



UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION

RADIO STATION AUTHORIZATION

Name: Denali 20020, LLC

Call Sign: KA294

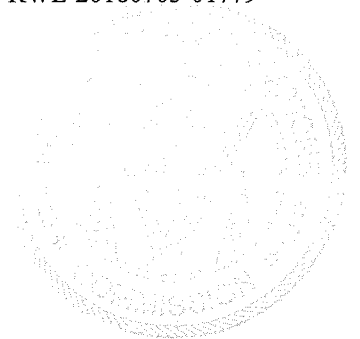
Authorization Type: Renewal of License

File Number: SES-RWL-20180703-01779

Non Common Carrier

Grant date: 08/03/2018

Expiration Date: 08/23/2033



Nature of Service: Fixed Satellite Service

Class of Station: Fixed Earth Stations

A) Site Location(s)

| # | Site ID | Address | Latitude | Longitude | Elevation (Meters) | NAD | Special Provisions (Refer to Section H) |
|----|---------|--|-------------|---------------|--------------------|-----|---|
| 1) | 1 | 1711 OLD HWY. 97 BREWSTER, OKANOGAN, WA | 48°8'50.5"N | 119°41'33.2"W | 377 | 83 | |

Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209

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 August 23, 2018 (3 AM Eastern Standard Time) and ending August 23, 2033 (3 AM Eastern Standard Time). The required date of completion of construction and commencement of operation is 00/00/0000. 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) | 6171.6000-6175.8000 | L,R | 1M00F8W | Tx | 81.90 | 57.92 | 1 | | TT&C |
| 2) | 5850.0000-6425.0000 | H,V,L,R | 36M0F8W | Tx | 86.80 | 59.80 | 1 | | Analog video audio |
| 3) | 5850.0000-6425.0000 | H,V,L,R | 36M0G7F | Tx | 86.80 | 47.30 | 1 | | Digital Compressed video |
| 4) | 5850.0000-6425.0000 | H,V,L,R | 2M40G7D | Tx | 81.90 | 54.10 | 1 | | Data, 1855kbs, QPSK, FEC1/2 |
| 5) | 3951.4200-3952.5800 | L,R | 144KG2D | Rx | | | 1 | | TT&C |
| 6) | 3625.0000-4200.0000 | H,V,L,R | 36M0F8W | Rx | | | 1 | | Analog video audio |
| 7) | 3625.0000-4200.0000 | H,V,L,R | 36M0G7F | Rx | | | 1 | | Digital Compressed video |
| 8) | 3625.0000-4200.0000 | H,V,L,R | 2M40G7D | Rx | | | 1 | | Data, 1855kbs, QPSK, FEC1/2 |



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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) | 3700.0000-4200.0000 | 53.0W | 188.0W | 06.7 | 05.6 | 107.8 | 253.5 | | 1 |
| 2) | 5925.0000-6425.0000 | 53.0W | 188.0W | 06.7 | 05.6 | 107.8 | 253.5 | 13.98 | 1 |
| 3) | 5925.0000-6425.0000 | 53.0W | 191.0W | 06.7 | 03.7 | 107.8 | 255.9 | 16.2 | 1 |
| 4) | 3700.0000-4200.0000 | 53.0W | 191.0W | 06.7 | 03.7 | 107.8 | 255.9 | 0 | 1 |
| 5) | 5850.0000-5925.0000 | 53.0W | 53.0W | 08.0 | 08.0 | 109.4 | 109.4 | 16.2 | 1 |
| 6) | 3625.0000-3700.0000 | 53.0W | 53.0W | 08.0 | 08.0 | 109.4 | 109.4 | | 1 |
| 7) | 5850.0000-5925.0000 | 55.5W | 55.5W | 08.3 | 08.3 | 109.8 | 109.8 | 16.2 | 1 |
| 8) | 3625.0000-3700.0000 | 55.5W | 55.5W | 08.3 | 08.3 | 109.8 | 109.8 | | 1 |
| 9) | 5850.0000-5925.0000 | 180.0W | 180.0W | 10.8 | 10.8 | 247.0 | 247.0 | 10.6 | 1 |
| 10) | 3625.0000-3700.0000 | 180.0W | 180.0W | 10.8 | 10.8 | 247.0 | 247.0 | | 1 |
| 11) | 5850.0000-5925.0000 | 183.0W | 183.0W | 08.8 | 08.8 | 249.5 | 249.5 | 15.4 | 1 |
| 12) | 3625.0000-3700.0000 | 183.0W | 183.0W | 08.8 | 08.8 | 249.5 | 249.5 | | 1 |
| 13) | 5850.0000-5925.0000 | 186.0W | 186.0W | 06.9 | 06.9 | 251.9 | 251.9 | 15.4 | 1 |
| 14) | 3625.0000-3700.0000 | 186.0W | 186.0W | 06.9 | 06.9 | 251.9 | 251.9 | | 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 Permitted Space Station List
- 2) 1 to INTELSAT 805 (S2404) @ 304.5 E.L. (U.S.-licensed)
- 3) 1 to INTELSAT 23 (S2831) @ 53 degrees W.L. (U.S.-licensed)
- 4) 1 to INTELSAT POR @ 180.0 E.L. (U.S.-licensed)
- 5) 1 to EUTELSAT 172A (S2610) @ 174 degrees E.L. (formerly GE-23) (U.S.-licensed)
- 6) 1 to NSS- 9 (S2756) @ 177 W.L. (Netherlands-licensed)

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 | 1 | 13 | VERTEX | 13KPC | 377 | 14 AGL/ 391.1 AMSL | |
| Max Gains(s): | | 53.5 dBi @ 4.0000 GHz | | 56.8 dBi @ 6.0000 GHz | | | | |
| Maximum total input power at antenna flange (Watts) = | | | | | 1,000.00 | | | |
| Maximum aggregate output EIRP for all carriers (dBW) = | | | | | 86.80 | | | |



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F) Remote Control Point:

1

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G) Antenna Structure marking and lighting requirements:

None unless otherwise specified under Special and General Provisions

H) Special and General Provisions

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

- 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 (IBFS) in the "Other Filings" tab 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.
- 6 --- Licensee must comply with the license modification and notification requirements of 47 CFR § 25.118 to change the coordinates of its authorized earth station.

493 --- The Commission granted New Skies a waiver of Section 25.202(g) of the Commission's rules to allow NSS-9 to operate its TT&C in the center of the C-band, on the condition that New Skies must accommodate future space station networks that are compliant with Section 25.202(g) and must operate NSS-9 pursuant to any existing or future coordination agreements for this location.

2136 --- Use of the 3625-3700 MHz frequency band shall comply with the terms of footnotes US245 and NG185 to the Table of Frequency Allocations, 47 C.F.R. § 2.106, US245, NG185, and Section 2.108 of the Commission's rules, 47 C.F.R. § 2.108, which limit the use of these frequencies to international, intercontinental satellite systems, subject to case-by-case electromagnetic compatibility analysis with all users of the band.

2137 --- The extended C-band frequencies 5850-5925 MHz and 3625-3700 MHz have been cleared with the National Telecommunications & Information Administration.

5797 --- The EIRP and EIRP Density values for the digital carriers are the maximum permissible under the Section 25.212 of the Commission's Rules.



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H) Special and General Provisions

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

5822 --- The 3600-3650 MHz band is shared on a co-primary basis in the U.S. and Possessions with Federal Government radiolocation systems. Unacceptable interference may be caused to this earth station from radiolocation systems, including high-powered, highly mobile, shipborne and airborne radar transmitters, operating in the frequency band. Consistent with the applicant's EMC analysis (as required by US245 and based on the NTIA TR-99-361 Report, Technical Characteristics of Radiolocation Systems operating in the 3.1-3.7 GHz Band and Procedures for assessing EMC with Fixed Earth Station Receivers (available at <http://www.ntia.doc.gov/osmhome/reports.html>), the licensee accepts this potential for unacceptable interference. In the case that out-of-band interference does occur, the licensee is further aware that use of a RF filter ahead of the low noise amplifier (LNA) will limit potential out-of-band interference to its receiving earth station. Additionally, per US 245, in the band 3600-3650 MHz, these fixed-satellite service operations are limited to international inter-continental satellite systems.

5859 --- The 3650-3700 MHz band is shared on a co-primary basis in three Federal Government radiolocation systems identified in US348. Unacceptable interference may be caused to this earth station from these three radiolocation systems operating in the frequency band. Consistent with the applicant's EMC analysis (as required by US348 and based on the NTIA TR-99-361 Report, Technical Characteristics of Radiolocation Systems operating in the 3.1-3.7 GHz Band and Procedures for assessing EMC with Fixed Earth Station Receivers (available at <http://www.ntia.doc.gov/osmhome/reports.html>), the licensee accepts this potential for unacceptable interference from the three stations identified in US348. In the case that out-of-band interference does occur, the licensee is further aware that use of a RF filter ahead of the low noise amplifier (LNA) will limit potential out-of-band interference to its receiving earth station. Additionally, per US 245, in the band 3650-3700 MHz, these fixed-satellite service operations are limited to international inter-continental satellite systems.

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.

90405 --- Operations with PERMITTED LIST satellite must comply with §25.212 levels and operations above this levels must coordinate with satellite operators prior to operations.



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H) Special and General Provisions

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

900407 --- The Permitted Space Station List (Permitted List) is a list of all geostationary space stations providing fixed-satellite service pursuant to a Commission license or grant of U.S. market access. The Permitted List currently includes the following frequency bands per §25.103 and §25.115(k)(1):

- 3600-4200 MHz (space-to-Earth)
- 5850-6725 MHz (Earth-to-space)
- 10.95-11.2 GHz (space-to-Earth)
- 11.45-12.2 GHz (space-to-Earth)
- 13.75-14.5 GHz (Earth-to-space)
- 18.3-18.8 GHz (space-to-Earth)
- 19.7-20.2 GHz (space-to-Earth)
- 24.75-25.25 GHz (Earth-to-space)
- 28.35-28.6 GHz (Earth-to-space)
- 29.25-30.0 GHz (Earth-to-space).

Earth stations with "Permitted List" designated as a point of communication may access any space station on the Permitted List, provided the operations comply with the applicable "routine" uplink and downlink limits, are within the specific frequency bands authorized in the earth station license, have completed coordination with terrestrial stations pursuant to §25.203, and otherwise comply with all terms and conditions of both the earth station license and the space station grant.



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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.