#### 503814818 05/06/2016

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3861466

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

#### **CONVEYING PARTY DATA**

| Name           | Execution Date |
|----------------|----------------|
| MINSUNG KWAK   | 12/22/2015     |
| SEUNGRYUL YANG | 12/22/2015     |
| KYOUNGSOO MOON | 01/18/2016     |
| WOOSUK KO      | 12/22/2015     |
| SUNGRYONG HONG | 12/22/2015     |

#### **RECEIVING PARTY DATA**

| Name:           | LG ELECTRONICS INC.              |
|-----------------|----------------------------------|
| Street Address: | 128, YEOUI-DAERO YEONGDEUNGPO-GU |
| City:           | SEOUL                            |
| State/Country:  | KOREA, REPUBLIC OF               |
| Postal Code:    | 150-721                          |

### **PROPERTY NUMBERS Total: 1**

| Property Type       | Number   |  |
|---------------------|----------|--|
| Application Number: | 15034718 |  |

### **CORRESPONDENCE DATA**

Fax Number: (703)205-8050

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.

Phone: (703)205-8000

mailroom@bskb.com, tuyet.a.nguyen@bskb.com Email: **Correspondent Name:** BIRCH, STEWART, KOLASCH & BIRCH, LLP

P.O. BOX 747 Address Line 1:

Address Line 4: FALLS CHURCH, VIRGINIA 22040-0747

| ATTORNEY DOCKET NUMBER:       | 0465-5568PUS1    |  |
|-------------------------------|------------------|--|
| NAME OF SUBMITTER:            | TUYET ANH NGUYEN |  |
| SIGNATURE: /TUYET ANH NGUYEN/ |                  |  |
| DATE SIGNED:                  | 05/05/2016       |  |

**Total Attachments: 6** 

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**PATENT** REEL: 038483 FRAME: 0397

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> PATENT REEL: 038483 FRAME: 0398

Attorney Docket No.: 0465-5568PUS1

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LGE Ref.: 15FASL382US02

KBK No. OPP-XZ-2015-0033-US-00

# BIRCH, STEWART, KOLASCH & BIRCH, LLP

UNITED STATES PATENT RIGHTS, OR UNITED STATES PLUS ALL FOREIGN PATENT RIGHTS

### **ASSIGNMENT**

| Application No                                      | o.:      | :: 15/034,718 Filed:  | May 5, 2016   |
|---|----------|---|---|
| Insert Name(s) of<br>Inventor(s)<br>Insert Title of | <b>1</b> | ***(Given Name FAMILY NAME (ALL CAPS))***  WHEREAS, KWAK, Minsung; YANG, Seungryul; MOON, Kyoung (hereinafter designated as the undersigned) has (have) inven   |   |
| Invention   |          | BROADCAST SIGNAL TRANSMITTING APPARATUS, BROAI METHOD FOR TRANSMITTING BROADCAST SIGNAL, AND SIGNAL   |   |
|   |          | for which an application for Letters Patent of the United 9 undersigned (except in the case of a provisional application)   | States of America has been executed by the  |
| Insert Date of<br>Signing of Appln,                 | ₽        | ⇒ on December 22, 2015  | ; and   |
| Insert Name<br>of Assignee                          | ₽        | ⇒ WHEREAS, LG ELECTRONICS INC.  |   |
| Insert Address<br>of Assignee                       | ₽        | ⇒ of 128, Yeoui-daero Yeongdeungpo-gu Seoul 150-721 Republ  | lic of Korea  |
|   |          | its heirs, successors, legal representatives and assigns (hereir<br>of acquiring the entire right, title and interest in and to said<br>that may be granted therefor in the United States of America  | invention and in and to any Letters Patent(s)   |
| Theck Box if<br>Appropriate                         | ₽        | ⇒ in any foreign countries.   |   |
|   |          | NOW, THEREFORE, for good and valuable consideration, the undersigned has (have) sold, assigned and transferred, and transfer unto said Assignee the full and exclusive right America, its territories, dependencies and possessions and the and all Letters Patent(s) which may be granted therefor in dependencies and possessions, and if the box above is designant and all divisions, reissues, continuations, conversions and for which the same may be granted. | and by these presents does (do) sell, assign<br>to the said invention in the United States of<br>he entire right, title and interest in and to any<br>the United States of America, its territories,<br>hated, in any and all foreign countries; and to |

Attorney Docket No.: 0465-5568PUS1

IJM

LGE Ref.: 15FASL382US02 KBK No. OPP-XZ-2015-0033-US-00

The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division, conversion or reissue thereof or Letters Patent(s) or reissue patent issued thereon and to cooperate with the Assignee in every way possible in obtaining and producing evidence and proceeding with such interference.

The undersigned agree(s) to execute all papers and documents and to perform any act which may be necessary in connection with claims or provisions of the International Convention for the Protection of Industrial Property or similar agreements.

The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of (a) valid United States of America patent(s) or a grant of (a) valid United States of America and any foreign patent(s) to the Assignee and to vest all rights therein hereby conveyed to said Assignee as fully and entirely as the same would have been held by the undersigned if this Assignment and sale had not been made.

The undersigned hereby authorize(s) and request(s) the Patent and Trademark Office Officials in the United States of America and in any foreign countries to issue any and all Letters Patent(s) resulting from said application or any continuing, divisional conversion or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) the full right to convey the entire interest herein assigned, and that he has (they have) not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grant(s) the law firm of Birch, Stewart, Kolasch & Birch, LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

The undersigned hereby covenant(s) that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this Assignment.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

| Date | Dec. 22. 2015 | Name of Inventor | (Signature) KWAK, Minsung   |
|------|---------------|------------------|-----------------------------|
| Date | 12-22-2015    | Name of Inventor | (Signature) YANG, Seungryul |
| Date |               | Name of Inventor | (Signature) MOON, Kyoungsoo |

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Attorney Docket No.: 0465-5568PUS1

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LGE Ref.: 15FASL382US02 KBK No. OPP-XZ-2015-0033-US-00

Date 21 Dec. 2015

Name of Inventor

(Signature) KO, Woosuk

Date 22 Dec. 2015

Name of Inventor

(Signature) HONG, Sungryong

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PATENT REEL: 038483 FRAME: 0401

Attorney Docket No.: 0465-5568PUS1

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LGE Ref.: 15FASL382US02

KBK No. OPP-XZ-2015-0033-US-00

### BIRCH, STEWART, KOLASCH & BIRCH, LLP

UNITED STATES PATENT RIGHTS, OR UNITED STATES PLUS ALL FOREIGN PATENT RIGHTS

# **ASSIGNMENT**

| Application N  | o | 15/034,718 Filed: May 5, 2016  |
|--|---|--|
| Insert Name(s) of<br>Inventor(s)<br>Insert Title of<br>Invention | ↔ | ***(Given Name FAMILY NAME (ALL CAPS))*** WHEREAS, KWAK, Minsung; YANG, Seungryul; MOON, Kyoungsoo; KO, Woosuk; and HONG, Sungryong (hereinafter designated as the undersigned) has (have) invented certain new and useful improvements in:  |
|  |   | BROADCAST SIGNAL TRANSMITTING APPARATUS, BROADCAST SIGNAL RECEIVING APPARATUS, METHOD FOR TRANSMITTING BROADCAST SIGNAL, AND METHOD FOR RECEIVING BROADCAST SIGNAL   |
|  |   | for which an application for Letters Patent of the United States of America has been executed by the undersigned (except in the case of a provisional application)   |
| Insert Date of<br>Signing of Appln.                              | ⇔ | onJanuary 18, 2016; and  |
| Insert Name<br>of Assignee                                       | ⇔ | WHEREAS, LG ELECTRONICS INC.   |
| Insert Address<br>of Assignee                                    | ⇔ | of 128, Yeoui-daero Yeongdeungpo-gu Seoul 150-721 Republic of Korea  |
|  |   | its heirs, successors, legal representatives and assigns (hereinafter designated as the Assignee) is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent(s) that may be granted therefor in the United States of America and  |
| Check Box if<br>Appropriate                                      | ₽ | in any foreign countries.  |
|  |   | NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, the undersigned has (have) sold, assigned and transferred, and by these presents does (do) sell, assign and transfer unto said Assignee the full and exclusive right to the said invention in the United States of America, its territories, dependencies and possessions and the entire right, title and interest in and to any and all Letters Patent(s) which may be granted therefor in the United States of America, its territories, dependencies and possessions, and if the box above is designated, in any and all foreign countries; and to any and all divisions, reissues, continuations, conversions and extensions thereof for the full term or terms for which the same may be granted. |

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Attorney Docket No.: 0465-5568PUS1

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LGE Ref.: 15FASL382US02 KBK No. OPP-XZ-2015-0033-US-00

The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division, conversion or reissue thereof or Letters Patent(s) or reissue patent issued thereon and to cooperate with the Assignee in every way possible in obtaining and producing evidence and proceeding with such interference.

The undersigned agree(s) to execute all papers and documents and to perform any act which may be necessary in connection with claims or provisions of the International Convention for the Protection of Industrial Property or similar agreements.

The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of (a) valid United States of America patent(s) or a grant of (a) valid United States of America and any foreign patent(s) to the Assignee and to vest all rights therein hereby conveyed to said Assignee as fully and entirely as the same would have been held by the undersigned if this Assignment and sale had not been made.

The undersigned hereby authorize(s) and request(s) the Patent and Trademark Office Officials in the United States of America and in any foreign countries to issue any and all Letters Patent(s) resulting from said application or any continuing, divisional conversion or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) the full right to convey the entire interest herein assigned, and that he has (they have) not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grant(s) the law firm of Birch, Stewart, Kolasch & Birch, LLP the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

The undersigned hereby covenant(s) that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this Assignment.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

| Date |                                       | Name of Inventor | (Signature) KWAK, Minsung   |
|------|---------------------------------------|------------------|-----------------------------|
| Date | · · · · · · · · · · · · · · · · · · · | Name of Inventor | (Signature) YANG, Seungryul |
| Date | 2016.1.18                             | Name of Inventor | (Signature) MOON, Kyoungsoo |
|      |                                       |                  |                             |

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Attorney Docket No.: 0465-5568PUS1

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LGE Ref. : 15FASL382US02 KBK No. OPP-XZ-2015-0033-US-00

| Date | Name of Inventor | (Signature) KO, Woosuk      |
|------|------------------|-----------------------------|
| Date | Name of Inventor | (Signature) HONG, Sungryong |

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RECORDED: 05/06/2016

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PATENT REEL: 038483 FRAME: 0404