

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT5149059

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
KUO-CHUN LEE	07/20/2018
ARVIND VARDARAJAN SANTHANAM	07/20/2018
REZA SHAHIDI	07/20/2018
SRINIVASAN BALASUBRAMANIAN	07/30/2018
AZIZ GHOLMIEH	08/15/2018
ORONZO FLORE	09/19/2018
HARIS ZISIMOPOULOS	08/02/2018
GERARDO GIARETTA	08/09/2018
SULI ZHAO	07/31/2018

RECEIVING PARTY DATA

Name:	QUALCOMM INCORPORATED
Street Address:	5775 MOREHOUSE DRIVE
City:	SAN DIEGO
State/Country:	CALIFORNIA
Postal Code:	92121-1714

PROPERTY NUMBERS Total: 4

Property Type	Number
Application Number:	15982707
Application Number:	62508834
Application Number:	62516537
Application Number:	62520350

CORRESPONDENCE DATA

Fax Number: (214)200-0853

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: 5128678433

Email: paula.cunningham@haynesboone.com

Correspondent Name: HAYNES AND BOONE LLP

Address Line 1: 2323 VICTORY AVENUE

Address Line 2: SUITE 700

PATENT

Address Line 4: DALLAS, TEXAS 75219

ATTORNEY DOCKET NUMBER: 49606.482US01 (174297)

NAME OF SUBMITTER: THUC B. NGUYEN

SIGNATURE: /Thuc B. Nguyen/

DATE SIGNED: 09/19/2018

Total Attachments: 28

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ASSIGNMENT

WHEREAS, WE,

1. **Kuo-Chun LEE**, 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**;
2. **Arvind Vardarajan SANTHANAM**, 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. **Reza SHAHIDI**, 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. **Srinivasan BALASUBRAMANIAN**, a citizen of the **United States of America**, having a mailing address located at **7755 Chadamy Way, San Diego, CA 92130** and a resident of **San Diego, California**;
5. **Aziz GHOLMIEH**, 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 **Del Mar, California**;
6. **Oronzo FLORE**, a citizen of **Italy**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **Barcelona, Spain**;
7. **Haris ZISIMOPOULOS**, a citizen of **Greece**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **London, Great Britain**,
8. **Gerardo GIARETTA**, a citizen of **Italy**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **Altavilla Vicentina, Italy**,
9. **Suli ZHAO**, a citizen of the **People's Republic of China**, 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 **OPTIONS TO PROVIDE A NETWORK ICON IN NON-STANDALONE MODE** (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). **15/982,707** filed **May 17, 2018**, Qualcomm Reference No. **174297**, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). **62/508,834** filed **May 19, 2017**, Qualcomm Reference No. **174297P1**, together with U.S. Provisional Application No(s). **62/516,537** filed **June 7, 2017**, Qualcomm Reference No. **174297P2**, together with U.S. Provisional Application No(s). **62/520,350** filed **June 15, 2017** Qualcomm Reference No. **174297P3**, (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,

ASSIGNMENT

WHEREAS, WE,

1. **Kuo-Chun LEE**, 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**;
2. **Arvind Vardarajan SANTHANAM**, 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. **Reza SHAHIDI**, 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**;
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7. **Haris ZISIMOPOULOS**, a citizen of **Greece**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **London, Great Britain**,
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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 **OPTIONS TO PROVIDE A NETWORK ICON IN NON-STANDALONE MODE** (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). **15/982,707** filed **May 17, 2018**, Qualcomm Reference No. **174297**, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). **62/508,834** filed **May 19, 2017**, Qualcomm Reference No. **174297P1**, together with U.S. Provisional Application No(s). **62/516,537** filed **June 7, 2017**, Qualcomm Reference No. **174297P2**, together with U.S. Provisional Application No(s). **62/520,350** filed **June 15, 2017** Qualcomm Reference No. **174297P3**, (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,

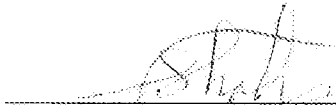
but not limited to the right to sue for, seek, obtain, collect, recover, and retain damages and any ongoing or prospective royalties to which WE may be entitled, or that WE may collect for any infringement or from any settlement or agreement related to any of said patents before or after issuance;

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 Kuo-Chun LEE

Done at _____, on _____
LOCATION DATE Arvind Vardarajan SANTHANAM

Done at Sun Diego, on 7/20/2018
LOCATION DATE 
Reza SHAHIDI

Done at _____, on _____
LOCATION DATE Srinivasan BALASUBRAMANIAN

Done at _____, on _____
LOCATION DATE Aziz GHOLMIEN

ASSIGNMENT

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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

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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;

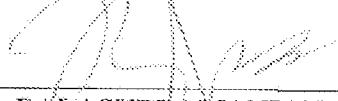
AND WE HEREBY covenant and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates, 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;

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 Kuo-Chun LEE

Done at _____, on _____
LOCATION DATE Arvind Vardarajan SANTHANAM

Done at _____, on _____
LOCATION DATE Reza SHAHIDI

Done at San Diego, on 01/30/2018
LOCATION DATE 
Srinivasan BALASUBRAMANIAN

Done at _____, on _____
LOCATION DATE Aziz GHOLMIEH

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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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LOCATION DATE Arvind Vardarajan SANTHANAM

Done at _____, on _____
LOCATION DATE Reza SHAHIDI

Done at _____, on _____
LOCATION DATE Srinivasan BALASUBRAMANIAN

Done at San Diego, on 8/15/2018
LOCATION DATE  Aziz GHOLMIEH

ASSIGNMENT

WHEREAS, WE,

1. **Kuo-Chun LEE**, 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**;
2. **Arvind Vardarajan SANTHANAM**, 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. **Reza SHAHIDI**, 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. **Srinivasan BALASUBRAMANIAN**, a citizen of the **United States of America**, having a mailing address located at **7755 Chadamy Way, San Diego, CA 92130** and a resident of **San Diego, California**;
5. **Aziz GHOLMIEH**, 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 **Del Mar, California**;
6. **Oronzo FLORE**, a citizen of **Italy**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **Barcelona, Spain**;
7. **Haris ZISIMOPOULOS**, a citizen of **Greece**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **London, Great Britain**,
8. **Gerardo GIARETTA**, a citizen of **Italy**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **Altavilla Vicentina, Italy**,
9. **Suli ZHAO**, a citizen of the **People's Republic of China**, 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 **OPTIONS TO PROVIDE A NETWORK ICON IN NON-STANDALONE MODE** (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). **15/982,707** filed **May 17, 2018**, Qualcomm Reference No. **174297**, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). **62/508,834** filed **May 19, 2017**, Qualcomm Reference No. **174297P1**, together with U.S. Provisional Application No(s). **62/516,537** filed **June 7, 2017**, Qualcomm Reference No. **174297P2**, together with U.S. Provisional Application No(s). **62/520,350** filed **June 15, 2017** Qualcomm Reference No. **174297P3**, (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 _____ **Kuo-Chun LEE**

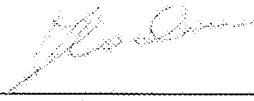
Done at _____, on _____
 LOCATION DATE _____ **Arvind Vardarajan SANTHANAM**

Done at _____, on _____
 LOCATION DATE _____ **Reza SHAHIDI**

Done at _____, on _____
 LOCATION DATE _____ **Srinivasan BALASUBRAMANIAN**

Done at _____, on _____
 LOCATION DATE _____ **Aziz GHOLMIEH**

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

Done at Barcelona, on 09/19/2018
LOCATION DATE

Oronzo FLORE

Done at _____, on _____
LOCATION DATE
Haris ZISIMOPOULOS

Done at _____, on _____
LOCATION DATE
Gerardo GIARETTA

Done at _____, on _____
LOCATION DATE
Suli ZHAO

ASSIGNMENT

WHEREAS, WE,

1. **Kuo-Chun LEE**, 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**;
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8. **Gerardo GIARETTA**, a citizen of **Italy**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121** and a resident of **Altavilla Vicentina, Italy**,
9. **Suli ZHAO**, a citizen of the **People's Republic of China**, 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 **OPTIONS TO PROVIDE A NETWORK ICON IN NON-STANDALONE MODE** (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). **15/982,707** filed **May 17, 2018**, Qualcomm Reference No. **174297**, and all provisional applications relating thereto, together with U.S. Provisional Application No(s). **62/508,834** filed **May 19, 2017**, Qualcomm Reference No. **174297P1**, together with U.S. Provisional Application No(s). **62/516,537** filed **June 7, 2017**, Qualcomm Reference No. **174297P2**, together with U.S. Provisional Application No(s). **62/520,350** filed **June 15, 2017** Qualcomm Reference No. **174297P3**, (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;

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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 _____ **Kuo-Chun LEE**

Done at _____, on _____
 LOCATION DATE _____ **Arvind Vardarajan SANTHANAM**

Done at _____, on _____
 LOCATION DATE _____ **Reza SHAHIDI**

Done at _____, on _____
 LOCATION DATE _____ **Srinivasan BALASUBRAMANIAN**

Done at _____, on _____
 LOCATION DATE _____ **Aziz GHOLMIEH**

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 Oronzo FLORE

Done at LONDON, UK, on 2 AUG. 18
LOCATION DATE 
Haris ZISIMOPOULOS

Done at _____, on _____
LOCATION DATE Gerardo GIARETTA

Done at _____, on _____
LOCATION DATE Suli ZHAO

ASSIGNMENT

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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;

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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 **Kuo-Chun LEE**

Done at _____, on _____
 LOCATION DATE **Arvind Vardarajan SANTHANAM**

Done at _____, on _____
 LOCATION DATE **Reza SHAHIDI**

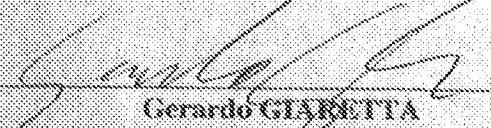
Done at _____, on _____
 LOCATION DATE **Srinivasan BALASUBRAMANIAN**

Done at _____, on _____
 LOCATION DATE **Aziz GHOLMIEH**

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 Oronzo FLORE

Done at _____, on _____
LOCATION DATE Haris ZISIMOPOULOS

Done at ROME, on 8/9/2018
LOCATION DATE 
Gerardo GIARETTA

Done at _____, on _____
LOCATION DATE Suli ZHAO

ASSIGNMENT

WHEREAS, WE,

1. **Kuo-Chun LEE**, 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**;
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5. **Aziz GHOLMIEH**, 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 **Del Mar, California**;
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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 _____ **Kuo-Chun LEE**

Done at _____, on _____
 LOCATION DATE _____ **Arvind Vardarajan SANTHANAM**

Done at _____, on _____
 LOCATION DATE _____ **Reza SHAHIDI**

Done at _____, on _____
 LOCATION DATE _____ **Srinivasan BALASUBRAMANIAN**

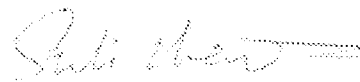
Done at _____, on _____
 LOCATION DATE _____ **Aziz GHOLMIEH**

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 Oronzo FLORE

Done at _____, on _____
LOCATION DATE Haris ZISIMOPOULOS

Done at _____, on _____
LOCATION DATE Gerardo GIARETTA

Done at San Diego, on 7/31/2018
LOCATION DATE 
Suli ZHAO