12/12/2019 505818372

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5865201

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
KIJUN KIM	02/21/2012
HYUNGTAE KIM	02/21/2012
HANBYUL SEO	02/21/2012
DAEWON LEE	05/09/2012

RECEIVING PARTY DATA

Name:	LG ELECTRONICS INC.
Street Address:	20 YEOUIDO-DONG, YEONGDEUNGPO-GU
City:	SEOUL
State/Country:	KOREA, REPUBLIC OF
Postal Code:	150-721

PROPERTY NUMBERS Total: 3

Property Type	Number
Application Number:	14622332
Application Number:	14961612
Application Number:	15343711

CORRESPONDENCE DATA

Fax Number: (858)658-2502

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: 8588457634

Email: c_jayme@qualcomm.com

Correspondent Name: LEA R JAYME

Address Line 1: 5775 MOREHOUSE DR

Address Line 4: SAN DIEGO, CALIFORNIA 92121

ATTORNEY DOCKET NUMBER: 195805[C1-C3] LEA R. JAYME NAME OF SUBMITTER: SIGNATURE: /Lea R. Jayme/ **DATE SIGNED:** 12/12/2019

Total Attachments: 4

PATENT REEL: 051268 FRAME: 0410

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> PATENT REEL: 051268 FRAME: 0411

BIRCH, STEWART, KOLASCH & BIRCH, LLP

UNITED STATES PATENT RIGHTS, OR UNITED STATES PLUS ALL FOREIGN PATENT RIGHTS

ASSIGNMENT

13/510,222 May 16, 2012 Application No. Insert Name(s) ***(Given Name FAMILY NAME (ALL CAPS))*** of Inventor(s) WHEREAS, KIM, Kijun; KIM, Hyungtae; SEO, Hanbyul and LEE, Daewon (hereinafter designated as the undersigned) has (have) invented certain new and useful improvements in: Insert Title METHOD AND APPARATUS FOR PROVIDING CHANNEL STATE INFORMATIONof Invention REFERENCE SIGNAL (CSI-RS) CONFIGURATION INFORMATION IN A WIRELESS COMMUNICATION SYSTEM SUPPORTING MULTIPLE ANTENNAS for which an application for Letters Patent of the United States of America has been executed by the undersigned (except in the case of a provisional application) Februa y 21, 2012 Insert Date of Signing of Application Insert Name WHEREAS, LG ELECTRONICS INC. of Assignee of 20 Yeouido-dong, Yeongdeungpo-gu, Seoul 150-721 Republic of Korea Insert Address of Assignee its heirs, successors, legal representatives and assigns (hereinafter designated as the Assignee) is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent(s) that may be granted therefor in the United States of America and CHECK BOX x in any foreign countries. IF APPROPRIATE NOW, THEREFORE, in consideration of the sum of Ten Dollars (\$10.00) to the undersigned in hand paid, the receipt of which is hereby acknowledged, and other good and valuable consideration, the undersigned has (have) sold, assigned and transferred, and by these presents does sell, assign and transfer unto said Assignee the full and exclusive right to the said invention in the United States of America, its territories, dependencies and possessions and the entire right, title and interest in and to

and to any and all divisions, reissues, continuations, conversions and extensions thereof for the full term or terms for which the same may be granted.

any and all Letters Patent(s) which may be granted therefor in the United States of America, its territories, dependencies and possessions, and if the box above is designated, in any and all foreign

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countries;

0465-3225PUS1

Attorney Docket No.

The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient

The undersigned agree (s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division, conversion or reissue thereof or Letter Patent(s) or reissue patent issued thereon and to cooperate with the Assignee in every way possible in obtaining and producing evidence and proceeding with such interference.

The undersigned agree(s) to execute all papers and documents and to perform any act which may be necessary in connection with claims or provisions of the International Convention for the Protection of Industrial Property or similar agreements.

The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of a valid United States of America patent(s) or a grant of a valid United States of America and any foreign patent(s) to the Assignee and to vest all rights therein hereby conveyed to said Assignee as fully and entirely as the same would have been held by the undersigned if this Assignment and sale had not been made.

The undersigned hereby authorize(s) and request(s) the Patent and Trademark Office Officials in the United States of America and in any foreign countries to issue any and all Letters Patents resulting from said application or any continuing, divisional conversion or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) the full right to convey the entire interest herein assigned, and that he has (they have) not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grant(s) the law firm of Birch, Stewart, Kolasch & Birch, LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

The undersigned hereby covenant(s) that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date 20/2/2/2/	Name of Inventor	(signature) KIM, Kijun	
Date 2014/2/2/	Name of Inventor	7 Del GM (signature) KIM, Hyungtac	
Date 2017 02 (2)	Name of Inventor	(signature) SEO, Hanbyul	
Date	Name of Inventor	(signature) LEE, Daewon	

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BIRCH, STEWART, KOLASCH & BIRCH, LLP

UNITED STATES PATENT RIGHTS, OR UNITED STATES PLUS ALL FOREIGN PATENT RIGHTS

ASSIGNMENT

			M 40 0040
Application No.	13/510,222	Filed _	May 16, 2012
Insert Name(s) of Inventor(s)	***(Given Name FAM	ILY NAME (ALL CA)	PS))***
	WHEREAS, KIM, Kijun; KIM, Hyungt: the undersigned) has (have) invented ce		nd LEE, Daewon (hereinafter designated as improvements in:
Insert Title of Invention	COMMUNICATION SYSTEM SUP	ONFIGURATION PORTING MULT ent of the United St	INFORMATION IN A WIRELESS
Insert Date	on May 9	, 2012	; and
of Signing of Application		·	,
Insert Name of Assignee	WHEREAS, LG ELECTRONICS INC.		
Insert Address of Assignee	of 20 Yeouido-dong, Yeongdeungpo-gu	, Seoul 150-721 Re	public of Korea
Ü	desirous of acquiring the entire right, title Patent(s) that may be granted therefor in	and interest in and	ereinafter designated as the Assignee) is to said invention and in and to any Letters America and
CHECK BOX IF APPROPRIATE	x in any foreign countries.		
	paid, the receipt of which is hereby ac undersigned has (have) sold, assigned transfer unto said Assignee the full and America, its territories, dependencies an any and all Letters Patent(s) which ma	cnowledged, and or and transferred, and exclusive right to d possessions and t by be granted there	ollars (\$10.00) to the undersigned in hand ther good and valuable consideration, the d by these presents does sell, assign and the said invention in the United States of he entire right, title and interest in and to for in the United States of America, its pove is designated, in any and all foreign

and to any and all divisions, reissues, continuations, conversions and extensions thereof for the full

term or terms for which the same may be granted.

0465-3225PUS1 Attorney Docket No.

The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree (s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division, conversion or reissue thereof or Letter Patent(s) or reissue patent issued thereon and to cooperate with the Assignee in every way possible in obtaining and producing evidence and proceeding with such interference.

The undersigned agree(s) to execute all papers and documents and to perform any act which may be necessary in connection with claims or provisions of the International Convention for the Protection of Industrial Property or similar agreements.

The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of a valid United States of America patent(s) or a grant of a valid United States of America and any foreign patent(s) to the Assignee and to vest all rights therein hereby conveyed to said Assignee as fully and entirely as the same would have been held by the undersigned if this Assignment and sale had not been made.

The undersigned hereby authorize(s) and request(s) the Patent and Trademark Office Officials in the United States of America and in any foreign countries to issue any and all Letters Patents resulting from said application or any continuing, divisional conversion or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) the full right to convey the entire interest herein assigned, and that he has (they have) not executed, and will not execute, any agreement in conflict herewith.

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In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

Date	Name of Inventor	
		(signature) KIM, Kijun
Date	Name of Inventor	(signature) KIM, Hyungtae
Date	Name of Inventor	(signature) SEO, Hanbyul
Date 20/2, 5,9	Name of Inventor	(signature) LEE, Daewon

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RECORDED: 12/12/2019