### 502079502 09/28/2012

### PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

### **CONVEYING PARTY DATA**

Name	Execution Date
Staffan NORRGA	09/21/2012
Tomas U. JONSSON	09/20/2012
Anshuman SHUKLA	09/21/2012

### RECEIVING PARTY DATA

Name:	ABB RESEARCH LTD
Street Address:	Affolternstrasse 44
City:	Zurich
State/Country:	SWITZERLAND
Postal Code:	8050

### PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13582293

### CORRESPONDENCE DATA

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Address Line 4: Falls Church, VIRGINIA 22040-0747

ATTORNEY DOCKET NUMBER:	6046-0142PUS1	
NAME OF SUBMITTED	naul c lewis	

### Total Attachments: 6

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PATENT REEL: 029051 FRAME: 0219 OF \$40.00 1558Z83

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ATTORNEY DOCKET NO. 6046-0142PUS1

## BIRCH, STEWART, KOLASCH & BIRCH, LLP

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

## **ASSIGNMENT**

Application No	o. <u>13/582,293</u>	Filed	August 31, 2012	
Insert Name(s) of Inventor(s)	***(Given Name FAMILY NAME (ALL CAPS))***			
or inventor(s)	WHEREAS, Staffan NORRGA, Tomas U J undersigned) has (have) invented certain new	ONSSON, and useful	Anshuman SHUKLA (hereinafter designated as the improvements in:	
Insert Title of Invention				
	for which an application for Letters Patent undersigned (except in the case of a provision	of the Unal applicat	nited States of America has been executed by the tion)	
Insert Date of Signing of	On Septemb	er 21, 2	2012 ; and	
Application Insert Name of Assignee Insert Address	WHEREAS, ABB RESEARCH LTD of Affolternstrasse 44, 8050 ZÜRICH, Switz	erland		
of Assignee  CHECK BOX  IF APPROPRIATE	its heirs, successors, legal representatives and acquiring the entire right, title and interest in may be granted therefor in the United States of in any foreign countries.	and to sa	nereinafter designated as the Assignee) is desirous of id invention and in and to any Letters Patent(s) that and	
	the undersigned has (have) sold, assigned a transfer unto said Assignee the full and exclu- its territories, dependencies and possessions Letters Patent(s) which may be granted dependencies and possessions, and if the box	and transfe sive right t and the e therefor it above is	ation, the receipt of which is hereby acknowledged, erred, and by these presents does sell, assign and o the said invention in the United States of America, entire right, title and interest in and to any and all n the United States of America, its territories, designated, in any and all foreign countries; and to ons and extensions thereof for the full term or terms	

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Page 1 of 2

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 Letter 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 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 Patents 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 Sept 21, 2012	Name of Inventor
	(signature) Staffan NORRGA
Date,	Name of Inventor (signature) Tomas U JONSSON
Date,	Name of Inventor (signature) Anshuman SHUKLA
Date,	Name of Inventor
Date,	(signature)  Name of Inventor
Date,	(signature) Name of Inventor
	(signature)

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## **ASSIGNMENT**

Application No	o. <u>13/582,293</u>	Filed	August 31, 2012
Insert Name(s) of Inventor(s)	***(Given Name FAMILY N	VAME (ALL CAPS)	)***
<b>,</b>	WHEREAS, Staffan NORRGA, Tomas undersigned) has (have) invented certain	s U JONSSON, new and usefu	Anshuman SHUKLA (hereinafter designated as the limprovements in:
Insert Title of Invention	AC/DC CONVERTER STATION AND A METHOD OF OPERATING AN AC/DC CONVERSITATION		
	for which an application for Letters P undersigned (except in the case of a prov	atent of the Uvisional applica	nited States of America has been executed by th
Insert Date of Signing of	On September	20, 2012	; an
Application Insert Name of Assignee Insert Address	WHEREAS, ABB RESEARCH LTD	Sundan and a side	
of Assignee	of Affolternstrasse 44, 8050 ZÜRICH, S		hereinafter designated as the Assignee) is desirous of
	acquiring the entire right, title and intermay be granted therefor in the United Sta	est in and to sa	id invention and in and to any Letters Patent(s) that
CHECK BOX IF APPROPRIATE	in any foreign countries.		
	the undersigned has (have) sold, assign transfer unto said Assignee the full and e its territories, dependencies and possess Letters Patent(s) which may be gran dependencies and possessions, and if the	ned and transfi exclusive right to sions and the ented therefor in the box above is	ation, the receipt of which is hereby acknowledged erred, and by these presents does sell, assign and to the said invention in the United States of America entire right, title and interest in and to any and all in the United States of America, its territories designated, in any and all foreign countries; and to the said extensions thereof for the full term or terms

BIRCH, STEWART, KOLASCH & BIRCH, LLP

Page 1 of 2

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### ATTORNEY DOCKET NO. 6046-0142PUS1

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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 Letter 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 val 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 Unit. States of America and in any foreign countries to issue any and all Letters Patents 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.

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

Date,	Name of Inventor
Date 2012-08-20,	(signature) Staffan NORRGA  Name of Inventor  Tomas J JONSSON
Date,	Name of Inventor
	(signature) Anshuman SHUKLA
Date,	Name of Inventor
Date,	(signature) Name of Inventor
	(signature)
Date,	Name of Inventor
	(signature)

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Insert Name(s) of Inventor(s)			
or an exercise	WHEREAS, Staffan NORRGA, Tomas U J undersigned) has (have) invented certain new	IONSSON, And useful in	nshuman SHUKLA (hereinafter designated as the approvements in:
Insert Title of Invention	AC/DC CONVERTER STATION AND STATION	A METHOD	OF OPERATING AN AC/DC CONVERTER
	for which an application for Letters Paten undersigned (except in the case of a provision	nt of the Unite nal application	ed States of America has been executed by the
Insert Date of Signing of	On Septemb	er 21, 201	12 ; and
Application Insert Name of Assignee Insert Address of Assignee  it	WHEREAS, ABB RESEARCH LTD of Affolternstrasse 44, 8050 ZÜRICH, Switz its heirs, successors, legal representatives an acquiring the option right title and interest.	d assigns (here	einafter designated as the Assignee) is desirous of
CHECK BOX IF APPROPRIATE	may be granted therefor in the United States  in any foreign countries.	of America an	invention and in and to any Letters Patent(s) that and
	the undersigned has (have) sold, assigned transfer unto said Assignee the full and exclu- its territories, dependencies and possessions Letters Patent(s) which may be granted dependencies and possessions, and if the bo	and transferred asive right to the sand the entire therefor in the table x above is designed.	on, the receipt of which is hereby acknowledged, ed, and by these presents does sell, assign and the said invention in the United States of America, ire right, title and interest in and to any and all the United States of America, its territories, signated, in any and all foreign countries; and to and extensions thereof for the full term or terms

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Page 1 of 2

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

Name of Inventor	
	(signature) Staffan NORRGA
Name of Inventor	
	(signature) Tomas U JONSSON
Name of Inventor	Anshuman shukla
	(signature) Anshuman SHUKLA
Name of Inventor	
	(signature)
Name of Inventor	
	(signature)
Name of Inventor	
	(signature)
	Name of Inventor  Name of Inventor  Name of Inventor

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