

## EXHIBIT C

### WAIVER REQUESTS

Pursuant to Section 1.3 of the Commission’s rules, 47 C.F.R. § 1.3, Hughes License Sub, LLC (“Hughes”) respectfully requests waiver of the following Commission rules, to the extent necessary:

- the requirements under 47 C.F.R. § 25.132(b)(1) with respect to certain measured antenna information that is required to be submitted with applications for fixed-satellite service (“FSS”) earth station applications;
- the requirement under 47 C.F.R. §§ 25.130(b), 25.203, and 25.217(c)(3) and (e) to file a coordination analysis for frequency bands shared between terrestrial and space services (the analysis for each site will be filed as soon as it is available);
- the twelve-month earth station construction and bring-into-use requirement of Section 25.133(a)(1); and
- 47 C.F.R. § 25.202(a) to permit the use of the 50.4 – 51.4 GHz frequency bands.<sup>1</sup>

The Commission may waive any of its rules if there is “good cause” to do so.<sup>2</sup> In general, a waiver is appropriate if: (1) special circumstances warrant a deviation from the general rule; and (2) such deviation will better serve the public interest than will strict adherence to the general rule.<sup>3</sup> Generally, the Commission will grant a waiver of its rules if the relief requested will not undermine the policy objective of the rule in question and will otherwise serve the public interest.<sup>4</sup> Grant of the requested waivers will serve the public interest by providing Hughes the certainty it needs to move forward with the construction of the HNS 95W satellite and associated ground network. Further, the deployment of the system will increase Hughes’ satellite

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<sup>1</sup> To the extent necessary, Hughes also incorporates by reference, as part of this earth station application, the waiver requests submitted in its space station application for HNS 95W. *See, e.g.*, Application, IBFS File No. SAT-LOA-20170621-00092 at 10-17 (filed June 21, 2017) (“HNS 95W Application”).

<sup>2</sup> *See* 47 C.F.R. § 1.3; *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).

<sup>3</sup> *See* *Northeast Cellular*, 897 F.2d at 1166.

<sup>4</sup> *See* *WAIT Radio*, 418 F.2d at 1157.

broadband capacity, bringing additional competition for broadband connectivity, including the support of next-generation communications services such as 5G, machine-to-machine, and the Internet of Things, to the United States marketplace, especially in rural and underserved areas.

### **I. Data Submission Requirements**

Hughes' 9.2m earth station antennas will be used to provide gateway services for the HNS 95W satellite that is expected to be launched in 2021 to the 95.2° W.L. orbital location.<sup>5</sup> Hughes seeks a limited waiver in order to allow the processing and grant of authority for its earth stations prior to the submission of certain measured antenna data required by the Commission's rules.<sup>6</sup>

The purpose of these rules is to ensure that an earth station transmitting to a satellite in the geostationary arc does not cause excessive interference to neighboring satellites. Grant of the requested waiver will not undermine that purpose. The available antenna data indicates that co-frequency FSS operations of adjacent satellites will not be subject to harmful interference. Specifically, interference to other GSO FSS satellites will be within the levels permitted by the Commission's rules, and thus the GSO operations of other satellite operators will not be subject to harmful interference. Moreover, Hughes notes that the gateway service functions for HNS 95W can and will meet the levels in 47 C.F.R. § 25.209(a) for the Ka band during all routine operations, and will meet any similar rules mandating two-degree spacing compliance for the V-band frequencies.<sup>7</sup>

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<sup>5</sup> See generally HNS 95W Application.

<sup>6</sup> See 47 C.F.R. § 25.132(b)(1); see also 47 C.F.R. §§ 25.115(g) and 25.209.

<sup>7</sup> The antenna sidelobe performance of the large-diameter antennas proposed in this application is expected to be similar to that of other large-diameter Ka-band antennas from the same manufacturer that meet the FCC requirements

Moreover, there is good cause to waive Section 25.132(b)(1). Hughes will agree as a condition to its license to supply the information required in Section 25.132(b)(1) within 30 days after filing its post-grant certification of earth station construction.<sup>8</sup> The antennas that will be deployed at each of these gateway earth stations are not ordinary “production” antennas. Accordingly, the measured data for these antenna models, as used in the Hughes gateway network, are not currently available and will only be available after the first unit is constructed and tested on site.

Further, the rule was intended to address the licensing of ubiquitously deployed production antennas.<sup>9</sup> In the instant case, there are only 20 earth stations, and each antenna will be used to provide gateway services in support of traffic carried on the HNS 95W satellite. The gateway antennas will be very carefully installed and thoroughly tested to assure compliance with FCC rules and system performance standards. Under similar circumstances, the Commission has granted a waiver to Hughes for the large-diameter earth station antennas that it uses successfully today with SPACEWAY 3.<sup>10</sup>

## **II. Coordination Analysis**

The coordination analyses required by Sections 25.130(b), 25.203, and 25.217(c)(3) and (e) have been initiated as of the date of filing. The analysis for the first fifteen sites listed in Table 1 of the application narrative has been completed. The analysis for the last five sites listed

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<sup>8</sup> See 47 C.F.R. § 25.133(b).

<sup>9</sup> See 47 C.F.R. § 25.115(g). As correctly noted in another application for licensing of a fixed transmit receive earth stations in the 20/30 GHz band, “the wide range of measurement parameters specified in the rule was meant to account for the wide range of installation possibilities for such mass marketed antennas, and for the fact that not every antenna would be tested after installation.” Application, File No. SES-LIC-20050722-00957, Exhibit B (granted Sept. 8, 2005).

<sup>10</sup> See HNS License Sub, LLC, File No. SES-LIC-20061017-01852 (granted Mar. 6, 2007) (granting at Condition 253 a waiver of Section 25.138 for TT&C earth station antennas for operation with SPACEWAY 3); *see also* DIRECTV Enterprises, LLC, File No. SES-AMD-2005090101203 (granted Sept. 8, 2005) (granting DIRECTV a waiver of Section 25.138 information requirements).

in Table 1 of the application narrative is ongoing. Hughes anticipates the completion of these coordination analyses in September (for the last five sites) and will submit them as an exhibit to the application as soon as they become available.

### **III. Construction Requirements**

To the extent necessary, Hughes requests that the twelve-month construction completion and bring-into-use requirement associated with each earth station<sup>11</sup> be waived to permit construction in a period consistent with the associated satellite deployment milestone requirement for the HNS 95W satellite. Grant of the waiver is in the public interest because the gateway earth stations applied for here are an integral part of the HNS 95W satellite system. It is critical for Hughes to construct HNS 9WL on a timely and cost-effective basis that it know at the start of construction the locations for its gateway locations.

Satellite operators often design and construct their satellites for telemetry, tracking, and control (“TT&C”) and feeder link communications with a network of gateway earth stations planned to be installed and operated at predetermined locations and technical parameters. Thus, to ensure reliable TT&C and feeder link communications, gateway locations and technical parameters, for the most part, must be set at the start of satellite construction and incorporated in the design of satellites. Accordingly, because satellites are typically constructed to account for planned gateway operations at predetermined locations and technical parameters, failure to secure the necessary gateway licenses could force an operator that has already commenced or completed satellite construction to incur significant redesign and construction costs, or else proceed with launching a sub-optimal satellite system. Thus, Hughes requires certainty of the location of its earth stations at the start of construction in order to effectively construct the HNS

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<sup>11</sup> 47 C.F.R. § 25.133(a)(1); *see also* 47 C.F.R. § 25.117(e). Hughes does not believe that a waiver of these rules is required but is requesting a waiver in an abundance of caution.

95W satellite network. Once satellite construction is underway, any material change in location of a gateway earth station site from the anticipated location will require substantial, inefficient, and cost-prohibitive retrofitting and redesign of the satellite in order to devote one of the satellite beams to the new gateway location.

The purpose of the build-out rule, to ensure that spectrum is not being warehoused, will not be undermined because Hughes will still be required to construct its earth station consistent with the milestone deployment requirement for the HNS 95W satellite. In addition, by providing certainty of the gateway locations and the spectrum available at each location, Hughes will be able to develop the satellite quickly and efficiently and will provide notice to terrestrial licensees of the station locations to permit compatible deployment of terrestrial UMFUS systems.

In the alternative, Hughes requests that the Commission exercise the discretion accorded to it by Section 25.133(a)(1) and adjust the time permitted from license grant to earth station operation to permit construction consistent with the deployment milestone for the HNS 95W satellite. The explicit language of the rule permits a variance from the 12 month requirement “as may be determined by the Commission for any particular application.”<sup>12</sup> This language permits the establishment of a different construction milestone within the context of the rule and without a requirement for a waiver. The design requirements described above are good cause for the Commission to exercise discretion as Hughes requests.

#### **IV. The 50.4-51.4 GHz Frequency Band**

In the United States, the 50.4-51.4 GHz band is allocated for Federal and non-Federal FSS (Earth-to-space) in the U.S. Table of Frequency Allocations,<sup>13</sup> but the band is not identified

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<sup>12</sup> 47 C.F.R. § 25.133(a)(1).

<sup>13</sup> 47 C.F.R. § 2.106.

in Section 25.202(a)(1) or the Commission's *V-band Plan* as available for non-Federal FSS.<sup>14</sup> However, the Commission recently sought comment on the satellite allocation in this band in its *Spectrum Frontiers Order and FNPRM*.<sup>15</sup> Internationally, the 50.4-51.4 GHz band is allocated for the FSS (Earth-to-space), fixed service, and mobile service in all ITU regions on a co-primary basis.<sup>16</sup> Hughes will accept a waiver conditioned on the outcome of any related rulemaking proceeding regarding the applicable frequency band.<sup>17</sup>

As explained in the HNS 95W Application, the frequency band is largely fallow.<sup>18</sup> Accordingly, Hughes' limited use of these frequencies for a small number of gateway stations in areas that meet the FCC's rules in the *Spectrum Frontiers Order and FNPRM* for Ka-band earth stations will create very little risk of interference with any existing or future terrestrial operations in this band.<sup>19</sup>

To the extent necessary, Hughes requests waiver of Section 25.202(a)(1) to permit use of the 50.4-51.4 GHz band (Earth-to-space) for FSS gateway uplinks. In addition to the justifications stated above, grant of this request will serve the public interest because it will increase gateway uplink capacity, facilitate efficient use of spectrum, and enhance the operational flexibility of the satellite.

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<sup>14</sup> See 47 C.F.R. § 25.202(a)(1); *Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz, and 48.2-50.2 GHz Frequency Bands*, Report and Order, 13 FCC Rcd 24649 (1998) ("V-band Plan").

<sup>15</sup> See *Use of Spectrum Bands Above 24 GHz for Mobile Radio Servs.*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014, 8158 ¶ 421 (2016).

<sup>16</sup> 47 C.F.R. § 2.106 n. 5.338A.

<sup>17</sup> See, e.g., generally *NGSO FSS NPRM; Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands, et al.*, Third Notice of Proposed Rulemaking, 25 FCC Rcd 15563 (2010); The Boeing Company, *Allocation and Designation of Spectrum for Fixed-Satellite Services in the 50.4-51.4 GHz and 51.4-52.4 GHz Bands*, Petition for Rulemaking, CG RM-11773 (June 22, 2016).

<sup>18</sup> See HNS 95W Application, Technical Exhibit, Section A.17.

<sup>19</sup> See *id.*