

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Use of Spectrum Bands Above 24 GHz for)	GN Docket No. 14-177
Mobile Radio Services)	
)	
Amendment of Parts 1, 22, 24, 27, 74, 80, 90,)	WT Docket No. 10-112
95, and 101 To Establish Uniform License)	
Renewal, Discontinuance of Operation, and)	
Geographic Partitioning and Spectrum)	
Disaggregation Rules and Policies for Certain)	
Wireless Radio Services)	

**REPLY COMMENTS OF SES AMERICOM, INC. AND O3B LIMITED
ON THIRD FURTHER NOTICE OF PROPOSED RULEMAKING**

SES Americom, Inc. and its affiliate O3b Limited (collectively, “SES”) respectfully submit these reply comments in response to the Federal Communication Commission’s (the “Commission’s”) Third Further Notice of Proposed Rulemaking (“3rd FNPRM”) in the above-captioned proceeding regarding sharing rules in the 50.4-51.4 GHz (“50 GHz”) band.¹ As SES proposed in its initial comments, the Commission should adjust the sharing framework to allow more robust satellite operations by eliminating the population coverage limits for earth stations in less densely populated areas and removing the restrictions on covering interstate highways and passenger railroads.²

¹ *Use of Spectrum Bands Above 24 GHz For Mobile Radio Service*, Third Report and Order, Memorandum Opinion and Order, and Third Further Order of Proposed Rulemaking, FCC 18-73 (rel. June 8, 2018) (“3rd FNPRM”).

² Comments of SES Americom, Inc. and O3b Limited, GN Docket No. 14-177, filed Sept. 10, 2018 (“SES Comments”) at Annex B.

I. Satellite Operators Have Demonstrated Real Interest and Investment in the 50 GHz Band

In Response to the Commission’s 3rd FNPRM, several fixed-satellite service (“FSS”) operators joined SES in urging the Commission to grant FSS greater siting flexibility for 50 GHz earth stations. This is not surprising given that the satellite industry is prepared to put the 50 GHz band to use in the near future. Nine parties have sought Commission authority for V-band satellite systems – seven for non-geostationary orbit (“NGSO”) systems³ and one for a geostationary orbit (“GSO”) system⁴ -- all proposing to operate in the 50 GHz band. In light of the characteristics of the 50 GHz band, the demonstrated commitment from satellite operators to deploy in the band, and the public interest in allowing next-generation GSO and NGSO satellite systems, the Commission should heed the recommendations of satellite operators and modify its proposed rules to expand access for FSS earth stations in the 50 GHz band.

A number of stakeholders in the satellite industry reinforced the showing submitted by SES⁵ that the propagation qualities of the 50 GHz band are different from those in the 24.75-25.25 GHz (“24 GHz”) band, and that those qualities can facilitate expanded sharing

³ Theia Holdings A, Inc., Call Sign S2986, File No. SAT-LOA-20161115-00121; O3b Limited, Call Sign S2935, File Nos. SAT-AMD-20170301-00026 *et al.*, granted, *O3b Limited*, Order and Declaratory Ruling, FCC 18-70 (rel. June 6, 2018) (“O3b V-band Application and Grant”); WorldVu Satellites Limited, Call Sign S2994, File No. SAT-AMD-20180104-00004 (“OneWeb V-band Application”); Audacy Corporation, Call Sign S2982, File No. SAT-LOA-20161115-00117, granted in part and deferred in part, *Audacy Corp.*, Order and Authorization, FCC 18-72 (rel. June 6, 2018) (“Audacy V-band Application and Grant”); Space Exploration Holdings, LLC, Call Sign S2992, File No. SAT-LOA-20170301-00027; ViaSat, Inc., Call Sign S2985, File No. SAT-PDR-20161115-00120; Telesat Canada, Call Sign S2991, File No. SAT-PDR-20170301-00023; The Boeing Company, Call Sign S2993, SAT-LOA20170301-00028.

⁴ Hughes Network Systems, LLC, Call Sign S3017, File Nos. SAT-LOA-20170621-00092 & SAT-AMD-20170908-00128, granted in part and deferred in part, Oct. 13, 2017 (“Hughes V-band Application and Grant”).

⁵ SES Comments at Annex A.

opportunities for FSS operations.⁶ SpaceX convincingly argues that the proposed numerical restrictions on earth stations sited in a county or Partial Economic Area (“PEA”) imported from the 24 GHz band rules would unnecessarily restrict FSS operators in the 50 GHz band, as they are not required to protect terrestrial operations in the higher frequencies.⁷ Boeing notes that the general characteristics of the 50 GHz band lend themselves to more expansive earth station deployment without the potential for impeding terrestrial deployment in the band.⁸ These arguments, like the analysis in the SES Comments, are grounded in the physical properties of the 50 GHz band.⁹ The Commission should acknowledge the significant differences in the properties of the 24 GHz and 50 GHz bands and adopt the revised rules for FSS earth station siting set forth by SES.

As noted above, the satellite industry has already demonstrated a real interest in the band, through multiple applications for systems that will operate in the band. These applications, several of which have been granted,¹⁰ articulate detailed overviews of how next-generation satellite systems will put V-band spectrum, including the 50 GHz band, to use. These new systems have been designed to use the 50 GHz band in reliance on the co-primary FSS allocation in the band.¹¹ The Commission’s sharing rules in the 50 GHz band should account for the

⁶ See Comments of Space Exploration Technologies Corp., GN Docket No. 14-177, filed Sept. 10, 2018 (“SpaceX Comments”); Comments of The Boeing Company, GN Docket No. 14-177, filed Sept. 10, 2018 (“Boeing Comments”); Comments of ViaSat, Inc., GN Docket No. 14-177, filed Sept. 10, 2018.

⁷ SpaceX Comments at 6.

⁸ Boeing Comments at 5-6.

⁹ SES Comments at Annex A.

¹⁰ See Hughes V-band Grant; O3b V-band Application and Grant; Audacy V-band Application and Grant.

¹¹ 47 C.F.R. § 2.106.

investments that have already been made by the satellite industry. Otherwise, the Commission risks having large swaths of domestic 50 GHz spectrum go unused in the United States while the rest of the world benefits from the cutting-edge satellite technology that will be deployed in the band.

Commission action to expand access to the 50 GHz band for satellite operations will facilitate, not hinder, the deployment of advanced mobile service throughout the United States. Many of the proposed V-band satellite systems are designed to play a role in the next generation of mobile networks,¹² as current satellite systems do today.¹³ FSS systems are currently constrained in other portions of the V-band, including the 37.6-40.0 GHz and 47.2-48.2 GHz bands by the Commission's rules;¹⁴ additional flexibility in the 50 GHz band will help operators enhance the quality of their services in the United States. By facilitating the flexible deployment of FSS earth stations to meet the growing demand for mobile data where fiber is not readily available, the Commission will help these next generation mobile services deploy well beyond the realistic footprint of terrestrial systems in the 50 GHz band. This would advance the Commission's goals in this proceeding¹⁵ as well as help to bridge the digital divide that persists within the United States.¹⁶ The additional flexibility in the SES proposal would allow satellite

¹² See O3b V-band Application and Grant; OneWeb V-band Application. See also "Telesat LEO – Why LEO?," available at <https://www.telesat.com/services/leo/why-leo>.

¹³ See "SES Networks Works with Project Loon to Restore Connectivity in Puerto Rico," Oct. 23, 2017, available at <https://www.ses.com/press-release/ses-networks-works-project-loon-restore-connectivity-puerto-rico>. See also "Timor Telecom deploys new 4G/LTE network with SES Networks service upgrade," Sept. 6, 2017, available at <https://www.ses.com/press-release/timor-telecom-deploys-new-4glte-network-ses-networks-service-upgrade>.

¹⁴ See 47 C.F.R. § 25.136(c & d).

¹⁵ 3rd NPRM at ¶ 1.

¹⁶ See *2018 Broadband Deployment Report*, GN Docket No. 17-199, FCC 18-10 (rel. Feb. 2, 2018) at ¶ 79.

deployment in the 50 GHz band to be driven by market demand rather than arbitrary rules based on artificial geographic markers.

The record, the physical properties of the 50 GHz band, and the Commission's own policy goals all support expanding FSS access to the 50 GHz band beyond what the Commission proposes in the 3rd FNPRM. SES urges the Commission to implement policy that reflects these factors.

II. In Contrast, Terrestrial Stakeholders Have Not Demonstrated Any Concrete Need for 50 GHz Spectrum

While the satellite industry has submitted clear plans to use 50 GHz band spectrum, the terrestrial mobile industry has shed very little light on any plans it may have for the band. Mobile industry commenters have recited generic projections about the growing demand for mobile data.¹⁷ But terrestrial parties have failed to articulate how they will tailor mmWave network designs to take into account reduced propagation in the 50 GHz band, or to specify which applications will be well suited for the 50 GHz band. None of the terrestrial stakeholders that responded to the 3rd NPRM provides specific details regarding what services the 50 GHz band will allow them to deploy or how they are developing new technologies to address the propagation challenges facing providers of wireless services in the band. The Commission should not grant the mobile industry nearly unfettered primary access to a greenfield band without a more explicit showing of need for the spectrum.

Similarly, terrestrial stakeholders supporting the Commission's proposal to apply the 24 GHz band rules to the 50 GHz band did not offer any substantive explanation regarding why those

¹⁷ Comments of Samsung Electronics America, GN Docket No. 14-177, filed Sept. 10, 2018, at 9.

rules are appropriate. They simply reaffirm their support for a sharing scheme¹⁸ that overwhelming favors the terrestrial industry. AT&T asserted at the comment stage that no evidence had been provided to justify a change to the sharing regime *before* it had a chance to review the other comments submitted in response to the 3rd FNPRM.¹⁹ Now that comments on the band have actually been filed, there is substantial evidence that the physical differences between the 24 GHz and 50 GHz bands indeed justify a change in the sharing rules.²⁰ The Commission should strongly weigh those demonstrations and not simply replicate sharing schemes implemented in lower bands based on the unsubstantiated assertions of the terrestrial industry.

Arguments by terrestrial proponents that the Commission should delay sharing rules in the band until service rules have been developed²¹ must be rejected. The Commission has frequently adopted sharing rules in mmWave bands before developing service rules for specific technologies. The delaying tactics used by the terrestrial side provide still more evidence that terrestrial stakeholders have no concrete plans for the 50 GHz band, whereas satellite operators have requests for 50 GHz band authority that have been deferred pending the outcome of this proceeding.²² Satellite applicants that have already designed 50 GHz systems, and in some cases face a ticking milestone clock for V-band deployment, need the Commission to adopt 50 GHz

¹⁸ Comments of AT&T Services, Inc., GN Docket No. 14-177, filed Sept. 10, 2018 (“AT&T Comments”) at 15-16; Comments of Ericsson, GN Docket No. 14-177, filed Sept. 10, 2018, at 14.

¹⁹ AT&T Comments at 16.

²⁰ SES Comments at Annex A, SpaceX Comments at 5; Boeing Comments at 5.

²¹ Comments of CTIA, GN Docket No. 14-177, filed Sept. 10, 2018, at 14; Comments of Nokia, GN Docket No. 14-177, filed Sept. 10, 2018, at 4.

²² See Hughes V-band Grant; O3b V-band Application and Grant; Audacy V-band Application and Grant.

sharing rules expeditiously to foster innovative services satellite services that will benefit the public interest. Delay may benefit mobile stakeholders that are not prepared to put the 50 GHz band to use, but is decidedly not in the interests of U.S. consumers.

III. Conclusion

The Commission should note the enthusiasm gap in the record for the 50 GHz band and recognize that due to the band's physical properties, expanded satellite access is the most realistic prospect for near-term use of 50 GHz spectrum. To support satellite operations, the Commission should adopt the rule changes proposed by SES to provide more flexibility for earth station siting in the 50 GHz band.

Respectfully submitted,

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