Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
Use of Spectrum Bands Above 24 GHz for Mobile Radio Services	)	GN Docket No. 14-177
	)	IB Docket No. 17-172

REPLY COMMENTS OF AT&T SERVICES, INC.

AT&T Services, Inc., on behalf of its affiliates ("AT&T") submits these reply comments in response to the International Bureau's June 21, 2017 Public Notice seeking comment on satellite earth station siting methodologies in frequency bands above 24 GHz.[1] As the Bureau notes in the Public Notice, these bands were recently allocated for Upper Microwave Flexible Use Service ("UMFUS" or "UMFU services"), and in considering issues of earth station siting the Bureau should be guided by the overarching Commission directive to minimize the impact of satellite earth stations on UMFUS licensees.

1. Earth Station Location and Antenna Pointing.

Commenters generally agree with AT&T that the Bureau's proposal to define the power flux density contour to take into account any possible antenna pointing would allow for flexibility in earth station deployment, but would also increase the aggregate impact on UMFUS

[1] *International Bureau Seeks Comment on Implementing Earth Station Siting Methodologies*, Public Notice, IB Dkt. No. 17-172, June 21, 2017 ("Public Notice" or "PN").

licensees for such antennas. As ViaSat recommends, the Bureau should guard against allowing any applicant to establish an inflated contour by requiring that the contour reflect "antenna pointing only toward the satellite points of communication reflected in the earth station application, rather than all possible antenna pointing scenarios."[2] For the same reason, the Bureau also should consider apportioning the allowable contribution to the 0.01 percent aggregate population limit among earth station applicants. In any event, the Commission should not take any action that would be inconsistent with the *Spectrum Frontiers Order*'s objective of minimizing the impact of earth stations on UMFU services.

2. *Computing Contours.*

In calculating the "interference exceedance area," (28 GHz) or "protection zone" (39 GHz) around earth stations, commenters generally agree that applicants should use the most accurate methods available.[3] Applicants should use measured data for antenna gain patterns[4], and should have measured data from the manufacturer for smaller antennas, and on-site verification data for larger antennas. On site data might be supplemented with simulated data if need be, but it would be unreasonable to allow applicants to rely on the broader, generic mask in

[2] Comments of ViaSat, Inc., IB Docket No. 17-172, at 2-3 (July 21, 2017) ("ViaSat Comments"). *See also,* Comments of SES Americom, Inc., O3b Limited, Inmarsat, Inc. and Telesat, IB Docket No. 17-172, at 3 (July 21,2017) ("Satellite Operators Comments").

[3] Comments of the Boeing Company, IB Docket No. 17-172, at 6-8 (July 21, 2017) ("Boeing Comments"); ViaSat Comments at 6; Satellite Operators Comments at 4.

[4] The Bureau should reject the suggestion from OneWeb that applicants be permitted to use any ITU approved method for calculating gain toward the horizon. Applicants should always use the most accurate method. Comments of WorldVu Satellites Limited, IB Docket No. 17-172, at 4-5 (July 21, 2017) ("OneWeb Comments").

Section 25.209 of the Commission's rules.[5] Requiring measured data would reduce the restrictions on UMFUS licensees, in both cases, by minimizing the area within which 28 GHz UMFUS licensees could be potentially affected, and by minimizing the areas where 39 GHz UMFUS licensees would be required to coordinate with earth station licensees. It also would likely increase the opportunity for additional earth station deployments by reducing the contribution of any single earth station toward the aggregate affected population limit.

There also is consensus that the Bureau should encourage earth station applicants to take into account terrain and clutter to the extent that reliable models exist.[6] This would help minimize the contours of the earth station's interference exceedance or protection zone, reducing the impact on UMFUS licensees and potentially accommodating more earth station applicants. Similarly, commenters agree that applicants should be able to rely on self-installed shielding to further reduce their contours.[7] AT&T believes that applicants in the 28 GHz band should be required to file post construction certifications confirming that the shielding has been installed.[8]

[5] Boeing Comments at 6-7; ViaSat Comments at 3, 6-7.

[6] OneWeb Comments at 8; Satellite Operators Comments at 5; ViaSat Comments at 7-8.

[7] Boeing Comments at 9; Satellite Operators Comments at 5. OneWeb Comments at 8.

[8] In its comments, Boeing suggests that the Commission apparently reexamine UMFUS power levels and require UMFUS providers to disclose their site specifications. Boeing Comments at 9-12. One Web and Boeing also suggest that the Commission adopt specific protection criteria for 39 GHz. OneWeb Comments at 10; Boeing Comments at 10-12. These recommendations go beyond the scope of the PN and should not be considered.

3. *Determining Population Percentages.*

There is consensus on the point that population should be calculated at the census block level, using the actual area method and the most recent data.[9] The Bureau should consider, in the case of collocated earth stations, aggregate interference impacts of multiple antennas transmitting simultaneously in the same 1 MHz bandwidth as recognized by OneWeb,[10] rather than assuming them away as some commenters suggest.[11] AT&T also recommends that the Commission consider apportioning the aggregate population limit among applicants. For example, perhaps applications should be limited to a protection zone (or an increase in the aggregate protection zone, for collocated sites) that would cover no more than 1/3 of the 0.1 percent population limit. By allocating the allowable population coverage limit in this way, the Bureau would ensure that more applicants are able to construct earth stations.

The overarching goal of the *Spectrum Frontiers Order* was to make the 28 GHz and 37.5 to 40 GHz spectrum usable for terrestrial mobile services and to accelerate the development and deployment of 5G mobile services. This objective need not exclude the use of satellite earth stations in the band. In adopting methodologies for calculating the contours of interference exceedance or protection zones and other methodologies for the implementation of earth stations in the UMFUS spectrum bands, the Bureau should continue to be guided by the objectives of

[9] Boeing Comments at 12-13; Satellite Operators Comments at 7-8.

[10] OneWeb Comments at 7.

[11] Comments of EchoStar Satellite Operating Corporation and Hughes Network Systems, LLC, IB Docket No. 17-172, at 8 (July 21, 2017). This suggestion ignores the aggregate impact of collocating a new earth station in the interference exceedance zone (or protection zone) of an existing station.

maximizing the number of earth station applications that can be approved consistent with the numeric and population limits in the FCC's Rule 25.136, but more importantly, heeding the Commission's directive to minimize the impact of earth stations on UMFUS licensees.

Respectfully Submitted,

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