



UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION

RADIO STATION AUTHORIZATION

Name: WorldVu Satellites Limited

Call Sign: E190727

Authorization Type: License

File Number: SES-LIC-20190930-01217

Non Common Carrier

Grant date: 04/27/2021

Expiration Date: 04/27/2036

Nature of Service: Fixed Satellite Service

Nature of Service: Other

Class of Station: Other

A) Site Location(s)

#	Site ID	Address	Latitude	Longitude	Elevation (Meters)	Special Provisions NAD (Refer to Section H)
1)	1	1785 Greensboro Station Place Tower 3, Suite 500 McLean, Fairfax, VA 22102				NA

Subject to the provisions of the Communications Act of 1934, The Communications Satellite Act of 1962, subsequent acts and treaties, and all present and future regulations made by this Commission, and further subject to the conditions and requirements set forth in this license, the grantee is authorized to construct, use and operate the radio facilities described below for radio communications for the term beginning April 27, 2021 (3 AM Eastern Standard Time) and ending April 27, 2036 (3 AM Eastern Standard Time) . The required date of completion of construction and commencement of operation is April 27, 2022 (3 AM Eastern Standard Time) . Grantee must file with the Commission a certification upon completion of construction and commencement of operation.

B) Particulars of Operations

The General Provision 1010 applies to all receiving frequency bands.

The General Provision 1900 applies to all transmitting frequency bands.

For the text of these provisions, refer to Section H.

#	Frequency (MHz)	Polarization Code	Emission	Tx/Rx Mode	Max EIRP /Carrier (dBW)	Max EIRP Density /Carrier (dBW/4kHz)	Associated Antenna	Special Provisions (Refer to Section H)	Modulation/ Services
1)	14000.0000-14500.0000	L,R	20M0G7D	Tx	35.60	8.30	1		Emission range of 2M40G7D − 20M0G7D using Adaptive Code Modulation with QPSK, 8PSK, 16QAM at variable coding rates.
2)	14000.0000-14500.0000	L,R	2M40G7D	Tx	35.60	8.30	1		Emission range of 2M40G7D − 20M0G7D using Adaptive Code Modulation with QPSK, 8PSK, 16QAM at variable coding rates.
3)	10700.0000-12700.0000	L,R	250MG7D	Rx			1		Adaptive Code Modulation utilizing QPSK, 8PSK, 16QAM at variable coding rates.



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C) Frequency Coordination Limits

#	Frequency Limits (MHz)	Satellite Arc (Deg. Long.)		Elevation (Degrees)		Azimuth (Degrees)		Max EIRP Density toward Horizon (dBW/4kHz)	Associated Antenna(s)
		East Limit	West Limit	East Limit	West Limit	East Limit	West Limit		
1)	14000.0000-14500.0000	NGSO		37.0-37.0		090.0-090.0		-30.9	1
2)	10700.0000-12700.0000	NGSO		37.0-37.0		090.0-090.0			1

D) Points of Communications

The following stations located in the Satellite orbits consistent with Sections B and C of this Entry:

- 1) 1 to ONEWEB NGSO (S2963) (UK Licensed) [1200x1200 km @ 87.9° Inclination, 18 planes beginning at 0° RAAN spaced every 10.2°]

E) Antenna Facilities

Site ID	Antenna ID	Units	Diameter (meters)	Manufacturer	Model number	Site Elevation (Meters)	Max Antenna Height (Meters)	Special Provisions (Refer to Section H)
1	1	1500000	0.46	OneWeb	OW-MINI45-001		0 AGL/ 0 AMSL	
		Max Gains(s):	35.2 dBi @	14.2500 GHz	33.7 dBi @	11.7000 GHz		
		Maximum total input power at antenna flange (Watts) =				2.20		
		Maximum aggregate output EIRP for all carriers (dBW) =				38.60		

F) Remote Control Point:

1 1785 Greensboro Station Place, Tower 3, Suite 500
 McLean, Fairfax, VA 22102
 (571) 336-8249

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G) Antenna Structure marking and lighting requirements:

None unless otherwise specified under Special and General Provisions



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H) Special and General Provisions

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4 --- Licensee must ensure that a current listing of the name, title, mailing address, email address, and telephone number of the responsible point of contact are on file at the FCC. Any changes must be filed electronically in the International Bureau Filing System (MyIBFS) using the "Pleadings and Comments" link on the MyIBFS homepage within 10 days of the change.

5 --- Licensee must notify the Commission when this earth station is no longer operational or when it has not been used to provide any service during any 6-month operation.

8 --- Licensee must notify the Commission when all earth stations operating under this authorization are no longer operational or when they have not been used to provide any service during any 6-month operation.

5689 --- Fixed, temporary fixed, and mobile earth terminals authorized under a VSAT or other blanket license shall comply, as appropriate, with the notification and advance consultation provisions of Section 25.203(e), (f), (g), and (i) with the installation of each individual earth terminal falling within the protected radio zones defined in 25.203. This portion of the FCC Rules and Regulations provide protection from harmful interference to certain sensitive radio facilities located within the USA. These protected facilities include the National Radio Astronomy Observatory at Green Bank, West Virginia (25.203(f); Arecibo Observatory, Arecibo, Puerto Rico (25.203(i)); the Department of Commerce's research laboratories located within the Table Mountain Radio Receiving Zone, Boulder County, Colorado (25.203(e)); and the Federal Communications Commission's monitoring stations (25.203(g)).

90398 --- Changes to previously authorized transmitting facilities, operations and devices regulated by the Commission that may have significant environmental impact, and are not excluded by §1.1306, require the preparation of an Environmental Assessment (EA) by the licensee. (See 47 C.F.R. §§1.1307, 1.1308 and 1.1311)

90399 --- The licensee shall, at all times, take all necessary measures to ensure that operation of this (these) authorized earth station(s) does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR §§ 1.1307(b) and 1.1310. Physical measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Compliance can be accomplished in most cases by appropriate restrictions, such as fencing. Requirements for restrictions can be determined by predictions based on calculations, modeling, or by field measurements. The FCC's OET Bulletin 65 (available on-line at www.fcc.gov/oet/rfsafety) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for workers.

90456 --- Reception of 12.2-12.7 GHz frequencies (space-to-Earth) in ITU Region 2 is allocated to Direct Broadcast Service (ITU as Broadcasting -Satellite Service and feeder link). This earth station is not operating as a Direct Broadcast Service (DBS) station and that it did not coordinate with DBS operators; therefore, operations in the 12.2-12.7 GHz is on a non-interference, non-protected basis over the U.S. and its territories.

90561 --- In the 10.7-11.7 GHz band, operations must be coordinated with the radio astronomy observatories listed in 47 CFR § 2.106, n.US131, to achieve a mutually acceptable agreement regarding the protection of the radio telescope facilities operating in the 10.6-10.7 GHz band For the purposes of coordination with these listed facilities or the National Radio Quiet Zone, correspondence should be directed to the National Science Foundation Spectrum Management Unit (Email: esm@nsf.gov).



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A) This RADIO STATION AUTHORIZATION is granted subject to the following special provisions and general conditions:

- 90632 --- The use of the bands 4500-4800 MHz (space-to-Earth), 6725-7025 MHz (Earth-to-space) by the fixed-satellite service shall be in accordance with the provisions of Appendix 30B. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by geostationary-satellite systems in the fixed-satellite service shall be in accordance with the provisions of Appendix 30B. The use of the bands 10.7-10.95 GHz (space-to-Earth), 11.2-11.45 GHz (space-to-Earth) and 12.75-13.25 GHz (Earth-to-space) by a non-geostationary-satellite system in the fixed-satellite service is subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the fixed-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. 47 C.F.R. §2.106 International Footnote 5.441
- 90633 --- Additional allocation: in Region 1, the band 11.7-12.5 GHz, in Region 2, the band 12.2-12.7 GHz and, in Region 3, the band 11.7-12.2 GHz, are also allocated to the fixed-satellite service (space-to-Earth) on a primary basis, limited to non-geostationary systems and subject to application of the provisions of No. 9.12 for coordination with other non-geostationary-satellite systems in the fixed-satellite service. Non-geostationary-satellite systems in the fixed-satellite service shall not claim protection from geostationary-satellite networks in the broadcasting-satellite service operating in accordance with the Radio Regulations, irrespective of the dates of receipt by the Bureau of the complete coordination or notification information, as appropriate, for the non-geostationary-satellite systems in the fixed-satellite service and of the complete coordination or notification information, as appropriate, for the geostationary-satellite networks, and No. 5.43A does not apply. Non-geostationary-satellite systems in the fixed-satellite service in the above bands shall be operated in such a way that any unacceptable interference that may occur during their operation shall be rapidly eliminated. 47 C.F.R. §2.106 International Footnote 5.487A.
- 900617 --- Communications between U.S.-licensed earth stations and OneWeb space stations must comport with all existing and future space station coordination agreements reached between the United Kingdom and other administrations. In the absence of a coordination agreement, such communications must comport with applicable provisions of the ITU Radio Regulations.
- 900618 --- In the 10.7-11.7 GHz (space-to-Earth) frequency band reception is permitted for transmissions up to the applicable power flux-density limits in 47 CFR § 25.208(b), and up to the equivalent power flux-density requirements of 47 CFR § 25.208(g), (i) and (j). In the 11.7-12.2 GHz (space-to-Earth) frequency band reception is permitted for transmissions up to the power flux-density limits in Article 21 of the ITU Radio Regulations, and up to the equivalent power flux-density requirements of 47 CFR § 25.208(g), (i), and (j). In the 12.2-12.7 GHz (space-to-Earth) frequency band reception is permitted for transmissions up to the power flux-density limits in 47 CFR § 25.208(o) and Article 21 of the ITU Radio Regulations, and up to the equivalent power flux-density requirements of 47 CFR § 25.208(l). In the 14-14.5 GHz (Earth-to-space) frequency band transmission is permitted for levels up to the equivalent power flux-density requirements of 47 CFR § 25.208(k).
- 900619 --- In the 14.47-14.5 GHz band, operations are subject to footnote US342 to the U.S. Table of Frequency Allocations, 47 CFR § 2.106, and all practicable steps must be taken to protect the radio astronomy service from harmful interference.



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A) This RADIO STATION AUTHORIZATION is granted subject to the following special provisions and general conditions:

- 900620 --- Operations must comply with the avoidance of in-line interference method specified in 47 CFR § 25.261(b)-(d) with respect to any NGSO system licensed or granted U.S. market access pursuant to the processing round initiated in Public Notice, DA 16-804.
- 900621 --- Prior to initiation of service, OneWeb must receive a favorable or "qualified favorable" finding in accordance with Recommendation 85 (WRC-03) with respect to its compliance with applicable EPFD limits in Article 22 of the ITU Radio Regulations.
- 900622 --- At least ninety days prior to the initiation of service to the public, OneWeb must submit in File No. SAT-LOI-20160428-00041: i. a comprehensive technical showing for its NGSO FSS system in the 10.7-12.2 GHz frequency band, in accordance with 47 CFR § 25.146(b); and ii. a technical showing for its NGSO FSS system in the 12.2-12.7 GHz frequency band, in accordance with 47 CFR § 25.146(g).
- 900623 --- Prior to initiation of service, OneWeb must obtain from the United Kingdom Space Agency an authorization for deployment and space operations under the United Kingdom Outer Space Act. OneWeb must file evidence in File No. SAT-LOI-20160428-00041 demonstrating grant of any such authorizations within five business days of action by the United Kingdom Space Agency. Thereafter, this grant will remain effective only to the extent that launch and space operations continue to be authorized by the United Kingdom Space Agency under the United Kingdom Outer Space Act.
- 900624 --- This license does not authorize the provision of any Direct-to-Home (DTH) service, Direct Broadcast Satellite Service (DBS) or Digital Audio Radio Service (DARS) to, from, or within the United States. With respect to DBS and DTH, this paragraph excludes from the scope of the grant those services specified in 47 CFR § 25.701(a)(1)-(5).
- 900625 --- This license is subject to modification to bring it into conformance with any rules or policies adopted by the Commission in the future.



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B) This RADIO STATION AUTHORIZATION is granted subject to the additional conditions specified below:

This authorization is issued on the grantee's representation that the statements contained in the application are true and that the undertakings described will be carried out in good faith.

This authorization shall not be construed in any manner as a finding by the Commission on the question of marking or lighting of the antenna system should future conditions require. The grantee expressly agrees to install such marking or lighting as the Commission may require under the provisions of Section 303(q) of the Communications Act. 47 U.S.C. § 303(q).

Neither this authorization nor the right granted by this authorization shall be assigned or otherwise transferred to any person, firm, company or corporation without the written consent of the Commission. This authorization is subject to the right of use or control by the government of the United States conferred by Section 706 of the Communications Act. 47 U.S.C. § 706. Operation of this station is governed by Part 25 of the Commission's Rules. 47 C.F.R. Part 25.

This authorization shall not vest in the licensee any right to operate this station nor any right in the use of the designated frequencies beyond the term of this license, nor in any other manner than authorized herein.

This authorization is issued on the grantee's representation that the station is in compliance with environmental requirements set forth in Section 1.1307 of the Commission's Rules. 47 C.F.R. § 1.1307.

This authorization is issued on the grantee's representation that the station is in compliance with the Federal Aviation Administration (FAA) requirements as set forth in Section 17.4 of the Commission's Rules. 47 C.F.R. § 17.4.

The following condition applies when this authorization permits construction of or modifies the construction permit of a radio station.

This authorization shall be automatically forfeited if the station is not ready for operation by the required date of completion of construction unless an application for modification of authorization to request additional time to complete construction is filed by that date, together with a showing that failure to complete construction by the required date was due to factors not under control of the grantee.

Licensees are required to pay annual regulatory fees related to this authorization. The requirement to collect annual regulatory fees from regulatees is contained in Public Law 103-66, "The Omnibus Budget Reconciliation Act of 1993." These regulatory fees, which are likely to change each fiscal year, are used to offset costs associated with the Commission's enforcement, public service, international and policy and rulemaking activities. The Commission issues a Report and Order each year, setting the new regulatory fee rates. Receive only earth stations are exempt from payment of regulatory fees.