

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT6456002

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST
CONVEYING PARTY DATA	
Name	Execution Date
HUGHES NETWORK SYSTEMS, LLC	11/24/2020
RECEIVING PARTY DATA	
Name:	U.S. BANK NATIONAL ASSOCIATION, AS COLLATERAL AGENT
Street Address:	60 LIVINGSTON AVE.
City:	SAINT PAUL
State/Country:	MINNESOTA
Postal Code:	55107
PROPERTY NUMBERS Total: 14	
Property Type	Number
Patent Number:	10740656
Patent Number:	10727977
Patent Number:	10749667
Patent Number:	10791162
Patent Number:	10750399
Patent Number:	10727949
Patent Number:	10708001
Patent Number:	10735087
Patent Number:	10791658
Patent Number:	10715618
Application Number:	17031431
Application Number:	16945347
Application Number:	17022389
Application Number:	17030291
CORRESPONDENCE DATA	
Fax Number:	
<i>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.</i>	
Email:	cory.myers@hughes.com
Correspondent Name:	HUGHES NETWORK SYSTEMS, LLC

Address Line 1: 11717 EXPLORATION LANE
Address Line 4: GERMANTOWN, MARYLAND 20876

NAME OF SUBMITTER: CORY L MYERS

SIGNATURE: /Cory L. Myers/

DATE SIGNED: 12/17/2020

Total Attachments: 5

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Patent Security Agreement

Patent Security Agreement, dated as of November 24, 2020, by Hughes Network Systems, LLC, a Delaware limited liability company (the "Pledgor"), in favor of U.S. Bank National Association, in its capacity as collateral agent (the "Collateral Agent") pursuant to that certain Secured Indenture dated as of July 27, 2016, by and among Hughes Satellite Systems Corporation, the guarantors party thereto, and the Collateral Agent as collateral agent and trustee (as supplemented, the "2016 Indenture").

WITNESSETH:

WHEREAS, the Pledgor is a party to a Security Agreement dated as of June 8, 2011 as supplemented by the Joinder Agreement, dated as of March 28, 2014, the Additional Secured Party Joinder, dated as of July 27, 2016 and the Joinder Agreements dated as of March 23, 2017, August 10, 2017 and June 12, 2019 (as amended, amended and restated, supplemented or otherwise modified from time to time, the "Security Agreement") in favor of the Collateral Agent pursuant to which the Pledgor is required to execute and deliver this Patent Security Agreement;

NOW, THEREFORE, in consideration of the premises and to induce the Collateral Agent, for the benefit of the Secured Parties, to enter into each Indenture, the Pledgor hereby agrees with the Collateral Agent as follows:

SECTION 1. Defined Terms. Unless otherwise defined herein, terms defined in the Security Agreement and used herein have the meaning given to them in the Security Agreement.

SECTION 2. Grant of Security Interest in Patent Collateral. The Pledgor hereby pledges and grants to the Collateral Agent for the benefit of the Secured Parties a lien on and security interest in and to all of its right, title and interest in, to and under all the following Pledged Collateral of the Pledgor:

- (a) Patents of the Pledgor listed on Schedule I attached hereto; and
- (b) all Proceeds of any and all of the foregoing (other than Excluded Property).

SECTION 3. Security Agreement. The security interest granted pursuant to this Patent Security Agreement is granted pursuant to the security interest granted to the Collateral Agent under the Security Agreement and the Pledgor hereby acknowledges and affirms that the rights and remedies of the Collateral Agent with respect to the security interest in the Patents made and granted hereby are more fully set forth in the Security Agreement, the terms and provisions of which are incorporated by reference herein as if fully set forth herein. In the event that any provision of this Patent Security Agreement is deemed to conflict with the Security Agreement, the provisions of the Security Agreement shall control unless the Collateral Agent shall otherwise determine.

SECTION 4. Termination. Upon the payment in full of the Secured Obligations and termination of the Security Agreement, the Collateral Agent shall execute, acknowledge, and deliver to the Pledgor an instrument in writing in recordable form releasing the collateral pledge, grant, assignment, lien and security interest in the Patents under this Patent Security Agreement.

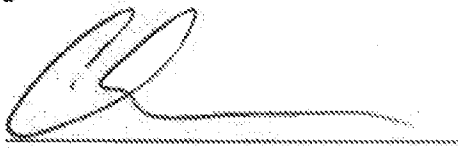
SECTION 5. Counterparts. This Patent Security Agreement may be executed in any number of counterparts, all of which shall constitute one and the same instrument, and any party hereto may execute this Patent Security Agreement by signing and delivering one or more counterparts.

SECTION 6. Governing Law. This Patent Security Agreement and the transactions contemplated hereby, and all disputes between the parties under or relating to this Patent Security Agreement or the facts or circumstances leading to its execution, whether in contract, tort or otherwise, shall be construed in accordance with and governed by the laws (including statutes of limitation) of the State of New York, without regard to conflicts of law principles that would require the application of the laws of another jurisdiction.

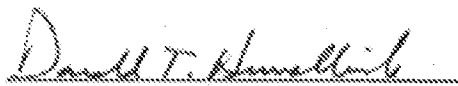
[signature page follows]

IN WITNESS WHEREOF, the Pledgor and the Collateral Agent have caused this Patent Security Agreement to be duly executed and delivered by their duly authorized officer as of the date first set forth above.

HUGHES NETWORK SYSTEMS, LLC,
as Pledgor

By: 
Name: Dean A. Manson
Title: Executive Vice President, General Counsel
and Secretary

U.S. BANK NATIONAL ASSOCIATION,
as Collateral Agent

By: 
Name: Donald T. Hurrelbrink
Title: Vice President

SCHEDULE I
to
PATENT SECURITY AGREEMENT
PATENT REGISTRATIONS AND PATENT APPLICATIONS

United States Patent Registrations:

Company	Patent No.	Patent Name
Hughes Network Systems, LLC	10,740,656	MACHINE LEARNING CLUSTERING MODELS FOR DETERMINING THE CONDITION OF A COMMUNICATION SYSTEM
Hughes Network Systems, LLC	10,727,977	SYSTEM AND METHOD FOR IMPROVING FORWARD ERROR CORRECTION EFFICIENCY
Hughes Network Systems, LLC	10,749,667	SYSTEM AND METHOD FOR PROVIDING SATELLITE GTP ACCELERATION FOR SECURE CELLULAR BACKHAUL OVER SATELLITE
Hughes Network Systems, LLC	10,791,162	PROVISION OF BEST QOS VIA DYNAMIC APPLICATION LAYER THROUGHPUT SHAPING IN ADAPTIVE VIDEO STREAMING
Hughes Network Systems, LLC	10,750,399	SATELLITE USER TERMINAL GATEWAY FOR A SATELLITE COMMUNICATION NETWORK
Hughes Network Systems, LLC	10,727,949	SYSTEMS AND METHODS FOR HIGH-ALTITUDE RADIO/OPTICAL HYBRID PLATFORM
Hughes Network Systems, LLC	10,708,001	SYSTEM AND METHOD OF LOCAL RETRANSMISSION OF TCP/IP FRAMES
Hughes Network Systems, LLC	10,735,087	INTERFERENCE REDUCTION WITH OPTIMIZED BANDWIDTH UTILIZATION
Hughes Network Systems, LLC	10,791,658	LOW NOISE AMPLIFIER SHIELD
Hughes Network Systems, LLC	10,715,618	PROVISION OF BEST QOS VIA DYNAMIC APPLICATION LAYER THROUGHPUT SHAPING IN ADAPTIVE VIDEO STREAMING

Applications:¹

Company	Application No.	Application Name
Hughes Network Systems, LLC	17/031,432	UNIFIED MEMORY MANAGEMENT FOR A MULTIPLE PROCESSOR SYSTEM

¹ List excludes unpublished applications.

Company	Application No.	Application Name
Hughes Network Systems, LLC	16/945,347	SYSTEM AND METHOD FOR GENERIC GATEWAY MODEM SATELLITE BEAM HOPPING
Hughes Network Systems, LLC	17/022,389	DATA FRAME INTERFACE NETWORK DEVICE
Hughes Network Systems, LLC	17/030,291	NEXT GENERATION GLOBAL SATELLITE SYSTEM WITH MEGA-CONSTELLATIONS