

BEFORE THE
Federal Communications Commission
WASHINGTON, D.C. 20554

In re the Matter of)	
)	
Hughes Network Systems, LLC)	File No. SES-LIC-_____
)	
Application to Access the U.S. Market)	Call Sign E_____
Via a Network of U.S. Gateway Earth)	
Stations Communicating with a Non-U.S.)	
Licensed Ka band Geostationary)	
Fixed-Satellite Service Satellite at the)	
65.2° W.L. Orbital Location)	

GATEWAY EARTH STATION U.S. MARKET ACCESS APPLICATION

Hughes Network Systems, LLC (“Hughes”), pursuant to Section 25.137 of the Commission’s Rules (47 C.F.R. § 25.137), hereby submits this application to operate a network of satellite earth stations under common control for the purpose of providing gateway links to a Ka band payload in geostationary orbit on the EUTELSAT 65 West A platform (“E65WA”) at the 65.2° West longitude (“W.L.”) orbital location. The satellite bus is licensed by Brazil and the Ka band payload, which is leased to Hughes,¹ will provide fixed-satellite service (“FSS”) to end users in Brazil, who will benefit from increased access to broadband

¹ This satellite payload has been published through the International Telecommunication Union (“ITU”) under the designation RAGGIANA-2 by the administration of Papua New Guinea (“PNG”). Hughes will rely upon the approval of the PNG administration to deploy its Ka-band payload under this ITU registration, and will submit at a later date appropriate documentation of this approval from PNG authorities.

services.² Access to the U.S. market is sought solely for the provision of gateway links at the three locations specified in this application.

I. GENERAL DESCRIPTION AND SERVICES TO BE PROVIDED

The Ka band capacity on E65WA will expand upon Hughes' recent initiatives in the Western Hemisphere to meet the growing global need for advanced two-way broadband communications services for both business and residential users. The demand and need for high-speed broadband service demonstrates that there is an ample market for the types of services that Hughes plans to provide.³ These services include high-speed data transmission and high-speed broadband Internet access, which can be used to support internet and content-provider offerings such as high definition video programming, on-demand entertainment, digital music, and interactive television. Areas of Brazil that are currently not well served or entirely unserved by terrestrial broadband technologies are particularly likely to benefit from the availability of this proposed new space segment capacity. Provision of broadband service to Brazil will promote regional commerce while providing new job opportunities in the United States through the development of applications and content for Brazilian consumers, as well as the manufacturing of the gateway and user terminals.

A. Space Segment

The E65WA satellite will operate at the 65.2° W.L. orbital location and will include several different communications payloads. The portion of the Ka band payload leased by

² Multimedia Communication Services License (Serviços de Comunicação Multimídia) as per ANATEL Resolution No. 272 (9 August 2001) issued to Hughes Telecomunicacoes do Brasil Ltda.

³ Termo de Direito de Exploração de Satélite Brasileiro – PVSS/SPV n. 157/2012, Date as of May 8, 2012.

Hughes will incorporate state-of-the-art engineering to achieve enhanced flexibility of service offerings. It will consist of sixteen (16) small subscriber spot beams covering different parts of Brazil.

B. Ground Segment

1. *U.S. Gateway Earth Stations:* The three U.S. gateway earth stations will be located in Riverside, California (13.2 meters); Cheyenne, Wyoming (8.1 meters); and Germantown, Maryland (13.2 meters). These are locations that are sufficiently far apart to permit full spatial frequency re-use between them. These facilities are further described in the Attachment hereto, Technical Information to Supplement Schedule S (“Technical Annex”), Section A.2 at 2.

2. *Brazil End User Earth Stations:* Hughes customers served by the new Ka band capacity will receive high-speed broadband services using small-diameter subscriber terminals located in Brazil.

C. Frequency Plan

The Hughes Ka band gateway earth stations will operate in the United States as detailed in the table below for uplink (Earth-to-space) and downlink (space-to-Earth) operations:

Frequency Band (GHz)	Function	Notes
27.5-28.35	Secondary Gateway Uplink	LMDS Primary Band
28.35-28.6	Primary Gateway Uplink	
28.6-29.0	Secondary Gateway Uplink	NGSO FSS Primary Band
29.5-30.0	Primary Gateway Uplink	(Also Brazil Subscriber Link)
18.3-18.8	Primary Gateway Downlink	(Also Brazil Subscriber Link)
19.7-20.2	Primary Gateway Downlink	

The Ka band payload will also utilize the band 17.8-18.3 GHz in the downlink direction for the spot beams serving Brazil, but these frequencies will not be used for gateway downlinks, and therefore are not part of this application.

D. Grant of this Market Access Application Will Serve the Public Interest.

Hughes is the global leader in providing broadband satellite network solutions for large enterprises, governments, small businesses and consumers, with over 4 million broadband satellite terminals shipped to customers in over one hundred countries.

Headquartered outside Washington, D.C., in Germantown, Maryland, Hughes operates sales and support offices worldwide, and is a wholly-owned subsidiary of EchoStar Corporation (NASDAQ: SATS), a premier global provider of satellite operations and digital TV solutions headquartered in Englewood, Colorado.

Hughes pioneered the development of high-speed satellite broadband access services and IP-based networks, which it markets in the United States and globally. Today, Hughes provides and enables a variety of managed network services and equipment that meet unique enterprise customer needs for data, voice and video communications, typically across geographically-dispersed locations. Hughes is also the largest satellite Internet access provider to the North American consumer market, delivering affordable satellite broadband connectivity to more than 860,000 consumer and small business subscribers.

Hughes currently operates two high-throughput Ka band FSS satellites, SPACEWAY 3 (Call Sign S2663), which entered commercial service on April 3, 2008 at 94.95° W.L., and EchoStar XVII (Call Sign S2753), which began operations on October 1, 2012 at 107.1° W.L. The addition of the Ka band payload on E65WA to Hughes' current space segment

capacity will further Hughes's commitment to providing satellite broadband connectivity. The state-of-the-art Ka band capabilities on E65WA will provide much-needed high-data-rate broadband services to consumers and enterprises in a new market, Brazil, a strong U.S. ally. With the advanced and flexible design of this satellite payload, Hughes will expand its footprint in the Americas, and provide broader coverage to a wider range of users.

III. HUGHES SATISFIES THE COMMISSION'S CRITERIA UNDER DISCO II FOR ACCESS TO THE U.S. MARKET – 47 C.F.R. § 25.137(a)

The Commission's *DISCO II* framework applies to this earth station application because the E65WA satellite on which the Ka band payload to be accessed will be established is licensed under authority of the government of Brazil, and the services will be provided in Brazil.⁴ Brazil is a member of the World Trade Organization ("WTO")⁵ which, as described below, establishes a rebuttable presumption that U.S. market entry is in the public interest. Similarly, the administration responsible for the licensing and ITU registration of the Ka band payload leased by Hughes, Papua New Guinea, is a WTO member.⁶

The *DISCO II* analysis includes consideration of several factors, such as the effect on competition in the United States, spectrum availability, eligibility requirements, technical

⁴ *Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Satellites Providing Domestic and International Service in the United States*, Report and Order, 12 FCC Rcd 24094, 24107-17(¶¶ 30-49) (1997) ("*DISCO II*").

⁵ Brazil has been a WTO member since January 1, 1995. *See* http://www.wto.org/english/thewto_e/countries_e/brazil_e.htm (visited 3/27/2014).

⁶ Papua New Guinea has been a member of WTO since June 9, 1996. *See* http://www.wto.org/english/thewto_e/countries_e/papua_new_guinea_e.htm (visited 3/27/2014).

requirements, national security, law enforcement, foreign policy and trade concerns.⁷ Each of these factors supports grant of this application, as detailed below.

A. Positive Effect on Competition in the United States

In *DISCO II*, the Commission established a rebuttable presumption that market entry, whether via a Letter of Intent or through an earth station application, for a non-U.S. satellite authorized by a WTO Member to provide services covered by the U.S. commitments under the WTO Basic Agreement on Telecommunications will further competition in the United States.⁸ Brazil and Papua New Guinea are members of the WTO, and Hughes seeks to use the space segment capacity to be accessed via the requested gateway earth stations to provide satellite services that are covered by the WTO Basic Agreement on Telecommunications. Accordingly, the presumption in favor of entry applies to this application.

Allowing Hughes to operate gateway earth stations that link to the Ka band payload on E65WA is consistent with the intent of the WTO Basic Agreement on Telecommunications to facilitate fair and open competition in satellite communications services, and provide equivalent opportunities to access facilities in the U.S. market for satellites licensed in countries that allow U.S.-licensed satellites to access their domestic markets. Grant of this application will enhance competition in the satellite services marketplace by permitting Hughes to introduce new satellite broadband services to additional areas, thereby stimulating lower rates, improved service quality, increased service options,

⁷ See e.g., *Telesat Canada, Petition for Declaratory Ruling for Inclusion of Anik F2 on the Permitted Space Station List, Petition for Declaratory Ruling to Serve the U.S. Market Using Ka band Capacity on Anik F2*, Order, 17 FCC Rcd 25287, 25290 (¶ 6) (2002).

⁸ *DISCO II* at 24112 (¶ 39); see also 47 C.F.R. § 25.137(a)(2).

and greater technological innovation. The Commission consistently has relied favorably on these same public interest benefits in granting similar requests.⁹

B. Spectrum Availability

This application proposes limited spectrum use to access the Ka band capacity on E65WA at 65.2° W.L. for gateway earth station operations using frequency bands designated for primary geostationary (“GSO”) FSS use, as well as those segments designated for primary non-geostationary (“NGSO”) FSS use in the United States. In keeping with prior Commission decisions, Hughes’ use of the NGSO bands will be on a strictly secondary, non-harmful interference basis to NGSO FSS.¹⁰ Hughes will operate in a manner that avoids causing harmful interference to NGSO FSS users, and will accept any interference received from primary NGSO FSS users of the band. The attached Technical Annex contains a demonstration of the techniques that Hughes will employ to avoid harmful interference to NGSO FSS systems that may operate in these bands.¹¹

In addition, Hughes seeks access in the uplink direction to the 27.5-28.35 GHz band that is designated in the United States for primary use by the Local Multipoint Distribution Service (“LMDS”) – an application in the fixed service.¹² As is the case with the NGSO spectrum, Hughes’s operation of these additional Ka band links in the United States will be

⁹ See, e.g., *Digital Broadband Applications Corp.*, 18 FCC Rcd 9455 (2003); *Pegasus Development Corp.*, 19 FCC Rcd 6080 (2004).

¹⁰ See, e.g., *Northrop Grumman Space & Mission Systems Corporation*, 24 FCC Rcd 2330, 2357-60 (¶¶ 84-90) (Int’l Bur.2009), citing *contactMEO Communications, LLC*, 21 FCC Rcd 4047-48 (Int’l Bur. 2006) (Commission authorizes GSO use of primary Ka band NGSO spectrum based on the applicant’s technical showing that its GSO FSS satellites will not interfere with non-Federal NGSO FSS operations).

¹¹ See Technical Annex, Section A.8 at 7-12.

¹² See also discussion of Spectrum Utilization in Section IV.H., below.

on a secondary, non-harmful interference basis to LMDS (GSO FSS use of this band is permitted on a secondary basis with respect to LMDS).¹³ As outlined herein, Hughes proposes to operate just three gateway terminals in locations set at sufficient distance from the urban centers where LMDS operations typically occur. These terminals will avoid causing harmful interference to LMDS systems by minimizing energy transmitted toward the horizon, with additional shielding used if required, as outlined in the Technical Annex.¹⁴ Hughes does not claim protection from any harmful interference that may be caused by LMDS systems. Accordingly, Hughes' proposed limited use of the LMDS spectrum for secondary U.S. GSO FSS uplink operations is fully consistent with Commission policy.¹⁵

Hughes's proposal is fully compliant with the Commission's two-degree spacing requirements, will not cause harmful interference to any other authorized user of the spectrum, and is compatible with future Ka band assignments pursuant to the FCC's Rules.

¹³ Because Hughes operations are secondary to those of LMDS licensees, no prior coordination is required, and Hughes is instead obligated to provide the protection showing provided here. See 47 C.F.R. § 25.202(a) & § 25.203; *Establishment of Policies and Service Rules for the Broadcasting-Satellite Service at the 17.3-17.7 GHz Frequency Band and at the 17.7-17.8 GHz Frequency Band Internationally, and at the 24.75-25.25 GHz Frequency Band for Fixed Satellite Services Providing Feeder Links to the Broadcasting-Satellite Service and for the Satellite Services Operating Bi-directionally in the 17.3-17.8 GHz Frequency Band*, 21 FCC Rcd 7426, 7454 (¶ 59) & n.152 (“Section 25.203 in combination with Section 25.251 of our rules define a mechanism for coordination between terrestrial microwave stations and satellite earth stations *that share frequency bands with equal rights.*”) (emphasis added).

¹⁴ See Technical Annex, Section A.9 at 13-24.

¹⁵ See *Amendment of Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, To Reallocate the 29.5-30.0 GHz Frequency Band, To Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services*, Third Report and Order, 12 FCC Rcd 22310, 22327 (¶ 42) (1997) and Third Notice of Proposed Rulemaking, 11 FCC Rcd 53, 71(¶ 47) (1995) (designating the band 27.5–28.35 GHz for LMDS on a primary basis, and stating that GSO FSS operations in the band will be permitted on a non-interference basis for the purpose of providing limited gateway-type services). See also 47 C.F.R. § 25.202(a)(1).

Therefore, this request is fully consistent with the procedures set forth by the Commission in the *Space Station Licensing Reform Order* regarding processing of GSO-like services.¹⁶

C. No National Security, Law Enforcement, or Public Safety Concerns

Grant of this application is also consistent with U.S. national security, law enforcement and public safety considerations. Hughes, a U.S. company, will own and control the Ka band capacity and employ the proposed U.S. gateways to provide end user service to customers in Brazil (thus all remote terminals will be outside the United States). Hughes will be responsible for all aspects of the design, construction and operation of its leased Ka band payload on the E65WA satellite, and will have authority over the U.S. earth station network in order to ensure prompt compliance with any national security or law enforcement requirements.

IV. REGULATORY COMPLIANCE MATTERS

A. Legal Qualifications – 47 C.F.R. § 25.137(b)

Hughes' legal qualifications are set forth in this narrative and in the attached FCC Form 312 (including all associated exhibits). Hughes' legal information has also long been a matter of record in other applications filed with the Commission, including most recently its respective applications for authority to launch and operate an additional Ka band satellite to serve the U.S. market from the 97° W.L. orbital location and for spectrum reservation under a letter of intent to access the U.S. market from the 77° W.L orbital location.¹⁷ Separately,

¹⁶ See *Amendment of the Commission's Space Station Licensing Rules and Policies*, First Report and Order and Further Notice of Proposed Rulemaking, 18 FCC Rcd 10760, 10806 (¶113) (2003).

¹⁷ See FCC File Nos. SAT-LOA-20111223-00248 and SAT-LOI- SAT-LOI-20110809-00148.

this application and its associated attachments include all of the information required for space station applicants in Section 25.114 of the Commission's rules, except as noted below.¹⁸

B. Technical Qualifications – 47 C.F.R. § 25.137(b)

A complete Technical Annex and Schedule S for the Ka band payload to be accessed by the requested earth station facilities are provided as part of this application. The Technical Annex includes the orbital debris mitigation showing required under Section 25.114(d)(14) of the Commission's Rules.¹⁹ Although the Commission is not licensing the space segment on the E65WA satellite, this information is nonetheless included to provide assurance that end-of-life disposal requirements will be met.

With respect to the LMDS spectrum in the 27.5-28.35 GHz band that Hughes seeks to use on a secondary basis, operations on E65WA will be restricted to reception of transmissions from the three gateway earth stations for which authority is sought herein. A quantitative demonstration of the capability to operate on a secondary, non-harmful interference basis with the LMDS is provided in the Technical Annex, Section A.9 at 13-24.

C. Implementation Milestones

Hughes hereby acknowledges its obligation to comply with the Commission's requirements to meet key milestones in the satellite implementation process consistent with Sections 25.114(c)(12) and 25.164(a) of the Commission's Rules.²⁰

¹⁸ See 47 C.F.R. § 25.114. Detailed information concerning Hughes' ownership and its officers and directors is provided in Exhibit B to the Form 312 associated with this application.

¹⁹ See Technical Annex, Section A.10 at 24-27. See also 47 C.F.R. § 25.114(d)(14) & § 25.283.

²⁰ See 47 C.F.R. §§ 25.114(c)(12) & 25.164(a).

D. Posting of Performance Bond

Hughes acknowledges that because the Ka band capacity for which market access is requested in this application has not yet been constructed, it will be required to post a performance bond pursuant to Section 25.165 of the Commission's Rules²¹ upon grant of its request commensurate with its then current stage of implementation of the satellite, up to a maximum of \$3 million in the event that it has not executed a binding construction contract at the time of grant.

E. Reporting Requirements

Hughes will comply with all FCC reporting requirements that apply to Ka band GSO FSS satellites.²²

F. Compliance with FCC Technical Regulations

Hughes's proposal is compliant with the Commission's two-degree spacing requirements both for the bands covered by Section 25.138 of the Commission's Rules and for the bands where LMDS and NGSO FSS are primary, which are not so covered.²³ Planned operations will not cause harmful interference to any other authorized user of the spectrum. Except with regard to those requirements for which waivers are requested (*see* Section V, below), Hughes's network will comply fully with the applicable requirements of Part 25 of the Commission's Rules, including power flux-density requirements,²⁴ full frequency re-use

²¹ *See* 47 C.F.R. § 25.165.

²² *See, e.g.*, 47 C.F.R. § 25.145(f).

²³ *See* Technical Annex, Section A.7 at 5-7.

²⁴ *See* Technical Annex, Section A.6 at 3-4.

requirements,²⁵ and all operational requirements. Specific showings as to the applicable elements are contained in this application and the included exhibits and attachments hereto.

In particular, Hughes includes a quantitative demonstration that its secondary operations in the primary NGSO uplink band at 28.6-29.0 GHz will not cause harmful interference to present or future users with superior authorization status. Hughes will not operate the system in the NGSO primary spectrum if there is any possibility that there will be insufficient angular separation between an NGSO satellite or its associated earth station and E65WA or its associated earth stations. During such in-line events, Hughes earth stations and space segment would not use the NGSO primary bands.²⁶ There will be sufficient additional spectrum on the E65WA Ka band payload to allow Hughes to dynamically shift operations out of the NGSO spectrum for the duration of any in-line events.

G. Spectrum Access Limits

Hughes currently operates two satellites (SPACEWAY 3 at 94.95° W.L. and EchoStar XVII at 107.1° W.L.) in frequency bands overlapping those that are requested for use in this application. Hughes parent corporation, EchoStar also operates a single satellite (EchoStar IX at 121° W.L.) in frequency bands that overlap those requested here, but has no

²⁵ See Technical Annex, Section A.11 at 27-28.

²⁶ Hughes notes that the only authorized and proposed NGSO systems in recent years use highly-elliptical orbit satellites that are operationally separated at all times by wide angles from the GSO orbit. This means that there will never be an in-line event between the type of NGSO system that has been authorized and E65WA. The mechanism Hughes identifies ensures that any future NGSO systems with designs that operationally intersect with the GSO will be protected from harmful interference to the extent contemplated by the Commission's rules and policies. Hughes, of course, will not claim protection from harmful interference that may be caused to its E65WA Ka band payload by such NGSO systems.

authorized-but-unbuilt facilities or pending applications in these bands.²⁷ As noted above, Hughes has previously been authorized to access the U.S. market using Ka band satellites at the nominal 97° W.L. and 77° W.L. orbital locations. Accordingly, with the filing of the instant application for access to the E65WA satellite, the number of pending co-frequency applications and unbuilt authorizations for Hughes will be three – a total that is within the limit of five market access requests that is established for GSO satellite network operators in Section 25.137(d)(5) of the Commission’s rules.

H. Spectrum Utilization

Hughes seeks authority to use spectrum on a primary basis in the 18.3-18.8 and 19.7-20.2 GHz bands to support downlink operations and in the 27.5-28.35 GHz, 28.35-28.6 GHz, 28.6-29.0 GHz and 29.5-30.0 GHz bands to support uplink operations. This use is consistent with the Commission’s intended use of the allocations for GSO FSS in these bands.²⁸

Hughes’ request for authority to use spectrum in the 28.6-29.0 GHz band to support uplink operations in the United States is on a secondary, non-harmful interference basis to NGSO FSS. Hughes’s use of spectrum in the primary NGSO FSS band at 28.6-29.0 GHz to support uplink operations is consistent with the Commission’s intended use of the secondary allocation for FSS in this band. Hughes will operate these links in the United States consistent with its obligations as a secondary service provider to avoid harmful interference to NGSO FSS and accept any interference received from NGSO FSS users.

²⁷ DISH Network Corporation, which is under common control with EchoStar, Hughes’ parent company, also is authorized pursuant to a Letter of Intent to operate an in-orbit hybrid satellite at 92.85° W.L., which uses frequency bands that overlap the spectrum requested here at 18.55-18.8 GHz, 19.7-20.2 GHz and 29.5-20.0 GHz.

²⁸ See 47 C.F.R. § 2.106 (Table of Frequency Allocations).

In addition, Hughes seeks authority to make use of spectrum in the 27.5-28.35 GHz band to support its gateway uplink operations on a secondary basis to the LMDS in the United States. As explained above, Hughes's use of spectrum in this band is consistent with the Commission's intended use of the secondary U.S. allocation for FSS in this band. The Commission has previously authorized secondary gateway operations in these frequencies, and has recognized that such operations may coexist with primary LMDS operations.

V. WAIVER REQUESTS

Because Hughes seeks only to access a non-U.S.-licensed satellite for provision of gateway earth station access, and is not seeking to license or obtain the equivalent of an operating license for the space segment capacity to provide service to end users within the United States, it is not clear that Hughes is required to seek waivers of any specific space segment parameters that are in variance with the Commission's Rules; the U.S. gateway earth stations are themselves compliant with FCC requirements, except in the specific instances noted in this Section. Nonetheless, Hughes sets forth here, in addition to specific requests for waiver of the Commission's Rules governing earth station applications, those aspects of its Ka band space segment architecture that are in less than complete alignment with the requirements of FCC Rules to ensure that the Commission's requirements for market access applications are satisfied. To the extent that the Commission deems it necessary, Hughes provisionally requests waivers of the applicable Commission Rules with which its Ka band space segment may not be fully compliant.

A. Waivers of Sections 25.115(e) and 25.138 Regarding Earth Stations

Pursuant to Sections 1.3 of the Commission's rules, Hughes respectfully requests waivers of two aspects of Section 25.115(e) and Section 25.138 of the Commission's Rules.

As detailed below, the first is a limited waiver, to the extent required, with respect to the timing of submission for specific antenna pattern information that is required to be included in applications for 20/30 GHz band FSS earth station applications. The second waiver relates to the range of Ka band frequencies eligible for blanket earth station licensing under Section 25.138 of the Commission's Rules.

1. Section 25.115(e) and Sections 25.138(d) & (e) – Antenna Patterns

To the extent necessary, Hughes seeks a limited waiver in order to allow the processing and grant of authority for its new gateway antennas prior to the submission of certain data elements from Section 25.138 that are requested under Section 25.115(e) of the rules. The required data will not be available to Hughes until after the first of each type of earth station antenna is constructed and readied for operation. There is good cause to waive this rule, to the extent it remains applicable, and doing so would be consistent with Commission precedent.

Section 25.115(e) of the Commission's Rules requires that applicants for FSS earth station licenses in the 20/30 GHz bands include information described in Section 25.138. Section 25.138(d) specifies that a series of measured antenna radiation patterns are to be provided for the purpose of determining compliance with the off-axis EIRP spectral density levels in Section 25.138(a). Similar data for the receive band is called for in Section 25.138(e). The requirements of Sections 25.138 (d) and (e) are aimed at ensuring that an earth station transmitting to a satellite in the GSO arc does not cause excessive interference to neighboring satellites. This requirement poses a dilemma, however, for applicants that intend to install larger, non-production antennas that will be tailored to a particular site. Both antennas to be used by Hughes for its gateway links fall into this category.

Fortunately, the Commission has recently recognized the difficulty for applicants seeking to license larger earth stations in this band in complying with rules geared toward small, mass produced antennas. As a result, last year it adopted a revised version of Section 25.138(d), which provides, at new subsection (2), that for antennas that are “more than 3 meters in diameter that will only be assembled on-site, on-site measurements may be submitted.”²⁹ Further, if on-site data is to be submitted, “Certification that the on-site testing has been satisfactorily performed must be included with the certification filed pursuant to § 25.133(b),” rather than at the time of application.³⁰

While this rule change was adopted many months ago, it is not yet formally in effect due to the need for many of the rule changes made last year to be reflected in new forms approved by the Office of Management and Budget pursuant to the Paperwork Reduction Act.³¹ Accordingly, to the extent necessary, Hughes seeks a limited waiver of Sections 25.138(d) and (e) of the Commission’s Rules allowing it to provide the required data in connection with its post-grant certification of earth station construction pursuant to Section 25.133(b) of the Commission’s Rules,³² as contemplated by revised Section 25.138(d).

²⁹ See *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, 28 FCC Rcd 12403, 12449-50 (¶ 151) & Appendix B, Final Rules at 12491 (2013).

³⁰ *Id.* at 12491.

³¹ See *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, 79 Fed. Reg. 8308, 8309 (Feb. 12, 2014) (“To avoid confusion, all rule changes adopted in this Report and Order will become effective on the same date. The International Bureau will issue a public notice announcing the effective date for all of the rules adopted in this Report and Order.”)

³² See 47 C.F.R. § 25.133(b).

Under the Commission's Rules and associated decisions, a waiver of the Commission's rules is warranted when "good cause" is shown.³³ A waiver may be granted if the grant "would not undermine the policy objective of the rule in question and would otherwise serve the public interest."³⁴ The Commission has already determined that its policy should be revised to allow submissions consistent with the terms of this request. Moreover, grant of this waiver would be consistent with Commission precedent, as the Commission has issued multiple waivers of this requirement,³⁵ including two separate waivers to Hughes for large-diameter earth station antennas that it uses successfully today with SPACEWAY 3 and EchoStar XVII.³⁶ Grant of this request will also serve the public interest by allowing new satellite broadband communication services using U.S. gateway earth stations without in any way undermining the purpose of the Commission's Rules.

³³ 47 C.F.R. § 1.3. *See also* *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969).

³⁴ *EchoStar KuX Corp.*, 20 FCC Rcd 919, 923 (¶ 12) (2004) (Commission waiver for "good cause shown").

³⁵ *See, e.g., DirecTV Enterprises, LLC*, 24 FCC Rcd 12632, 12634 (¶ 5) (noting that "[a]ntennas that are too large to be mass-produced are usually assembled and tested on site").

³⁶ When it granted the initial applications under Call Signs E060382 and E060383 for the TT&C earth station antennas for operation with Hughes' SPACEWAY 3 satellite, it granted a waiver identical to that requested here. *See* HNS License Sub, LLC, FCC File No. SES-LIC-20061017-01852, License for Call Sign E060382 at Condition 253 (granted Mar. 6, 2007). *See also* HNS License Sub, LLC, FCC File No. SES-LIC-20111021-01243 (granted Jan. 10, 2012).

2. Section 25.138 – Blanket Licensing

Hughes also requests a waiver of Section 25.138 to allow blanket licensing of the three gateway antennas proposed here in the 27.5-28.35 GHz and 28.6-29.0 GHz bands. The rule does not currently apply to blanket licensing of earth stations in these band segments. Good cause exists for Hughes's request.

As detailed above, the 27.5-28.35 GHz band is designated in the United States for primary use by terrestrial LMDS licensees, and GSO operations in this band are on a secondary basis to LMDS. Similarly, the 28.6-29.0 GHz band is designated for primary NGSO FSS operations in the United States, and GSO operations in this band are on a secondary basis to NGSO FSS. Section 25.138 is intended to ensure that a GSO FSS satellite network's earth station transmissions are within levels permitted by the Commission's rules and do not subject operations of other GSO networks to harmful interference. Because Hughes will be operating earth stations in the 27.5-28.35 GHz and 28.6-29.0 GHz bands on the condition that both LMDS operations and NGSO networks are fully protected from harmful interference, as will any other earth stations operating with GSO satellites, it makes sense to extend and apply the blanket licensing provisions of Section 25.138 (including the off-axis power limits) to the earth station antennas Hughes proposes here for operation in these two frequency bands.

This will ensure a proper interference relationship between Hughes's E65WA Ka band payload and any other Ka band GSO satellites with secondary NGSO capability. It will also advance the public interest by maximizing the efficiency with which secondary GSO satellite networks can successfully use the band. Finally, grant of the waiver requested here will not compromise or undermine in any way the purpose of the frequency allocation

determinations the Commission made regarding the 27.5-28.35 GHz and 28.6-29.0 GHz bands, as the obligation to operate without causing harmful interference to/claiming protection from LMDS and NGSO FSS operations in these bands is unaffected by the waiver grant requested here. Accordingly, grant of Hughes's waiver request will serve the public interest without undermining the purpose of the Commission's rules.

B. Section 25.210(i)(1) – Cross-Polarization Isolation

Section 25.210(i)(1) of the Commission's Rules provides that FSS space station antennas must be designed to provide cross-polarization isolation such that the ratio of the on axis co-polar gain to the cross-polar gain of the antenna will be at least 30 dB within its primary coverage area. As shown in the attached Technical Annex, Hughes' Ka band package on the E65WA satellite is expected to have a cross-polarization shortfall in both transmit and receive cases.³⁷ Accordingly, Hughes requests a waiver of this requirement. This disparity with the FCC requirement will have no material adverse impact on the operation of adjacent satellite networks. Grant of this waiver also is consistent with precedent.³⁸ Further, Hughes will claim no more protection from interference from other licensed spectrum users operating in accordance with the Commission's rules than if its antennas were in compliance with Section 25.210(i) of the FCC's Rules.

³⁷ See Technical Annex, Section A.11 at 27-28.

³⁸ See, e.g., *EchoStar Satellite Operating Corporation*, 21 FCC Rcd 14780, 14782-83 (¶¶ 7-8) (2006) (waiving the cross-polarization isolation requirement because it was adopted "in an environment where satellites were predominantly using analog transmissions," "performance of the downlink satellite antenna has only a second-order effect on the interference into the neighboring system," and for systems using digital transmission, non-compliance "should have only a negligible increase in interference to adjacent satellites").

C. Section 25.210(j) – Station-Keeping Tolerance

Section 25.210(j) of the Commission’s Rules provides that GSO FSS space stations must be maintained within $\pm 0.05^\circ$ of their assigned orbital longitude “unless specifically authorized by the Commission to operate with a different longitudinal tolerance.”³⁹ Hughes requests a waiver of this requirement to permit it to operate the E65WA spacecraft with an East/West station-keeping tolerance of ± 0.1 degrees. This approach to station-keeping has been commonly employed by satellites in this area of the orbital arc, where there are relatively few operational satellites.⁴⁰ Permitting this modest alteration of the required tolerance will conserve fuel because the need for eccentricity maneuvers will be significantly reduced.

The proposed variance in station-keeping will not result in harmful interference to adjacent satellites. Even if a satellite were to be deployed at 67° W.L., the ability to provide service to the United States would not be adversely impacted by the wider station keeping box E65WA will employ, as U.S. coverage will be limited to three narrow satellite beams transmitting to very large gateway antennas, with low flange power and high levels of discrimination towards the adjacent orbital slots. In addition, grant of the requested waiver will not affect the station-keeping of any other satellite, as no current commercial satellite operates within ± 0.1 degrees of 65.2° W.L. Hughes will carefully coordinate its operations with the adjacent satellite operators to ensure that no harmful interference is caused to existing or future operations in this portion of the GSO arc.

³⁹ 47 C.F.R. § 25.210(j).

⁴⁰ See, e.g., *Star One, S.A.*, 25 FCC Rcd 14338, 14348 (¶¶ 24-25) (IB 2010) (granting waiver of Section 25.210(j) for the Star One B1 satellite at 68° W.L., which has since been decommissioned).

Grant of the requested waiver of Section 25.210(j) will serve the public interest. Operation of E65WA with a ± 0.1 degree station-keeping tolerance will allow Hughes to conserve fuel both for any necessary on-orbit maneuvers and for required post-mission disposal. Waiver of the requirements of Section 25.210(j) on this basis is fully consistent with existing precedent.⁴¹ Grant of this waiver will not impact the end-of-life maneuvers, which will remove the satellite to a disposal orbit with a minimum perigee of 300 km above the normal GSO operational orbit.⁴²

D. Schedule C Forbearance

In accordance with the International Bureau's interim waiver policy,⁴³ Hughes requests, to the extent required, a waiver of the Schedule S information requirements that are the subject of the Commission's 2013 Part 25 Review *Report & Order*.⁴⁴ These rule changes have been published in the *Federal Register*,⁴⁵ but are not yet reflected in a new version of Schedule S approved by the Office of Management and Budget. In addition, because Hughes seeks access to the U.S. market solely for the provision of gateway links to the E65WA satellite, it limits the system description in Schedule S to the links between the U.S. gateway

⁴¹ See, e.g., *Star One, S.A.*, 25 FCC Rcd at 14348 (¶¶ 24-25); *SES Americom, Inc.*, 20 FCC Rcd 11542, 11544-45 (¶¶ 10-14 (Sat. Div. 2005)).

⁴² See Technical Annex, Section A.10 at 27.

⁴³ See FCC Public Notice, "International Bureau Adopts Policy of Granting Interim Waiver of Certain Requirements for Space Station Applications," Report No. SPB-255, DA 14-90 (released January 28, 2014) (finding "good cause for waiver of the information requirements" enumerated therein).

⁴⁴ See *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Report and Order, IB Docket No. 12-267, 28 FCC Rcd 12403 (2013).

⁴⁵ See *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, 79 Fed. Reg. 8308 (Feb. 12, 2014).

earth stations and the satellite.⁴⁶ Accordingly, waiver of the Schedule S requirements ordinarily applicable to space station applications is appropriate for this gateway earth station application and will serve the public interest by avoiding the submission of information unrelated to U.S. operations.

[Narrative Concludes on Next Page]

⁴⁶ *See also* Technical Annex, Section A.12 at 28-29. International Bureau staff has been consulted in advance, and has concurred with this approach.

VI. CONCLUSION

The satellite gateway earth stations operations proposed herein will be fully compliant with FCC rules relating to Ka band blanket licensing, system performance, flexibility, service quality and spectrum efficiency, and will create a platform capable of offering more advanced broadband services to users in Brazil. Grant of authority to operate these facilities in the United States will promote international commerce, increase access to broadband communications, and create new employment opportunities in the United States. Accordingly, Hughes urges the Commission to find that the public interest will be served by grant of the requested Ka band gateway earth station license, permitting access to the EUTELSAT-65 West A satellite at the nominal 65.2° W.L. orbital location.

Respectfully submitted,

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April 23, 2014

Of Counsel:

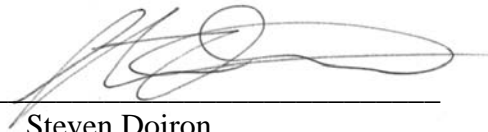
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ENGINEERING CERTIFICATION

I, Steven Doiron, hereby declare, under penalty of perjury, that the following statements are true and correct to the best of my information and belief:

- (i) I am the technically qualified person responsible for the engineering information contained in the foregoing Application,
- (ii) I am familiar with Part 25 of the Commission's Rules, and
- (iii) I have either prepared or reviewed the engineering information contained in the foregoing Application and found it to be complete and accurate.

By: _____



Steven Doiron
Senior Director, Regulatory Affairs
Hughes Network Systems, LLC

Dated: April 23, 2014

LIST OF ATTACHMENTS AND EXHIBITS TO APPLICATION

Attachment – Technical Information to Supplement Schedule S (including Link Budgets)

Exhibits to FCC Form 312 and Schedule B

Exhibit A – Frequency Bands Requested (Response to Question 24)

Exhibit B – Radiation Hazard Studies (Response to Question 28)

Exhibit C – Waivers Requested (Response to Question 35)

Exhibit D – Response to Question 36

Exhibit E – Response to Question 40 (Ownership)

Exhibit F – Statement That No FAA Notification Is Required (Response to E.20)

Exhibit G – Supporting Declaration of EUTELSAT