504702131 12/22/2017

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4748853

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
JERRITT HAROLD HANSELL	02/01/2016
ALAN DREW BARNETT	04/08/2016
JOSEPH ROBERT REED	04/14/2016
HENRIK FERNAND BERNHEIM	03/21/2016

RECEIVING PARTY DATA

Name:	ASTROLINK INTERNATIONAL LLC
Street Address:	6801 ROCKLEDGE DRIVE
City:	BETHESDA
State/Country:	MARYLAND
Postal Code:	20817
Name:	DOMINION ENERGY TECHNOLOGIES, INC.
Name: Street Address:	DOMINION ENERGY TECHNOLOGIES, INC. 120 TREDEGAR STREET
Street Address:	120 TREDEGAR STREET

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15852496

CORRESPONDENCE DATA

Fax Number: (877)812-1249

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: 919-238-2300 Email: jjimerson@wt-ip.com

Correspondent Name: LOCKHEED MARTIN MFC AND WITHROW & TERRAN

Address Line 1: 106 PINEDALE SPRINGS WAY
Address Line 4: CARY, NORTH CAROLINA 27511

ATTORNEY DOCKET NUMBER:	1302-412C/MC03974CON
NAME OF SUBMITTER:	JOHN M. JIMERSON

PATENT 504702131 REEL: 044471 FRAME: 0648

SIGNATURE:	/John M. Jimerson/
DATE SIGNED:	12/22/2017
Total Attachments: 16	
source=1302-412C_Assignment_from_parent#page1.tif	
source=1302-412C_Assignment_from_parent#page2.tif	
source=1302-412C_Assignment_from_parent#page3.tif	
source=1302-412C_Assignment_from_r	parent#page4.tif
source=1302-412C_Assignment_from_r	parent#page5.tif
source=1302-412C_Assignment_from_r	parent#page6.tif
source=1302-412C_Assignment_from_r	parent#page7.tif
source=1302-412C_Assignment_from_r	parent#page8.tif
source=1302-412C_Assignment_from_r	parent#page9.tif
source=1302-412C_Assignment_from_r	parent#page10.tif
source=1302-412C_Assignment_from_r	parent#page11.tif
source=1302-412C_Assignment_from_r	parent#page12.tif
source=1302-412C_Assignment_from_r	parent#page13.tif
source=1302-412C_Assignment_from_r	parent#page14.tif
source=1302-412C_Assignment_from_r	parent#page15.tif
source=1302-412C_Assignment_from_p	parent#page16.tif

PATENT REEL: 044471 FRAME: 0649

ASSIGNMENT

This Assignment made by us, **Jerritt Harold Hansell**, residing at 4625 Pitkin Drive, City of Boulder, State of Colorado, **Alan Drew Barnett**, residing at 1133 Rising Hill Way, City of Escondido, State of California, **Joseph Robert Reed**, residing at 1675 Hilcorte Drive, City of Escondido, State of California, and **Henrik Fernand Bernheim**, residing at 7777 East 1st Place, Unit 109, City of Denver, State of Colorado (hereinafter referred to as "Assignors");

WITNESSETH: That.

WHEREAS, we are the joint inventors of certain new and useful improvements in SYSTEM, METHOD, AND APPARATUS FOR GRID LOCATION, for which we have made application for Letters Patent of the United States under U.S. Patent Application Number 14/929,087, filed October 30, 2015, and for which we have executed declarations, SYSTEM, METHOD, AND APPARATUS FOR GRID LOCATION, for which we have filed a PCT Application under PCT Application Number PCT/US15/58492, filed October 30, 2015, and ALGORITHMS FOR GRID LOCATION AWARENESS (GLA) AND ON-GRID MEASUREMENTS, for which we filed a Provisional Patent Application under Provisional Patent Application Number 62/072,891, filed October 30, 2014 (hereinafter referred to as "Applications");

WHEREAS, Astrolink International LLC, a corporation organized under and pursuant to the laws of Delaware, having its principal place of business at 6801 Rockledge Drive, Bethesda, MD, 20817, USA, and Dominion Energy Technologies, Inc., a corporation organized under and pursuant to the laws of Virginia, having its principal place of business at 120 Tredegar Street, Richmond, VA, 23219, USA (hereinafter referred to as "Assignees"), are desirous of

1 of 4

PATENT REEL: 044471 FRAME: 0650

acquiring the entire right, title and interest in and to said invention as described in the Applications, and any and all Letters Patent which shall be granted therefor:

NOW, THEREFORE, To All Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, we, the Assignors, have sold, assigned, transferred and set over unto the Assignees, their successors and assigns, our entire right, title and interest in and to the above-mentioned Applications and invention and in and to any and all Letters Patent of the United States which may hereafter be granted therefor, and in any and to any and all continuations, continuations-in-part, substitutions, divisions or reissues of said Letters Patent, and provisional patent applications to which the above-mentioned Applications claim priority, the same to be held and enjoyed by the Assignees, for their interest, and for their own use and behalf, and the use and behalf of their successors and assigns, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held and enjoyed by us had this assignment and sale not been made.

And for the consideration aforesaid, we hereby covenant and agree to and with the Assignees, their successors and assigns, that we will, whenever their counsel or the counsel of their successors and assigns, learned in the law, shall advise that an amendment, division, continuation, continuation-in-part, or substitution of, or any other proceeding in connection with the Applications, including interference proceedings, is lawful and desirable, sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for the procurement of valid Letters Patent for said invention, or for the reissue of the same without charge to the Assignees, their successors or assigns, but at their expense.

We hereby request the Commissioner for Patents to issue the Letters Patent in accordance

with this instrument.

For the consideration aforesaid, we have sold, assigned, transferred and set over, and by

these presents do sell, assign, transfer and set over, unto the Assignees, their successors, assigns

or nominee, the entire right, title and interest in and to any and all Letters Patent for said

invention which may be granted in countries foreign to the United States and in and to any

applications for Letters Patent which may be filed for said invention in countries foreign to the

United States and in and to the invention described in the Applications; and we hereby authorize

and empower the Assignees, their successors, assigns or nominees to apply for Letters Patent or

other form of protection on said invention in their own name or in the names of their successors,

assignees, or nominees, in any and all countries where it may desire to file such application and

where said application may be filed by another than the inventor; and we hereby covenant and

agree to sign all papers and drawings, take all rightful oaths, and do all acts necessary or required

to be done for procurement of Letters Patent, or other form of protection, for said invention or

inventions in countries foreign to the United States, and for further investing or confirming the

right and title therein to the Assignees, their successors, assignees, or nominees, without charge

to the Assignces, their successors, assignces or nominees, but at their expense.

IN WITNESS WHEREOF, we have hereunto set our hands.

01 FEB 2016

Almaite II

Land Hansell

Lennell

3 of 4

PATENT REEL: 044471 FRAME: 0652

Date	Alan Drew Barnett
Date	Joseph Robert Reed
 Date	Henrik Fernand Bernheim

ASSIGNMENT

This Assignment made by us, **Jerritt Harold Hansell**, residing at 4625 Pitkin Drive, City of Boulder, State of Colorado, **Alan Drew Barnett**, residing at 1133 Rising Hill Way, City of Escondido, State of California, **Joseph Robert Reed**, residing at 1675 Hilcorte Drive, City of Escondido, State of California, and **Henrik Fernand Bernheim**, residing at 7777 East 1st Place, Unit 109, City of Denver, State of Colorado (hereinafter referred to as "Assignors"):

WITNESSETH: That,

WHEREAS, we are the joint inventors of certain new and useful improvements in SYSTEM, METHOD, AND APPARATUS FOR GRID LOCATION, for which we have made application for Letters Patent of the United States under U.S. Patent Application Number 14/929,087, filed October 30, 2015, and for which we have executed declarations, SYSTEM, METHOD, AND APPARATUS FOR GRID LOCATION, for which we have filed a PCT Application under PCT Application Number PCT/US15/58492, filed October 30, 2015, and ALGORITHMS FOR GRID LOCATION AWARENESS (GLA) AND ON-GRID MEASUREMENTS, for which we filed a Provisional Patent Application under Provisional Patent Application Number 62/072,891, filed October 30, 2014 (hereinafter referred to as "Applications");

WHEREAS, Astrolink International LLC, a corporation organized under and pursuant to the laws of Delaware, having its principal place of business at 6801 Rockledge Drive, Bethesda, MD, 20817, USA, and Dominion Energy Technologies, Inc., a corporation organized under and pursuant to the laws of Virginia, having its principal place of business at 120 Tredegar Street, Richmond, VA, 23219, USA (hereinafter referred to as "Assignees"), are desirous of

acquiring the entire right, title and interest in and to said invention as described in the Applications, and any and all Letters Patent which shall be granted therefor;

NOW, THEREFORE, To All Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, we, the Assignors, have sold, assigned, transferred and set over unto the Assignees, their successors and assigns, our entire right, title and interest in and to the above-mentioned Applications and invention and in and to any and all Letters Patent of the United States which may hereafter be granted therefor, and in any and to any and all continuations, continuations-in-part, substitutions, divisions or reissues of said Letters Patent, and provisional patent applications to which the above-mentioned Applications claim priority, the same to be held and enjoyed by the Assignees, for their interest, and for their own use and behalf, and the use and behalf of their successors and assigns, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held and enjoyed by us had this assignment and sale not been made.

And for the consideration aforesaid, we hereby covenant and agree to and with the Assignees, their successors and assigns, that we will, whenever their counsel or the counsel of their successors and assigns, learned in the law, shall advise that an amendment, division, continuation, continuation-in-part, or substitution of, or any other proceeding in connection with the Applications, including interference proceedings, is lawful and desirable, sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for the procurement of valid Letters Patent for said invention, or for the reissue of the same without charge to the Assignees, their successors or assigns, but at their expense.

We hereby request the Commissioner for Patents to issue the Letters Patent in accordance

with this instrument.

For the consideration aforesaid, we have sold, assigned, transferred and set over, and by

these presents do sell, assign, transfer and set over, unto the Assignees, their successors, assigns

or nominee, the entire right, title and interest in and to any and all Letters Patent for said

invention which may be granted in countries foreign to the United States and in and to any

applications for Letters Patent which may be filed for said invention in countries foreign to the

United States and in and to the invention described in the Applications; and we hereby authorize

and empower the Assignees, their successors, assigns or nominees to apply for Letters Patent or

other form of protection on said invention in their own name or in the names of their successors,

assignees, or nominees, in any and all countries where it may desire to file such application and

where said application may be filed by another than the inventor; and we hereby covenant and

agree to sign all papers and drawings, take all rightful oaths, and do all acts necessary or required

to be done for procurement of Letters Patent, or other form of protection, for said invention or

inventions in countries foreign to the United States, and for further investing or confirming the

right and title therein to the Assignees, their successors, assignees, or nominees, without charge

to the Assignees, their successors, assignees or nominees, but at their expense.

IN WITNESS WHEREOF, we have hereunto set our hands.

Date	Jerritt Harold Hansell

1 0 2011	ala Drus Box
Apr.1 8, 2016 Date	Alan Drew Barnett
Date	Joseph Robert Reed
Date	Henrik Fernand Bernheim

ASSIGNMENT

This Assignment made by us, **Jerritt Harold Hansell**, residing at 4625 Pitkin Drive, City of Boulder, State of Colorado, **Alan Drew Barnett**, residing at 1133 Rising Hill Way, City of Escondido, State of California, **Joseph Robert Reed**, residing at 1675 Hilcorte Drive, City of Escondido, State of California, and **Henrik Fernand Bernheim**, residing at 7777 East 1st Place, Unit 109, City of Denver, State of Colorado (hereinafter referred to as "Assignors");

WITNESSETH: That,

WHEREAS, we are the joint inventors of certain new and useful improvements in SYSTEM, METHOD, AND APPARATUS FOR GRID LOCATION, for which we have made application for Letters Patent of the United States under U.S. Patent Application Number 14/929,087, filed October 30, 2015, and for which we have executed declarations, SYSTEM, METHOD, AND APPARATUS FOR GRID LOCATION, for which we have filed a PCT Application under PCT Application Number PCT/US15/58492, filed October 30, 2015, and ALGORITHMS FOR GRID LOCATION AWARENESS (GLA) AND ON-GRID MEASUREMENTS, for which we filed a Provisional Patent Application under Provisional Patent Application Number 62/072,891, filed October 30, 2014 (hereinafter referred to as "Applications");

WHEREAS, Astrolink International LLC, a corporation organized under and pursuant to the laws of Delaware, having its principal place of business at 6801 Rockledge Drive, Bethesda, MD, 20817, USA, and Dominion Energy Technologies, Inc., a corporation organized under and pursuant to the laws of Virginia, having its principal place of business at 120 Tredegar Street, Richmond, VA, 23219, USA (hereinafter referred to as "Assignees"), are desirous of

acquiring the entire right, title and interest in and to said invention as described in the Applications, and any and all Letters Patent which shall be granted therefor;

NOW, THEREFORE, To All Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, we, the Assignors, have sold, assigned, transferred and set over unto the Assignees, their successors and assigns, our entire right, title and interest in and to the above-mentioned Applications and invention and in and to any and all Letters Patent of the United States which may hereafter be granted therefor, and in any and to any and all continuations, continuations-in-part, substitutions, divisions or reissues of said Letters Patent, and provisional patent applications to which the above-mentioned Applications claim priority, the same to be held and enjoyed by the Assignees, for their interest, and for their own use and behalf, and the use and behalf of their successors and assigns, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held and enjoyed by us had this assignment and sale not been made.

And for the consideration aforesaid, we hereby covenant and agree to and with the Assignees, their successors and assigns, that we will, whenever their counsel or the counsel of their successors and assigns, learned in the law, shall advise that an amendment, division, continuation, continuation-in-part, or substitution of, or any other proceeding in connection with the Applications, including interference proceedings, is lawful and desirable, sign all papers and drawings, take all rightful oaths, and do all acts necessary or required to be done for the procurement of valid Letters Patent for said invention, or for the reissue of the same without charge to the Assignees, their successors or assigns, but at their expense.

We hereby request the Commissioner for Patents to issue the Letters Patent in accordance

with this instrument.

For the consideration aforesaid, we have sold, assigned, transferred and set over, and by

these presents do sell, assign, transfer and set over, unto the Assignees, their successors, assigns

or nominee, the entire right, title and interest in and to any and all Letters Patent for said

invention which may be granted in countries foreign to the United States and in and to any

applications for Letters Patent which may be filed for said invention in countries foreign to the

United States and in and to the invention described in the Applications; and we hereby authorize

and empower the Assignees, their successors, assigns or nominees to apply for Letters Patent or

other form of protection on said invention in their own name or in the names of their successors,

assignees, or nominees, in any and all countries where it may desire to file such application and

where said application may be filed by another than the inventor; and we hereby covenant and

agree to sign all papers and drawings, take all rightful oaths, and do all acts necessary or required

to be done for procurement of Letters Patent, or other form of protection, for said invention or

inventions in countries foreign to the United States, and for further investing or confirming the

right and title therein to the Assignees, their successors, assignees, or nominees, without charge

to the Assignees, their successors, assignees or nominees, but at their expense.

IN WITNESS WHEREOF, we have hereunto set our hands.

Date Jerritt Harold Hansell

Date	Alan Drew Barnett
0년/14/2이년 Date	Joseph Robert Reed Joseph Robert Reed
Date	Henrik Fernand Bernheim

ASSIGNMENT

This Assignment made by us, Jerritt Harold Hansell, residing at 4625 Pitkin Drive, City of Boulder, State of Colorado, Alan Drew Barnett, residing at 1133 Rising Hill Way, City of Escondido, State of California, Joseph Robert Reed, residing at 1675 Hilcorte Drive, City of Escondido, State of California, and Henrik Fernand Bernheim, residing at 7777 East 1st Place, Unit 109, City of Denver, State of Colorado (hereinafter referred to as "Assignors");

WITNESSETH: That,

WHEREAS, we are the joint inventors of certain new and useful improvements in SYSTEM, METHOD, AND APPARATUS FOR GRID LOCATION, for which we have made application for Letters Patent of the United States under U.S. Patent Application Number 14/929,087, filed October 30, 2015, and for which we have executed declarations, SYSTEM, METHOD, AND APPARATUS FOR GRID LOCATION, for which we have filed a PCT Application under PCT Application Number PCT/US15/58492, filed October 30, 2015, and ALGORITHMS FOR GRID LOCATION AWARENESS (GLA) AND ON-GRID MEASUREMENTS, for which we filed a Provisional Patent Application under Provisional Patent Application Number 62/072,891, filed October 30, 2014 (hereinafter referred to as "Applications");

WHEREAS, Astrolink International LLC, a corporation organized under and pursuant to the laws of Delaware, having its principal place of business at 6801 Rockledge Drive, Bethesda, MD, 20817, USA, and Dominion Energy Technologies, Inc., a corporation organized under and pursuant to the laws of Virginia, having its principal place of business at 120 Tredegar Street, Richmond, VA, 23219, USA (hereinafter referred to as "Assignees"), are desirous of

PATENT (F)
REEL: 044471 FRAME: 0662

acquiring the entire right, title and interest in and to said invention as described in the Applications, and any and all Letters Patent which shall be granted therefor;

NOW, THEREFORE, To All Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, we, the Assignors, have sold, assigned, transferred and set over unto the Assignees, their successors and assigns, our entire right, title and interest in and to the above-mentioned Applications and invention and in and to any and all Letters Patent of the United States which may hereafter be granted therefor, and in any and to any and all continuations, continuations-in-part, substitutions, divisions or reissues of said Letters Patent, and provisional patent applications to which the above-mentioned Applications claim priority, the same to be held and enjoyed by the Assignees, for their interest, and for their own use and behalf, and the use and behalf of their successors and assigns, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held and enjoyed by us had this assignment and sale not been made.

And for the consideration aforesaid, we hereby covenant and agree to and with the Assignees, their successors and assigns, that we will, whenever their counsel or the counsel of their successors and assigns, learned in the law, shall advise that an amendment, division, continuation, continuation-in-part, or substitution of, or any other proceeding in connection with the Applications, including interference proceedings, is lawful and desirable, sign all papers and drawings, take all rightful oaths, and do all acts necessary or reasonably required to be done for the procurement of valid Letters Patent for said invention, or for the reissue of the same without charge to the Assignees, their successors or assigns, but at their expense.

We hereby request the Commissioner for Patents to issue the Letters Patent in accordance

with this instrument.

For the consideration aforesaid, we have sold, assigned, transferred and set over, and by

these presents do sell, assign, transfer and set over, unto the Assignees, their successors, assigns

or nominee, the entire right, title and interest in and to any and all Letters Patent for said

invention which may be granted in countries foreign to the United States and in and to any

applications for Letters Patent which may be filed for said invention in countries foreign to the

United States and in and to the invention described in the Applications; and we hereby authorize

and empower the Assignees, their successors, assigns or nominees to apply for Letters Patent or

other form of protection on said invention in their own name or in the names of their successors,

assignees, or nominees, in any and all countries where it may desire to file such application and

where said application may be filed by another than the inventor; and we hereby covenant and

agree to sign all papers and drawings, take all rightful oaths, and do all acts necessary or reasonably

required to be done for procurement of Letters Patent, or other form of protection, for said invention

or inventions in countries foreign to the United States, and for further investing or confirming the

right and title therein to the Assignees, their successors, assignees, or nominees, without charge

to the Assignees, their successors, assignees or nominees, but at their expense.

IN WITNESS WHEREOF, we have hereunto set our hands.

Jerritt Harold Hansell Date

3 of 4

REEL: 044471 FRAME: 0664

Date	Alan Drew Barnett
Date	Joseph Robert Reed
3/21/16	
/ Date	Henrik Fernand Bernheim