

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Communications Marketplace Report)	IB Docket No. 18-251
)	
International Bureau Seeks Comment)	
on Satellite Communications Services)	

**COMMENTS OF ECHOSTAR SATELLITE OPERATING
CORPORATION AND HUGHES NETWORK SYSTEMS, LLC**

EchoStar Satellite Operating Corporation (“ESOC”) and Hughes Network Systems, LLC (“Hughes,” and collectively with their affiliates, “EchoStar”) submit these comments in response to the International Bureau’s Public Notice seeking input to inform the Federal Communications Commission’s (“Commission”) report to Congress, as required by RAY BAUM’S Act of 2018, on competition in the communications marketplace. Specifically, the Public Notice seeks information and comment on the delivery of voice, video, audio, and data services by satellite communications providers, particularly services provided during 2016 and 2017 (as well as notable developments during 2018 to date) that are not covered in other bureaus’ public notices.¹

As the largest U.S. commercial geostationary satellite orbit (“GSO”) operator and the fourth largest GSO operator worldwide, EchoStar provides broadband, video, and other services to meet the needs of small and large customers, including internet service providers, media and broadcast organizations, direct-to-home providers, enterprise customers, government service providers, and residential consumers in North America and globally. EchoStar also operates an S-band mobile satellite service (“MSS”) network. Additionally, Hughes is the largest provider

¹ See *International Bureau Seeks Comment on Satellite Communications Services for the Communications Marketplace Report*, Public Notice, DA 18-858 (rel. Aug. 17, 2018) (“Public Notice”).

of satellite broadband services in the United States and globally, with approximately 1.3 million subscribers in the Americas.²

As discussed in more detail below, EchoStar has introduced and continues to provide new, competitive fixed satellite services (“FSS”), including emergency communications in support of disaster relief efforts, to the United States and abroad.³ The deployment of such services, particularly to underserved areas of the world, by EchoStar and other network operators demonstrate that the satellite communications market, particularly for FSS and MSS, has been and remains competitive. The Commission can further improve satellite communications competition by creating a technology-neutral regulatory environment for satellite service providers and revising its satellite licensing framework to encourage additional U.S. satellite filings at the International Telecommunication Union (“ITU”) and the licensing of additional U.S. space stations.

I. ECHOSTAR PROVIDES COMPETITIVE FSS AND MSS OFFERINGS TO UNDERSERVED AND OTHER AREAS OF THE UNITED STATES AND THE WORLD

During the past few years, EchoStar has continued to launch new, competitive FSS to the United States and globally. In addition, EchoStar is now offering commercial MSS throughout Europe. Such services provide crucial access to underserved areas and support for disaster relief

² See Press Release, Hughes, *Bank BRI Selects Hughes to Power Next Generation Satellite Network* (July 17, 2018), <https://www.hughes.com/who-we-are/resources/press-releases/bank-bri-selects-hughes-power-next-generation-satellite-network>.

³ These comments will focus on EchoStar’s provision of FSS (encompassing fixed broadband and other communications services) and MSS, which are not covered in other bureaus’ public notices. See Public Notice at n.3 (citing, for example, *Wireline Competition Bureau Seeks Comment on the State of Fixed Broadband Competition*, Public Notice, DA 18-784 (July 27, 2018) (seeking comment on fixed broadband competition); *Media Bureau Seeks Comment on the Status of Competition in the Market for the Delivery of Video Programming*, Public Notice, 32 FCC Rcd 6654 (2017) (seeking comment on the delivery of video programming, including direct broadcast satellite).

efforts, thus offering important public benefits and contributing to the competitiveness of the satellite communications market.

A. FSS

1. Consumer Broadband and Other Services

Hughes is the largest provider of commercial satellite broadband services globally and in the United States.⁴ Hughes provides its broadband service through the use of a three-satellite, Ka-band GSO FSS constellation, which includes coverage of the continental United States, southeastern Alaska, Puerto Rico and the U.S. Virgin Islands. Hughes uses FSS capacity from its three satellites (*i.e.*, SPACEWAY 3, EchoStar XVII, and EchoStar XIX) and additional satellite capacity acquired from multiple third-party providers to provide commercial broadband and other services to both wholesale and retail customers throughout the Americas.

From 2016 to date, Hughes continued to expand its consumer satellite broadband services to underserved and other areas of the United States and the Americas. Notably, in March 2017, Hughes commenced service on the EchoStar XIX satellite, a next-generation, high-throughput GSO satellite employing a multi-spot beam, bent-pipe Ka-band architecture.⁵ The satellite provides capacity for consumer broadband services in North America, including HughesNet Gen5, Hughes' fifth generation high-speed satellite Internet service.⁶ The satellite also provides significant capacity for consumer subscriber growth, capacity in Central and South American

⁴ Hughes also is a global provider of managed services, equipment, hardware, satellite services, and communications solutions to U.S. and international consumers as well as aeronautical, enterprise, and government customers. Additionally, Hughes designs, provides, and installs gateway and terminal equipment to customers for other satellite systems. *See* EchoStar Corp., Annual Report (Form 10-K), at 3 (Feb. 22, 2018) ("EchoStar 10-K for 2017").

⁵ *See id.*

⁶ *See id.*

countries, and capability for aeronautical as well as U.S. and international enterprise broadband services.⁷

Hughes is currently in the process of constructing EchoStar XXIV, its next-generation, Commission-licensed, ultra-high density satellite, which will provide expanded services to consumers throughout the United States and the Americas at speeds of 100 Mbps or more.⁸

EchoStar XXIV is the first satellite U.S.-licensed for use of portions of the V band for both gateways and user terminals. EchoStar XXIV is expected to begin service in 2021.⁹

With the March 2017 launch of HughesNet Gen5, Hughes is a fixed broadband alternative to terrestrial broadband services across the continental United States, southeastern Alaska, Puerto Rico, and the U.S. Virgin Islands, providing consumer broadband services meeting the Commission's 25/3 Mbps broadband speed threshold ubiquitously.¹⁰ Hughes competes with ViaSat across much of the country in the satellite broadband market. Additional competition in the satellite broadband market is poised to increase as the non-geostationary orbit systems that have been licensed by the FCC, such as OneWeb, are deployed.¹¹

⁷ See *id.*

⁸ See Press Release, Hughes, *Hughes Selects Space Systems Loral to Build Next-Generation Ultra High Density Satellite* (Aug. 9, 2017), <https://www.echostar.com/en/Press/Newsandmedia/Hughes%20Selects%20Space%20Systems%20Loral%20To%20Build%20Next-Generation%20Ultra%20High%20Density%20Satellite.aspx>.

⁹ See *id.*

¹⁰ See Press Release, Hughes, *Hughes Announces HughesNet Gen5 High-Speed Satellite Internet Service*, (Mar. 7, 2017), <https://www.hughes.com/who-we-are/resources/press-releases/hughes-announces-hughesnet-gen5-high-speed-satellite-internet>.

¹¹ See EchoStar 10-K for 2017, at 3-4.

Additionally, in July 2016, Hughes began delivering high-speed consumer satellite broadband in Brazil, using Ka-band capacity acquired on the EUTELSAT 65 West A satellite.¹² Hughes also launched its consumer satellite broadband service in Colombia in the third quarter of 2017.¹³ To augment the capacity provided by the EUTELSAT 65 West A and EchoStar XIX satellites in Central and South America, Hughes acquired rights to use Ka-band capacity on the Telstar 19V satellite launched in July 2018, and thus expects to launch consumer satellite broadband services in other Central and South American countries later in 2018.¹⁴

2. *Emergency Communications in Support of Disaster Relief Efforts*

The role of satellite technology, and HughesNet Gen5 in particular, has been diverse and expansive with respect to U.S. disaster relief efforts during the past couple of years. Notably, during and in the aftermath of the 2017 hurricane season, Hughes used and continues to use its available infrastructure and capacity to support relief efforts in affected U.S. regions, namely in Texas, Puerto Rico, and the U.S. Virgin Islands. In Texas, Hughes worked with ResponseForce1 in supporting Federal Emergency Management Agency (“FEMA”) shelters with satellite broadband for public/community use to check in with family and friends via VoIP and internet.¹⁵ In Puerto Rico, Hughes and ResponseForce1 supported the San Cristobal Hospital in Ponce and deployed VSATs and solar generators to get the hospital back up and operational with the ability

¹² See EchoStar Corp., Annual Report (Form 10-K), at 4, 10 & 42 (Feb. 24, 2017).

¹³ See EchoStar 10-K for 2017, at 3.

¹⁴ See EchoStar Corp., Quarterly Report (Form 10-Q), at 26 (Aug. 7, 2018) (“EchoStar 10-Q for 2Q 2018”).

¹⁵ See Hughes Blog: Response Force 1 (“Response Force 1”), <https://www.hughes.com/disaster-relief-support/response-force-1> (last visited Sept. 6, 2018).

to communicate. This enabled the hospital leadership teams to order additional supplies and medications as well as evacuate critical patients.¹⁶

In these disaster stricken regions, Hughes supported retail customers, including wholesalers, pharmacies, and others to ensure business can be carried on as usual, including processing insurance claims, credit card transactions, and government issued food stamp debit cards.¹⁷ Since the 2017 hurricanes struck Puerto Rico and the U.S. Virgin Islands, there have been over 1,200 total HughesNet new activations by both government and private sector users on the islands.

Hughes also supported key government agencies in Puerto Rico and the U.S. Virgin Islands, such as FEMA, the National Weather Service, Department of Defense, and Customs and Border Patrol. Using the Hughes VSAT network, ResponseForce1 worked with FEMA to get the St. Croix, St. Thomas and the San Juan Airports all back online to schedule the initial first responder flight cycles to the islands.¹⁸ In fact, FEMA used Hughes services extensively during the response effort, and is expected to continue to do so for the foreseeable future. In November 2017 alone, FEMA relied on Hughes satellite-based services to place over 30,000 calls.¹⁹

B. MSS

In June 2017, EchoStar launched an S-band MSS satellite, EchoStar XXI, and commenced operations of the satellite in November 2017 to provide space segment capacity to

¹⁶ *See id.*

¹⁷ *See* Hughes Blog: Coamo Finds Connection in Isolation, <https://www.hughes.com/disaster-relief-support/coamo-finds-connection-isolation> (last visited Sept. 6, 2018).

¹⁸ *See supra* note 15.

¹⁹ *See* Jack Corrigan, *How Puerto Rico is Rebuilding Its Network Three Months After Maria*, Nextgov (Dec. 19, 2017), <http://www.nextgov.com/emergingtech/2017/12/how-puerto-rico-rebuilding-its-network-three-months-after-maria/144686/>.

EchoStar Mobile Limited in Europe. As a result, EchoStar is uniquely positioned to deploy commercial MSS and complementary ground component network services throughout Europe.²⁰

II. THE COMMISSION CAN REDUCE BARRIERS TO ENTRY AND COMPETITIVE EXPANSION BY SATELLITE SERVICE PROVIDERS

A. Adopting Technology-neutral Regulatory Policies

One of the key barriers to competitive entry into the U.S. satellite communications marketplace and expansion for existing providers is the lack of technology-neutral regulations. This is especially the case with regard to access to scarce spectrum and orbital resources. By adopting technology neutral regulations, the Commission will ensure that satellite and terrestrial platforms can compete to meet the full range of consumer broadband demands. Failure to enable such competition could result in certain segments of the U.S. population being denied affordable access to advanced services, including broadband.

With regard to access to spectrum resources, it is critical that the Commission adopt a technology neutral approach to ensure that competitive broadband providers have access to the spectrum they need to support current and future customers. Over the previous decade or so, spectrum was still largely allocated to different uses on an exclusive or dedicated basis.²¹ While the Commission required spectrum sharing in certain bands, this was accomplished primarily

²⁰ See EchoStar 10-Q for 2Q 2018, at 53.

²¹ See, e.g., *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems*, Second Report and Order, 17 FCC Rcd 23193 (2002) (allocating spectrum, which previously was used for fixed microwave, multipoint distribution service, and federal government operations, to support deployment of new advanced wireless services, or "AWS"); *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems*, Third Report and Order, Third Notice of Proposed Rulemaking and Second Memorandum Opinion and Order, 18 FCC Rcd 2223 (2003) (reallocating spectrum previously used for mobile satellite services to provide additional spectrum for new fixed and mobile services, including AWS).

through coordination in limited geographic areas, whereby these services had technical characteristics that enabled sharing to occur within limited operational constraints.²²

However, demand for greater speeds and increasingly more spectrum required Congress and the Commission to adopt new methods of increasing spectrum efficiency, including expanding spectrum sharing and clearing for new uses. For example, Congress authorized the use of incentive auctions to clear some of the 600 MHz band previously allocated to television for new uses.²³ This auction was very successful at providing access to new spectrum for mobile wireless services. In addition, Congress has successfully required some government operations to be relocated to other frequency bands to make spectrum available for new commercial services, a subject also of the Mobile NOW Act.²⁴ And of course, the Commission has enabled greater sharing of spectrum through innovative new approaches, as evidenced by the 3.5 GHz band rulemaking.²⁵

With the upcoming development of, and anticipated consumer demand for, 5G broadband services, additional Commission actions will be required to make spectrum available for this use. Satellite is expected to serve a complementary role to the terrestrial network for 5G, especially in

²² See, e.g., *Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHz Bands*, Report and Order, 29 FCC Rcd 4610, 4692-93 ¶ 220 (2014) (adopting AWS-3 rules requiring successful coordination with federal government incumbents prior to operation in certain designated protection zones); *FWCC Request for Declaratory Ruling on Partial-Band Licensing of Earth Stations in the Fixed-Satellite Service That Share Terrestrial Spectrum*, First Report and Order, 16 FCC Rcd 11511, ¶ 1 (2001) (adopting licensing rules for very small aperture terminal, or "VSAT," earth station operations in C-band spectrum shared on a co-primary basis with terrestrial fixed microwave-systems, and requiring completion of frequency coordination for each earth station antenna prior to operation).

²³ See Middle Class Tax Relief and Job Creation Act of 2012, Pub. Law No. 112-96 §§ 6401-6414, 126 Stat. 156, 222-37 (2012).

²⁴ See S.19, 115th Cong. (2017), as incorporated in H.R. 1625, 115th Cong. (2018).

²⁵ See *Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Report and Order and Second Further Notice of Proposed Rulemaking, 30 FCC Rcd 3959 (2015), Order on Reconsideration and Second Report and Order, 31 FCC Rcd 5011 (2016).

rural and remote areas where consumers might be left behind without access to broadband satellite services. Other wireless technologies, such as high altitude platforms and Wi-Fi, also anticipate playing a role. Accordingly, in order to ensure the success of 5G and broadband access for all users, it is critical that additional spectrum be made available across platforms in a balanced (but not necessarily equal) manner.

To ensure that consumers can have access to the technologies that best meet their needs, the Commission must follow the principle of enabling competition among platforms by ensuring that no single platform is favored. First, to the extent additional spectrum is cleared and made available for 5G, it should not be made available simply for one technology – whether satellite or terrestrial wireless. While the split between platforms does not have to be 50-50, it should take into account the consumer demand for access to different platforms, and the role that these platforms will play generally and in different geographic areas of the country.

Second, with regard to increasing sharing of spectrum, such as the millimeter wave bands above 24 GHz, the same technological neutrality principle must be followed. For frequency bands with incumbent operations, it is critical that any sharing criteria adopted be reasonable and enable both incumbent and new services (including satellite broadband) to grow. In addition, in some bands, such as where ubiquitous user terminals are planned, dedicated spectrum for satellite is appropriate. The Commission adopted rules in Spectrum Frontiers that provide for both dedicated and shared frequency bands for satellite broadband in several of the millimeter wave bands.²⁶ While this is a good start, the Commission needs to, in conjunction with its government partners, export this approach internationally at the 2019 World

²⁶ *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services*, Third Report and Order, Memorandum Opinion and Order, and Third Further Notice of Proposed Rulemaking, FCC 18-73 (June 8, 2018).

Radiocommunication Conference, where use of these same bands is being considered. Failure to provide international harmonization will violate the principle of technology neutrality by creating a technical regulatory advantage for terrestrial wireless over satellite capabilities. Additionally, failure to harmonize spectrum regionally and internationally creates a significant technical barrier, and competitive hurdle for satellite providers, endangering:

- the emergence of existing and planned next generation satellite networks – both commercial and government,
- U.S. national space policy of enabling the use of commercial satellite systems to meet the growing communications needs of our government agencies, and
- the ability of the United States to achieve its goal of bridging the digital divide at home and abroad.

Lack of harmonization will balkanize the satellite marketplace, depriving U.S. satellite and satellite equipment manufacturers of next generation commercial satellite manufacturing and exports, built in the United States, using a skilled workforce, and jeopardizing United States leadership in commercial space.

Finally, it is important that until advanced sharing technology (such as cognitive radios) are proven, to limit necessarily sharing between widely deployed services, such as mobile wireless devices and satellite broadband user terminals. Accordingly, as the FCC recognized in the *Spectrum Frontiers* proceeding, retaining some exclusive spectrum is still necessary. The Commission must follow a holistic approach to spectrum management to plan for the future, ensuring that there is competition among platforms and that growing consumer demands for all applications and uses can be met, including for fixed broadband.

B. Revising the FCC’s Satellite Licensing Framework to Encourage Additional U.S. Satellite Filings at the ITU

To operate their networks successfully, commercial satellite operators need access to spectrum and orbital resources assigned under both a space station authorization and ITU filings by a national administration.²⁷ With regard to ITU filings, GSO commercial operators have to choose and rely upon a national administration to submit ITU filings to ensure access to an orbital location for commercial development.

In the past, U.S. and often non-U.S. satellite operators had a preference to utilize the United States as their country of choice for satellite licensing and ITU filings. In recent years, however, the number of U.S.-flagged commercial satellites (*i.e.*, U.S.-licensed satellites operating pursuant to U.S. filings at the ITU) has continued to decline for a number of reasons. In part, this decline can be traced to regulatory barriers and burdens that discourage satellite network operators from working with the Commission. This includes areas such as charging a bond for submitting early filings at the ITU (thus severely limiting the number of such filings),²⁸ requiring additional bonds for licensed satellites,²⁹ and a lack of flexibility in the satellite and earth station construction rules.³⁰

²⁷ This is in addition to any authorizations for market access and ground stations it may need.

²⁸ In December 2015, the FCC amended its rules to allow an option to submit ITU filings for GSO satellites up to two years prior to filing a complete license application, but requiring a \$500,000 bond for such ITU filings. *See Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Second Report and Order, 30 FCC Rcd 14713, ¶¶ 19-24 (2015) (“*2015 Satellite Licensing Reform Order*”). To date, however, the FCC has not implemented measures to permit such early ITU filings, and no operator has sought to submit such filings with the FCC.

²⁹ *See* 47 C.F.R. § 25.165(a) (requiring the posting of bond amounts totaling \$3 million for each licensed GSO satellite and \$5 million for each licensed NGSO constellation).

³⁰ The Commission requires construction of individually licensed earth stations, including gateway earth stations, to be completed within one year after their license grant date. *See* 47 C.F.R. § 25.133(a)(1). This effectively forces satellite operators to delay obtaining authorizations for gateway earth stations until one year before their satellite is in operation, despite the long lead time that operators have (often 2-3 years) to finalize their design for their space station, thus creating additional uncertainty. The Commission also has adopted stringent milestone requirements for launch of new satellites, despite other

Unfortunately, because of these restrictions, even U.S.-headquartered satellite operators are turning more and more to foreign administrations to make ITU filings and obtain space station authorizations, such that only a handful of U.S.-flagged space stations remain today. Foreign administrations provide these companies with greater operational flexibility and increased certainty on having the spectrum and orbital resources available for their satellites. Consequently, satellite operators have little incentive to push for further U.S. satellite licensing reforms from the FCC, despite the important public interest benefits resulting from U.S. licensing of satellites. Such benefits, as the FCC has found, include supporting the provision of service to U.S. citizens globally, strengthening the voice of the United States in international frequency use decision-making, and ensuring that appropriate orbital debris mitigation measures are taken, thereby preserving the orbital environment for future use.

Additionally, satellite service providers increasingly are choosing to locate their gateways, even for U.S.-flagged satellites, in non-U.S. locations. This is especially the case in the millimeter wave bands, where the FCC's sharing rules with terrestrial wireless give priority to which operator has already deployed. Accordingly, it is very easy for a planned gateway location to be blocked or restricted as a result of a terrestrial operator deploying before the gateway can be licensed. Unfortunately, because of the long construction time for satellites, operators may be unable to change their satellites to accommodate different gateway locations.

Consequently, to reverse the trend of increasing numbers of non-U.S.-flagged satellites and encourage additional U.S.-flagged satellites, the Commission should consider the following revisions to its satellite and earth station licensing framework:

countries having much more relaxed rules. *See* 47 C.F.R. § 25.164; *see also* 2015 *Satellite Licensing Reform Order*, ¶ 69 (rejecting certain proposed revisions to provide less restrictive FCC milestone requirements).

1. **Milestones:** Revise the FCC milestone certification requirement to allow licensees to meet milestone by operating and/or providing service using an existing in-orbit satellite for a period of two years. The ITU rules already permit use of in-orbit satellites to meet bringing-into-use requirements. The U.S. is the only country that requires satellite operators to build a new satellite in order to develop a new orbital location.

2. **Bonds for FCC-licensed satellites:** This bond requirement should be eliminated, as the United States is the only country that requires bonds for its licensed space stations and there is no demonstration that the use of bonds limits speculation overall; operators can go to other countries rather than file through the United States – harming U.S. operators who may have less flexibility.

3. **ITU filings:** Provide greater flexibility under the FCC’s ITU filing process by eliminating both the bond requirement for early ITU filings and the requirement to file for a space station license within a two-year period. The United States is the only country that requires a bond for early ITU filings. To prevent undue speculation, the Commission could require satellite operators to support their ITU filings by providing a short annual report on the rationale for, and progress in developing the orbital slot. This is common practice in other space-faring nations, including the United Kingdom.

4. **Gateway licenses:** The FCC’s rules should be amended to allow operators to file for and obtain approval for gateways in conjunction with their space station authorizations. Operators also should be allowed to complete construction of gateways consistent with the satellite milestone period.

III. CONCLUSION

Based upon the foregoing, the Commission should conclude that the satellite communications marketplace is competitive, and that satellite is an important element of the

communications marketplace. To reduce barriers to competitive expansion by satellite service providers and to promote satellite competition, the Commission should ensure that its spectrum policies are technology-neutral and revise its satellite licensing rules to encourage additional U.S. satellite filings at the ITU.

Respectfully submitted,

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