WorldVu Satellites Limited
1400 Key Boulevard, Suite A1
Arlington, VA 22209

EXPERIMENTAL LICENSE APPLICATION
NARRATIVE STATEMENT

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

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(2) Description of why experimental authorization is needed.

WorldVu Satellites Limited,[1] d/b/a OneWeb, is determined to bridge the digital divide for billions of unconnected people worldwide by providing efficient, consistent, and reliable broadband services equivalent to those found in any city in terms of throughput and latency. OneWeb is on the verge of fundamentally changing how remote and rural citizens, enterprises, and public infrastructure will connect to the Internet. This year, OneWeb will launch the first satellites of its low Earth orbit, non-geostationary, fixed-satellite service ("LEO NGSO FSS") system.[2]

As a global communications company that will partner with mobile network operators, Internet service providers, cable operators, service partners, and others to provide broadband Internet coverage all over the world, OneWeb's LEO NGSO FSS system will require many transmissions between earth station antennas and its satellites. Accordingly, OneWeb must test its communications system on a regular basis to confirm the efficiency of certain applications and to find suitable locations that will warrant its future Ka-band earth stations compatible with UMFUS rules.

[1] Question 12: Statement of Applicant Classification—Jersey Private Limited Company.
[2] *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) (granting OneWeb market access for its LEO NGSO FSS satellite constellation).

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

OneWeb seeks blanket experimental authority to regularly test the earth station antennas specifically developed for use with OneWeb's LEO NGSO FSS system. Granting this application will enable OneWeb to evaluate performance capabilities of earth station antennas from fixed locations throughout the United States. OneWeb will conduct these tests for earth station development to ensure that the antennas will operate efficiently and consistently with OneWeb's system and to troubleshoot any issues that may arise. This testing will also allow OneWeb to demonstrate UMFUS protection under FCC rules.

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. 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.

Specific objectives sought to be accomplished:

- Ensure efficient and reliable communications between earth stations and OneWeb's LEO NGSO FSS system for certain applications.
- Validate necessary performance parameters required for these applications and OneWeb's system.
- Certify overall system response and automatic frequency control between earth station antennas and OneWeb's satellites in atmospheric conditions.
- Assess interference potential through verification of PFD as per UMFUS rules in the 27.5-28.35 GHz band.
- Conduct tests on a regular basis to evaluate the performance characteristics of earth station antennas that have been specifically developed for use with OneWeb's satellite system.

(4) Time and dates of proposed operation.

OneWeb requests a blanket license for two years, commencing August 1st, 2018, and ending August 1st, 2020.

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

The transmitting earth station will operate in fixed mode.

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(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.

CPI
4715000-01
10 units

(8) Frequencies desired.

Transmit:	Receive:
27.5 – 29.1 GHz	17.8 – 18.6 GHz
29.5 – 30.0 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. Consequently, no further authorization is required for receive-operations since OneWeb's satellite system is licensed pursuant to Part 25 of the Commission's rules.[3]

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

EIRP: 66.0 dBW per carrier (5 degrees elevation with max uplink power control)
ERP: 2416 kW per carrier

Maximum Earth Station EIRP for 8 carriers per Polarization:
EIRP: 75.0 dBW per polarization
ERP: 19239 kW per polarization

[3] *See id.*

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

230M4G7D

(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 Modulating using QPSK, 8PSK, 16QAM, 32QAM, or 64QAM modulations and variable coding rates.

Directional Antenna

CPI 3.5m	
Beam width in degrees at the half power point?	Horizontal Plane = 0.21^o Vertical Plane = 0.21^o
Orientation in Horizontal Plane? (Degrees from True North) [Azimuth Sweep Range]	0^o – 360^o
Orientation in Vertical Plane? (Degrees from Horizontal) [Degree Range for Varying Elevation]	5^o – 90^o