

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)
)
Recommendations Approved by the Advisory) IB Docket No. 04-286
Committee for the 2015 World)
Radiocommunication Conference)
)
)

To: The Commission

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

I. INTRODUCTION

EchoStar Satellite Operating Corporation (“ESOC”) and Hughes Network Systems, LLC (“Hughes”, and collectively, “EchoStar”) submit these comments in response to the Commission’s Public Notice seeking comment on recommendations approved by the World Radiocommunication Conference Advisory Committee (“WAC”).¹ As an active participant in the United States preparatory process towards the 2015 World Radiocommunication Conference (“WRC-15”) and in International Telecommunications Union activities, EchoStar understands the impact that these treaty level negotiations can have on the satellite industry by potentially transforming the way in which spectrum resources are used.

In these comments, EchoStar indicates its support for a number of proposals on current and future Agenda items which have been approved by the WAC. EchoStar has actively participated in the informal working group meetings and has expressed its views throughout the WAC process. However, EchoStar does want to provide additional comments on three future

¹ *FCC Seeks Comments on Recommendations Approved by the Advisory Committee for the 2015 World Radiocommunication Conference*, IB Dkt No. 04-286, Public Notice, DA 15-604, (rel. May 21, 2015).

agenda items developed pursuant to Agenda item 10: WAC document 117 and WAC document 118, where EchoStar supports View B and WAC document 121, which EchoStar supports in total.

II. BACKGROUND

Founded by Charlie Ergen in 1980, EchoStar Corporation, Hughes and ESOC's parent, has grown to operate through ESOC a fleet of 24 satellites in the Direct Broadcast Satellite ("DBS") Service, the Fixed-Satellite Service ("FSS"), and the Mobile-Satellite Service ("MSS") making it the largest U.S. geostationary orbit ("GSO") commercial satellite operator and the fourth largest in the world. These facilities provide innovative multi-channel video programming distribution, state-of-the art fixed broadband and innovative mobile services. Under contract to DISH Network, EchoStar operates all of the space station and earth station assets, as well as related consumer equipment, necessary to serve nearly 14 million U.S. DBS customers.²

EchoStar is also the parent company of Hughes. Hughes is the global leader in providing broadband satellite networks and services for enterprises, governments, small businesses, and consumers. Having pioneered the very small aperture terminal ("VSAT"), Hughes is the world's leading provider of enterprise VSAT services and has built on this expertise to bring high speed satellite broadband services to consumers and small businesses across the United States. Hughes provides satellite internet service to over one million active users in North America.

² In January 2014, EchoStar acquired Solaris Mobile Ltd., now named EchoStar Mobile Ltd. ("EML"). EML is a next generation MSS operator engaged in providing access to satellite and terrestrial network infrastructure that supports enhanced mobile communications across Europe. In addition, EchoStar holds concessions in Brazil, owns a 49 percent interest in DISH Mexico, which provides pay television service in Mexico and is a joint venture partner in a satellite venture with satellite service covering the mid-Atlantic region.

As a global satellite communications services provider, EchoStar has a keen interest in the WRC-15 Agenda items as the outcomes will directly impact EchoStar's operations and users, totaling approximately 17 million across North America.

III. DISCUSSION: WRC 15 AGENDA ITEM 10: FUTURE AGENDA ITEMS

WRC-15 Agenda item 10 focuses on identifying work items that will be addressed by the next WRC scheduled to take place in 2019. EchoStar anticipates that there will be many proposals for future Agenda items submitted during WRC-15. Below, EchoStar provides its views on three proposed future Agenda items that have been addressed by the WAC, which could have a significant impact on its operations and the operations of other satellite operators, as well as other users of the spectrum resource.

A. WAC DOCUMENT 121: ADDITIONAL FSS SPECTRUM

Broadband satellite services continue to increase in demand on a yearly basis. Today, EchoStar alone in North America has over one million active users and this number is increasing on a daily basis. Many of these users, whether government, commercial or residential, are in rural or remote parts of the country.

Because of this increasing demand, EchoStar, and its competitor, ViaSat are both planning to launch additional high throughput satellites that will operate in the FSS in the Ka band in the 2016 timeframe.³ But this is just the tip of the iceberg for these and other operators. For example, other operators, including Inmarsat's Global Express, SES, Intelsat, Eutelsat, and DirecTV, among others, all have launches coming up for satellites that require access to the

³ Hughes Satellite Systems Corporation, Quarterly Report (Form 10-Q), 30 (May 7, 2015); Press Release, May 16, 2013, ViaSat, ViaSat Announces Next Generation Broadband Satellite.

FSS.⁴ In addition, a number of non-geostationary FSS satellite networks are operational, like O3b, with expected growth in the next few years.⁵ Finally, with advances in satellite technology, there is an expectation that new and innovative satellite services will require access to additional spectrum over the next few years.

Demand continues to grow as advances in satellite technologies are allowing a variety of new services including innovative broadband, video and mobile services covering the globe. In addition, in certain areas, satellite remains the only advanced service to reach places and regions not covered by terrestrial services and, without satellite services, would miss out on the innovative services that they provide today.⁶

In addition, FSS support a number of important public interest initiatives including tele-health, tele-education and public protection and disaster relief. Recent disasters, such as the

⁴ Inmarsat, Global Xpress, <http://www.inmarsat.com/service/global-xpress/> (last visited Jun. 11, 2015); SES, <http://www.ses.com/4233127/upcoming-launches> (last visited Jun. 11, 2015); Intelsat, Frequency Asked Questions, <http://www.intelsat.com/infrastructure/intelsat-epicng/frequently-asked-questions/> (last visited Jun. 11, 2015); Eutelsat, Eutelsat 65West A, <http://www.eutelsat.com/en/satellites/future-satellites/EUTELSAT-65WA.html> (last visited Jun. 11, 2015); DIRECTV 15, <http://www.space-airbusds.com/en/programmes/directv-15-pd.html> (last visited May 24, 2015).

⁵ Stephen Clark, *O3b Network Plans Satellite Fleet Expansion*, Spaceflight Now, Dec. 29, 2014, available at <http://spaceflightnow.com/2014/12/29/o3b-networks-plans-satellite-fleet-expansion/>; Peter B. de Selding, *Virgin, Qualcomm Invest in OneWeb Satellite Internet Venture*, Space News, Jan. 15, 2015, available at <http://spacenews.com/virgin-qualcomm-invest-in-global-satellite-internet-plan/>; Monica Allevan, *In 5G Proceeding, SpaceX Urges FCC to Protect Future Satellite Ventures*, Jan. 22, 2015, available at <http://www.fiercewireless.com/tech/story/5g-proceeding-spacex-urges-fcc-protect-future-satellite-ventures/2015-02-22>.

⁶ Caleb Henry, *FirstNet Emergency Broadband System Likely to Need Satellite, Says DHS Official*, Oct. 17, 2014, <http://www.satellitetoday.com/regional/2014/11/17/firstnet-emergency-broadband-system-likely-to-need-satellite-says-dhs-official/>.

earth quake in Nepal, continue to demonstrate the need for the only form of communications that is often available following a natural or manmade disaster.⁷

The increasing demand for FSS has required satellite operators to develop technologies that ensure the most efficient use of the FSS spectrum resource – enabling these operators to offer much more capacity with the same amount of spectrum. The satellite industry uses the most advanced technologies, including spot beam technologies and frequency-reuse in order to operate as efficiently as possible.⁸ In addition, the satellite industry engages in sharing with a number of services, where possible, to obtain the most efficiencies from the spectrum resource. However, despite all of these efficiencies, there is a demand for FSS that is surpassing the amount of spectrum available. Today, satellite bands are reaching capacity and the existing spectrum that still remains available, such as in the V band, is expected to become heavily utilized in the near future.⁹ Accordingly, with the continued proliferation of new and innovative satellite services and the increasing scarcity of the satellite spectrum resource, it is critical that the ITU start planning now for providing access to additional FSS spectrum in the near term. Hence, WAC document 121 is particularly well-timed.

⁷ Caleb Henry, *Red Cross, Team Rubicon Using Intelsat Services in Nepal Relief Effort*, Via Satellite, May 18, 2015, <http://www.satellitetoday.com/telecom/2015/05/18/red-cross-team-rubicon-using-intelsat-services-in-nepal-relief-effort/>.

⁸ See Thomas Black & Jennifer Surane, *Airlines Work to Supply Better In-Flight Wi-Fi with Satellite Services*, Bloomberg, (Aug. 07, 2013 9:53am), <http://skift.com/2013/08/07/nonstop-facebook-over-oceans-coming-soon-to-a-jet-near-you-tech/>; Daniel Minoli, *Innovations in Satellite Communication and Satellite Technology* 102 (John Wiley & Sons eds., Science, 2015).

⁹ GN Dkt No. 14-177 *et. al.*, Comments of the Satellite Industry Association, 8-9 (filed Jan 15, 2015); IB Dkt No. 97-95, Comments of the Satellite Industry Association, 2-4 (filed Jan. 6, 2011).

It is for these reasons, that EchoStar strongly supports WAC document 121, which would add an item to the WRC-19 Agenda that would consider making FSS allocations in the frequency bands 8.5-9 GHz and 32.3-37 GHz. By having bands near to the Ku and Ka band available, this would provide satellite operators with the ability to leverage the technologies they have developed already. In addition, the studies leading up to the WRC-19 for this Agenda item could look at both exclusive and non-exclusive use of these frequencies for both FSS GSO and NGSO satellite systems. The continued growing demand for FSS for both network configurations all but demands making additional spectrum available for this important use as soon as possible.

B. WAC DOCUMENT 118: ADDITIONAL SPECTRUM FOR IMT ABOVE 6 GHz

One item being proposed for inclusion in the list of work items for WRC-19 is conducting studies aimed at making identifications above 6 GHz for International Mobile Telecommunications (“IMT”) systems. While EchoStar believes it is critical to make available sufficient spectrum for IMT services to support consumer demands, as discussed below the proposal contained in WAC document 118 View A is too broad and premature. Accordingly, EchoStar supports View B of WAC document 118.

ITU Working Party 5D and Joint Task Group 4-5-6-7 have spent an entire three year study cycle leading to the upcoming WRC-15 considering IMT spectrum needs and have not included recommendations in regards to the suitability of IMT spectrum above 6 GHz. It is unnecessary to repeat this work over another ITU study cycle, as there has been no demonstrated need for such additional spectrum, especially since WRC-15 is already planning to consider additional spectrum for IMT.

Further, as currently drafted, View A of WAC document 118 fails to take into account existing services. This is an important part of any such studies, especially when studies cover a significant amount of the usable spectrum that is currently used by many other valuable services, including satellite services. In fact, what appears to be envisioned by WAC document 118, View A is the exclusive use of such spectrum, without regard to the incumbent services. Such an approach is untenable and any such studies, if allowed to go forward, must be properly bounded.

Furthermore, even the advocates of View A recognize that the technology is still being developed for which these allocations are being sought.¹⁰ Without developed technology, it will be impossible to perform the studies that are necessary to make determinations about possible identifications and sharing criteria for IMT. A better approach, therefore, could be to separate the View A proposed Agenda item into two parts, with the first part focused appropriately on developing system characteristics and the identification of spectrum requirements, and the second, a future Agenda item for a future WRC, aimed at sharing and compatibility studies in appropriate bands. Such an approach would create a realistic path to the identification of additional spectrum for IMT that meets the actual requirements of the service, while ensuring protection of important existing services. For this reason, it is crucial that the United States relook at this proposed Agenda item and develop a future Agenda item for IMT that is more realistic. Accordingly, EchoStar supports View B, which would provide for additional definition of spectrum requirements for IMT before an Agenda item is created for WRC-19 that would enable the allocation of additional spectrum.

¹⁰ See Jessica Lipsky, *5G Makes Waves for Asian Giants*, EE Times, Apr. 27, 2015, http://www.eetimes.com/document.asp?doc_id=1326448.

C. WAC DOCUMENT 117: IDENTIFICATION OF SPECTRUM FOR THE HIGH ALTITUDE PLATFORM SERVICE (HAPS)

It has been over a decade since the ITU first identified spectrum for HAPS.¹¹ Today, several companies are finally considering the use of the currently identified bands and other frequency bands for HAPS. While EchoStar supports studies leading to a WRC-19 Agenda item on identifying spectrum for HAPS, EchoStar has serious concerns, similar as discussed above, about the wide variety of spectrum bands that are being proposed for study. In addition, EchoStar is especially concerned about the bands that are currently in use for satellite services being considered for use by HAPS because View A fails to even state that it would take into account existing services in its studies. In addition, while HAPS is considered by the ITU as a fixed service, the advocates of View A have stated that the identification of spectrum for HAPS could possibly include spectrum allocated for other services. EchoStar cannot support this expansion of HAPS beyond the current definition. Instead, EchoStar would support such studies in more discrete portions of existing fixed service allocations where there is no satellite service allocation.¹²

IV. CONCLUSION

EchoStar urges the Commission to support the adoption of these WAC views as formal U.S. proposals to WRC-15 as soon as practicable so that support can be obtained for them from other Administrations in advance of the Conference with the understanding that future Agenda

¹¹ See *High Altitude Platform Station: An Opportunity to Close The Information Gap*, International Telecommunications Development Bureau, ITU-D Study Groups, Document 2/202(Rev.1), Apr. 3, 2001.

¹² EchoStar supports the frequency bands referenced in the Satellite Industry Association's comments. See IB Dkt No. 04-286, Comments of the Satellite Industry Association, 7-8 (filed Jun. 11, 2015).

items must be bounded and duly take into account currently allocated services. Success of these proposals at WRC-15 would advance the interests of the United States by improving the efficient use of spectrum while ensuring the integrity of existing services, thereby facilitating the deployment of new and improved services to consumers.

Respectfully submitted,

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