## 505524115 06/13/2019

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5570920

Nature of conveyance:       ASSIGNMENT         CONVEYING PARTY DATA       Name       Execution Date         BYOUNGHOON JUNG       06/13/2019       06/13/2019         SANGKYU BAEK       06/13/2019       06/13/2019         SOENGHUN KIM       06/13/2019       06/13/2019         DONGGUN KIM       06/13/2019       06/13/2019         DONGOUN KIM       06/13/2019       06/13/2019         Name:       SAMSUNG ELECTRONICS CO., LTD.       Street Address:         129, SAMSUNG-RO, YEONGTONG-GU       City:       SUWON-SI, GYEONGGI-DO         Street Address:       129, SAMSUNG-RO, YEONGTONG-GU       City:         Street Address:       129, SAMSUNG-RO, YEONGTONG-GU       Forepretermon Street Address:         Property Type       Number       Postal Code:       Forepretermon Street Address:         Property Type       Number       Postal Code:       Forepretermon Street:         PROPERTY NUMBERS Total: 1       Property Type       Number         Application Number:       16440333       Forepretermon Street:       Forepretermon Street:         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:         202-293-0804       Correspondence will be sent	EYING PARTY DATANameExecution DateNGHOON JUNG06/13/2019KYU BAEK06/13/2019GHUN KIM06/13/2019GUN KIM06/13/2019IDONG NOH06/13/2019
Name     Execution Date       BYOUNGHOON JUNG     06/13/2019       SANGKYU BAEK     06/13/2019       SOENGHUN KIM     06/13/2019       DONGGUN KIM     06/13/2019       DONGGUN KIM     06/13/2019       HOONDONG NOH     06/13/2019       RECEIVING PARTY DATA     06/13/2019       Receiving PARTY DATA     06/13/2019       Receiving PARTY DATA     06/13/2019       Street Address:     129, SAMSUNG-RO, YEONGTONG-GU       City:     SUWON-SI, GYEONGGI-DO       State/Country:     KOREA, REPUBLIC OF       Postal Code:     16677       PROPERTY NUMBERS Total: 1	Name         Execution Date           NGHOON JUNG         06/13/2019           KYU BAEK         06/13/2019           GHUN KIM         06/13/2019           GQUN KIM         06/13/2019           IDONG NOH         06/13/2019
BYOUNGHOON JUNG 06/13/2019 SANGKYU BAEK 06/13/2019 SOENGHUN KIM 06/13/2019 DONGGUN KIM 06/13/2019 HOONDONG NOH 06/13/2019 HOONDONG NOH 06/13/2019 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 NUMBERS Total: 1 PROPERTY NUMBERS Total: 1 PROPERTY NUMBERS Total: 1 CORRESPONDENCE DATA Fax Number: 16440333 CORRESPONDENCE DATA Fax Number: 202-293-0804 Email: usdocketing@jeffersonip.com Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail. Phone: 202-293-0804 Email: usdocketing@jeffersonip.com Correspondent Name: JEFFERSON IP LAW, LLP Address Line 1: 1130 CONNECTICUT AVE., NW, SUITE 420 Address Line 1: WASHINGTON, D.C. 20036 ATTORNEY DOCKET NUMBER: 0502-0469 NAME OF SUBMITTER: RAYMOND B. PERSINO SIGNATURE: /Raymond B. PERSINO/ DATE SIGNED: 06/13/2019	NGHOON JUNG       06/13/2019         KYU BAEK       06/13/2019         GHUN KIM       06/13/2019         GGUN KIM       06/13/2019         IDONG NOH       06/13/2019
SANGKYU BAEK       06/13/2019         SOENGHUN KIM       06/13/2019         DONGGUN KIM       06/13/2019         HOONDONG NOH       06/13/2019         RECEIVING PARTY DATA       06/13/2019         Receiving Party Data       06/13/2019         Receiving Party Data       06/13/2019         Receiving Party Data       06/13/2019         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         Property Type       Number         Application Number:       16440333         CORRESPONDENCE DATA       Fax Number:         Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.         Phone:       202-293-0804         Email:       usdocketing@ieffersonip.com         Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.         Phone:       202-293-0804         Email:       usdocketing@ieffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420 <td>KYU BAEK       06/13/2019         GHUN KIM       06/13/2019         GGUN KIM       06/13/2019         IDONG NOH       06/13/2019</td>	KYU BAEK       06/13/2019         GHUN KIM       06/13/2019         GGUN KIM       06/13/2019         IDONG NOH       06/13/2019
SOENGHUN KIM       06/13/2019         DONGGUN KIM       06/13/2019         HOONDONG NOH       06/13/2019         RECEIVING PARTY DATA       06/13/2019         Rame:       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         PROPERTY NUMBERS Total: 1       Intervention         Property Type       Number         Application Number:       16440333         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:       202-293-0804         Email:       usdocketing@jeffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 4:       WASHINGTON, D.C. 20036         ATTORNEY DOCKET NUMBER:       0502-0469         VAME OF SUBMITTER:       RAYMOND B. PERSINO/         SIGNATURE:       /Raymond B. PERSINO/         <	GHUN KIM         06/13/2019           GGUN KIM         06/13/2019           IDONG NOH         06/13/2019
DONGGUN KIM       06/13/2019         HOONDONG NOH       06/13/2019         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       Intervention         Property Type       Number         Application Number:       16440333         CORRESPONDENCE DATA         Fax Number:       202-293-0804         Email:       usdocketing@jeffersonip.com         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:       202-293-0804         Email:       usdocketing@jeffersonip.com         Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.         Phone:       202-293-0804         Email:       usdocketing@jeffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 4:       WASHINGTON, D.C. 20036	GUN KIM 06/13/2019 IDONG NOH 06/13/2019
HOONDONG NOH       06/13/2019         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:       16440333         CORRESPONDENCE DATA         Fax Number:       Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.         Phone:       202-293-0804         Email:       usdocketing@jeffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 4:       WASHINGTON, D.C. 20036         TATTORNEY DOCKET NUMBER:       0502-0469         VAME OF SUBMITTER:       RAYMOND B. PERSINO         SIGNATURE:       /Raymond B. PERSINO/         DATE SIGNED:       06/13/2019	IDONG NOH 06/13/2019
Image: Samsung Electronics co., Ltd.         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	
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         Property Type       Number         Application Number:       16440333         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 uside email:       usdocketing@jeffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 4:       WASHINGTON, D.C. 20036         ATTORNEY DOCKET NUMBER:       0502-0469         VAME OF SUBMITTER:       RAYMOND B. PERSINO         SIGNATURE:       /Raymond B. PERSINO/         DATE SIGNED:       06/13/2019	
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:       16440333         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:       202-293-0804         Email:       usdocketing@jeffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 4:       WASHINGTON, D.C. 20036         ATTORNEY DOCKET NUMBER:       0502-0469         VAME OF SUBMITTER:       RAYMOND B. PERSINO         SIGNATURE:       /Raymond B. PERSINO/         DATE SIGNED:       06/13/2019	
City:       SUWON-SI, GYEONGGI-DO         State/Country:       KOREA, REPUBLIC OF         Postal Code:       16677         PROPERTY NUMBERS Total: 1       Property Type         Property Type       Number         Application Number:       16440333         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:       202-293-0804         Email:       usdocketing@jeffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 4:       WASHINGTON, D.C. 20036         ATTORNEY DOCKET NUMBER:       0502-0469         VAME OF SUBMITTER:       RAYMOND B. PERSINO         SIGNATURE:       /Raymond B. PERSINO/         DATE SIGNED:       06/13/2019	SAMSUNG ELECTRONICS CO., LTD.
State/Country:       KOREA, REPUBLIC OF         Postal Code:       16677         PROPERTY NUMBERS Total: 1       Property Type         Property Type       Number         Application Number:       16440333         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:       202-293-0804         Email:       usdocketing@jeffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 4:       WASHINGTON, D.C. 20036         ATTORNEY DOCKET NUMBER:       0502-0469         VAME OF SUBMITTER:       RAYMOND B. PERSINO         SIGNATURE:       /Raymond B. PERSINO/         DATE SIGNED:       06/13/2019	Address: 129, SAMSUNG-RO, YEONGTONG-GU
Postal Code:       16677         PROPERTY NUMBERS Total: 1       Image: State of the s	SUWON-SI, GYEONGGI-DO
PROPERTY NUMBERS Total: 1         Property Type       Number         Application Number:       16440333         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:       202-293-0804         Email:       usdocketing@jeffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 4:       WASHINGTON, D.C. 20036         ATTORNEY DOCKET NUMBER:       0502-0469         NAME OF SUBMITTER:       RAYMOND B. PERSINO         Signature:       /Raymond B. PERSINO/         DATE SIGNED:       06/13/2019	Country: KOREA, REPUBLIC OF
Property TypeNumberApplication Number:16440333CORRESPONDENCE 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:202-293-0804Email:usdocketing@jeffersonip.comCorrespondent Name:JEFFERSON IP LAW, LLPAddress Line 1:1130 CONNECTICUT AVE., NW, SUITE 420Address Line 4:WASHINGTON, D.C. 20036ATTORNEY DOCKET NUMBER:0502-0469NAME OF SUBMITTER:RAYMOND B. PERSINOSIGNATURE:/Raymond B. PERSINO/DATE SIGNED:06/13/2019	Code: 16677
Application Number:       16440333         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:       202-293-0804         Email:       usdocketing@jeffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 4:       WASHINGTON, D.C. 20036         ATTORNEY DOCKET NUMBER:       0502-0469         NAME OF SUBMITTER:       RAYMOND B. PERSINO         SIGNATURE:       /Raymond B. PERSINO/         DATE SIGNED:       06/13/2019	
CORRESPONDENCE DATA         Fax Number:         Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.         Phone:       202-293-0804         Email:       usdocketing@jeffersonip.com         Correspondent Name:       JEFFERSON IP LAW, LLP         Address Line 1:       1130 CONNECTICUT AVE., NW, SUITE 420         Address Line 4:       WASHINGTON, D.C. 20036         ATTORNEY DOCKET NUMBER:       0502-0469         VAME OF SUBMITTER:       RAYMOND B. PERSINO         SIGNATURE:       /Raymond B. PERSINO/         DATE SIGNED:       06/13/2019	
ATTORNEY DOCKET NUMBER:0502-0469NAME OF SUBMITTER:RAYMOND B. PERSINOSIGNATURE:/Raymond B. PERSINO/DATE SIGNED:06/13/2019	umber: spondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent
NAME OF SUBMITTER:RAYMOND B. PERSINOSIGNATURE:/Raymond B. PERSINO/DATE SIGNED:06/13/2019	202-293-0804usdocketing@jeffersonip.comspondent Name:JEFFERSON IP LAW, LLPss Line 1:1130 CONNECTICUT AVE., NW, SUITE 420
SIGNATURE:     /Raymond B. PERSINO/       DATE SIGNED:     06/13/2019	202-293-0804usdocketing@jeffersonip.comspondent Name:JEFFERSON IP LAW, LLPss Line 1:1130 CONNECTICUT AVE., NW, SUITE 420ss Line 4:WASHINGTON, D.C. 20036
DATE SIGNED: 06/13/2019	202-293-0804usdocketing@jeffersonip.comspondent Name:JEFFERSON IP LAW, LLPss Line 1:1130 CONNECTICUT AVE., NW, SUITE 420ss Line 4:WASHINGTON, D.C. 20036INEY DOCKET NUMBER:0502-0469
	202-293-0804usdocketing@jeffersonip.comspondent Name:JEFFERSON IP LAW, LLPss Line 1:1130 CONNECTICUT AVE., NW, SUITE 420ss Line 4:WASHINGTON, D.C. 20036INEY DOCKET NUMBER:0502-0469OF SUBMITTER:RAYMOND B. PERSINO
	202-293-0804usdocketing@jeffersonip.comspondent Name:JEFFERSON IP LAW, LLPss Line 1:1130 CONNECTICUT AVE., NW, SUITE 420ss Line 4:WASHINGTON, D.C. 20036INEY DOCKET NUMBER:0502-0469OF SUBMITTER:RAYMOND B. PERSINOTURE:/Raymond B. PERSINO/

source=0502-0469 Assignment As Filed#page2.tif source=0502-0469 Assignment As Filed#page3.tif source=0502-0469 Assignment As Filed#page4.tif

	ORM COVER SHEET			
To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.				
<ol> <li>Name of conveying party(ies)</li> <li>Byounghoon JUNG, 2) Sangkyu BAEK, 3) Soenghun KIM,</li> <li>Donggun KIM, and 5) Hoondong NOH</li> </ol>	2. Name and address of receiving party(ies) Name: Samsung Electronics Co., Ltd. Internal Address:			
Additional name(s) of conveying party(ies) attached? Yes V No <b>3. Nature of conveyance/Execution Date(s):</b> Execution Date(s) June 13, 2019 Assignment Merger	Street Address: <u>129, Samsung-ro, Yeongtong-gu</u>			
<ul> <li>Security Agreement</li> <li>Joint Research Agreement</li> <li>Government Interest Assignment</li> <li>Executive Order 9424, Confirmatory License</li> </ul>	State: Country: Republic of Korea Zip: 16677			
Other     Other     Application or patent number(s):     This	Additional name(s) & address(es) attached? Yes V No document is being filed together with a new application.			
A. Patent Application No.(s) 16/440,333 Additional numbers at	B. Patent No.(s)			
5. Name and address to whom correspondence concerning document should be mailed:	6. Total number of applications and patents involved: <u>One</u>			
Name: Jefferson IP Law, LLP	7. Total fee (37 CFR 1.21(h) & 3.41) \$ Authorized to be charged by credit card Authorized to be charged to deposit account			
Internal Address: Raymond B. Persino				
Street Address: 1130 Connecticut Ave., NW, Suite 420	<ul> <li>Enclosed</li> <li>None required (government interest not affecting title)</li> </ul>			
City: Washington	8. Payment Information			
State: District of Columbia Zip:20036	a. Credit Card Last 4 Numbers Expiration Date			
Phone Number: <u>202-293-0804</u>	· · · · · · · · · · · · · · · · · · ·			
Fax Number: <u>202-403-3587</u>	b. Deposit Account Number Authorized User Name			
Email Address: usdocketing@jeffersonip.com				
9. Signature:/Raymond B. PERSINO/ Reg. Signature	#58,082 June 13, 2019 Date			
Raymond B. Persino	Total number of pages including cover			
Name of Person Signing	sheet, attachments, and documents:			
Documents to be recorded (including cover shee Mail Stop Assignment Recordation Services, Director o	t) should be faxed to (571) 273-0140, or mailed to:			

PATENT REEL: 049461 FRAME: 0633

## Assignment

WHEREAS, the following inventors, namely 1) Byounghoon JUNG, 2) Sangkyu BAEK, 3) Soenghun KIM, 4) Donggun KIM, and 5) Hoondong NOH (hereinafter called "Assignors"), having made or discovered certain new, useful and non-obvious improvements in an invention having a working title of:

### METHOD AND APPARATUS FOR TRANSMITTING AND RECEIVING DATA IN WIRELESS COMMUNICATION SYSTEM,

for which a United States Patent Application is being filed concurrently herewith or, if not being concurrently filed, was filed on <u>June 13, 2019</u>, and assigned Serial No. <u>16/440,333</u>; and,

WHEREAS, Samsung Electronics Co., Ltd., a corporation duly organized under the laws of the Republic of Korea, located and doing business at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea, 16677 (hereinafter called "Assignee"), is desirous of acquiring the entire right, title and interest therein;

NOW, THEREFORE, BE IT KNOWN that for and in good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignors do hereby sell, assign and transfer unto said Assignce the entire and exclusive worldwide right, title and interest in and to all said inventions and discoveries disclosed in said application, and in and to said application, any and all substitutions, divisions, provisionals, conversions of provisionals and continuations thereof, and in and to all Letters Patent, United States and all other foreign countries, that may be granted for said inventions and discoveries, and in and to all extensions, renewals and reissues thereof; and the right to file any other foreign country application and/or claim priority under the provisions of any international treaty or convention arising from this application or any divisional, continuing, substitute or reissue application therefrom. The aforesaid assignment includes the right in and to all income, royalties, damages and payments, now or hereafter due or payable with respect to any Letters Patent which may be granted, and in and to all causes of action (either in law or in equity), and the right to sue, counterclaim, and recover for past, present and future infringement of the rights assigned or to be assigned under this Assignment, as fully and entirely as the same would have been held and enjoyed by Assignors if this sale, assignment and transfer had not been made.

Assignors covenant and agree, without further compensation to said Assignors but at Assignee's expense:

- a. to execute;
  - all papers to be used in connection with this application and any divisional, continuing, substitute or reissue application thereof, as the Assignee may deem necessary or expedient, and
  - all papers in connection with any interference, litigation, mediation, arbitration or other proceeding relating to this application or any divisional, continuing, substitute or reissue application thereof, as may be necessary or expedient;

- b. to cooperate with the Assignee in every way possible in obtaining evidence and going forward in any interference, litigation, mediation, arbitration or other proceeding relating to said invention, said application and any divisional, continuing, substitute or reissue application thereof;
- c. to communicate to the Assignee any facts relating to said invention, said application and any divisional, continuing, substitute or reissue application thereof, including evidence for any interference, litigation, mediation, arbitration or other proceeding relating to said invention, whenever requested;
- d. to testify in any interference, litigation, mediation, arbitration or other proceeding relating to said invention, said application and any divisional, continuing, substitute or reissue application thereof whenever requested; and
- e. to perform all other affirmative acts which may be necessary or desirable to secure full and complete protection of the inventions and discoveries or that may be necessary or desirable to vest in Assignee the complete title to the inventions and discoveries and Letters Patent hereby conveyed and to enable Assignee to record title.

Assignors hereby authorize and request the United States Patent and Trademark Office or any other issuing authority to issue any and all Letters Patent that may be granted upon this invention and/or this application or any divisional, continuing, substitute or reissue application thereof to the Assignee, its legal representatives, successors and assigns.

Assignors each hereby represents, covenants and warrants that he or she has the full right to convey the entire right, title and interest by this instrument, free of any encumbrances and that no other agreement has been or will be executed in conflict herewith.

The provisions of this Assignment are binding upon Assignors' heirs, legal representatives and/or administrators and assigns.

Assignors hereby grant to the law firm of Jefferson IP Law, LLP of Washington, DC and its attorneys and agents as associated with **Customer No. 68103** the authority and power to insert on this instrument any further identification which may be necessary or desirable for purposes of recordation in the United States Patent and Trademark Office or a Patent Office of any foreign country.

#### DOCKET NO.: 0502-0469 CLIENT REF.: SH-58585-US-DMC SAMSUNG REF.: ML-201806-010-1-US0

Signature of Inventor:	Byonghoon JUNG	6/13/2019
	Byoinghoon JUNG	Date
Signature of Inventor:	by	6/13/2019
	Sangkyu BAEK	Date
Signature of Inventor:	Soenghun KIM	6/13/2019 Date
	Speagann xxeax	
Signature of Inventor:		6/13/2019
	Donggun KIM	Date
Signature of Inventor:	Hoondong NOH	<u> </u>