Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
WorldVu Satellites Limited	)	IBFS File No. SAT-LOI-20160428-00041
	)	
Petition for a Declaratory Ruling Granting Access to the U.S. Market for the OneWeb System	)	

COMMENTS OF
THE BOEING COMPANY

The Boeing Company ("Boeing"), through its counsel, provides these brief comments on the petition of WorldVu Satellites Limited ("OneWeb") for a declaratory ruling granting access to the U.S. market for its non-geostationary satellite orbit ("NGSO") fixed-satellite service ("FSS") system operating in Ku-band and Ka-band frequencies.[1]

Following more than two decades of effort, technology has developed sufficiently to enable the launch and operation of global NGSO FSS systems to make broadband communications services ubiquitously available to all locations on Earth. Boeing looks forward to working with other participants in the satellite industry in the successful development of these global networks.

To facilitate the operation of NGSO FSS systems, the Commission should consider updating its rules regarding the sharing of spectrum and orbital resources among such systems. For example, OneWeb requests a waiver of the "band segmentation" or "one third rule,"[2] which

[1] *See* Satellite Policy Branch Information, OneWeb Petition Accepted for Filing, IBFS File No. SAT-LOI-20160428-00041, DA 16-804 (July 15, 2016).

[2] *See* 47 C.F.R. § 25.157(e).

could prevent NGSO FSS systems from using more than one-third of the available spectrum to provide broadband services to consumers.[3] OneWeb expresses its intent to "share Ku-band and Ka-band spectrum with other NGSO systems that are currently operational,"[4] and cites to Commission decisions holding that this spectrum sharing obligation applies to both currently operational and "prospective" NGSO FSS systems that are subject to the same application processing round.[5] OneWeb further expresses its intent to "reach a mutually acceptable coordination arrangement" that would allow "OneWeb and other qualified applicants that participate in the same processing round access to the entire spectrum for purposes of their FCC authorizations."[6] Boeing believes that it may be possible for system proponents to enter voluntary arrangements that would obviate the need for the one-third rule, and that other mechanisms are more appropriate to facilitate spectrum access in the absence of such voluntary arrangements.

[3] *See* WorldVu Satellites Limited, Petition for Declaratory Ruling of OneWeb Ltd., IBFS File No. SAT-LOI-20160428-00041, at 17-18 (April 28, 2016) ("*OneWeb Petition*").

[4] *Id.* at 4.

[5] *See id.* at 12 and n.33 (*citing* Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ku-Band*, Report and Order and Further Notice of Proposed Rulemaking*, FCC 02-123, 17 FCC Rcd 7841, 7843 (2002) ('*Ku-Band NGSO FSS Sharing Order*") (deciding the means for intra-service sharing among prospective NGSO FSS licensees in the Ku-band); Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ka-band, *Report and Order*, 18 FCC Rcd 14708, 14709 (2003) (deciding the means for sharing among existing and prospective NGSO FSS licensees in certain Ka-band frequencies)).

[6] *Id.* at 20.

The Commission's rule regarding avoidance of in-line interference events in the Ka-band may better facilitate spectrum sharing among NGSO FSS systems.[7] OneWeb expresses its confidence that spectrum sharing between NGSO FSS systems in the Ka-band "should be achievable, using whatever means can be coordinated between the operators to avoid in-line interference events, or by resorting to band segmentation in the absence of any such coordination agreement."[8] OneWeb also acknowledges[9] the public notice issued by the International Bureau[10] extending the Section 25.261 Ka-band sharing requirements to Ku-band NGSO FSS operations, as well as the Commission's 2002 order establishing spectrum sharing rules for NGSO FSS systems in the Ku-band.[11]

Although the Ku-band spectrum sharing rules were never codified, the 2002 order clearly indicated that the requirements would be applicable both to the then-pending Ku-band NGSO FSS applications and any future applications, explaining: "[t]he policies we adopt in this Report and Order determine the sharing parameters for all Ku-Band NGSO FSS operations."[12] The 2002 order further explained:

> We believe that the sharing plan we adopt today is sufficiently flexible to accommodate all of the NGSO FSS systems put forth by the pending applicants. We also hold open the possibility that additional systems may be accommodated.[13]

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[7] *See* 47 C.F.R. § 25.261.

[8] *OneWeb Petition*, Attachment A (Technical Information to Supplement Schedule S) at 35.

[9] *See id.* at 18 n.57, and Attachment A at 35 n.24.

[10] *See* Public Notice, "International Bureau Provides Guidance Concerning Avoidance of In-Line Interference Events Among Ku-Band NGSO FSS Systems," DA 15-1197 (Oct. 20, 2015).

[11] *See Ku-Band NGSO FSS Sharing Order.*

[12] *Id.*, ¶ 2.

[13] *Id.*, ¶ 84.

Nevertheless, to avoid any confusion about the appropriate scope of the Section 25.261 spectrum sharing requirements,[14] it may be prudent for the Commission to formally amend the rule to apply to both the Ka-band and the Ku-band before the Commission grants any NGSO FSS authorizations or petitions involving the Ku-band. Alternatively, the Commission should condition the grant of any such authorizations or petitions on the outcome of the Commission's anticipated rulemaking proceeding on sharing between NGSO FSS systems.

Another important aspect of authorizing NGSO FSS systems is their physical coordination, as evidenced by the proposals of both OneWeb[15] and Boeing[16] to operate NGSO FSS systems at an altitude of approximately 1,200 kilometers. Boeing is confident that OneWeb and Boeing can operate their respective constellations at or near 1,200 kilometers by making slight adjustments upwards or downwards in their planned constellation altitudes. Such coordinated efforts, however, would require both operators to adhere to their chosen (and authorized) orbital altitudes with some level of precision (referred to as "station keeping" in the context of geostationary satellites). OneWeb does not discuss in its petition its plan for adherence to its desired orbital altitude. Therefore, this is an issue that the International Bureau may want to explore with OneWeb in the context of its petition and in the context of the

[14] *See* 47 C.F.R. § 25.261(a) (explaining that "[t]he coordination procedures in this section apply to non-Federal-Government NGSO FSS satellite networks operating in the following assigned frequency bands: The 28.6–29.1 GHz or 18.8–19.3 GHz frequency bands").

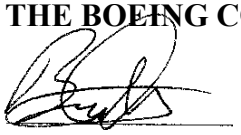
[15] *OneWeb Petition* at 7.

[16] *See* The Boeing Company Application for Authority to Launch and Operate a Non-Geostationary Low Earth Orbit Satellite System in the Fixed Satellite Service (S2966), IBFS File No. SAT-LOA-20160622-00058, at 23 (filed June 22, 2016).

Commission's anticipated Notice of Proposed Rulemaking on sharing between NGSO FSS systems.

Respectfully submitted,

THE BOEING COMPANY

By: 

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