

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT5123918

SUBMISSION TYPE:	CORRECTIVE ASSIGNMENT
NATURE OF CONVEYANCE:	Corrective Assignment to correct the ASSIGNEE ADDRESS TO 5775 MOREHOUSE DRIVE previously recorded on Reel 031281 Frame 0939. Assignor(s) hereby confirms the ASSIGNEE ADDRESS IS 5775 MOREHOUSE DRIVE.
CONVEYING PARTY DATA	
Name	Execution Date
WANSHI CHEN	09/04/2013
PETER GAAL	09/23/2013
HAO XU	09/03/2013
TAO LUO	09/03/2013
RECEIVING PARTY DATA	
Name:	QUALCOMM INCORPORATED
Street Address:	5775 MOREHOUSE DRIVE
City:	SAN DIEGO
State/Country:	CALIFORNIA
Postal Code:	92121-1714
PROPERTY NUMBERS Total: 2	
Property Type	Number
Application Number:	13965047
Application Number:	61722103
CORRESPONDENCE DATA	
Fax Number:	(202)857-6395
<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:	202-857-6000
Email:	patentdocket@arentfox.com, rebecca.golden@arentfox.com
Correspondent Name:	ARENT FOX, LLP
Address Line 1:	1717 K STREET, NW
Address Line 4:	WASHINGTON, D.C. 20006-5344
ATTORNEY DOCKET NUMBER:	030284.05973/130446
NAME OF SUBMITTER:	REBECCA GOLDEN
SIGNATURE:	/REBECCA GOLDEN/
DATE SIGNED:	09/04/2018

Total Attachments: 20

source=130446_CorrectiveAssignmentWithSupportingDocuments#page1.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page2.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page3.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page4.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page5.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page6.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page7.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page8.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page9.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page10.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page11.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page12.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page13.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page14.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page15.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page16.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page17.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page18.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page19.tif
source=130446_CorrectiveAssignmentWithSupportingDocuments#page20.tif

*Electronic Patent Assignment System*

Confirmation Receipt

Your assignment has been received by the USPTO.
The coversheet of the assignment is displayed below:

PATENT ASSIGNMENT

Electronic Version v1.1
Stylesheet Version v1.1

SUBMISSION TYPE:

NEW ASSIGNMENT

NATURE OF CONVEYANCE:

ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
Wanshi CHEN	09/04/2013
Peter GAAL	09/23/2013
Hao XU	09/03/2013
Tao LUO	09/03/2013

RECEIVING PARTY DATA

Name:	QUALCOMM Incorporated
Street Address:	1717 K Street, NW
City:	San Diego
State/ Country:	CALIFORNIA
Postal Code:	92121-1714

PROPERTY NUMBERS Total: 2

Property Type	Number
Application Number:	13965047
Application Number:	61722103

PATENT

CORRESPONDENCE DATA

Fax Number: 2028576395
Phone: 202.857.6000
Email: dcipdocket@arentfox.com
Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.
Correspondent Name: Arent Fox, LLP
Address Line 1: 1717 K Street, NW
Address Line 4: Washington, DISTRICT OF COLUMBIA 20036-5342

ATTORNEY DOCKET NUMBER:	030284.05973/130446
--------------------------------	---------------------

NAME OF SUBMITTER:	rachele wittwer
---------------------------	-----------------

Signature:	/rachele wittwer/
-------------------	-------------------

Date:	09/25/2013
--------------	------------

Total Attachments: 8

source= 130446_Signed_Asisgnment#page1.tif
source= 130446_Signed_Asisgnment#page2.tif
source= 130446_Signed_Asisgnment#page3.tif
source= 130446_Signed_Asisgnment#page4.tif
source= 130446_Signed_Asisgnment#page5.tif
source= 130446_Signed_Asisgnment#page6.tif
source= 130446_Signed_Asisgnment#page7.tif
source= 130446_Signed_Asisgnment#page8.tif

RECEIPT INFORMATION

EPAS ID: PAT2554417
Receipt Date: 09/25/2013
Fee Amount: \$80

[Return to home page](#)

| [HOME](#) | [INDEX](#) | [SEARCH](#) | [eBUSINESS](#) | [CONTACT US](#) | [PRIVACY STATEMENT](#)

PATENT

ASSIGNMENT

WHEREAS, WE,

1. **Wanshi CHEN**, a citizen of China, having a mailing address located at 5775 Morehouse Drive San Diego, CA 92121, and a resident of San Diego, California,
2. **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,
3. **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 San Diego, California,
4. **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,

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 **MANAGING CROSS-CARRIER SCHEDULING IN CARRIER AGGREGATION WITH EPDCCH IN LTE** (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). 13/965,047 filed August 12, 2013, Qualcomm Reference No. 130446, and all provisional applications relating thereto, together with U.S. Provisional Application No(s) 61/722,103, filed November 2, 2012, Qualcomm Reference No. 130446P1, (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 September 4 2013 Wanshi CHEN
LOCATION DATE

ASSIGNMENT

WHEREAS, WE,

1. **Wanshi CHEN**, a citizen of China, having a mailing address located at 5775 Morehouse Drive San Diego, CA 92121, and a resident of San Diego, California,
2. **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,
3. **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 San Diego, California,
4. **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,

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 **MANAGING CROSS-CARRIER SCHEDULING IN CARRIER AGGREGATION WITH EPDCCH IN LTE** (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). 13/965,047 filed August 12, 2013, Qualcomm Reference No. 130446, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/722,103, filed November 2, 2012, Qualcomm Reference No. 130446P1 (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 _____, on _____

LOCATION

DATE

Wanshi CHEN

Done at San Diego, on September 23, 2013 Peter GAAL
LOCATION DATE

Done at _____, on _____
LOCATION DATE Hao XU

Done at _____, on _____
LOCATION DATE Tao LUO

ASSIGNMENT

WHEREAS, WE,

1. **Wanshi CHEN**, a citizen of China, having a mailing address located at 5775 Morehouse Drive San Diego, CA 92121, and a resident of San Diego, California,
2. **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,
3. **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 San Diego, California,
4. **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,

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 **MANAGING CROSS-CARRIER SCHEDULING IN CARRIER AGGREGATION WITH EPDCCH IN LTE** (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). 13/965,047 filed August 12, 2013, Qualcomm Reference No. 130446, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/722,103, filed November 2, 2012, Qualcomm Reference No. 130446P1 (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 _____, on _____
LOCATION DATE Wanshi CHEN

Done at _____, on _____
LOCATION DATE

Peter GAAL

Done at San Diego, on 9/3/2013
LOCATION DATE

Hao XU

Done at San Diego, on 9/3/2013
LOCATION DATE

Tao LUO

ASSIGNMENT

WHEREAS, WE,

1. **Wanshi CHEN**, a citizen of China, having a mailing address located at 5775 Morehouse Drive San Diego, CA 92121, and a resident of San Diego, California,
2. **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,
3. **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 San Diego, California,
4. **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,

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 **MANAGING CROSS-CARRIER SCHEDULING IN CARRIER AGGREGATION WITH EPDCCH IN LTE** (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). 13/965,047 filed August 12, 2013, Qualcomm Reference No. 130446, and all provisional applications relating thereto, together with U.S. Provisional Application No(s) 61/722,103, filed November 2, 2012, Qualcomm Reference No. 130446P1, (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 September 4 2013 Wanshi CHEN
LOCATION DATE

ASSIGNMENT

WHEREAS, WE,

1. **Wanshi CHEN**, a citizen of China, having a mailing address located at 5775 Morehouse Drive San Diego, CA 92121, and a resident of San Diego, California,
2. **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,
3. **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 San Diego, California,
4. **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,

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 **MANAGING CROSS-CARRIER SCHEDULING IN CARRIER AGGREGATION WITH EPDCCH IN LTE** (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). 13/965,047 filed August 12, 2013, Qualcomm Reference No. 130446, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/722,103, filed November 2, 2012, Qualcomm Reference No. 130446P1 (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 _____, on _____
LOCATION DATE Wanshi CHEN

Done at San Diego, on September 23, 2013, Peter GAAL
LOCATION DATE

Done at _____, on _____, _____
LOCATION DATE Hao XU

Done at _____, on _____, _____
LOCATION DATE Tao LUO

ASSIGNMENT

WHEREAS, WE,

1. **Wanshi CHEN**, a citizen of China, having a mailing address located at 5775 Morehouse Drive San Diego, CA 92121, and a resident of San Diego, California,
2. **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,
3. **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 San Diego, California,
4. **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,

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 **MANAGING CROSS-CARRIER SCHEDULING IN CARRIER AGGREGATION WITH EPDCCH IN LTE** (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). 13/965,047 filed August 12, 2013, Qualcomm Reference No. 130446, and all provisional applications relating thereto, together with U.S. Provisional Application No(s) 61/722,103, filed November 2, 2012, Qualcomm Reference No. 130446P1 (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 _____, on _____
LOCATION DATE Wanshi CHEN

Done at _____, on _____
LOCATION DATE

Peter GAAL

Done at San Diego, on 9/3/2013
LOCATION DATE

Hao XU

Done at San Diego, on 9/3/2013
LOCATION DATE

Tao LUO