

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5116458

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
NORIHITO ISHII	08/10/2018
KATSUNORI SHIBATA	08/10/2018
TAKKYUN RO	08/28/2018
OHKYU KWON	08/28/2018
SANG MO KIM	08/28/2018
KYUNG BAE PARK	08/28/2018
SUNG YOUNG YUN	08/28/2018
DONG-SEOK LEEM	08/28/2018
YOUN HEE LIM	08/14/2018
YONG WAN JIN	08/28/2018
YEONG SUK CHOI	08/28/2018
JONG WON CHOI	08/28/2018
TAEJIN CHOI	08/28/2018
HYESUNG CHOI	08/28/2018
CHUL JOON HEO	08/28/2018

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:	16677

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16100352

CORRESPONDENCE DATA

Fax Number: (703)668-8200

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: 7036688000

Email: jevensen@hdp.com
Correspondent Name: JOHN A. CASTELLANO
Address Line 1: 11730 PLAZA AMERICA DR., SUITE 600
Address Line 2: HARNESS, DICKEY & PIERCE, P.L.C.
Address Line 4: RESTON, VIRGINIA 20190

ATTORNEY DOCKET NUMBER: 15639-000370-US

NAME OF SUBMITTER: JOHN A. CASTELLANO

SIGNATURE: /John A. Castellano/

DATE SIGNED: 08/29/2018

Total Attachments: 24

source=2018_08_28_Dec_Assign#page1.tif
source=2018_08_28_Dec_Assign#page2.tif
source=2018_08_28_Dec_Assign#page3.tif
source=2018_08_28_Dec_Assign#page4.tif
source=2018_08_28_Dec_Assign#page5.tif
source=2018_08_28_Dec_Assign#page6.tif
source=2018_08_28_Dec_Assign#page7.tif
source=2018_08_28_Dec_Assign#page8.tif
source=2018_08_28_Dec_Assign#page9.tif
source=2018_08_28_Dec_Assign#page10.tif
source=2018_08_28_Dec_Assign#page11.tif
source=2018_08_28_Dec_Assign#page12.tif
source=2018_08_28_Dec_Assign#page13.tif
source=2018_08_28_Dec_Assign#page14.tif
source=2018_08_28_Dec_Assign#page15.tif
source=2018_08_28_Dec_Assign#page16.tif
source=2018_08_28_Dec_Assign#page17.tif
source=2018_08_28_Dec_Assign#page18.tif
source=2018_08_28_Dec_Assign#page19.tif
source=2018_08_28_Dec_Assign#page20.tif
source=2018_08_28_Dec_Assign#page21.tif
source=2018_08_28_Dec_Assign#page22.tif
source=2018_08_28_Dec_Assign#page23.tif
source=2018_08_28_Dec_Assign#page24.tif

**COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY PATENT APPLICATION AND
ASSIGNMENT FORM¹**

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: COMPOUND AND ORGANIC PHOTOELECTRIC DEVICE, IMAGE SENSOR AND
ELECTRONIC DEVICE INCLUDING THE SAME**

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
- 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).

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.

¹ This form requires the use of an Application Data Sheet.

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

SAMSUNG ELECTRONICS CO., LTD.

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 16677, 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,

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

SAMSUNG ELECTRONICS CO., LTD.

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 **Harness, Dickey & Pierce, P.L.C.** 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
	ISHII	Norihito	

SIGNATURE <u>Norihito Ishii</u>	DATE <u>2018.8.10</u>
---------------------------------	-----------------------

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

LEGAL NAME OF SECOND INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	SHIBATA	Katsunori	

SIGNATURE Katsunori Shibata DATE 2018.8.10

LEGAL NAME OF THIRD INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	RO	Takkyun	

SIGNATURE _____ DATE _____

LEGAL NAME OF FOURTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	KWON	Ohkyu	

SIGNATURE _____ DATE _____

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

LEGAL NAME OF FIFTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	KIM	Sang Mo	
SIGNATURE _____		DATE _____	

LEGAL NAME OF SIXTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	PARK	Kyung Bae	
SIGNATURE _____		DATE _____	

LEGAL NAME OF SEVENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	YUN	Sung Young	
SIGNATURE _____		DATE _____	

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

LEGAL NAME OF EIGHTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LEEM	Dong-Seok	
SIGNATURE _____ DATE _____			

LEGAL NAME OF NINTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LIM	Youn Hee	
SIGNATURE _____ DATE _____			

LEGAL NAME OF TENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	JIN	Yong Wan	
SIGNATURE _____ DATE _____			

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

LEGAL NAME OF ELEVENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Yeong Suk	
SIGNATURE _____ DATE _____			

LEGAL NAME OF TWELFTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Jong Won	
SIGNATURE _____ DATE _____			

LEGAL NAME OF THIRTEENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Taejin	
SIGNATURE _____ DATE _____			

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

LEGAL NAME OF FOURTEENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Hyesung	
SIGNATURE _____ DATE _____			

LEGAL NAME OF FIFTEENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	HEO	Chul Joon	
SIGNATURE _____ DATE _____			

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM¹

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: COMPOUND AND ORGANIC PHOTOELECTRIC DEVICE, IMAGE SENSOR AND ELECTRONIC DEVICE INCLUDING THE SAME

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
- 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).

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.

¹ This form requires the use of an Application Data Sheet.

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

SAMSUNG ELECTRONICS CO., LTD.

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 16677, 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,

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

SAMSUNG ELECTRONICS CO., LTD.

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 **Harness, Dickey & Pierce, P.L.C.** 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
	ISHII	Norihito	
SIGNATURE _____		DATE _____	

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

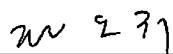
LEGAL NAME OF SECOND INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	SHIBATA	Katsunori	

SIGNATURE _____ DATE _____

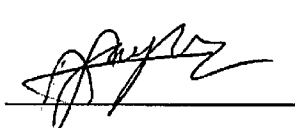
LEGAL NAME OF THIRD INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	RO	Takkyun	

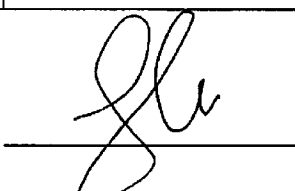
SIGNATURE  _____ DATE August 28, 2018

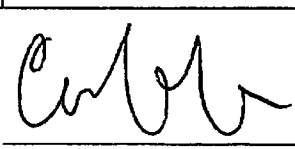
LEGAL NAME OF FOURTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	KWON	Ohkyu	

SIGNATURE  _____ DATE August 28, 2018

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US


LEGAL NAME OF FIFTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	KIM	Sang Mo	
SIGNATURE 		DATE August 28, 2018	

LEGAL NAME OF SIXTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	PARK	Kyung Bae	
SIGNATURE 		DATE August 28, 2018	

LEGAL NAME OF SEVENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	YUN	Sung Young	
SIGNATURE 		DATE August 28, 2018	

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

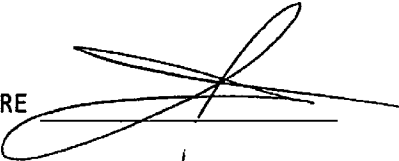
LEGAL NAME OF EIGHTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LEEM	Dong-Seok	

SIGNATURE  DATE August 28, 2018

LEGAL NAME OF NINTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LIM	Youn Hee	

SIGNATURE _____ DATE _____

LEGAL NAME OF TENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	JIN	Yong Wan	

SIGNATURE  DATE August 28, 2018

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

LEGAL NAME OF ELEVENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
		CHOI	Yeong Suk

SIGNATURE Yeong Suk Choi DATE August 28, 2018

LEGAL NAME OF TWELFTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
		CHOI	Jong Won


SIGNATURE Jong Won Choi DATE August 28, 2018

LEGAL NAME OF THIRTEENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
		CHOI	Taejin


SIGNATURE Taejin Choi DATE August 28, 2018

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

LEGAL NAME OF FOURTEENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Hyesung	

SIGNATURE  DATE August 28, 2018

LEGAL NAME OF FIFTEENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	HEO	Chul Joon	

SIGNATURE  DATE August 28, 2018

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

**COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY PATENT APPLICATION AND
ASSIGNMENT FORM¹**

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: **COMPOUND AND ORGANIC PHOTOELECTRIC DEVICE, IMAGE SENSOR AND
ELECTRONIC DEVICE INCLUDING THE SAME**

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
- 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).

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.

¹ This form requires the use of an Application Data Sheet.

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

SAMSUNG ELECTRONICS CO., LTD.

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 16677, 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,

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

SAMSUNG ELECTRONICS CO., LTD.

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 **Harness, Dickey & Pierce, P.L.C.** 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
	ISHII	Norihito	
SIGNATURE _____		DATE _____	

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

LEGAL NAME OF SECOND INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	SHIBATA	Katsunori	
SIGNATURE _____		DATE _____	

LEGAL NAME OF THIRD INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	RO	Takkyun	
SIGNATURE _____		DATE _____	

LEGAL NAME OF FOURTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	KWON	Ohkyu	
SIGNATURE _____		DATE _____	

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

LEGAL NAME OF FIFTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	KIM	Sang Mo	

SIGNATURE _____ DATE _____

LEGAL NAME OF SIXTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	PARK	Kyung Bae	

SIGNATURE _____ DATE _____

LEGAL NAME OF SEVENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	YUN	Sung Young	

SIGNATURE _____ DATE _____

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

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

LEGAL NAME OF EIGHTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LEEM	Dong-Seok	

SIGNATURE _____ DATE _____

LEGAL NAME OF NINTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	LIM	Youn Hee	

SIGNATURE lim DATE 08.14.2018

LEGAL NAME OF TENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	JIN	Yong Wan	

SIGNATURE _____ DATE _____

SEC Ref No. RE-201704-002-1-USO Attorney Ref No. 15639-000370-US

LEGAL NAME OF ELEVENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Yeong Suk	
SIGNATURE _____		DATE _____	

LEGAL NAME OF TWELFTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Jong Won	
SIGNATURE _____		DATE _____	

LEGAL NAME OF THIRTEENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Taejin	
SIGNATURE _____		DATE _____	

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

LEGAL NAME OF FOURTEENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	CHOI	Hyesung	
SIGNATURE _____		DATE _____	

LEGAL NAME OF FIFTEENTH INVENTOR/ASSIGNOR	Family Name	First Given Name	Second Given Name
	HEO	Chul Joon	
SIGNATURE _____		DATE _____	

SEC Ref No. RE-201704-002-1-US0 Attorney Ref No. 15639-000370-US

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