

# PATENT ASSIGNMENT

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
Seungjae BAHNG	05/26/2009
Junghyun KIM	05/26/2009
Youn Ok PARK	05/26/2009
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	Electronics and Telecommunications Research Institute
<b>Street Address:</b>	161, Gajeong-dong, Yuseong-gu,
<b>City:</b>	Daejeon-city
<b>State/Country:</b>	KOREA, REPUBLIC OF
<b>Postal Code:</b>	305-350
<b>Name:</b>	SAMSUNG ELECTRONICS CO., LTD.
<b>Street Address:</b>	416, Maetan-dong, Yeongtong-gu,
<b>City:</b>	Suwon-si, Gyeonggi-do,
<b>State/Country:</b>	KOREA, REPUBLIC OF
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	12496062
<b>CORRESPONDENCE DATA</b>	
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OP \$40.00 12496062

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**PATENT**  
**REEL: 022901 FRAME: 0712**

ATTORNEY DOCKET NUMBER:	0204-0090
NAME OF SUBMITTER:	Maeng-Ho Shin
<b>Total Attachments: 4</b> source=0204-0090 Assignment As Filed#page1.tif source=0204-0090 Assignment As Filed#page2.tif source=0204-0090 Assignment As Filed#page3.tif source=0204-0090 Assignment As Filed#page4.tif	

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**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) Seungjae BAHNG, 2) Junghyun KIM, and 3) Youn Ok PARK

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

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

Execution Date(s) May 26, 2009

- ☒ 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: Electronics and Telecommunications Research Inst.

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

Street Address: 161, Gajeong-dong, Yuseong-gu

City: Daejeon

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

Country: Republic of Korea Zip: 305-350

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

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

A. Patent Application No.(s)  
12/496,062

☐ This document is being filed together with a new application.  
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: Maeng-Ho SHIN

Street Address: 1730 M Street, NW, Suite 807

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**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:**

/Maeng-Ho SHIN/ Reg. #53,859

Signature

July 1, 2009

Date

Maeng-Ho SHIN

Name of Person Signing

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

4

Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:  
Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

Additional name and address of receiving parties:

Name: SAMSUNG ELECTRONICS CO., LTD.

Address: 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do 442-742,  
Republic of Korea

Attorney Docket No.:  
Client Docket No.:

## Assignment

**WHEREAS**, the following inventors, namely **BAHNG, Seungjae** of 406-1502, Yeolmae Maeul 4-Danji, Jijok-dong, Yuseong-gu, Daejeon 305-770, Republic of Korea; **KIM, Junghyun** of 704-202, Songsan Jugong 7-danji Apt., Millak-dong, Uijeongbu-si, Gyeonggi-do, 480-907, Republic of Korea; and **PARK, Youn Ok** of 109-401, Cheonggu Narae Apt., Jeonmin-dong, Yuseong-gu, Daejeon 305-390, 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 FOR RE-ORDERING MULTIPLE LAYERS AND DETECTING SIGNAL OF WHICH THE LAYERS HAVE DIFFERENT MODULATION ORDERS IN MULTIPLE INPUT MULTIPLE OUTPUT ANTENNA SYSTEM AND RECEIVER USING THE SAME,**

for which a United States Patent Application is being filed concurrently herewith or, if not being concurrently filed, was filed on July 1, 2009, and assigned Serial No. 12/496,062; and,

**WHEREAS**, **Electronics and Telecommunications Research Institute**, a research institute duly organized under the laws of the Republic of Korea, located and doing business at 161, Gajeong-dong, Yuseong-gu, Daejeon 305-350, Republic of Korea and **Samsung Electronics Co., Ltd.**, a corporation duly organized under the laws of the Republic of Korea, located and doing business at 416, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do 442-742, Republic of Korea, (hereinafter called "Assignees"), 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 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
  - 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;

Attorney Docket No.:  
Client Docket No.:

- 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, their legal representatives, successors and assigns.

Assignors each hereby represent, covenant and warrant 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 each 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 their 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.

Signature of First Inventor:	<u>Seungjae Bahng</u> BAHNG, Seungjae	<u>May 26, 2009</u> Date
Signature of Second Inventor:	<u>Kim Jung Hyun</u> KIM, Junghyun	<u>May 26, 2009</u> Date
Signature of Third Inventor:	<u>Park Youn Ok</u> PARK, Youn Ok	<u>May 26, 2009</u> Date