505863470 01/14/2020

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
KHALED SHAWKY HASSAN HUSSEIN	12/23/2019
RUDRAKSH SHRIVASTAVA	12/12/2019
THOMAS HEYN	11/29/2019
BERNHARD NIEMANN	11/29/2019

RECEIVING PARTY DATA

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PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16683793

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	PJK5283592
NAME OF SUBMITTER:	DAHYE EVANS
SIGNATURE:	/Dahye Evans/
DATE SIGNED:	01/14/2020

Total Attachments: 4

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PATENT REEL: 051510 FRAME: 0846

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ASSIGNMENT

WHEREAS I/We, the below named inventor(s) (hereinafter referred to as Assignor(s)), have made an invention entitled:

FULL DUPLEXING DOWNLINK AND UPLINK DIRECTIONS

for which I/WE executed an application for United States Letters Patent that was filed or will be filed in the United States Patent and Trademark Office; and

WHEREAS, Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., a corporation of Germany, whose post office address is Hansastraße 27c 80686 München, Germany (hereinafter referred to as Assignee), is desirous of securing the entire right, title, and interest in and to this invention, the application for United States Letters Patent on this invention and the Letters Patent to be issued upon this application;

NOW THEREFORE, be it known that, for good and valuable consideration the receipt of which from Assignee(s) is hereby acknowledged, I/We, as Assignor(s), have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee(s), its/their lawful successors and assigns, my/our entire right, title, and interest in and to this invention and this application, and all divisions, and continuations thereof, and all Letters Patent of the United States which may be granted thereon, and all reissues thereof; and I/We hereby authorize and request the Director of United States Patent and Trademark Office to issue all Letters Patent for this invention to Assignee(s), its/their successors and assigns, in accordance with the terms of this Assignment;

AND, I/WE HEREBY covenant that I/We have the full right to convey the interest assigned by this Assignment, and I/We have not executed and will not execute any agreement in conflict with this Assignment;

AND, I/WE HEREBY further covenant and agree that I/We will, without further consideration, communicate with Assignce(s), its/their successors and assigns, any facts known to me/us respecting this invention, and testify in any legal proceeding, sign all lawful papers when called upon to do so, execute and deliver all papers that may be necessary or desirable to perfect the title to this invention in said Assignce(s), its/their successors and assigns, execute all divisional, continuation, and reissue

applications, make all rightful oaths and generally do everything possible to aid Assignee(s), its/their successors and assigns, to obtain and enforce proper patent protection for this invention in the United States, it being understood that any expense incident to the execution of such papers shall be borne by the Assignec(s), its/their successors and assigns.

AND, L	WE HEREBY authorize and request the attorneys I/we have empowered in	the Power of
Attorney in this	application, to insert here in parentheses (Application No. 16/683,793	filed on
November 14, 201	9 the filing date and application number of said application when kno	own.

IN TESTIMONY WHEREOF, I/We have hereunto set our hands,

I. PULL NAME OF SOLE OR FIRST ASSIGNOR HASSAN HUSSEIN, Khaled Shawky	ASSIGNOPES SIGNATURE 4U/1	^{рате} 23.12 - 2019
Rotkappenweg 2, 91058 Erlangen, Germany		citizensur Egypt
2. FULL NAME OF SECOND ASSIGNOR SHRIVASTAVA, Rudraksh	ASSIGNOR'S SIGNATURE	DATE
ADDRESS Nürnberger Str. 125, 90762 Fürth, Germany		СПІХЕМЅНІР India
3. FULL NAME OF THIRD ASSIGNOR HEYN, Thomas	ASSIGNOR'S SIGNATURE	DATE
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4. FULL NAME OF FOURTH ASSIGNOR NIEMANN, Bernhard	ASSIGNOR'S SIGNATURE	DATE
ADDRESS Finkenweg 16, 91056 Erlangen, Germany		CITIZENSHIP Germany

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Attorney in this application, to insert here in parentheses (Application No. 16/683,793 , filed on	
November 14, 2019 the filing date and application number of said application when known.	

IN TESTIMONY WHEREOF, I/We have hereunto set our hands,

I. FULL NAME OF SOLE OR FIRST ASSIGNOR	ASSIGNOR'S SIGNATURE	Train representations
8	Magigiror a signations	DATE
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Shawky		
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FULL NAME OF FOURTH ASSIGNOR	ASSIGNOR'S SIGNATURE	DATE
NIEMANN, Bernhard		
ADDRESS		CITIZENSHIP
Finkenweg 16, 91056 Erlangen, Germany		Germany
	,	<u> </u>

applications, make all rightful oaths and generally do everything possible to aid Assignee(s), its/their successors and assigns, to obtain and enforce proper patent protection for this invention in the United States, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee(s), its/their successors and assigns.

AND, I/WE HEREBY authorize and request the attorneys I/we have empowered in the Power of Attorney in this application, to insert here in parentheses (Application No. 16/683,793 , filed on on November 14, 2019) the filing date and application number of said application when known.

IN TESTIMONY WHEREOF, I/We have hereunto set our hands.

HASSAN HUSSEIN, Khaled	ASSIGNOR'S SIGNATURE	DATE
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3. FULL NAME OF THIRD ASSIGNOR HEYN, Thomas	ASSIONOR'S SIGNATURE	29/1/19
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Kopernikusstraße 53, 90766 Fürth, Germany		Germany
NIEMANN, Bernhard	ASSIGNOR'S SIGNATURE	DATE 29. //. / 9
ADDRESS		CITIZENSHIP
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PATENT REEL: 051510 FRAME: 0851

RECORDED: 01/14/2020