



Federal Communications Commission
Washington, D.C. 20554

June 10, 2016

Kalpak S. Gude
Vice President of Legal-Regulatory
WorldVu Satellites Limited
1400 Key Boulevard
Arlington, VA 22209

Re: WorldVu Satellites Limited, d/b/a OneWeb
IBFS File No. SAT-LOI-20160428-00041

Dear Mr. Gude:

On April 28, 2016, WorldVu Satellites Limited, d/b/a OneWeb (OneWeb), requested access the U.S. market using its proposed non-geostationary-satellite orbit (NGSO) fixed-satellite service (FSS) satellite system. To aid the Commission's consideration of OneWeb's request, please respond to the following points:

1. OneWeb seeks to operate its NGSO FSS system in the United States in the 17.8-18.6 GHz band. The 17.8-18.3 GHz band is not allocated to the FSS for non-Federal systems in the United States. Although the 18.3-18.6 GHz band is allocated to the FSS in the United States, the Commission's Ka-Band Plan designates this band for the use of space stations operating in the geostationary orbit. If OneWeb wishes to operate its NGSO FSS system in the 17.8-18.6 GHz band in the United States, it must seek a waiver of the U.S. Table of Frequency Allocations, Section 2.106 of the Commission's rules, and the Commission's Ka-Band Plan.
2. At Attachment A, page 13, OneWeb states that "every point on the Earth's surface will see ... a OneWeb satellite at an elevation no less than 55°." Attachment A, page 31, however, states there is "always a OneWeb satellite visible from any point in the service area at a high elevation angle – typically greater than 50°." Please clarify the apparent contradiction.
3. In Annex 1, page A1-5, paragraph (c), and page A1-15, paragraph (d), OneWeb states that the value of the minimum elevation angle used in the equivalent power-flux density (EPFD) analysis is 45°. However, in Attachment A, page 13, OneWeb states that "every point on the Earth's surface will see ... a OneWeb satellite at an elevation no less than 55°." Please explain the rationale for selecting 45° for the analysis.
4. Provide a detailed technical explanation of the pitch bias function used to steer the antenna footprint that is the basis for the generation of the power flux density masks used to demonstrate EPFD compliance. This explanation should address the following: how the pitch bias function works; the latitude range; when the latitude adjustment is triggered; if every orbital plane has the same latitude trigger mechanism; and any other information that will assist Commission staff in understanding this algorithm.
5. In Annex 1, EPFD, page A1-3, paragraph (c), OneWeb discusses how, to meet the EPFD limits, downlink equivalent isotropically radiated power is progressively reduced in some

beams and some the beams are turned off. Please provide technical details as to how meeting the EPFD limits is achieved and in what latitude range this takes place.


Please respond to the above points by July 10, 2016, in a supplement to the initial application.

In addition, we note that instead of submitting OneWeb's plan for orbital debris mitigation, OneWeb states that its orbital debris mitigation plan is subject to direct and effective regulation by the United Kingdom. In order to assist our analysis of the debris mitigation plans for large deployments of NGSO satellites, we ask OneWeb to provide any publicly available materials discussing the criteria applied by the United Kingdom to assess the debris mitigation plans of NGSO satellite systems.

Also, in Attachment A, page 10, OneWeb states "[t]he user terminals, which will be deployed in large numbers, are typically in the range 30 cm to 75 cm in equivalent antenna diameter and will include fixed and transportable ground-based terminals as well as mobile terminals on board aircraft, maritime vessels and land vehicles." The Commission's rules do not include rules governing the operation of earth stations in motion transmitting to NGSO space stations in frequencies allocated to the FSS. Therefore, applications for the operation of such earth stations may require the filling of appropriate waivers.

Finally, OneWeb must be prepared to work with other NGSO FSS operators in order to ensure compliance with the applicable limits for aggregate EPFD in the space-to-Earth direction (EPFD_{down}) contained in Sections 25.208(h) and 25.208(m) of the Commission's rules, 47 CFR §§ 25.208(h), (m), as well as in Resolution 76 of the Radio Regulations of the International Telecommunication Union.

Sincerely,


Jose P. Albuquerque
Chief, Satellite Division
International Bureau