503629678 12/30/2015

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
MOON-IL LEE	08/06/2015
CHANGSOO KOO	05/14/2015
SUNG-HYUK SHIN	05/09/2015
JANET A STERN-BERKOWITZ	11/05/2015
MARIAN RUDOLF	05/08/2015
FENGJUN XI	04/23/2015
ANANTH KINI	04/23/2015
SEYED MOHSEN HOSSEINIAN	06/09/2015
PAUL MARINIER	05/08/2015

RECEIVING PARTY DATA

Name:	INTERDIGITAL PATENT HOLDINGS, INC.
Street Address:	200 BELLEVUE PARKWAY
Internal Address:	SUITE 300
City:	WILMINGTON
State/Country:	DELAWARE
Postal Code:	19809

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13751114

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER: ILTE_11265US02

REEL: 037382 FRAME: 0421

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NAME OF SUBMITTER:	TARA FROMM	
SIGNATURE: /Tara Fromm/		
DATE SIGNED:	12/30/2015	
Total Attachments: 11		
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PATENT REEL: 037382 FRAME: 0422

ASSIGNMENT

WHEREAS:

- 1. Moon-il Lee 675 Conklin Street, Apt. 26A Farmingdale, NY 11735 United States
- 2. Changsoo Koo 281 Altessa Blvd. Melville, NY 11747 United States
- 3. Sung-Hyuk Shin 104 Eidner Way Northvale, NJ 07647 United States
- 4. Janet A. Stern-Berkowitz 41-20 Glenwood Street Little Neck, NY 11363 United States
- 5. Marian Rudolf 1843 Rue Baile Montreal, Quebec H3H 1P5 Canada

- 6. Fengjun Xi 10838 Adexman Ave.,
 10690 Cominito Alvarez. APT 144,
 San Diego, CA 92126 Son Drego, CA 9206
 United States
- 7. Ananth Kini
 139 Bradbury Drive
 East Norriton, PA 19401
 United States
- 8. Seyed Mohsen Hosseinian 32 Holly Drive East Northport, NY 11731 United States
- 9. Paul Marinier 1805 Stravinksi Brossard, Quebec J4X 2J7 Canada

hereinafter referred to as the ASSIGNORS, are joint inventors of certain inventions or improvements for which we have made application for Letters Patent to the United States, identified as Application No. 13/751,114, filed January 27, 2013, entitled SYSTEMS AND/OR METHODS FOR PROVIDING EPDCCH IN A MULTIPLE CARRIER BASED AND/OR OUASI-COLLATED NETWORK; and

WHEREAS, InterDigitial Patent Holdings, Inc., hereinafter referred to as the ASSIGNEE, of 200 Bellevue Parkway, Suite 300, Wilmington, DE 19809, a corporation of Delaware, is desirous of acquiring the entire right, title and interest in and to the said inventions or improvements and in and to the said application, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in any and all countries.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, and intending to be legally bound hereby, we, the said ASSIGNORS, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over to said ASSIGNEE, our entire right, title and interest in and to said inventions or improvements and said application and any and all continuations, divisions and renewals of and substitutes for said application, and in, to and under any and all Letters Patent which may be granted on or as a result thereof in the United States and any and all other countries, and any reissue

or reissues or extension or extensions of said Letters Patent, including our full right to sue for and collect damages for past violations of provisional rights having arisen from any publication of said application or any continuations, divisions, or renewals of or substitutes for said application. We further assign to and authorize said ASSIGNEE, to file in our names applications for Letters Patent in all countries, the same to be held and enjoyed by said ASSIGNEE, its successors, assigns, nominees or legal representatives, to the full end of the term or terms for which said Letters Patent respectively may be granted, reissued or extended, as fully and entirely as the same would have been held and enjoyed by us had this assignment, sale and transfer not been made.

AND we hereby covenant that we have full right to convey the entire interest herein assigned, and that we have not executed and will not execute any agreement in conflict herewith, and we further covenant and agree that we will each time request is made and without undue delay, execute and deliver all such papers as may be necessary or desirable to perfect the title to said inventions or improvements, said application and said Letters Patent to said ASSIGNEE, its successors, assigns, nominees, or legal representatives, and each of us agrees to communicate to said ASSIGNEE or to its nominee all known facts respecting said inventions or improvements, said application and said Letters Patent, to testify in any legal proceedings, to sign all lawful papers to execute all disclaimers and divisional, continuing, reissue and foreign applications, to make all rightful oaths, and generally to do everything possible to aid said ASSIGNEE, its successors, assigns, nominees and legal representatives to obtain and enforce for its or their own benefit proper patent protection for said inventions or improvements in any and all countries.

AND we hereby authorize and request the Commissioner of Patents and Trademarks 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 as aforesaid, to issue to said ASSIGNEE, as ASSIGNEE of the entire right, title and interest, any and all Letters Patent for said inventions or improvements, including any and all Letters Patent of the United States which may be issued and granted on or as a result of the application aforesaid, in accordance with the terms of this assignment.

AND this Assignment may be executed in multiple counterparts, each of which shall be deemed to be an original of this Assignment. Additionally, we hereby authorize our attorneys to collect the signature pages of each executed counterpart and to attach those signature pages to a single copy of this instrument, which single copy and attached signature pages together shall constitute an original of this Assignment.

IN WITNESS WHEREOF, we have hereunto set our hands and seals.

Signed at Moon-if Lee

Signed at Moon-if Lee

Signed at Moon-if Lee

Signed at Moon-if Lee Name of Witness

2 Hunterglon Quadrangle, 4th Prouth Witness

Whose full address is: Melville, NY 11747 USA

Address of Witness

was personally present and did see Moon-if Lee execute this Assignment on the day of Place (SC) 2015 and such Assignor is personally known to me to be the person described herein.

May 14 , 2015 Date	Changsoo Koo
Signed at(City and Country	y) USB
STATEMENT OF WITNESS: 4,	Myungjin too Name of Witness
whose full address is: \$\\ \sigma \le 1	Altessa Bird Melville W. USA Address of Wirness
was personally present and did see C . 20) S and su herein.	hangsoo Koo execute this Assignment on the 14 day of sch Assignor is personally known to me to be the person described
	Signature of Witness
	Signature of witness

May 09 2015 Date	skr	angun ding	
Date	Sung-Hyuk Shir		
Signed at(City and Cou	<u>Jergen</u> itry)	<u> </u>	
STATEMENT OF WITNESS:	r. Min Shin	万々へ)。 Name of Witness	
whose full address is:		Voy Vortava Address of Witness	<u>~, N3</u>
was personally present and did so May 99 , 20/5 and herein.	I such Assignor is person	xecute this Assignment on nally known to me to be the nature of Witness	the day of the day of the day of the person described

Date

Janet A. Stern-Berkowitz

2 Humbington Quadrangle, 4th Ft/South Wing

Melville, NY 11747 USA

(City and Country)

STATEMENT OF WITNESS: I,

Name of Witness

2 Humbington Quadrangle, 4th Ft/South Wing

Whose full address is:

Address of Witness

was personally present and did see Janet A. Stern-Berkowitz execute this Assignment on the day of Notes and did see Janet A. Stern-Berkowitz execute this Assignment on the day of Notes and did see Janet A. Stern-Berkowitz execute this Assignment on the day of Notes and did see Janet A. Stern-Berkowitz execute this Assignment on the day of Notes and did see Janet A. Stern-Berkowitz execute this Assignment on the day of Notes and did see Janet A. Stern-Berkowitz execute this Assignment on the day of Notes and did see Janet A. Stern-Berkowitz execute this Assignment on the described herein.

Signed at (City and Country) STATEMENT OF WITNESS: I, STATEMENT OF WITNESS: I, 1000 Sheron Name of Witness 10th Floor Will, OC Canada H3A 3G4 Address of Witness was personally present and did see Marian Rudolf execute this Assignment on the day of the country of the person described herein.	TM as Q DOST	Marian Andel
STATEMENT OF WITNESS: 1, Column Co	Date	Marian Rudolf
whose full address is: Coo Sharp Name of Witness 10th Floor MTL, OC Canada HSA 3G4 Address of Witness	Signed at(City and Country	ACEAL OC
whose full address is: MTL, QC Canada H3A 3G4 Address of Witness was personally present and did see Marian Rudolf execute this Assignment on the day of	STATEMENT OF WITNESS: 1,	Boning 622AA
was personally present and did see Marian Rudolf execute this Assignment on the day of the control of of the con	whose full address is:	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Address of Witness
	1 1/322 and 80	Marian Rudolf execute this Assignment on the day of ich Assignor is personally known to me to be the person described
Signature of Witness		Signature of Witness

Date

Fengian Xi

9710 Scranton Road, #250
San Diego, CA 92121, USA

Signed at

(City and Country)

STATEMENT OF WITNESS: I,

9710 Scranton Road, #250
whose full address is:

9710 Scranton Road, #250
San Diego, CA 92121, USA

Address of Witness

was personally present and did see Fengian Xi
Address of Witness

was personally present and did see Fengian Xi
herein.

Date Pa	i me	Ananih Kini
Signed at	781 Third Ave, Ki	ng of Prussia, PA 19406 USA
a Biran m	(City and	Country)
STATEM	ENT OF WITNE	ss: 1, Duy L H dak Name of Witness
whose full	address is:	761 Third Ave, King of Prussia, PA 19406 USA
		Address of Witness
was person herein.	pally present and 2015	did see Ananth Kini execute this Assignment on the 33 red day of and such Assignor is personally known to me to be the person described
		Signature of Witness
		Signature of Witness

6/9/	/N .	LUTIO32	en e	
Date		eyed Mohsen Hosseini	***********************************	
Signed at	Melmie	N	USA	
	(City and Country)			
STATEME	NT OF WITNESS: I,			
whose full ac	ldress ís:	Name 2 Huntington Acad Vallette, e. e. e. e. e.	of Wimess Trails At Though Wag Van	
		Address of Witness		
was personal day ofdescribed her	<u>1043C</u> , 2015and	I such Assignor is persor	ecute this Assignment on the nally known to me to be the person	
		Signature of	Wigness Wigness	
		argumun ta	O NOSOD.	

May Sac	5 P., M.	
Date C	Paul Marinier	
Signed at(Cit	and Country)	
STATEMENT OF W		
whose full address is:	1000 Sherbrooke St. West, 10th Floor NCTL, QC, Canada H3A 3G4	
	Address of Witness	
was personally present	and did see Paul Marinier execute this Assignment on the day 20 and such Assignor is personally known to me to be the person describ	ot bed
"	Signature of Witness 7	, de la companya de