

# PATENT ASSIGNMENT

Electronic Version v1.1

Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT								
NATURE OF CONVEYANCE:	ASSIGNMENT								
<b>CONVEYING PARTY DATA</b>									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Name</th> <th style="width: 30%;">Execution Date</th> </tr> </thead> <tbody> <tr> <td>Jun-Sung LIM</td> <td>10/09/2009</td> </tr> <tr> <td>Jae-Weon CHO</td> <td>10/09/2009</td> </tr> <tr> <td>Ho-Kyu CHOI</td> <td>10/09/2009</td> </tr> </tbody> </table>		Name	Execution Date	Jun-Sung LIM	10/09/2009	Jae-Weon CHO	10/09/2009	Ho-Kyu CHOI	10/09/2009
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Jun-Sung LIM	10/09/2009								
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<b>RECEIVING PARTY DATA</b>									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Name:</td> <td>Samsung Electronics Co. Ltd.</td> </tr> <tr> <td>Street Address:</td> <td>416, Maetan-dong, Yeongtong-gu</td> </tr> <tr> <td>City:</td> <td>Suwon-si, Gyeonggi-do</td> </tr> <tr> <td>State/Country:</td> <td>KOREA, REPUBLIC OF</td> </tr> </table>		Name:	Samsung Electronics Co. Ltd.	Street Address:	416, Maetan-dong, Yeongtong-gu	City:	Suwon-si, Gyeonggi-do	State/Country:	KOREA, REPUBLIC OF
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Street Address:	416, Maetan-dong, Yeongtong-gu								
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<b>PROPERTY NUMBERS Total: 1</b>									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Property Type</th> <th style="width: 70%;">Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>12578229</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	12578229				
Property Type	Number								
Application Number:	12578229								
<b>CORRESPONDENCE DATA</b>									
<p>Fax Number: (202)403-3587</p> <p><i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i></p> <p>Phone: 202-293-0804</p> <p>Email: usdocketing@jeffersonip.com</p> <p>Correspondent Name: George Eckert</p> <p>Address Line 1: 1130 Connecticut Ave., NW</p> <p>Address Line 2: Suite 420</p> <p>Address Line 4: Washington, DISTRICT OF COLUMBIA 20036</p>									
ATTORNEY DOCKET NUMBER:	0202-0282								
NAME OF SUBMITTER:	George C. Eckert								
<p>Total Attachments: 3</p> <p>source=0202-0282AssignmentAsFiled#page1.tif</p> <p>source=0202-0282AssignmentAsFiled#page2.tif</p>									

OP \$40.00 12578229

**500987258**

**PATENT**  
**REEL: 023363 FRAME: 0800**



**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) Jun-Sung LIM, 2) Jae-Weon CHO, and 3) Ho-Kyu CHOI

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

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

Execution Date(s) October 9, 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: Samsung Electronics Co., Ltd.

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

Street Address: 416, Maetan-dong, 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)

12/578,229

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: George Eckert

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:**

/George C. ECKERT/ Reg. No. 58,892

Signature

October 13, 2009

Date

George C. Eckert

Name of Person Signing

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

3

## **Assignment**

**WHEREAS**, the following inventors, namely 1) Jun-Sung LIM, 2) Jae-Weon CHO, and 3) Ho-Kyu CHOI, all citizens of the Republic of Korea and residing respectfully at 1) #313-2001, Parkrio APT, Sincheon-dong, Songpa-gu, Seoul, Republic of Korea, 2) #110-702, Saetbyeol Maeul Life APT, Bundang-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea, and 3) #113-601, Sibeom Danji Hanshin APT, Seohyeon-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, 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:

### **APPARATUS AND METHOD FOR TRANSMITTING AND RECEIVING CONTROL INFORMATION IN A BROADBAND WIRELESS COMMUNICATION SYSTEM USING HALF FREQUENCY DIVISION DUPLEX,**

for which a United States Patent Application is being filed concurrently herewith or, if not being concurrently filed, was filed on Oct. 13, 2009, and assigned Serial No. 12/578,229; and,

**WHEREAS**, 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, Republic of Korea (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 Assignee 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 Assignee's 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 Assignee 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 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.

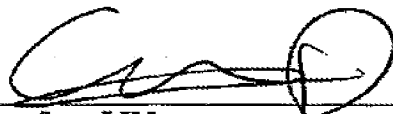
Assignors hereby authorize and request the United States Patent and Trademark Office or any other issuing authority to issue any and all Letters Patent that may be granted upon this invention and/or this application or any divisional, continuing, substitute or reissue application thereof to the Assignee,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

Assignors each hereby 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 Assignor's 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.

Signature of First Inventor:

  
Jun-Sung LIM

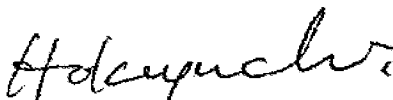
October 9, 2009  
Date

Signature of Second Inventor:

  
Jae-Weon CHO

October 9, 2009  
Date

Signature of Third Inventor:

  
Ho-Kyu CHOI

October 9, 2009  
Date