### PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4483167

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
CHANG-EUN CHOI	04/01/2015
BIN LU	03/05/2015
YANG YU	01/30/2015
KARNIK SHAH	03/04/2015
HINGKWAN HUEN	01/30/2015

#### **RECEIVING PARTY DATA**

Name:	SAMSUNG ELECTRONICS CO., LTD.
Street Address:	129, SAMSUNG-RO, YEONGTONG-GU
City:	SUWON-SI, GYEONGGI-DO
State/Country:	KOREA, REPUBLIC OF
Postal Code:	443-742

#### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	15635174

#### **CORRESPONDENCE DATA**

Fax Number:

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:** 503-419-6425

**Email:** mail@renaissanceiplaw.com

Correspondent Name: RENAISSANCE IP LAW GROUP LLP (SSI)

**Address Line 1:** 9600 SW OAK STREET, SUITE 560

Address Line 4: PORTLAND, OREGON 97223

ATTORNEY DOCKET NUMBER:	1535-107DIV
NAME OF SUBMITTER:	HOSOON LEE
SIGNATURE:	/Hosoon Lee/
DATE SIGNED:	06/28/2017
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 21

PATENT REEL: 043029 FRAME: 0862

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#### COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM<sup>1</sup>

The undersigned acknowledges that this document is being used both as an assignment of the invention and as the declaration (37 CFR 1.63) for a Utility or Design Application. WHEREAS, the undersigned, hereinafter referred to collectively as Assignor, has invented: Title: VIRTUAL DEVICE BASED SYSTEMS for which Assignor is about to make or has made United States or International application for patent. WHEREAS, as a below named inventor(s), I/(we) hereby declare that: Section I. Declaration This declaration is directed to: The attached U.S. non-provisional patent application, or Ø U.S. non-provisional patent application number \_\_\_\_\_\_\_, filed PCT international patent application number \_\_\_\_\_\_\_, filed on The above-identified application was made or authorized to be made by me (us). I (we) believe that I am (we are) the original inventor (original joint inventors) of a claimed invention in the above-identified application. I (we) hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. I hereby state that I have reviewed and understand the contents of the above identified application, including the claims. This form requires the use of an Application Data Sheet. SEC Ref No. 12-201407-001-1 Attorney Ref No. 1535-107 COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM Page 1 of 4

> PATENT REEL: 043029 FRAME: 0864

170161427845715

I acknowledge that I am aware of the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56.

Section II. Assignment

In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned, the undersigned hereby sell(s) and assign(s) to

Samsung Electronics Co., Ltd.

having an address at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 443-742, Republic of Korea (hereinafter designated as the Assignee), the entire (100%) right, title and interest for the United States as defined in 35 USC §100, in the invention described in the application identified in Section I of this document.

Assignor hereby confirms any prior assignment to Assignee, and to the extent that Assignor has not already done so, agrees to assign, and hereby does, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesald application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by Assignor had this assignment and sale not been made, and the right to sue for, and recover for past infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights, resulting therefrom, and the copyright rights;

Assignor hereby covenants and agrees to execute all instruments or documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, re-examination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

SEC Ref No.	IZ-201407-001-1	Attorney Ref No.	1535-107
	·		

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM
Page 2 of 4
170161427845715

REEL: 043029 FRAME: 0865

Assignor hereby covenants that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment; and

Assignor hereby requests the United States Patent and Trademark Office to issue the Letters Patent of the United States of America to Assignee, and requests that any official of any country or countries foreign to the United States, whose duty it is to issue or grant patents and applications as aforesaid, to issue the Letters Patent, Utility Model Registration or other similar right to Assignee.

The undersigned hereby grant(s) the law firm of Renaissance IP Law Group LLP the power to insert on this Declaration and 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.

#### Section III. Inventor(s)/Assignor(s) Signature(s)

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FIRST INVENTOR/ASSIGNOR	СНОІ	Chang-Eun	
			· .
SIGNATURE _	Moser	DATE	04/01/15

in
DATE

SEC Ref No.	IZ-201407-001-1	Attorney Ref No.	1535-107	_
				_

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM
Page 3 of 4

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LEGAL NAME OF	Family Name	First Given Name	Second Given Name
THIRD INVENTOR/ASSIGNOR	γυ	Jerry	
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SIGNATURE		DATE -	terior in the same and the same
	<u>.                                    </u>		
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LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FOURTH INVENTOR/ASSIGNOR	ŜHĀH	Karnik	
SIGNATURE		DATE	

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FIFTH INVENTOR/ASSIGNOR	HUEN	Kwan	
SIGNATURE		DAT	E

SEC Ref No.	IZ-201407-001-1	Attorney Ref No.	1535-107

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM
Page 4 of 4

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**REEL: 043029 FRAME: 0867** 

# COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM<sup>1</sup>

The undersigned acknowledges that this document is being used both as an assignment of the invention and as the declaration (37 CFR 1.63) for a Utility or Design Application.

WHEREAS, the undersigned, hereinafter referred to collectively as Assignor, has invented:

Title:	VIRTUAL DEVICE BASED SYSTEMS
for which A	Assignor is about to make or has made United States or International application
WHEREAS,	as a below named inventor(s), I/(we) hereby declare that:
Section I.	Declaration
This declar	ation is directed to:
$\boxtimes$	The attached U.S. non-provisional patent application, or
	U.S. non-provisional patent application number, filed on, or
	PCT international patent application number, filed on
The above	identified application was made or authorized to be made by me (us).
• •	eve that I am (we are) the original inventor (original joint inventors) of a claimed in the above-identified application.
	by acknowledge that any willful false statement made in this declaration is under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or
I hereby st	ate that I have reviewed and understand the contents of the above identified
application	, including the claims.
<sup>1</sup> This form	requires the use of an Application Data Sheet.
SEC Ref No.	IZ-201407-001-1 Attorney Ref No. 1535-107
COMPINED	DECLARATION (27 CER 1 62) FOR LITH ITV RATERIT ARRIVESTICAL AND ASSIGNMENT FORM

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM
Page 1 of 4

I acknowledge that I am aware of the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56.

#### Section II. Assignment

In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned, the undersigned hereby sell(s) and assign(s) to

#### Samsung Electronics Co., Ltd.

having an address at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 443-742, Republic of Korea (hereinafter designated as the Assignee), the entire (100%) right, title and interest for the United States as defined in 35 USC §100, in the invention described in the application identified in Section I of this document.

Assignor hereby confirms any prior assignment to Assignee, and to the extent that Assignor has not already done so, agrees to assign, and hereby does, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesaid application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by Assignor had this assignment and sale not been made, and the right to sue for, and recover for past infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights; resulting therefrom, and the copyright rights;

Assignor hereby covenants and agrees to execute all instruments or documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, reexamination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

SEC Ref No.	IZ-201407-001-1	Attorney Ref No.	1535-107
COMBINED DECL	ARATION (37 CFR 1.63) FOR UTILIT	Y PATENT APPLICATION A	AND ASSIGNMENT FORM

Page 2 of 4

Assignor hereby covenants that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment; and

Assignor hereby requests the United States Patent and Trademark Office to issue the Letters Patent of the United States of America to Assignee, and requests that any official of any country or countries foreign to the United States, whose duty it is to issue or grant patents and applications as aforesaid, to issue the Letters Patent, Utility Model Registration or other similar right to Assignee.

The undersigned hereby grant(s) the law firm of Renaissance IP Law Group LLP the power to insert on this Declaration and 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.

#### Section III. Inventor(s)/Assignor(s) Signature(s)

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FIRST INVENTOR/ ASSIGNOR	СНОІ	Chang-Eun	
	ACT ACT TO THE RESIDENCE OF THE PARTY OF THE	<u> </u>	
SIGNATURE _		DATE 	

LEGAL NAME OF SECOND INVENTOR/	Family Name	First Given Name	Second Given Name
ASSIGNOR	LU	Bin	AND
SIGNATURE	ant	DATE	Men 3th, 2015

SEC Ref No.	IZ-201407-001-1	Attorney Ref No.	1535-107

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM . Page 3 of 4

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
THIRD	YU	Jerry	
SIGNATURE		ĎATÉ 	
			7
LEGAL NAME OF FOURTH	Family Name	First Given Name	Second Given Name
INVENTOR/ASSIGNOR	SHAH	Karnik	
SIGNATURE		DATE 	
LEGAL NAME OF	Family Name	First Given Name	Second Given Name
INVENTOR/ASSIGNOR	HUEN	Kwan	
SIGNATURE	and the state of t	DATE	
SEC Ref No. IZ-20	01407-001-1	Attorney Ref No.	1535-107

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM Page 4 of 4

# COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM<sup>1</sup>

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WHEREAS, the undersigned, hereinafter referred to collectively as Assignor, has invented:

Title:	VIF	RTUAL DEVICE BASED SYSTEMS		,
for whi	ah Acc	ignor is about to make or has made l	Inited States or Intern	national application
		ignor is about to make or has made t	inted States of interi	iational application
for pate	ent.			
WHERE	EAS, as	a below named inventor(s), I/(we) h	ereby declare that:	
Section	ı I. De	claration		
This de	clarati	ion is directed to:		
	$\boxtimes$	The attached U.S. non-provisional	patent application, or	
		U.S. non-provisional patent applica on, or	tion number	, filed
		PCT international patent application	n number	, filed on
The ab	ove-id	entified application was made or aut	horized to be made by	y me (us).
		e that I am (we are) the original inven the above-identified application.	tor (original joint inve	ntors) of a claimed
		vacknowledge that any willful false st nder 18 U.S.C. 1001 by fine or imprise		
i hereb	y state	e that I have reviewed and understan	d the contents of the	above identified
applica	ition, ii	ncluding the claims.		
1 This fe	orm req	uires the use of an Application Data Sheet.		
SEC Re	f No.	IZ-201407-001-1	Attorney Ref No.	1535-107

I acknowledge that I am aware of the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56.

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#### Samsung Electronics Co., Ltd.

having an address at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 443-742, Republic of Korea (hereinafter designated as the Assignee), the entire (100%) right, title and interest for the United States as defined in 35 USC §100, in the invention described in the application identified in Section I of this document.

Assignor hereby confirms any prior assignment to Assignee, and to the extent that Assignor has not already done so, agrees to assign, and hereby does, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesaid application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by Assignor had this assignment and sale not been made, and the right to sue for, and recover for past infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights, resulting therefrom, and the copyright rights;

Assignor hereby covenants and agrees to execute all instruments or documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, reexamination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

	•		
SEC Ref No.	IZ-201407-001-1	Attorney Ref No.	1535-107

Assignor hereby covenants that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment; and

Assignor hereby requests the United States Patent and Trademark Office to issue the Letters Patent of the United States of America to Assignee, and requests that any official of any country or countries foreign to the United States, whose duty it is to issue or grant patents and applications as aforesaid, to issue the Letters Patent, Utility Model Registration or other similar right to Assignee.

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### Section III. Inventor(s)/Assignor(s) Signature(s)

LEGAL NAME OF FIRST	Family Name	First Given Name	Second Given Name
INVENTOR/ASSIGNOR	,CHOI	Chang-Eun	
SIGNATURE _	,	DATE	

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
SECOND — INVENTOR/ASSIGNOR	LU	Bin	
	•		
SIGNATURE		DATE	
	•	_	

SEC Ref No.	IZ-201407-001-1	Attorney Ref No.	1535-107

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
THIRD INVENTOR/ASSIGNOR	YU	Yang	
SIGNATURE	Pe	DATE	Jan 30.201

LEGAL NAME OF FOURTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	SHAH	Karnik	10 Page 10 Annual Control of Cont
	atian and the analysis of the second		
SIGNATURE		DATE	

LEGAL NAME OF FIFTH INVENTOR/ASSIGNOR	Family Name HUEN	First Given Name Kwan	Second Given Name
SIGNATURE	1	DATE	

SEC Ref No. | IZ-201407-001-1 | Attorney Ref No. | 1535-107

# COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM<sup>1</sup>

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for which a	Assignor is about to make or has made Ur	nited States or International applic	ation
WHEREAS	, as a below named inventor(s), I/(we) her	eby declare that:	
Section I.	Declaration		
This declar	ration is directed to:		
$\boxtimes$	The attached U.S. non-provisional pa	itent application, or	
	U.S. non-provisional patent application	on number	ر filed
	PCT international patent application	number, f	iled on
The above	e-identified application was made or autho	orized to be made by me (us).	
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I (we) here punishable both.	eby acknowledge that any willful false state under 18 U.S.C. 1001 by fine or imprisor	tement made in this declaration is iment of not more than five (5) ye	ars, or
I hereby st	tate that I have reviewed and understand	the contents of the above identifi	ied
application	n, including the claims.		
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SEC Ref No	o. <b>IZ-201407-001-1</b> A	ttorney Ref No <b>1535-107</b>	
COMBINED	DECLARATION (37 CFR 1.63) FOR UTILITY PA	TENT APPLICATION AND ASSIGNMEN	IT FORM

Page 1 of 4

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SEC Ref No.	IZ-201407-001-1	Attorney Ref No.	1535-107
COMBINED D	ECLARATION (37 CFR 1.63) FOR UTILIT	Y PATENT APPLICATION A	AND ASSIGNMENT FORM

Page 2 of 4

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#### Section III. Inventor(s)/Assignor(s) Signature(s)

LEGAL NAME OF FIRST INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Chang-Eun	
SIGNATURE		DATE	

	Family Name	First Given Name	Second Given Name
SECOND	LU	Bin	
		DATE	
SIGNATURE		DATE 	

SEC Ref No.	IZ-201407-001-1	Attorney Ref No.	1535-107

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM Page 3 of 4

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
THIRD INVENTOR/ASSIGNOR	YU	Jerry	
SIGNATURE		DATE	
LEGAL NAME OF	Family Name	First Given Name	Second Given Name

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FOURTH INVENTOR/ASSIGNOR	ŠHAH	Karnik	
SIGNATURE	Shahkari	DATE	3/4/15

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FIFTH INVENTOR/ASSIGNOR	HUEN	Kwan	
SIGNATURE		DATE —	

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SEC Ref No.	IZ-201407-001-1	Attorney Ref No.	1535-107
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## COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM<sup>1</sup>

The undersigned acknowledges that this document is being used both as an assignment of the invention and as the declaration (37 CFR 1.63) for a Utility or Design Application. WHEREAS, the undersigned, hereinafter referred to collectively as Assignor, has invented: Title: **VIRTUAL DEVICE BASED SYSTEMS** for which Assignor is about to make or has made United States or International application for patent. WHEREAS, as a below named inventor(s), I/(we) hereby declare that: Section I. Declaration This declaration is directed to: X The attached U.S. non-provisional patent application, or U.S. non-provisional patent application number \_\_\_\_\_\_, filed on PCT international patent application number , filed on The above-identified application was made or authorized to be made by me (us). I (we) believe that I am (we are) the original inventor (original joint inventors) of a claimed invention in the above-identified application. I (we) hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or <sup>1</sup> This form requires the use of an Application Data Sheet. SEC Ref No. | IZ-201407-001-1 | Attorney Ref No. | 1535-107

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I hereby state that I have reviewed and understand the contents of the above identified application, including the claims.

I acknowledge that I am aware of the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56.

#### Section II. Assignment

In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned, the undersigned hereby sell(s) and assign(s) to

#### Samsung Electronics Co., Ltd.

having an address at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 443-742, Republic of Korea (hereinafter designated as the Assignee), the entire (100%) right, title and interest for the United States as defined in 35 USC §100, in the invention described in the application identified in Section I of this document.

Assignor hereby confirms any prior assignment to Assignee, and to the extent that Assignor has not already done so, agrees to assign, and hereby does, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesaid application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by Assignor had this assignment and sale not been made, and the right to sue for, and recover for past infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights, resulting therefrom, and the copyright rights;

Assignor hereby covenants and agrees to execute all instruments or documents required o	r
requested for the making and prosecution of any applications of any type for patent, utility	V

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model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, re-examination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

Assignor hereby covenants that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment; and

Assignor hereby requests the United States Patent and Trademark Office to issue the Letters Patent of the United States of America to Assignee, and requests that any official of any country or countries foreign to the United States, whose duty it is to issue or grant patents and applications as aforesaid, to issue the Letters Patent, Utility Model Registration or other similar right to Assignee.

The undersigned hereby grant(s) the law firm of Renaissance IP Law Group LLP the power to insert on this Declaration and 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.

#### Section III. Inventor(s)/Assignor(s) Signature(s)

LEGAL NAME OF FIRST INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Chang-Eun	
SIGNATURE		DATE	

LEGAL NAME OF SECOND INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LU	Bin	

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SIGNATURE			
LEGAL NAME OF THIRD	Family Name	First Given Name	Second Given Name
INVENTOR/ASSIGNOR	YU	Jerry	
SIGNATURE			
LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FOURTH INVENTOR/ASSIGNOR	SHAH	Karnik	
SIGNATURE		DATE -	
LEGAL NAME OF	Family Name	First Given Name	Second Given Name
INVENTOR/ASSIGNOR	HUEN	Hingkwan	
SIGNATURE 2/30/2015			
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**PATENT** 

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