm Reference No. 072085D1, and all provisional applications relating thereto, together with U.S. Application No(s). 12/190,461, filed August 12, 2008, Qualcomm Reference No. 072085, together with U.S. Provisional Application No(s). 60/955,624, filed August 13, 2007, Qualcomm Reference No. 072085P2, (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 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		L	
	LOCATION	DATE	Durga Prasad Malladi
Done at	, on	1	
	LOCATION	DATE	Byoung-Hoon Kim
Done at _.	Ninemberp, on LOCATION	8/13/13 DATE	Juan Montojo
Done at	LOCATION , on	DATE	
	LAJUATRIN	DATE	Sandin Sarkar

WHEREAS, WE,

- 1. **Durga Prasad Malladi**, 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. **Byoung-Hoon Kim**, a citizen of Korea, having a mailing address located at Trizium APT 342-904, Jamsil 3 dong, Songpa-gu, Seoul, Korea, 138-891, and a resident of Seoul, Korea,
- 3. **Juan Montojo**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121, and a resident of Nuremberg, Germany,
- 4. **Sandip Sarkar,** a citizen of India, having a mailing address located at 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 **CODING AND MULTIPLEXING OF CONTROL INFORMATION IN A 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). 13/958,019 filed August 2, 2013, Qualcomm Reference No. 072085D1, and all provisional applications relating thereto, together with U.S. Application No(s). 12/190,461, filed August 12, 2008, Qualcomm Reference No. 072085, together with U.S. Provisional Application No(s). 60/955,624, filed August 13, 2007, Qualcomm Reference No. 072085P2, (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;

QUALCOMM Ref. No. 072085D1

Page 3 of 3

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		
LOC	CATION	DATE	Durga Prasad Malladi
Done at	, on		
	, on, on, on		Byoung-Hoon Kim
LOC	CATION	DATE	Juan Montojo
Done at \(\sum_{100} \)	O , on 6		
LOC	AHQN	`DA PE	Sandip Sarkar

WHEREAS, WE,

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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). 13/958,019 filed August 2, 2013, Qualcomm Reference No. 072085D1, and all provisional applications relating thereto, together with U.S. Application No(s). 12/190,461, filed August 12, 2008, Qualcomm Reference No. 072085, together with U.S. Provisional Application No(s). 60/955,624, filed August 13, 2007, Qualcomm Reference No. 072085P2, (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

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QUALCOMM Ref. No. 072085D1
Page 2 of 3

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PATENT QUALCOMM Ref. No. 072085D1 Page 3 of 3

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Done at	San Diego	_on[1])5/13	MDRasad
	LOCATION	DATE	Durga Prasad Malladi
Done at		, on	
	LOCATION	DATE	Byoung-Hoon Kim
Done at		_, on	
Dana et	LOCATION	DATE	Juan Montojo
Done at	LOCATION	on DATE	Sandip Sarkar
	MAN WELL TOUCH	Ar'd D A Art	የምን መስለው የሚያስ ይህ እንደመደብ መስለው የ

WHEREAS, WE,

- 1. **Durga Prasad Malladi**, 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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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;

PATENT
QUALCOMM Ref. No. 072085D1
Page 3 of 3

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	Durga Prasad Malladi
Done at _	Seou LOCATION	, on <u>/2/2</u> 	/Byoung-Hoon Kim
Done at _	LOCATION	, on	Juan Montojo
Done at _	LOCATION	on	Sandin Sarkar

PATENT REEL: 032124 FRAME: 0667

RECORDED: 02/03/2014