

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT2877708

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
SANG-WOOK SUH	04/18/2014
DAE-SIK HONG	04/18/2014
BEOM-JU KIM	04/18/2014
HYUNG-JONG KIM	04/18/2014
SUNG-MOOK LIM	04/18/2014
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	SAMSUNG ELECTRONICS CO., LTD.
<b>Street Address:</b>	129, SAMSUNG-RO, YEONGTONG-GU
<b>City:</b>	SUWON-SI, GYEONGGI-DO
<b>State/Country:</b>	REPUBLIC OF KOREA
<b>Name:</b>	INDUSTRY-ACADEMIC COOPERATION FOUNDATION, YONSEI UNIVERSITY
<b>Street Address:</b>	50, YONSEI-RO, SEODAEMUN-GU
<b>City:</b>	SEOUL
<b>State/Country:</b>	REPUBLIC OF KOREA
<b>Postal Code:</b>	120-749
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	14257414
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<i>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.</i>	
<b>Email:</b>	usdocketing@jeffersonip.com
<b>Correspondent Name:</b>	JEFFERSON IP LAW LLP
<b>Address Line 1:</b>	1130 CONNECTICUT AVE
<b>Address Line 2:</b>	SUITE 420
<b>Address Line 4:</b>	WASHINGTON, D.C. 20036
<b>ATTORNEY DOCKET NUMBER:</b>	0201-1108
<b>NAME OF SUBMITTER:</b>	DANIEL SCHNEIDER

502831112

**PATENT**  
**REEL: 032997 FRAME: 0225**

<b>SIGNATURE:</b>	/Daniel SCHNEIDER/
<b>DATE SIGNED:</b>	05/30/2014
<b>Total Attachments: 7</b> source=0201-1108CorrectiveAssignmentAsFiled#page1.tif source=0201-1108CorrectiveAssignmentAsFiled#page2.tif source=0201-1108CorrectiveAssignmentAsFiled#page3.tif source=0201-1108CorrectiveAssignmentAsFiled#page4.tif source=0201-1108CorrectiveAssignmentAsFiled#page5.tif source=0201-1108CorrectiveAssignmentAsFiled#page6.tif source=0201-1108CorrectiveAssignmentAsFiled#page7.tif	

## RECORDATION FORM COVER SHEET PATENTS ONLY

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

### 1. Name of conveying party(ies)

1) Sang-Wook SUH, 2) Dae-Sik HONG, 3) Beom-Ju KIM, 4) Hyung-Jong KIM, and 5) Sung-Mook LIM

Additional name(s) of conveying party(ies) attached? ☐ Yes ☒ No

### 3. Nature of conveyance/Execution Date(s):

Execution Date(s) April 18, 2014

- ☒ Assignment ☐ Merger  
☐ Security Agreement ☐ Change of Name  
☐ Joint Research Agreement  
☐ Government Interest Assignment  
☐ Executive Order 9424, Confirmatory License  
☐ Other \_\_\_\_\_

### 2. Name and address of receiving party(ies)

Name: Samsung Electronics Co., Ltd.

Internal Address: \_\_\_\_\_

Street Address: 129, Samsung-ro, Yeongtong-gu

City: Suwon-si, Gyeonggi-do

State: \_\_\_\_\_

Country: Republic of Korea Zip: \_\_\_\_\_

Additional name(s) & address(es) attached? ☒ Yes ☐ No

### 4. Application or patent number(s):

☐ This document is being filed together with a new application.

A. Patent Application No.(s)

14/257,414

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☒ No

### 5. Name and address to whom correspondence concerning document should be mailed:

Name: Jefferson IP Law, LLP

Internal Address: Daniel Schneider

Street Address: 1130 Connecticut Ave., NW, Suite 420

City: Washington

State: DC Zip: 20036

Phone Number: 202-293-0804

Fax Number: 202-403-3587

Email Address: usdocketing@jeffersonip.com

### 6. Total number of applications and patents involved: One

### 7. Total fee (37 CFR 1.21(h) & 3.41) \$ \_\_\_\_\_

- ☐ Authorized to be charged by credit card  
☐ Authorized to be charged to deposit account  
☐ Enclosed  
☐ None required (government interest not affecting title)

### 8. Payment Information

a. Credit Card Last 4 Numbers \_\_\_\_\_  
Expiration Date \_\_\_\_\_

b. Deposit Account Number \_\_\_\_\_

Authorized User Name \_\_\_\_\_

### 9. Signature:

/Daniel SCHNEIDER/ Reg. No. 68,276

Signature

April 21, 2014

Date

Daniel Schneider

Name of Person Signing

Total number of pages including cover sheet, attachments, and documents:

5

Additional name and address of receiving parties:

Name: Industry-Academic Cooperation Foundation, Yonsei University

Address: 50, Yonsei-ro, Seodaemun-gu  
Seoul 120-749, Republic of Korea

DOCKET NO.: 0201-1108  
CLIENT REF.: P21077-US/DMC  
SAMSUNG REF.: MJ-201212-008-1-US0

### Assignment

**WHEREAS**, the following inventors, namely 1) Sang-Wook SUH, 2) Dae-Sik HONG, 3) Beom-Ju KIM, 4) Hyung-Jong KIM, and 5) Sung-Mook LIM, all, citizens of the Republic of Korea (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 OPERATING A NON-ORTHOGONAL MULTIPLE ACCESS SCHEME IN MULTIUSER BEAMFORMING SYSTEM,**

for which a United States Patent Application is being filed concurrently herewith or, if not being concurrently filed, was filed on April 21, 2014, and assigned Serial No. 14/257,414; 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, 443-742 and Industry-Academic Cooperation Foundation, Yonsei University, a corporation duly organized under the laws of the United States, located and doing business at 50, Yonsei-ro, Seodaemun-gu, Seoul 120-749, Republic of Korea (hereinafter called "Assignees"), are 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 Assignees 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 foreign, 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 foreign 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 Assignees' expense:

- a. to execute:
  - i. all papers to be used in connection with this application and any divisional, continuing, substitute or reissue application thereof, as the Assignees may deem necessary or expedient, and

DOCKET NO.: 0201-1108  
CLIENT REF.: P21077-US/DMC  
SAMSUNG REF.: MJ-201212-008-1-US0

- ii. 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 Assignees 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 Assignees 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 Assignees the complete title to the inventions and discoveries and Letters Patent hereby conveyed and to enable Assignees 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 Assignees, 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.

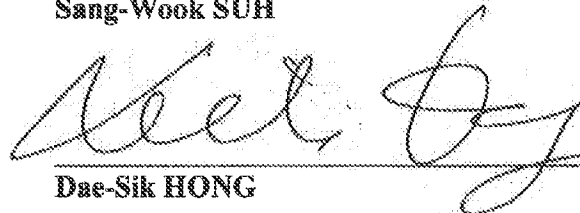
DOCKET NO.: 0201-1108  
CLIENT REF.: P21077-US/DMC  
SAMSUNG REF.: MJ-201212-008-1-US0

Signature of Inventor:

  
Sang-Wook SUH

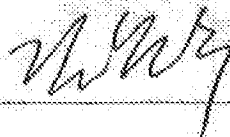
April 18, 2014  
Date

Signature of Inventor:

  
Dae-Sik HONG


April 18, 2014  
Date

Signature of Inventor:

  
Beom-Ju KIM

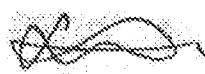
April 18, 2014  
Date

Signature of Inventor:

  
Hyung -Jong KIM

April 18, 2014  
Date

Signature of Inventor:

  
Sung-Mook LIM

April 18, 2014  
Date



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND  
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

APRIL 22, 2014

PTAS

JEFFERSON IP LAW, LLP  
1130 CONNECTICUT AVE., NW, SUITE 420  
WASHINGTON, DC 20036

**502775596**

### UNITED STATES PATENT AND TRADEMARK OFFICE NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

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PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE ASSIGNMENT RECORDATION BRANCH AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT RECORDATION BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 04/21/2014

REEL/FRAME: 032719/0061  
NUMBER OF PAGES: 7

BRIEF: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

DOCKET NUMBER: 0201-1108

ASSIGNOR:

SUH, SANG-WOOK

DOC DATE: 04/18/2014

ASSIGNOR:

HONG, DAE-SIK

DOC DATE: 04/18/2014

ASSIGNOR:

HONG, BEOM-JU

DOC DATE: 04/18/2014

ASSIGNOR:

KIM, HYUNG-JONG

DOC DATE: 04/18/2014

ASSIGNOR:

LIM, SUNG-MOOK

DOC DATE: 04/18/2014

ASSIGNEE:

SAMSUNG ELECTRONICS CO., LTD.  
129, SAMSUNG-RO, YEONGTONG-GU  
SUWON-SI, GYEONGGI-DO, KOREA,  
REPUBLIC OF



APPLICATION NUMBER: 14257414 FILING DATE:  
PATENT NUMBER: ISSUE DATE:  
TITLE: METHOD AND APPARATUS FOR OPERATING A NON-ORTHOGONAL MULTIPLE  
ACCESS SCHEME IN MULTIUSER BEAMFORMING SYSTEM

ASSIGNMENT RECORDATION BRANCH  
PUBLIC RECORDS DIVISION