CONVENTIONAL EXPERIMENTAL LICENSE APPLICATION
NARRATIVE STATEMENT

(1) Contact Information

If there are any questions regarding this application, please contact:

Name:	Blake Wiles
Title:	Market Access Manager, North America
Mailing Address:	1785 Greensboro Station Place, Tower 3, McLean, VA 22102
Email Address:	regulatorylicensing@oneweb.net
Phone:	(571) 814-3115

(2) Explanation of why Experimental Authorization is Needed

WorldVu Satellites Limited ("OneWeb") seeks an experimental license to test connectivity between compact electronically steerable antennas ("ESA") user terminals using the operational satellites of the OneWeb non-geostationary, fixed-satellite service ("NGSO FSS") constellation.[1]

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

(3) Description of Operations to be Conducted and its Purpose

OneWeb seeks experimental authority to test and validate the performance characteristics of the compact ESA user terminals at specific locations in the United States, specified in Section 6 of this narrative. These over-the-air tests will be conducted using satellites in OneWeb's authorized NGSO FSS constellation for the purpose of demonstrating multiple functions of the antenna, including: (i) tracking and connectivity capabilities, (ii) handover between satellites; (iii) half-duplex operation and time synchronization; and (iv) throughput speed versus modulation. Completion of these tests will enable OneWeb to optimize these experimental compact ESAs, thereby benefiting its customers around the world.

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. All proposed operations involving these earth stations will be conducted by OneWeb on a non-interference basis in the Ku-band.

[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").

(4) Time and Dates of Proposed Operation

OneWeb requests experimental authority for a period of 12 months, commencing on October 20, 2021.

(5) Classes of Station

Fixed

(6) Description of the Locations

OneWeb US office:

- 1785 Greensboro Station Place, Tower 3, McLean VA 22102
  Lat: 38° 55' 18.8"N; Long: 77° 13' 59.8"W

Intellian Maryland office:

- Suite 100A, 6700 Rockledge Dr. Bethesda, MD 20817
  Lat: 39° 1' 41.4"N; Long: 77° 8' 7.1"W

Collins Aerospace offices:

- 400 Collins Road NE Cedar Rapids, IA 52402
  Lat: 42° 1' 55"N; Long: 91° 38' 53"W
- 795 W. NASA Blvd., Melbourne, FL 32901
  Lat: 28° 5' 31"N; Long: 80° 38' 5"W
- 7100 Columbia Gateway Dr, Columbia, MD 21046
  Lat: 39° 10' 28"N; Long: 76° 48' 22"W

Hughes Network Systems offices:

- 100 Lakeforest Blvd, Gaithersburg, MD 20877
  Lat: 39° 9' 8.1"N; Long: 77° 12' 32.5"W
- 11717 Exploration Lane, Germantown, MD 20876
  Lat: 39° 10' 44"N; Long: 77° 14' 54"W

OneWeb SNP sites:

- 2120 River Road, Southbury, CT 06488.
  Lat: 41° 27' 5.7"N; Long: 73° 17' 22"W
- 400 Air Glades Blvd, Clewiston, Florida 33440
  Lat: 26° 44' 52.5"N; Long: 81° 2' 56.9"W
- 21518 (Mile 3) South Comsat Road, Talkeetna, Alaska 99676
  Lat: 62° 19' 58.8"N; Long: 150° 1' 53.7"W

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

Manufacturer: Intellian Technologies
Model: Compact ESA
Number of Units: 60

(8) Requested Frequencies

Transmit: 14.0 - 14.5 GHz
Receive: 10.7 - 12.7 GHz

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

Single Carrier	EIRP	ERP	Output Power
Intellian ESA Antenna	33.6 dBW	31.45 dBW	-1.4 dBW (0.725W)

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

Emission Designator: 20M0G1D
Transmit bandwidth: 2.16 – 20 MHz
Modulation: QPSK, 8PSK, and 16QAM
Frequency Tolerance (+/-): 0.0000007 %

(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 5 meters.

(12) Supplemental Technical Data for Antenna Registration.

Parameters		Ku-band Antenna
Beam Width at Half Power Point	Horizontal Plane	3.0° at 14.25 GHz
	Vertical Plane	3.0° to 3.4° at 14.25 GHz
Orientation in Horizontal Plane		0° – 360°
Orientation in Vertical Plane		37° – 90°
Antenna Size	Diameter	0.43 m

Modulating Signal: QPSK, 8PSK, and 16QAM

(13) Point of Contact for Tests

In the event any harmful interference has been identified in relation to these tests, the point of contact who can immediately cease operations of the experimental ESA terminals is as follows.

Name: Peter Hou
Title: Sr. Director
Phone: 240-722-9462
Email: peter.hou@intelliantech.com