01/22/2019 505289470

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
ERDEM BALA	10/09/2018
ALPHAN SAHIN	10/29/2018
MOON-IL LEE	10/18/2018
AFSHIN HAGHIGHAT	10/09/2018
ANANTH KINI	10/09/2018
MIHAELA C. BELURI	10/19/2018
RUI YANG	10/24/2018
JANET A. STERN-BERKOWITZ	11/01/2018
LEONID L. KAZAKEVICH	10/31/2018

RECEIVING PARTY DATA

Name:	IDAC HOLDINGS, INC.
Street Address:	200 BELLEVUE PARKWAY
Internal Address:	SUITE 300
City:	WILMINGTON
State/Country:	DELAWARE
Postal Code:	19809

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16089246

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER: IDC-13006US02

REEL: 048090 FRAME: 0946 505289470

PAIENI

NAME OF SUBMITTER:	JONATHAN M. DUNSAY
SIGNATURE:	/Jonathan M. Dunsay/
DATE SIGNED:	01/22/2019
Total Attachments: 12	
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PATENT REEL: 048090 FRAME: 0947 Docket No.: IDC-13006US02

PATENT ASSIGNMENT

WHEREAS, I/We,

- Erdem Bala
 East Meadow, New York
 United States of America
- 3. Moon-il Lee
 Melville, New York
 United States of America
- 5. Ananth Kini
 East Norriton, Pennsylvania
 United States of America
- 7. Rui Yang Greenlawn, New York United States of America
- 9. Leonid L. Kazakevich
 Plainview, New York
 United States of America

- 2. Alphan Sahin
 Westbury, New York
 United States of America
- 4. Afshin Haghighat Ile-Bizard, Quebec Canada
- 6. Mihaela C. Beluri Jericho, New York United States of America
- 8. Janet A. Stern-Berkowitz Little Neck, New York United States of America

(hereinafter "Assignor(s)"), are sole/joint inventor(s) of certain inventions or improvements set forth in United States Patent Application No. 16/089,246, filed September 27, 2018, entitled:

METHODS AND PROCEDURES TO IMPROVE PHYSICAL LAYER EFFICIENCY USING UNIQUE WORD (UW) DISCRETE FOURIER TRANSFORM SPREAD ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING (DFT-S-OFDM) ("Patent Application"); and

WHEREAS, IDAC Holdings, Inc., a Delaware corporation having a place of business at 200 Bellevue Parkway, Suite 300, Wilmington, DE 19809 (hereinafter "Assignee"), is desirous of acquiring the entire right, title and interest in, to and under the Patent Application; the inventions, discoveries and improvements disclosed or claimed therein ("Inventions"); and any and all patents, certificates of invention, utility models and other forms of protection which may be granted thereon or as a result thereof in any and all countries ("Patents").

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, and intending to be legally bound hereby, I/we, the undersigned Assignor(s), hereby agree to sell, assign, transfer and convey, and by these presents do sell, assign, transfer and convey to Assignee, our entire right, title and interest in and to any and all of the following:

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PATENT REEL: 048090 FRAME: 0948 PATENT ASSIGNMENT Docket No.: IDC-13006US02

- i. the Patent Application, the Inventions and the Patents, for the United States, its possessions and territories and all foreign countries and territories;
- ii. the rights of priority created by the Patent Application and the Patents under any treaty relating thereto, including the rights to apply for Patents covering the Inventions in any and all countries:
- iii. any and all patent applications and Patents resulting from the Patent Application or covering the Inventions in any and all countries, including provisionals, non-provisionals, divisionals, continuations, continuations-in-part, renewals, substitutions, extensions, reissues and re-examinations thereof;
- iv. all past, present and future causes of action and enforcement rights, whether currently pending, filed or otherwise, in connection with the Patent Application, the Inventions, the Patents, or the patents and patent applications resulting therefrom, including without limitation, all rights to sue for any past, present or future infringements thereof, including the rights to license and to collect and receive any damages, royalties, injunctive relief, and/or any other settlements or remedies for such infringements, and including any provisional rights having arisen from any publication of the Patent Application or any patent application resulting therefrom;

the same to be held and enjoyed by Assignee for its own use and enjoyment, and for the use and enjoyment of its successors, assigns and other legal representatives, as fully and entirely as the same would have been held and enjoyed by Assignor(s), if this Assignment and sale had not been made.

AND for the aforesaid consideration Assignor(s) hereby covenant, agree and undertake to execute and deliver to Assignee, its successors, assigns, nominees, or legal representatives, whenever requested and without undue delay, all patent applications, assignments, oaths and any other papers which Assignee may deem necessary or desirable for securing to or maintaining for the Assignee the Patent Application, the Patents and the Inventions hereby assigned, and each of the undersigned Assignor(s) agrees to communicate to Assignee or to its nominee all known facts respecting the Patent Application, the Patents and the Inventions, to testify in any legal or administrative proceeding related thereto, and generally to cooperate with and do everything possible to aid Assignee, its successors, assigns, nominees and legal representatives to obtain and enforce for their own benefit proper patent protection for the Inventions in any and all countries, all without further compensation to the undersigned Assignor(s).

AND Assignor(s) hereby authorize and request the Commissioner of Patents and Trademarks of the United States and any official of any country or countries foreign to the United States whose duty it is to issue patents on applications as aforesaid, to issue to Assignee, as Assignee of the entire right, title and interest, any and all Patents for the Inventions that may be issued and granted on or as a result of the Patent Application, in accordance with the terms of this assignment.

PATENT ASSIGNMENT Docket No.: IDC-13006US02

AND Assignor(s) hereby authorize Assignee or Assignee's representative to insert the application number and/or filing date of the Patent Application if they are unknown at the time of execution of this Assignment.

AND Assignor(s) hereby covenant that Assignor(s) have full right to convey the entire interest herein assigned, and that Assignor(s) have not executed and will not execute any agreement in conflict herewith.

AND this Assignment may be executed in multiple counterparts, each of which shall be deemed to be an original of this Assignment. Additionally, we/I hereby authorize Assignee or Assignee's representative to collect the signature pages of each executed counterpart and to attach those signature pages to a single copy of this instrument, which single copy and attached signature pages together shall constitute an original of this Assignment.

IN WITNESS WHEREOF, we/I have hereunto set our hands and seals.

10-9-18		
Date	Trilem Bala	
Signed at	MELVILLE, NEW YOR	CUSA
(City and Country)		
STATEMENT OF WITNESS: I,	Name of Witzess	2722 2 HUNTINGTON QUADRANGLE
whose full address is:		MELVILLE, NY 11747 USA
	Address of Witnes	S
was personally present and did see E	rdem Bala execute this A	ssignment on the day of onally known to me to be the
person described herein.	Signature	DE WANGES

PATENT ASSIGNMENT		
Docket No.: IDC-13006US02	*	
10-39-18 Date	Alphan Sahin	
Signed at	MELVILLE, NEW YORK USA	
(City and Country)		
STATEMENT OF WITNESS: I, _	Migaly Lyona Name of Wilness	
whose full address is:	2 HUNTINGTON QUADRANGLE 4TH FLOOR/SOUTH WING MELVILLE, NY 11747 USA Address of Witness	
was personally present and did see	Alphan Sahin execute this Assignment on the day of and such Assignor is personally known to me to be the	
person described herein.		mill.
	Signature of Witness	

Moon-il Lee	
MELVILLE, NEW Y	ORK USA
Mame of Witness	2 HUNTINGTON QUADRANGLE
	4TH FLOOR/SOUTH WING MELVILLE, NY 11747 USA
Address of Witnes	SS
oon-il Lee execute this A	ssignment on theday of
Signature	Witness
4	Name of Witness Address of Witness on-il Lee execute this A

Date Afshin Hughighat
Signed at(City and Country)
STATEMENT OF WITNESS: I, BONIO 422019 Name of Witness
whose full address is: 1つころいとしょうしょうしょうしょうしょうしょうしょうしょうしょうしょうしょうしょうしょうし
was personally present and did see Afshin Haghighat execute this Assignment on the
O minimum management of the contract of the co

Signature of Witness

<u>Oct 9, 20</u> 18 Date	Ananth Kini
1001 E. Hector St Signed at Conshohocken, P.	
(City and Country)	
STATEMENT OF WITNESS: I,	Tani L. Kliefoth Name of Witness
	Address of Witness
	nth Kini execute this Assignment on theday of d such Assignor is personally known to me to be the
person described herein.	
	Signature of Witness

10-19-18	
10-/9-/8 Date	Mihaela C. Beluri
Signed at(City and Country)	MELVILLE, NEW YORK USA
(City and Country)	
STATEMENT OF WITNESS: I,	Maine of Witness
whose full address is:	A MANAGEMENT AND AND A SECOND OF THE SECOND
was personally present and did see Mi	ihaela C. Beluri execute this Assignment on the
person described herein.	Signature of Witness

<u>/リーよ リー</u> /5 Date	Núi Yang
Daic	Brees reserve
Signed at	MELVILE, NEW YORK USA
(City and Country)	
STATEMENT OF WITNESS: I,	Name of Witness
	2 HUNTINGTON QUADRANGLE
whose full address is:	4TH FLOOM/SOUTH WING
	Address of Witness
was personally present and did see Ru	ni Yang execute this Assignment on the day of and such Assignor is personally known to me to be the
person described herein.	
	Signature of Witness /
	· V

	Land San Behor
Date	Jánet A. Stern-Berkowitz
Signed at	FELVILLE, NEW YORK USA
(City and Country)	
STATEMENT OF WITNESS: I,	Name of Witness
whose full address is:	2 Huntington Quadrangle 4th Floor/South Wing Melville, NY 11747 USA
	Address of Witness
was personally present and did see Janet A. Stern-Berkowitz execute this Assignment on the day of, 26 and such Assignor is personally	
known to me to be the person describ	ed herein. Signature of Witness
	magazina na river a canama

10-31-18	1.
Date	Leonid L. Knzákevich
Signed at	MELVILLE, NEW YORK USA
(City and Country)	
STATEMENT OF WITNESS: I,	Mady QU Name of Witness
whose full address is:	2 Huntington Quadrangle 4th Floor/South Wing
	Address of Witness
	onid L. Kazakevich execute this Assignment on the, 20 and such Assignor is personally
known to me to be the person describe	
	Signature of Witness