Electronic Version v1.1 Stylesheet Version v1.1

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|----------------|----------------|
| Ki-chul Kim | 01/12/2010 |
| Youn-soo Kim | 01/12/2010 |
| Ki-vin Im | 01/12/2010 |
| Cha-young Yoo | 01/12/2010 |
| Jong-cheol Lee | 01/12/2010 |
| Ki-yeon Park | 01/12/2010 |
| Hoon-sang Choi | 01/12/2010 |
| Se-hoon Oh | 01/12/2010 |

RECEIVING PARTY DATA

| Name: | Samsung Electronics Co., Ltd. | |
|-------------------|--|--|
| Street Address: | 416 Maetan-dong, Yeongtong-gu | |
| Internal Address: | Suwon-si | |
| City: | Gyeonggi-do | |
| State/Country: | KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF | |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 12688044 |

CORRESPONDENCE DATA

501066855

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ATTORNEY DOCKET NUMBER: 5649-2851

REEL: 023794 FRAME: 0714

PATENT

12688044

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| NAME OF SUBMITTER: | Betty-Lou Rosser |
|---|------------------|
| Total Attachments: 3 source=56492851Assn#page1.tif source=56492851Assn#page2.tif source=56492851Assn#page3.tif | |

PATENT REEL: 023794 FRAME: 0715

ASSIGNMENT

THIS ASSIGNMENT, made by us, Ki-chul Kim, a citizen of the Republic of Korea, residing at 104-1305, Imaechon Kumkang Apt., Imae-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea; Youn-soo Kim, a citizen of the Republic of Korea, residing at 408-401, Geumhwa Maeul Jugong Apt., Sanggal-dong, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea; Ki-vin Im, a citizen of the Republic of Korea, residing at B-1425, Doosan We've Pablrion Apt., Jeongja-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea; Cha-young Yoo, a citizen of the Republic of Korea, residing at 111-2802, World Merdian Apt., 600, Uman-dong, Paldal-gu, Suwon-si, Gyeonggi-do, Republic of Korea; Jong-cheol Lee, a citizen of the Republic of Korea, residing at 218-108, Jugong Apt., 217, Godeok-dong, Gangdong-gu, Seoul, Republic of Korea; Ki-yeon Park, a citizen of the Republic of Korea, residing at 605-1201, Sangam Worldcup Park., Sangam-dong, Mapo-gu, Seoul, Republic of Korea; Hoon-sang Choi, a citizen of the Republic of Korea, residing at 10-803, Hyundai Apt., 1346, Seocho-dong, Seocho-gu, Seoul, Republic of Korea; and Se-hoon Oh, a citizen of the Republic of Korea, residing at Rm. 305, Seolhwavill, 853-15, Jinan-dong, Hwaseong-si, Gyeonggi-do, Republic of Korea;

WITNESSETH: That,

WHEREAS, we are the joint inventors of certain new and useful improvements in METHODS OF REMOVING WATER FROM SEMICONDUCTOR SUBSTRATES AND METHODS OF DEPOSITING ATOMIC LAYERS USING THE SAME, for which an application for United States Letters Patent has been filed, or is being filed concurrently, in the United States Patent and Trademark Office. We hereby authorize and request Myers Bigel Sibley & Sajovec, P.A., to insert here in parentheses (Application No. 12/688 044, filed January 15, 2019) the filing date and application number of said application when known or to file this Assignment concurrently with the application; and

WHEREAS, Samsung Electronics Co., Ltd., a Korean corporation having a principal place of business at 416 Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea, hereinafter referred to as assignee, is desirous of acquiring the entire right, title and interest in and to said invention as described in said application, and in and to any and all Letters Patent which shall be granted therefor in the United States of America and all foreign countries;

NOW, THEREFORE, To Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, we have sold and by these presents do hereby sell, assign, transfer, and convey unto the said assignee, its successors and assigns, the entire right, title, and interest in and to the said invention and application, and in and to any and all continuations, continuations-in-part, or divisions thereof, and in and to any and

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PATENT REEL: 023794 FRAME: 0716 all Letters Patent of the United States of America and all foreign countries or reissues or other forms of protection thereof which may be granted therefor or thereon, for the full end of the term for which said Letters Patent may be granted along with any term extensions thereon or therefor, together with the right to claim the priority of said application in all foreign countries in accordance with the International Convention, the same to be held and enjoyed by said assignee, its successors and assigns, as fully and entirely as the same would have been held and enjoyed by us if this assignment and sale had not been made.

We hereby request that said Letters Patent be issued in accordance with this assignment.

We further covenant and agree that, at the time of the execution and delivery of these presents, we possess full title to the invention and application above-mentioned, and that we have the unencumbered right and authority to make this assignment.

We further covenant and agree to promptly communicate to said assignee or its representatives any facts known to us relating to said invention, to testify in any interference or legal proceedings involving said invention, to execute any additional papers which may be requested to confirm the right of the assignee, its representatives, successors, or assigns to secure patent or similar protection for the said invention in all countries and to vest in the assignee complete title to the said invention and Letters Patent, without further compensation, but at the expense of said assignee, its successors, assigns, and other legal representatives; and we hereby instruct, and further covenant and agree to bind our heirs, legal representatives, and assigns, to do same, without further compensation, but at the expense of said assignee or its representatives.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this 12-thday of January, 2010.

| ki-chul kim | (SEAL) |
|----------------|--------|
| Ki-chul Kim | |
| Younsoo Kim | (SEAL) |
| Youn-soo Kim | |
| Kr-Vin Im | (SEAL) |
| Ki-vin Im | |
| Cha-Young You | (SEAL) |
| Cha-young Yoo | |
| Jong Cheal Lee | (SEAL) |
| Jong-cheol Lee | |
| Ki-Year Yank | (SEAL) |
| Ki-yeon Park | |

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| | Handary Chai | (SEAL) |
|---------------|----------------|--------|
| | Hoon-sang Choi | - |
| | Se-hoon Oh | (SEAL) |
| | Se-hoon Oh | |
| | | |
| Witnessed by: | | |
| | • | |
| Date: | | |

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RECORDED: 01/15/2010

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