



UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
RADIO STATION AUTHORIZATION

Name: ORBCOMM License Corp.

Call Sign: E030055

Authorization Type: Renewal of License

File Number: SES-RWL-20181213-03457

Non Common Carrier

Grant date: 03/04/2019

Expiration Date: 01/22/2034



Nature of Service: Mobile Satellite Service

Class of Station: Mobile Earth Station

A) Site Location(s)

#	Site ID	Address	Latitude	Longitude	Elevation (Meters)	Special Provisions NAD (Refer to Section H)
1)	1	25,000 INMARSAT D+ half duplex METs IN US,				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 January 22, 2019 (3 AM Eastern Standard Time) and ending January 22, 2034 (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)	1626.5000-1645.5000	R	2K50F1D	Tx	9.00	9.00	1		MODULATION: 2 LEVEL FSK, 256HZ TONE SPACING, SYMBOL RATES OF 4, 16, 32, 64, OR 128 SYMBOLS/SEC
2)	1525.0000-1544.0000	R	2K50F1D	Rx			1		MODULATION: CONTINUOUS-PHASE 32-ARY FSK, 20HZ TONE SPACING, SYMBOL RATE: 4 SYMBOLS/SEC OR CONTINUOUS-PHASE 32-ARY FSK, 32HZ TONE SPACING, SYMBOL RATE: 16 SYMBOLS/SEC.



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3)	1626.5000-1645.5000	R	2K50F1D	Tx	9.00	9.00	2		MODULATION: 2 LEVEL FSK, 256HZ TONE SPACING, SYMBOL RATES OF 4, 16, 32, 64, OR 128 SYMBOLS/SEC
4)	1525.0000-1544.0000	R	2K50F1D	Rx			2		MODULATION: CONTINUOUS-PHASE 32-ARY FSK, 20HZ TONE SPACING, SYMBOL RATE: 4 SYMBOLS/SEC OR CONTINUOUS-PHAS 32-ARY FSK, 32HZ TONE SPACING, SYMBOL RATE: 16 SYMSOBL/SEC.
5)	1626.5000-1645.0000	R	2K50F1D	Tx	9.00	9.00	3		MODULATION: 2 LEVEL FSK, 256HZ TONE SPACING, SYMBOL RATES OF 4, 16, 32, 64, OR 128 SYMBOLS/SEC
6)	1525.0000-1544.0000	R	2K50F1D	Rx		0.00	3		MODULATION: CONTINUOUS-PHASE 32-ARY FSK, 20HZ TONE SPACING, SYMBOL RATE: 4 SYMBOLS/SEC OR CONTINUOUS-PHAS 32-ARY FSK, 32HZ TONE SPACING, SYMBOL RATE: 16 SYMSOBL/SEC.
7)	1626.5000-1645.0000	R	2K50F1D	Tx	9.00	9.00	4		MODULATION: 2 LEVEL FSK, 256HZ TONE SPACING, SYMBOL RATES OF 4, 16, 32, 64, OR 128 SYMBOLS/SEC
8)	1525.0000-1544.0000	R	2K50F1D	Rx			4		MODULATION: CONTINUOUS-PHASE 32-ARY FSK, 20HZ TONE SPACING, SYMBOL RATE: 4 SYMBOLS/SEC OR CONTINUOUS-PHAS 32-ARY FSK, 32HZ TONE SPACING, SYMBOL RATE: 16 SYMSOBL/SEC.



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9)	1626.5000-1645.0000	R	2K50F1D	Tx	9.00	9.00	5		MODULATION: 2 LEVEL FSK, 256HZ TONE SPACING, SYMBOL RATES OF 4, 16, 32, 64, OR 128 SYMBOLS/SEC
10)	1525.0000-1544.0000	R	2K50F1D	Rx			5		MODULATION: CONTINUOUS-PHASE 32-ARY FSK, 20HZ TONE SPACING, SYMBOL RATE: 4 SYMBOLS/SEC OR CONTINUOUS-PHASE 32-ARY FSK, 32HZ TONE SPACING, SYMBOL RATE: 16 SYMBOLS/SEC.

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)	1626.5000-1645.5000			05.0-90.0		360.0-360.0		9	1
2)	1525.0000-1544.0000			05.0-90.0		360.0-360.0			1
3)	1626.5000-1645.5000			05.0-90.0		360.0-360.0		9	1
4)	1525.0000-1544.0000			05.0-90.0		360.0-360.0			1
5)	1626.5000-1645.5000			05.0-90.0		360.0-360.0		9	1
6)	1525.0000-1544.0000			05.0-90.0		360.0-360.0			1
7)	1626.5000-1645.5000			05.0-90.0		-360.0		9	2
8)	1525.0000-1544.0000			05.0-90.0		-360.0			2
9)	1626.5000-1645.5000			05.0-90.0		-360.0		9	2
10)	1525.0000-1544.0000			05.0-90.0		-360.0			2
11)	1626.5000-1645.5000			05.0-90.0		-360.0		9	2
12)	1525.0000-1544.0000			05.0-90.0		-360.0			2
13)	1626.5000-1645.5000			05.0-90.0		-360.0		9	3
14)	1525.0000-1544.0000			05.0-90.0		-360.0			3
15)	1626.5000-1645.5000			05.0-90.0		-360.0		9	3
16)	1525.0000-1544.0000			05.0-90.0		-360.0			3
17)	1626.5000-1645.5000			05.0-90.0		-360.0		9	3



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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		
18)	1525.0000-1544.0000			05.0-90.0		-360.0			3
19)	1626.5000-1645.5000			05.0-90.0		-360.0		9	4
20)	1525.0000-1544.0000			05.0-90.0		-360.0			4
21)	1626.5000-1645.5000			05.0-90.0		-360.0		9	4
22)	1525.0000-1544.0000			05.0-90.0		-360.0			4
23)	1626.5000-1645.5000			05.0-90.0		-360.0		9	4
24)	1525.0000-1544.0000			05.0-90.0		-360.0			4
25)	1626.5000-1645.5000			05.0-90.0		-360.0		9	5
26)	1525.0000-1544.0000			05.0-90.0		-360.0			5
27)	1626.5000-1645.5000			05.0-90.0		-360.0		9	5
28)	1525.0000-1544.0000			05.0-90.0		-360.0			5
29)	1626.5000-1645.5000			05.0-90.0		-360.0		9	5
30)	1525.0000-1544.0000			05.0-90.0		-360.0			5

D) Points of Communications

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

- 1) 1 to INMARSAT 3F2 satellite @15.5 degrees W.L. (United Kingdom-licensed)
- 2) 1 to INMARSAT 3F4 satellite (S2783) @ 54 W.L. (United Kingdom-licensed)
- 3) 1 to INMARSAT 3F3 satellite @178.0 degrees W.L. (United Kingdom-licensed)
- 4) 1 to INMARSAT 4F2 satellite(s) @52.75 W.L. in AOR-EAST (United Kingdom-licensed)
- 5) 1 to INMARSAT 3F4 satellite(s) @142 degrees W.L. (United Kingdom-licensed)
- 6) 1 to All Inmarsat satellites on "ISAT List" authorized to access U.S. in the L-Band

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	25000	0.11	SKYWAVE MOBILE COMMUNICATIONS, INC.	DMR-200C			
Max Gains(s): 7.0 dBi @ 1.6400 GHz 6.0 dBi @ 1.5400 GHz								
Maximum total input power at antenna flange (Watts) =						1.60		
Maximum aggregate output EIRP for all carriers (dBW) =						9.00		





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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:

- 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.
- 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.
- 190 --- These devices shall not be distributed to users without installation instructions warning against placing the transmitting antenna within 20 cm of the operator's body, unless the licensee or equipment manufacturer obtains an equipment authorization pursuant to Section 25.129 and Part 2, Subpart J of the Commission's rules that includes a showing of compliance with Section 2.1093(d).
- 214 --- Authority IS GRANTED pursuant to Section 25.210(j) of the Commission's rules, to permit operations of earth stations with the Inmarsat 4F2 satellite, maintained at ± 10 degree of the 52.75° W.L., subject to the condition that this waiver and the operations it permits shall terminate in the event that a satellite is launched into a location such that its stationkeeping volume would overlap the Inmarsat 4F2 satellite's ± 0.10 degree stationkeeping volume, but would not overlap the Inmarsat 4F2 satellite's $\pm 0.05^\circ$ degree stationkeeping volume, unless Inmarsat has successfully coordinated its physical operations with those of the other spacecraft.
- 215 --- Operations via the Inmarsat 4F2 satellite using a north-south inclination of as much as three degrees ARE GRANTED, conditioned on operations of the 4F2 complying with the inclined orbit requirements set forth in Sections 25.280(b)(1)-(3) of the Commission's rules
- 216 --- Operations in the 1544-1545/1645.5-1646.5 MHz frequency bands ARE LIMITED to distress and safety communications, in accordance with International Footnotes 5.356 and 5.375 of the ITU Radio Regulations.
- 5747 --- Licensee's mobile earth station terminals operating on board aircraft shall comply with all applicable Federal Aviation Administration and International Civil Aviation Organization (ICAO) rules and regulations and all other international agreements in forces to which the United States is a party.
- 5748 --- Licensee's mobile earth station terminals operating on board maritime vessels shall comply with all applicable U.S. Coast Guard and International Maritime Organization (IMO) rules and regulations and all other international agreements in force to which the United States is a party.
- 5749 --- Licensee's mobile earth station terminals operating on board aircraft shall comply with the Section 87.147(d) of the Commission's Rules. See 47 C.F.R. Section 87.147(d).
- 5779 --- Upon completion of construction each licensee must file with the Commission a certification including the following information: name of the licensee, file number of the application, call sign of the antenna, date of the license and certification that construction of the facility as authorized has been completed, and that the station is operational including the date of commencement of service, and will remain operational during the license period unless the license is submitted for cancellation.
- 5851 --- In accordance with US Footnote 308, the operation of METs in the 1545-1558.5 and 1646.5-1660 MHz is on a secondary basis to U.S. AMS[R]S requirements of other U.S.-authorized MSS providers operating in the 1545-1559 and 1646.5-1660 MHz bands.



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

- 5858 --- This authorization does not permit the licensee to provide common carrier services outside of the United States. If licensee wishes to provide such service, it must obtain authority pursuant to Section 214 of the Communication Act, 47 U.S.C. § 214, before doing so.
- 5875 --- Licensee's operation of the authorized METs is on a secondary basis to safety and distress communications of those stations operating in the Global Maritime Distress Satellite Service.
- 5898 --- This authorization is subject to operation of Inmarsat under Section 648 of the ORBIT Act imposing restrictions on exclusive arrangements for the provision of satellite services between the United States and other countries.
- 5900 --- For the half-duplex METs authorized herein to operate in the 1525-1544 MHz and 1626.5-1645.5 MHz bands, footnotes US315 and S5.353A to Section 2.106 of the Commission's Rules ARE WAIVED to permit the half-duplex METs authorized herein to operate in a portion of the lower L-band (1525-1544 MHz and 1626.5-1645.5 MHz) on a non-real-time preemptive basis. Under this waiver, operations of half-duplex METs in the lower L-band shall be on a secondary basis to safety and distress communications of those stations operating in the GMDSS.
- 5955 --- SkyWave Mobile Communications, Corp. (SkyWave) shall modify its U.S. mobile earth terminals ("METs") to facilitate average shutdown times of 1.35 seconds, and a maximum shutdown time of 2.6 seconds in order to improve the protection for the Global Maritime Distress and Safety Service ("GMDSS"). SkyWave shall make the software and hardware modifications to its Inmarsat D+ METs within 6 months of the Commission's grant of its application for 25,000 Inmarsat D+ METs. Further, SkyWave shall make any required hub modifications to the LES within 12 months of the Commission's grant of its application. SkyWave will notify the Commission and NTIA, by a letter, when the MET and hub modifications to the LES have been completed.
- 5956 --- The authorized mobile earth terminals (METs) shall comply with the out-of-band emission limits set forth in Sections 25.202(f) and 25.216 of the Commission's rules. See 47 C.F.R. §§ 25.202(f) and 25.216; Out-of-Band Emission Orders, FCC 02-34 (rel. May 14, 2002), as amended by FCC-03-0283 (rel. November 18, 2003).
- 5957 --- Licensees must comply with the terms of any L-band operator-to-operator coordination agreement. In the absence of a continuing L-band operator-to-operator coordination agreement, operations of METs in the 1525-1559 and 1626.5-1660.5 MHz bands will be on a non-harmful interference basis until a future operator-to-operator agreement is concluded. In this instance, each licensee must notify the other operators in these frequency bands that it will be operating on a non-harmful interference basis. Each licensee must notify its customers that its operations are on a non-harmful interference basis.
- 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)



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

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.



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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.