

EXPERIMENTAL LICENSE APPLICATION
NARRATIVE STATEMENT

- (1) Name, address, phone number (also e-mail address and facsimile number, if available) of the applicant.**

If there are any questions regarding this application please contact:

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- (2) Description of why experimental authorization is needed.**

WorldVu Satellites Limited (“OneWeb”) seeks an experimental license to test connectivity between user terminal and gateway earth station terminals and the satellites of the OneWeb non-geostationary, fixed-satellite service (“NGSO FSS”) constellation.

Grant of the requested experimental license will allow OneWeb to highlight the operational capabilities of OneWeb’s NGSO FSS network prior to commencing commercial service.¹

- (3) Description of the operation to be conducted and its purpose.**

OneWeb seeks blanket experimental authority to regularly demonstrate earth station antenna connectivity to OneWeb’s LEO NGSO FSS system. These earth station antennas were specifically developed for use with OneWeb’s system. Grant of this application will enable OneWeb to demonstrate high-speed bi-directional connectivity capabilities over OneWeb’s system from a fixed location anywhere in the United States. OneWeb will conduct these demonstrations up to twice a day for no more than twenty minutes at a time to illustrate real-world uses over OneWeb’s system.

At least one week prior to any transmit testing, OneWeb will notify the other Ka-band satellite operators authorized to provide service in the United States if applicable.

¹ The OneWeb NGSO FSS system was granted U.S. market access by the Commission in June 2017. *See WorldVu Satellites Limited, Petition for a Declaratory Ruling Granting Access to the U.S. Market for the OneWeb NGSO FSS System*, Order and Declaratory Ruling, 32 FCC Rcd 5366 (2017) (“OneWeb Market Access Grant”).

For all operations, OneWeb will comply with the radiofrequency radiation exposure limits in 47 CFR § 1.1310 and all recommended measures in OET Bulletin 65.

(4) Time and dates of proposed operation.

OneWeb requests a blanket license for one year, commencing June 1, 2019, and ending June 1, 2020.

(5) Class(es) of station (fixed, mobile, fixed and mobile) and call sign of station (if applicable).

The transmitting earth stations will operate in fixed and mobile mode.

(6) Description of the location(s) and, if applicable, geographical coordinates of the proposed operation.

United States.

(7) Transmit equipment to be used, including name of manufacturer, model, and number of units.

KVH Earth Station

V7-Atlas Ku-band Antenna
V10-Atlas Ka-band Antenna

Intellian Earth Station

V100NX - Ku-band Antenna
V150NX - Ka-band Antenna

Testing will involve earth stations that have four antennas: each terminal will include two, technically identical Ku-band antennas as well as two, technically identical Ka-band antennas.

(8) Frequencies desired.

	Ku-band	Ka-band	
Transmit	14.0-14.5 GHz	27.5 – 29.1 GHz	29.5 – 30.0 GHz
Receive	10.7-12.7 GHz	17.8 – 18.6 GHz	18.8 – 19.3 GHz

Although communications will be in both directions, the application for an experimental license does not seek authorization to receive in the space-to-earth downlink bands.

(9) Maximum effective radiated power (ERP) or equivalent isotropically radiated power (EIRP).

Single Carrier		EIRP	ERP	Output Power
KVH Antenna	Ku-band	41.0 dBW at 14 GHz	7.67 kW	2.8 W at flange
	Ka-band	54.0 dBW at 28 GHz	153.1 kW	5.5 W at flange
Intellian Antenna	Ku-band	50 dBW at 14 GHz	58 kW	6 W at flange
	Ka-band	55 dBW at 28 GHz	193 kW	2 W at flange

(10) Emission designator (see §2.201 of this chapter) or describe emission (bandwidth, modulation, etc.).

Antenna Type		Emission Designator
Intellian Antenna	Ku-band	113MG7D
	Ka-band	250MG7D
KVH Antenna	Ku-band	113MG7D
	Ka-band	113MG7D

(11) Overall height of antenna structure above the ground (if greater than 6 meters above the ground or an existing structure, see part 17 of this Chapter concerning notification to the FAA).

The overall height of the antennas above ground (or above existing structures) will not exceed 6 meters.

(12) Supplemental Technical Data for Antenna Registration.

Modulating Signal

Adaptive Code Modulation using QPSK, 8PSK, 16QAM, 32QAM, or 64QAM modulations at variable coding rates for the KVH and Intellian Antennas.

KVH Directional Antenna

Parameters		Ku-band Antenna	Ka-band Antenna
Beam width at Half Power Point	Horizontal Plane	2.22° at 14.25 GHz	0.7° at 28.8 GHz
	Vertical Plane	2.27° at 14.25 GHz	0.75° at 28.8 GHz
Orientation in Horizontal Plane		0° – 360°	
Orientation in Vertical Plane		25° – 90°	
Antenna Size	Diameter	0.72 m	1.0 m

Intellian Directional Antenna

Parameters		Ku-band Antenna	Ka-band Antenna
Beam width at Half Power Point	Horizontal Plane	1.5° at 14.25 GHz	0.5° at 28.8 GHz
	Vertical Plane	1.5° at 14.25 GHz	0.5° at 28.8 GHz
Orientation in Horizontal Plane		0° – 360°	
Orientation in Vertical Plane		25° – 90°	
Antenna Size	Diameter	1.0 m	1.5 m