

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT3203773

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
SANGMIN RO	01/22/2015
JOONYOUNG CHO	01/28/2015
JUHO LEE	01/22/2015
HYOUNGJU JI	01/22/2015
<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>	KOREA, REPUBLIC OF
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	14418232
<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>Phone:</b>	202-293-0804
<b>Email:</b>	usdocketing@jeffersonip.com
<b>Correspondent Name:</b>	JEFFERSON IP LAW, LLP
<b>Address Line 1:</b>	1130 CONNECTICUT AVE., NW, SUITE 420
<b>Address Line 4:</b>	WASHINGTON, D.C. 20036
<b>ATTORNEY DOCKET NUMBER:</b>	0203-1539
<b>NAME OF SUBMITTER:</b>	QUASIM SHAH
<b>SIGNATURE:</b>	/Quasim SHAH/
<b>DATE SIGNED:</b>	01/29/2015
<b>Total Attachments: 7</b>	
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# 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) Sangmin RO, 2) Joonyoung CHO, 3) Juho LEE, and  
4) Hyoungju JI

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

### 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

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

Execution Date(s) 01/22/2015 and 01/28/2015

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

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

This document is being filed together with a new application.

A. Patent Application No.(s)

14/418,232

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: Quasim Shah

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

City: Washington

State: District of Columbia 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:

\_\_\_\_\_  
/Quasim SHAH/ Reg. #69,982  
Signature

\_\_\_\_\_  
January 29, 2015  
Date

\_\_\_\_\_  
Quasim Shah  
Name of Person Signing

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

**7**

DOCKET NO.: 0203-1539  
CLIENT REF.: YPF201307-0043/US-PCT\_DMC  
SAMSUNG REF.: MJ-201208-022-1-US0

Assignment

*WHEREAS*, the following inventors, namely 1) Sangmin RO, 2) Joonyoung CHO, 3) Juho LEE, and 4) Hyoungju JI, 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 SOUNDING IN WIRELESS  
COMMUNICATION SYSTEM IN WHICH UPLINK CONTROL CHANNEL  
RESOURCE DYNAMICALLY CHANGES,**

for which a United States Patent Application is being filed concurrently herewith or, if not being concurrently filed, was filed on January 29, 2015, and assigned Serial No. 14/418,232; 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 (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

DOCKET NO.: 0203-1539

CLIENT REF.: YPF201307-0043/US-PCT\_DMC

SAMSUNG REF.: MJ-201208-022-1-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 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.

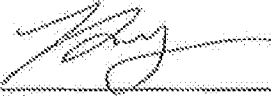
Assignors each hereby represents, covenants and warrants that he or she has the full right to convey the entire right, title and interest by this instrument, free of any encumbrances and that no other agreement has been or will be executed in conflict herewith.

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.: 0203-1539  
CLIENT REF: YPF201307-0043/US-PCT\_DMC  
SAMSUNG REF: MJ-201208-022-1-US0

Signature of Inventor:

  
\_\_\_\_\_  
Sangmin RO

January 22, 2015  
Date

Signature of Inventor:

\_\_\_\_\_  
Jeonyoung CHO

\_\_\_\_\_  
Date

Signature of Inventor:

  
\_\_\_\_\_  
Juho LEE

January 22, 2015  
Date

Signature of Inventor:

  
\_\_\_\_\_  
Hyoungju JI

January 22, 2015  
Date

DOCKET NO.: 0203-1539

CLIENT REF: YPF201307-0043/US-PCT\_DMC

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#### METHOD AND APPARATUS FOR OPERATING SOUNDING IN WIRELESS COMMUNICATION SYSTEM IN WHICH UPLINK CONTROL CHANNEL RESOURCE DYNAMICALLY CHANGES,

for which a United States Patent Application is being filed concurrently herewith or, if not being concurrently filed, was filed on January 29, 2015, and assigned Serial No. 14/418,232; 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 (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

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- 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 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.: 0263-1539  
CLIENT REF.: YFF201307-0043/US-PCT\_DMC  
SAMSUNG REF.: MJ-201208-022-1-US0

Signature of Inventor:

\_\_\_\_\_  
Sangmin KO

\_\_\_\_\_  
Date

Signature of Inventor:

  
\_\_\_\_\_  
Joonyoung CHO

\_\_\_\_\_  
Jan. 28, 2015  
Date

Signature of Inventor:

\_\_\_\_\_  
Jubo LEE

\_\_\_\_\_  
Date

Signature of Inventor:

\_\_\_\_\_  
Hyoungju JI

\_\_\_\_\_  
Date