PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
CYRUS DHALLA	03/22/2017
JONATHAN KRAUSS	03/21/2017
SCOTT M. TAKAHASHI	03/21/2017
GERALD R. FISCHER	03/21/2017
DOUGLAS S. COCKFIELD	03/21/2017
AKOP GAZDZHYAN	03/21/2017

RECEIVING PARTY DATA

Name:	NORTHROP GRUMMAN SYSTEMS CORPORATION
Street Address:	2980 FAIRVIEW PARK DRIVE
City:	FALLS CHURCH
State/Country:	VIRGINIA
Postal Code:	22042-4511

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15468198

CORRESPONDENCE DATA

Fax Number: (312)346-2810

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: 312-346-2800

Email: info@cplawgroup.com

PATTI & MALVONE LAW GROUP, LLC **Correspondent Name:** ONE NORTH LASALLE ST., 44TH FLOOR Address Line 1:

Address Line 4: CHICAGO, ILLINOIS 60602

ATTORNEY DOCKET NUMBER:	NGC-487/008552-0030
NAME OF SUBMITTER:	CARMEN B. PATTI
SIGNATURE:	/Carmen B Patti/
DATE SIGNED:	03/24/2017

Total Attachments: 7

PATENT REEL: 041718 FRAME: 0031

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PATENT REEL: 041718 FRAME: 0032

ASSIGNMENT

WHEREAS	S, I, Cyrus Dhalla	, hereinafter referred to as Assignor
together with	Jonathan Krauss, Scott M. Takahashi, Gerald	R. Fischer, Douglas S. Cockfield and Akop Gazdzhyan
	ed certain new and useful improvements inC	LOCK AND FRAME SYNCHRONIZATION CARRIED AS A SINGLE
COMPOSITE SIG		IISSION LINE WITH A NARROWER BANDWIDTH

described in an application for United States Letters Patent, executed by me on the date as stated below;

WHEREAS, Northrop Grumman Systems Corporation, a Delaware corporation, having its principal place of business at

2980 Fairview Park Drive Falls Church, VA 22042-4511 United States of America

hereinafter referred to as Assignee, is desirous of acquiring the entire right, title and interest in, to and under said improvements and said application:

NOW, THEREFORE, in consideration of Assignor's obligations to Northrop Grumman Systems Corporation, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, Assignor's entire right, title and interest in, to and under said improvements, and said application and all divisions, renewals, continuations, and continuations-in-part thereof, and all United States Letters patent that may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent that may hereafter be filed for said improvements in any country or countries foreign to the United States, including the full right to claim for any such application the priority benefits of the International Convention for the Protection of Industrial Property and other priority-conferring treaties, and all Letters Patent that may be granted for said improvements in any country or countries foreign to the United States and all extensions, divisions, continuations, continuations-in-part, renewals and reissues thereof; and Assignor hereby authorizes and requests 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 all Letters Patent for said improvements to said Assignee, its successors, legal representatives and assigns, in accordance with the terms of this instrument;

Assignor hereby acknowledges that at the time of making the improvements herein identified, Assignor was under an obligation to assign to Assignee, Assignor's entire right, title and interest in, to and under said improvements:

Assignor hereby covenants that Assignor has full right to convey the interest herein assigned, and that Assignor has not executed, and will not execute, any agreement in conflict herewith and that Assignee, Northrop Grumman Systems Corporation, its successors, assigns and other legal representatives shall have the right to hold and enjoy for its and their own use and benefit, to the end of the term or terms for which such Letters Patent shall or may be granted, reissued or extended as fully and completely as the same right could have been held and enjoyed by Assignor had this Assignment not been made.

Assignor hereby further covenants and agrees to communicate to Assignee, its successors, legal representatives and assigns, any and all facts known to Assignor respecting said improvements; to promptly provide Assignee with all documents relating to said improvements, said invention, and said Letters Patent as may be known or accessible to Assignor; to testify as to the same in any interference or litigation or other legal proceedings related thereto; to sign all lawful papers, execute all extensions, continuations, continuations-in-part, divisional and reissue applications; and to make all rightful oaths or declarations and generally do everything possible to aid Assignee, its successors, legal representatives and assigns in obtaining and enforcing all the rights herein conveyed for said improvements in all countries without further compensation, but at the expense of Assignee, its successors, legal representatives and assigns.

PATENT REEL: 041718 FRAME: 0033

IN WITNESS WHEREOF, the unders	igned has executed and delivered this instrument this day of the referenced patent application on the day of
2017.	Cyrus Dialla
	certificate verifies only the identity of the individual who signed the document to athlutness, accuracy, or validity of that document.
STATE OF CALIFORNIA) .ss COUNTY OF LOS ANGELES)	
the the pasts of substantity extremes to be the be	re me, Lorna L. Schott, Notary Public, personally appeared Cyrus Dhalla proved to me rson(s) whose name(s) is/ase subscribed to this instrument and acknowledged to me in-authorized capacity(jes), and that by his/hes/their signature(s) on the instrument to be the person(s) acted, executed the instrument.
I certify under PENALTY OF PERJURY under	the laws of the State of California that the foregoing paragraph is true and correct.
WITNESS my hand and official seal Harry Schitter	LORNA L. SCHOTT Commission # 2129330 Notary Public - California Los Angeles County My Comm. Expires Nov 3, 2019
Notary's Signature	(Seal)

IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this
fact to
Jonathan Krauss
A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.
STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES)
On Yard 2. , 2017 before me, Lorna L. Schott, Notary Public, personally appeared Jonathan Krauss, proved to me on the basis of satisfactory evidence to be the person(s/ whose name(s) is/apc subscribed to this instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(jos), and that by his/her/their signature(s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.
I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.
WITNESS my hand and official seal
CORNA L. SCHOTT Commission # 2129330 Notary Public - California Los Angeles County My Comm. Expires Nov 3, 2019
Notary's Signature (Seal)

IN WITNESS WHEREOF, the undersigned has executed a MARCHAE, 2017, and has executed the referenced paten 2017.	nd delivered this instrument this 21 day of t application on the 21 day of Flactor,
	DALL.
Scott	M. Takahashi (*
A notary public or other officer completing this certificate verifies of which this certificate is attached, and not the truthfulness, accuracy,	nly the identity of the individual who signed the document to or validity of that document.
STATE OF CALIFORNIA)) ss COUNTY OF LOS ANGELES)	
On Nove 2 , 2017 before me, Lorna L. Scho proved to me on the basis of satisfactory evidence to be the person(s) acknowledged to me that he/she/they executed the same in his/her/the on the instrument to be the person(s), or the entity upon behalf of whi	ir authorized capacity(jes), and that by his/her/their signature/s)
I certify under PENALTY OF PERJURY under the laws of the State	of California that the foregoing paragraph is true and correct.
WITNESS my hand and official scal	LORINA L. SCHOTT Commission # 2129330 Notary Public - California Los Angeles County My Comm. Expires Nov 3, 2019
Notary's Signature	(Seal)

IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this 2/3 day of MARC 4. 2017, and has executed the referenced patent application on the 21 to day of MARC 4.
Gerald R. Fischer
A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.
STATE OF VIRGINIA) ss COUNTY OF PAGE On
Notary's Signature (Seal)

	IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this 2 day of March, 2017, and has executed the referenced patent application on the 2 day of March, 2017.
	Orlet. Collif
	Douglas S. Cockfield
600000000000000000000000000000000000000	A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.
	STATE OF CALIFORNIA) ss COUNTY OF LOS ANCIELES Lincol VIC On March 15 ⁺ , 2017 before me, Cary Land Jones, personally appeared Desigla 5 Stewart Cock field, proved to me on the basis of satisfactory evidence to be the person(s) whose name (s) share subscribed to this instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized/capacity(ies), and that by his/her/their(signature)s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.
	WITNESS my hand and official seal OFFICIAL STAMP GARY LANE JONES NOTARY PUBLIC-OREGON COMMISSION NO. 954188 MY COMMISSION EXPIRES SEPTEMBER 05, 2020

IN WITNESS WHERECE 2017, and 2017.	IF, the undersigned has executed and delivered this instrument this
	Akop Gazdzhyun
A notary public or other officer of which this certificate is attached, a	empleting this certificate verifies only the identity of the individual who signed the document to and not the truthfulness, accuracy, or validity of that document.
STATE OF CALIFORNIA COUNTY OF LOS ANGELES) ss)
me that he/she/they executed the sa	
	JURY under the laws of the State of California that the foregoing paragraph is true and correct.
WITNESS my hand and official sec	LORNA L. SCHOTT Commission # 2129330 Notary Public - California Los Angeles County My Comm. Expires Nov 3, 2019
Notary's Signature	(Seal)