

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT3086874

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT

**CONVEYING PARTY DATA**

Name	Execution Date
WANSI CHEN	10/17/2014
HAO XU	10/20/2014
PETER GAAL	10/17/2014
TAO LUO	10/07/2014
SRINIVAS YERRAMALLI	10/24/2014
TINGFANG JI	10/13/2014
ALEKSANDAR DAMNJANOVIC	10/10/2014
YONGBIN WEI	10/17/2014
NAGA BHUSHAN	10/07/2014
DURGA PRASAD MALLADI	10/08/2014

**RECEIVING PARTY DATA**

<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

**PROPERTY NUMBERS Total: 2**

Property Type	Number
<b>Application Number:</b>	14494929
<b>Application Number:</b>	61890554

**CORRESPONDENCE DATA**

**Fax Number:** (303)473-2720

*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:** 303-473-2700

**Email:** sesoares@hollandhart.com

**Correspondent Name:** J. SCOTT KARREN

**Address Line 1:** HOLLAND & HART LLP

**Address Line 2:** P.O. BOX 11583

**Address Line 4:** SALT LAKE CITY, UTAH 84110

PATENT

<b>ATTORNEY DOCKET NUMBER:</b>	PQ133.01 (81679.0373)
<b>NAME OF SUBMITTER:</b>	J. SCOTT KARREN
<b>SIGNATURE:</b>	/J. Scott Karren/
<b>DATE SIGNED:</b>	10/29/2014

**Total Attachments: 40**

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## ASSIGNMENT

WHEREAS, WE,

1. **Wanshi Chen**, a citizen of the People's Republic of China, having a mailing address located at 5775 Morehouse Drive, San Diego, California 92121-1714 and a resident of San Diego, California,
2. **Hao Xu**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
3. **Peter Gaal**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714 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, California, 92121-1714, and a resident of San Diego, California,
5. **Srinivas Yerramalli**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714 and a resident of San Diego, California,
6. **Tingfang Ji**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
7. **Aleksandar Damnjanovic**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of Del Mar, California,
8. **Yongbin Wei**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
9. **Naga Bhushan**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
10. **Durga Prasad Malladi**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, 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

DOWNLINK CONTROL MANAGEMENT IN AN UNLICENSED OR SHARED SPECTRUM (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). 14/494,929 filed September 24, 2014, Qualcomm Reference No. 135293U1, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/890,554, filed October 14, 2013, Qualcomm Reference No. 135293P1, (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;

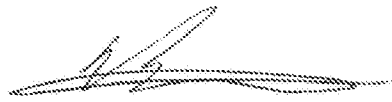
AND WE further do acknowledge and agree that WE have sold, assigned, conveyed, and transferred, and by these presents do hereby sell, assign, convey, and transfer, unto ASSIGNEE, its successors, its legal representatives, and its assigns, all rights of priority under International Conventions, Treaties, 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 10/17/2014  
LOCATION DATE  
  
Wanshi Chen

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
Hao Xu

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
Peter Gaal

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
Tao Luo

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
Srinivas Yerramalli

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
Tingfang Ji

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
Aleksandar Damnjanovic

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
Yongbin Wei

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
Naga Bhushan

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE  
Durga Prasad Malladi

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10. **Durga Prasad Malladi**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, 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

DOWNLINK CONTROL MANAGEMENT IN AN UNLICENSED OR SHARED SPECTRUM (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). 14/494,929 filed September 24, 2014, Qualcomm Reference No. 135293U1, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/890,554, filed October 14, 2013, Qualcomm Reference No. 135293P1, (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 10/20/14  
LOCATION DATE Hao Xu

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Peter Gaal

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tao Luo

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Srinivas Yerramalli

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tingfang Ji

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Aleksandar Damnjanovic

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Yongbin Wei

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Naga Bhushan

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Durga Prasad Malladi

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DOWNLINK CONTROL MANAGEMENT IN AN UNLICENSED OR SHARED SPECTRUM (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). 14/494,929 filed September 24, 2014, Qualcomm Reference No. 135293U1, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/890,554, filed October 14, 2013, Qualcomm Reference No. 135293P1, (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;

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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;

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Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE

Wanshi Chen

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LOCATION DATE

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Durga Prasad Malladi

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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

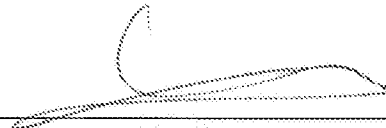
Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE

Hao Xu

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE

Peter Gaal

Done at San Diego, on 10/07/2014  
LOCATION DATE



Tao Luo

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE

Srinivas Yerramalli

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE

Tingfang Ji

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE

Aleksandar Damnjanovic

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE

Yongbin Wei

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE

Naga Bhushan

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE

Durga Prasad Malladi

## ASSIGNMENT

WHEREAS, WE,

1. **Wanshi Chen**, a citizen of the People's Republic of China, having a mailing address located at 5775 Morehouse Drive, San Diego, California 92121-1714 and a resident of San Diego, California,
2. **Hao Xu**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
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10. **Durga Prasad Malladi**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, 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

DOWNLINK CONTROL MANAGEMENT IN AN UNLICENSED OR SHARED SPECTRUM (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.

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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 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 **Hao Xu**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Peter Gaal**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Tao Luo**

Done at **San Diego**, on **10/24/2014**  
LOCATION DATE **Srinivas Yerramalli**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Tingfang Ji**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Aleksandar Damnjanovic**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Yongbin Wei**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Naga Bhushan**

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE **Durga Prasad Malladi**

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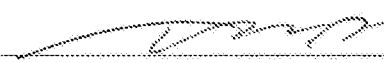
Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Wanshi Chen

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Hao Xu

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Peter Gaal

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tao Luo

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Srinivas Yerramalli

Done at San Diego, on 10/13/14  
LOCATION DATE   
Tingfang Ji

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Aleksandar Damnjanovic

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Yongbin Wei

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Naga Bhushan

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Durga Prasad Malladi

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Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Wanshi Chen

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Hao Xu

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Done at San Diego CA, on 10/10/14  
LOCATION DATE Aleksandar Damnjanovic

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LOCATION DATE Yongbin Wei

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LOCATION DATE Durga Prasad Malladi

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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). 14/494,929 filed September 24, 2014, Qualcomm Reference No. 135293U1, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/890,554, filed October 14, 2013, Qualcomm Reference No. 135293P1, (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 Hao Xu

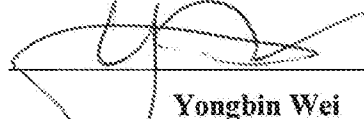
Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Peter Gaal

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tao Luo

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Srinivas Yerramalli

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tingfang Ji

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Aleksandar Damnjanovic

Done at San Diego, on 10/17/14  
LOCATION DATE  Yongbin Wei

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Naga Bhushan

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Durga Prasad Malladi

## ASSIGNMENT

WHEREAS, WE,

1. **Wanshi Chen**, a citizen of the People's Republic of China, having a mailing address located at 5775 Morehouse Drive, San Diego, California 92121-1714 and a resident of San Diego, California,
2. **Hao Xu**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
3. **Peter Gaal**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714 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, California, 92121-1714, and a resident of San Diego, California,
5. **Srinivas Yerramalli**, a citizen of India, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714 and a resident of San Diego, California,
6. **Tingfang Ji**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
7. **Aleksandar Damnjanovic**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of Del Mar, California,
8. **Yongbin Wei**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
9. **Naga Bhushan**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
10. **Durga Prasad Malladi**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, 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

DOWNLINK CONTROL MANAGEMENT IN AN UNLICENSED OR SHARED SPECTRUM (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). 14/494,929 filed September 24, 2014, Qualcomm Reference No. 135293U1, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). 61/890,554, filed October 14, 2013, Qualcomm Reference No. 135293P1, (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 Hao Xu

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Peter Gaal

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tao Luo

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Srinivas Yerramalli

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tingfang Ji

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Aleksandar Damnjanovic

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Yongbin Wei

Done at SAN DIEGO, on 10-7-14  
LOCATION DATE L.S. Naga Bhushan  
Naga Bhushan

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Durga Prasad Malladi

## ASSIGNMENT

WHEREAS, WE,

1. **Wanshi Chen**, a citizen of the People's Republic of China, having a mailing address located at 5775 Morehouse Drive, San Diego, California 92121-1714 and a resident of San Diego, California,
2. **Hao Xu**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
3. **Peter Gaal**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714 and a resident of San Diego, California,
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8. **Yongbin Wei**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, and a resident of San Diego, California,
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10. **Durga Prasad Malladi**, a citizen of the United States of America, having a mailing address located at 5775 Morehouse Drive, San Diego, California, 92121-1714, 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

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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.

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Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Wanshi Chen

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Hao Xu

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Peter Gaal

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tao Luo


Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Srinivas Yerramalli

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Tingfang Ji

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Aleksandar Damnjanovic

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Yongbin Wei

Done at \_\_\_\_\_, on \_\_\_\_\_  
LOCATION DATE Naga Bhushan

Done at San Diego, on 10/8/14  
LOCATION DATE  
  
Durga Prasad Malladi