

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT6411029

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
TIANYANG BAI	08/12/2020
VASANTHAN RAGHAVAN	08/13/2020
JUNG HO RYU	08/21/2020
KIRAN VENUGOPAL	09/01/2020
JUERGEN CEZANNE	08/13/2020
TAO LUO	08/15/2020
JUNYI LI	08/21/2020
RECEIVING PARTY DATA	
Name:	QUALCOMM Incorporated
Street Address:	5775 Morehouse Drive
City:	San Diego
State/Country:	CALIFORNIA
Postal Code:	92121
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	16805443
CORRESPONDENCE DATA	
Fax Number:	(858)658-2502
<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>	
Email:	us-docketing@qualcomm.com
Correspondent Name:	QUALCOMM INCORPORATED
Address Line 1:	5775 MOREHOUSE DRIVE
Address Line 4:	SAN DIEGO, CALIFORNIA 92121
ATTORNEY DOCKET NUMBER:	191576
NAME OF SUBMITTER:	JACQUELINE DUENAS
SIGNATURE:	/Jacqueline Duenas/
DATE SIGNED:	11/19/2020
Total Attachments: 21	

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ASSIGNMENT

WHEREAS, WE,

1. **Tiangyang BAI**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
2. **Vasanthan RAGHAVAN**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
3. **Jung Ho RYU**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
4. **Kiran VENUGOPAL**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
5. **Juergen CEZANNE**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
6. **Tao LUO**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
7. **Junyi LI**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,

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 **APPARATUS AND METHODS FOR EARLY TERMINATION OF BEAM FAILURE DETECTION FOR A MULTI-PANEL UE** (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). **16/805,443** filed **February 28, 2020**, Qualcomm Reference Number **191576**, and all provisional applications relating thereto, together with U.S. Provisional

Application No(s). 62/812,742, filed March 1, 2019, Qualcomm Reference Number 191576P1, (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 Somerville, NJ, on 08/12/2020 Tiangyang Bai
City, State Date Tiangyang BAI

Done at _____, on _____
City, State Date Vasanthan RAGHAVAN

Done at _____, on _____
City, State Date Jung Ho RYU

Done at _____, on _____
City, State Date Kiran VENUGOPAL

Done at _____, on _____
City, State Date Juergen CEZANNE

Done at _____, on _____
City, State Date Tao LUO

Done at _____, on _____
City, State Date Junyi LI

ASSIGNMENT

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6. **Tao LUO**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
7. **Junyi LI**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,

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 **APPARATUS AND METHODS FOR EARLY TERMINATION OF BEAM FAILURE DETECTION FOR A MULTI-PANEL UE** (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). **16/805,443** filed **February 28, 2020**, Qualcomm Reference Number **191576**, and all provisional applications relating thereto, together with U.S. Provisional

Application No(s). 62/812,742, filed March 1, 2019, Qualcomm Reference Number 191576P1, (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 _____
City, State Date
Tiangyang BAI

Done at West Windsor
TW8, NJ, on 08/13/2020
City, State Date

Vasanthan RAGHAVAN

Done at _____, on _____
City, State Date
Jung Ho RYU

Done at _____, on _____
City, State Date
Kiran VENUGOPAL

Done at _____, on _____
City, State Date
Juergen CEZANNE

Done at _____, on _____
City, State Date
Tao LUO

Done at _____, on _____
City, State Date
Junyi LI

ASSIGNMENT

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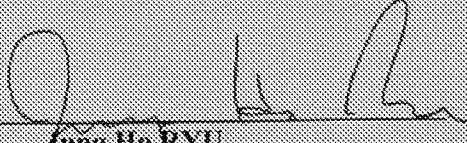
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AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at _____, on _____
City, State Date
Tiangyang BAI

Done at _____, on _____
City, State Date
Vasanthan RAGHAVAN

Done at Ft Lee, NJ, on 8/21/20
City, State Date

Jung Ho RYU

Done at _____, on _____
City, State Date
Kiran VENUGOPAL

Done at _____, on _____
City, State Date
Juergen CEZANNE

Done at _____, on _____
City, State Date
Tao LUO

Done at _____, on _____
City, State Date
Junyi LI

ASSIGNMENT

WHEREAS, WE,

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WHEREAS, **QUALCOMM Incorporated** (hereinafter "**ASSIGNEE**"), a Delaware corporation, having a place of business at **5775 Morehouse Drive, San Diego, California 92121-1714, U.S.A.**, desires to acquire or otherwise obtain the entire right, title, and interest in and to said INVENTIONS, including all inventions related thereto or thereof, all patent applications therefor, and all patents that have granted or may be granted hereafter thereon, including but not limited to those identified below.

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Application No(s). 62/812,742, filed March 1, 2019, Qualcomm Reference Number 191576P1, (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;

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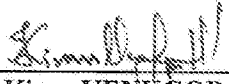
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AND WE HEREBY covenant that WE will not execute any writing or do any act whatsoever conflicting with these presents.

Done at _____, on _____
City, State Date Tiangyang BAI

Done at _____, on _____
City, State Date Vasanthan RAGHAVAN

Done at _____, on _____
City, State Date Jung Ho RYU

Done at RARITAN, NJ, on 01-September-2020
City, State Date 
Kiran VENUGOPAL

Done at _____, on _____
City, State Date Juergen CEZANNE

Done at _____, on _____
City, State Date Tao LUO

Done at _____, on _____
City, State Date Junyi LI

ASSIGNMENT

WHEREAS, WE,

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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 _____
City, State Date **Tiangyang BAI**

Done at _____, on _____
City, State Date **Vasanthan RAGHAVAN**

Done at _____, on _____
City, State Date **Jung Ho RYU**

Done at _____, on _____
City, State Date **Kiran VENUGOPAL**

Done at Ocean, NJ, on 08/13/2020
City, State Date **Juergen CEZANNE**

Done at _____, on _____
City, State Date **Tao LUO**

Done at _____, on _____
City, State Date **Junyi LI**

ASSIGNMENT

WHEREAS, WE,

1. **Tiangyang BAI**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
2. **Vasanthan RAGHAVAN**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
3. **Jung Ho RYU**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
4. **Kiran VENUGOPAL**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
5. **Juergen CEZANNE**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
6. **Tao LUO**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
7. **Junyi LI**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,

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 **APPARATUS AND METHODS FOR EARLY TERMINATION OF BEAM FAILURE DETECTION FOR A MULTI-PANEL UE** (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). **16/805,443** filed **February 28, 2020**, Qualcomm Reference Number **191576**, and all provisional applications relating thereto, together with U.S. Provisional

Application No(s). 62/812,742, filed March 1, 2019, Qualcomm Reference Number 191576P1, (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 _____
City, State Date

Tiangyang BAI

Done at _____, on _____
City, State Date

Vasanthan RAGHAVAN

Done at _____, on _____
City, State Date

Jung Ho RYU

Done at _____, on _____
City, State Date

Kiran VENUGOPAL

Done at _____, on _____
City, State Date

Juergen CEZANNE

Done at Sunnyvale, CA, on 08/15/2022
City, State Date

Tao LUO

Done at _____, on _____
City, State Date

Junyi LI

ASSIGNMENT

WHEREAS, WE,

1. **Tiangyang BAI**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
2. **Vasanthan RAGHAVAN**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
3. **Jung Ho RYU**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
4. **Kiran VENUGOPAL**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
5. **Juergen CEZANNE**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
6. **Tao LUO**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,
7. **Junyi LI**, having a mailing address located at **5775 Morehouse Drive, San Diego, CA 92121-1714**,

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 **APPARATUS AND METHODS FOR EARLY TERMINATION OF BEAM FAILURE DETECTION FOR A MULTI-PANEL UE** (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). **16/805,443** filed **February 28, 2020**, Qualcomm Reference Number **191576**, and all provisional applications relating thereto, together with U.S. Provisional

Application No(s). 62/812,742, filed March 1, 2019, Qualcomm Reference Number 191576P1, (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;

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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 _____
City, State Date
Tiangyang BAI

Done at _____, on _____
City, State Date
Vasanthan RAGHAVAN

Done at _____, on _____
City, State Date
Jung Ho RYU

Done at _____, on _____
City, State Date
Kiran VENUGOPAL

Done at _____, on _____
City, State Date
Juergen CEZANNE

Done at _____, on _____
City, State Date
Tao LUO

Done at Bridgewater, NJ, on 8/26/2020
City, State Date
Junyi LI