

PATENT ASSIGNMENT

Electronic Version v1.1
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| SUBMISSION TYPE: | NEW ASSIGNMENT | | | | | | | | | | |
|---|---|---------------|----------------|---------------------|------------|----------------|------------|----------------|------------|----------------|------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT | | | | | | | | | | |
| CONVEYING PARTY DATA | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Juyul LEE</td> <td>09/11/2013</td> </tr> <tr> <td>Keun Young KIM</td> <td>09/11/2013</td> </tr> <tr> <td>Seong Chul CHO</td> <td>09/11/2013</td> </tr> <tr> <td>Seung-Hwan LEE</td> <td>09/23/2013</td> </tr> </tbody> </table> | | Name | Execution Date | Juyul LEE | 09/11/2013 | Keun Young KIM | 09/11/2013 | Seong Chul CHO | 09/11/2013 | Seung-Hwan LEE | 09/23/2013 |
| Name | Execution Date | | | | | | | | | | |
| Juyul LEE | 09/11/2013 | | | | | | | | | | |
| Keun Young KIM | 09/11/2013 | | | | | | | | | | |
| Seong Chul CHO | 09/11/2013 | | | | | | | | | | |
| Seung-Hwan LEE | 09/23/2013 | | | | | | | | | | |
| RECEIVING PARTY DATA | | | | | | | | | | | |
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| Street Address: | 161 Gajeong-dong, Yuseong-gu | | | | | | | | | | |
| City: | Daejeon | | | | | | | | | | |
| State/Country: | REPUBLIC OF KOREA | | | | | | | | | | |
| Postal Code: | 305-350 | | | | | | | | | | |
| PROPERTY NUMBERS Total: 1 | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>14041632</td> </tr> </tbody> </table> | | Property Type | Number | Application Number: | 14041632 | | | | | | |
| Property Type | Number | | | | | | | | | | |
| Application Number: | 14041632 | | | | | | | | | | |
| CORRESPONDENCE DATA | | | | | | | | | | | |
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| ATTORNEY DOCKET NUMBER: | PAN-193 | | | | | | | | | | |
| NAME OF SUBMITTER: | Steven M. Rabin | | | | | | | | | | |
| Signature: | /Steven M. Rabin/ | | | | | | | | | | |

PATENT

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| Date: | 09/30/2013 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |
| Total Attachments: 2 source=PAN-193-Assignment_Declaration#page1.tif source=PAN-193-Assignment_Declaration#page2.tif | |

ASSIGNMENT OF AND DECLARATION FOR APPLICATION FOR UNITED STATES LETTERS PATENT

WHEREAS, **LEE, Juyul; Kim, Keun Young; CHO, Seong Chul; LEE, Seung-Hwan** hereinafter referred to collectively as the assignor and inventor, has invented a certain improvement relating to

METHOD AND APPARATUS FOR FORMING BEAM THROUGH ONE-WAY COOPERATIVE CHANNEL

said application being attached hereto;

said application having been filed in the United States Patent and Trademark Office on

_____, as Application Serial No. _____, and was amended on _____ (if applicable);

the specification of which was filed under the Patent Cooperation Treaty on _____, Serial No. _____, the United States of America being designated.

AND WHEREAS **ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE of 161, Gajeong-dong, Yuseong-gu, Daejeon 305-350, Republic of Korea** hereinafter referred to as the assignee or applicant, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

NOW THIS WITNESSETH, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the full and exclusive right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any and all divisions and continuations thereof, and the said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissues and prolongations thereof.

AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and assigns, in accordance herewith.

As an above-named inventor, I hereby declare that the above-identified application was made or authorized to be made by me, and that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Address all correspondence and telephone calls to Rabin & Berdo, P.C., 1101 14th Street, N.W., Suite 500, Washington, D.C. 20005, Telephone: (202) 371-8976; Fax: (202) 408-0924, Customer No. 23995.

ASSIGNMENT OF AND DECLARATION FOR APPLICATION FOR UNITED STATES LETTERS PATENT

WITNESS:

Signature: _____

Name: _____

Address: _____

WITNESS:

Signature: _____

Name: _____

Address: _____

WITNESS:

Signature: _____

Name: _____

Address: _____

WITNESS:

Signature: _____

Name: _____

Address: _____

ASSIGNOR (SOLE OR FIRST INVENTOR):

Signature: [Signature]

Legal Name: LEE, Juyul

Date: September 11, 2013

ASSIGNOR (SECOND INVENTOR):

Signature: [Signature]

Legal Name: Kim, Keun Young

Date: 11 / Sep / 2013

ASSIGNOR (THIRD INVENTOR):

Signature: [Signature]

Legal Name: CHO, Seong Chul

Date: 11 / Sep / 2013

ASSIGNOR (FOURTH INVENTOR):

Signature: [Signature]

Legal Name: LEE, Seung-Hwan

Date: 23 / 09 / 2013

RABIN & BERDO, P.C., Washington, D.C.