

Description of Application

HNS License Sub, LLC (“Hughes”) hereby requests Commission consent to modify its earth station license for Call Sign E060445 (File No. SES-MFS-20110701-00767). Hughes proposes several changes to its authorization under Call Sign E060445 to accommodate the planned entry into service later this year of the “EchoStar 17” satellite (formerly known both as SPACEWAY 4 and Jupiter 107W) that will operate from the 107.1° W.L. orbital location. The following changes are proposed:

- Addition of EchoStar 17 (UKSAT-14) and EchoStar 9 (a U.S.-licensed satellite at the 121° W.L. orbital location) as points of communication to all existing earth terminal types on the license;
- Addition of a new 69 centimeter diameter terminal;
- Harmonization of spectrum on all antenna types to the 29.25-30 GHz (Earth-to-space) and 18.3-19.3 GHz/19.7-20.2 GHz (space-to-Earth) frequency bands;
- Increase the quantity of the 74 centimeter diameter transmit/receive terminals;
- Add additional carriers to the various antenna authorizations; and
- Explain that with the acquisition of antenna maker Prodelin by GD Satcom, all future models of several antenna types on the license will be electrically equivalent GD Satcom units.

In the Form 312 modification application to which this exhibit is attached, Hughes provides only the information it needs for the current antennas to show the new point of communication and other changes described herein. There are no other technical changes to any

of the currently-authorized antennas. In each case, all existing authorized information is incorporated by reference.

A. Points of Communication

Hughes requests authority to communicate via the existing and proposed new 69 centimeter antennas with the EchoStar 17 satellite. EchoStar 17 is authorized by the United Kingdom using the UKSAT-10 filing designator at the International Telecommunication Union (“ITU”). EchoStar 17 is scheduled to be launched in June 2012, and Hughes’s parent company, Hughes Network Systems, LLC, holds a letter of intent authorization from the Commission to access the U.S. market via EchoStar 17. See File No. SAT-LOI-20091110-00119 (Call Sign S2753) (Stamp Granted May 5, 2010). Hughes also requests authority to add EchoStar 9, a U.S.-licensed satellite at 121° W.L. as a point of communication for all antenna types (including the new 69 centimeter antenna).

B. New 69 CM Antenna

Hughes proposes to add 1,000,000 Raven Model HNS-AN8-069R 69 centimeter fixed transmit/receive antennas. This antenna will operate in the 29.25-30 GHz band in the Earth-to-space direction, and in the 18.3-19.3 GHz and 19.7-20.2 GHz bands in the space-to-Earth direction. The requested new antenna will provide digital services in conjunction with the gateway sites for EchoStar 17 under Hughes’s new earth station license in Call Sign E110149.

The new 69 CM terminals proposed here will be remotely controlled by Hughes from its Germantown, Maryland network operations center.

Except as noted in Section C below, the Ka-band frequencies in which these facilities are to be licensed are not shared with terrestrial users. The new proposed antenna type is compliant with the Commission's Ka-band service rules of Section 25.138 and 25.209(a) and (b).

Antenna pattern information for the Raven Model HNS-AN8-069R 69 centimeter antennas is provided in Exhibit C.

C. Harmonization of Frequency Allotments

In the Form 312 modification application to which this exhibit is attached, Hughes proposes to align the frequency plan of all of its currently-authorized remote antennas. In each case, 18.3-19.3 GHz downlink band will be added to the license for each antenna type, and in several cases the 29.25-29.5 GHz uplink band is added for existing antenna types on the license for Call Sign E060445 that do not already have that segment so that the full uplink spectrum of 29.25-30 GHz is specified for each antenna type. Specifics of operation in the 18.3-18.8 GHz band and in the 18.8-19.3 GHz non-geostationary satellite-orbit downlink band on a non-conforming basis are discussed in Sections D and E below.

D. 18.3-18.8 GHz

To the extent required, Hughes requests a waiver of the frequency coordination requirement of Section 25.203 of the Commission's Rules, 47 C.F.R. § 25.203, for its proposed receive operations in the 18.3-18.8 GHz band. The Commission determined several years ago, in response to an application filed by DIRECTV Enterprises, LLC ("DirecTV"), that because fixed service stations are being phased out of the 18.3-18.8 GHz band; because receive-only operations in the band are not physically capable of causing interference to any grandfathered fixed service

stations; and because DirecTV stated that it would accept harmful interference from 18.3-18.8 GHz band fixed service stations (as provided for in Section 25.145(g) of the Commission's Rules) until the stations are phased out of the band, "there are no FS facilities in this band with which FSS operators need to coordinate. Accordingly, to the extent that a waiver is required, we conclude that there is good cause to waive the FSS/FS coordination requirement in this band." *DIRECTV Enterprises, LLC*, 23 FCC Rcd 12632, 12635 (¶9) (Satellite Div. 2008).

The conditions of operation for Hughes's proposed 18.3-18.8 GHz band terminals are identical to those facing DirecTV in the Commission's 2008 decision. Because Hughes too will accept any harmful interference from 18.3-18.8 GHz band fixed service operations until the fixed service is phased out of the band later this year for the last such segments, good cause and precedent exists for the grant of Hughes's requested waiver of Section 25.203's coordination requirement.

E. 18.8-19.3 GHz

The Commission authorized Hughes Network Systems, LLC ("HNS") to operate the EchoStar 17 satellite (formerly known as SPACEWAY 4) for the provision of fixed-satellite service on a non-conforming basis in the 18.8-19.3 GHz band.¹ Hughes seeks authority to operate the terminals on its authorization under Call Sign E060445 (including the new 69 CM terminal) on such a basis, and will only include the EchoStar 17 as a point of communication for these frequency segments.

¹ See Letter of Intent Authorization to Hughes Network Systems, LLC in File No. SAT-LOI-20091110-00119 (Stamp Grant, May 5, 2010, at 1) ("EchoStar 17 LOI").

Hughes will employ the technique described in the EchoStar 17 letter of intent submission and avoid using the primary nongeostationary frequencies during any times when there is insufficient angular separation between a non-geostationary satellite/associated earth station and EchoStar 17 and one of its associated earth stations. As HNS noted in the letter of intent submission, “there will be sufficient additional spectrum on [EchoStar 17] to allow Hughes to dynamically shift operations out of the NGSO spectrum for the duration of any in-line events.”²

F. 29.25-29.3 GHz

With respect to the proposal herein to operate earth terminals in the 29.25-29.3 GHz portion of the 29.25-29.5 GHz band, Hughes understands that there is presently only one non-geostationary mobile-satellite service (“NGSO MSS”) feeder link earth station licensed to utilize this 50 MHz segment in the continental United States. That earth station is located in Tempe, Arizona. There are two additional licenses for NGSO MSS feeder link earth stations in Fairbanks, Alaska.³ To the extent that Hughes may deploy terminals authorized under the modified license sought here within the vicinity of any of the licensed NGSO MSS feeder link earth stations that operate in the 29.25-29.3 GHz band, Hughes will, to the maximum extent possible, assign its earth terminals transmit frequencies that are outside the 29.25-29.3 GHz

² Application of Hughes Network Systems, LLC, File No. SAT-LOI-20091110-00119, at Letter of Intent

³ Hughes has been unable to ascertain whether any of the stations authorized for NGSO MSS feeder link operations in the 29.25-29.3 GHz portion of the 29.25-29.5 GHz band are actually in operation. The IBFS files for Call Signs E050282, E060300, and E960131 (under SES-MOD-20060907-01680) do not contain the certifications of the completion of construction under Section 25.133(b) of the Commission’s Rules, 47 C.F.R. § 25.133(b), that would have been due within one year of the 2006 and 2007 grants.

segment or operate with polarization selections that are different from those utilized by the NGSO MSS feeder link licensee.⁴ These unilateral measures by Hughes will ensure that the earth terminals proposed here operate compatibly with the authorized NGSO MSS feeder link stations. There are no NGSO MSS feeder link earth station licenses for the 29.3-29.5 GHz band.

G. Substitution of Antenna Manufacturer for New 74 CM and 98 CM Antennas

Future antennas of the 74 centimeter and 98 centimeter transmit/receive and temporary-fixed transmit/receive types will be manufactured by GD Satcom, which acquired Prodelin. All GD Satcom antennas under the model numbers HNS-AN8-074P and HNS-AN8-098P are electrically equivalent to the currently-authorized Prodelin antenna models.

H. Increase in the Quantity of 74 CM Transmit/Receive Antennas

Hughes requests authority to increase the number of 74 CM transmit/receive antennas authorized under Call Sign E060445 from 500,000 units to 2 million units.

I. New Carrier Code

Hughes adds to several of the antenna types a new emission code that represents the smallest possible bandwidth.

J. Radiation Hazard Analyses

A radiation hazard analysis with regard to the proposed new antenna types has been carried out using the predictive methodology identified in OET Bulletin 65. The results are provided in Exhibit B to this application.

⁴ These are the types of measures contemplated by the Commission for ensuring compatible operations between GSO FSS and NGSO MSS feeder link terminals. See 47 C.F.R. § 25.258(b); *Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.4-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use*, 17 FCC Rcd 24248, 24258-60 (¶24) (2002).

**HNS License Sub, LLC
FCC Form 312
Modification
Exhibit A
March 2012**

As there is no change to the power envelope for the antennas that are gaining new uplink and/or downlink spectrum, the radiation hazard analyses already on file in Call Sign E060445 for these antennas are not reproduced, and, along with the other technical information, are hereby incorporated by reference.