



**UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
RADIO STATION AUTHORIZATION**

Name: Comsat, Inc.

Call Sign: WA28

Authorization Type: Modification of License

File Number: SES-MFS-20160222-00152

Common Carrier

Grant date: 06/27/2016

Expiration Date: 04/08/2018



Nature of Service: Fixed Satellite Service
Nature of Service: Feeder Link for Mobile Satellite Service
Nature of Service: Mobile Satellite Service

Class of Station: Fixed Earth Stations

A) Site Location(s)

#	Site ID	Address	Latitude	Longitude	Elevation (Meters)	Special Provisions NAD (Refer to Section H)
1)	1	2120 RIVER ROAD (12.8M.) SOUTHBURY, NEW HAVEN, CT 06488	41°27'5.0"N	73°17'21.0"W	36.6	27
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						
2)	21CNORM	2120 RIVER ROAD (12.8M.) -C-BAND SOUTHBURY, NEW HAVEN, CT 06488	41°27'4.1"N	73°17'20.9"W	35.7	83
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						
3)	21CTTC/HUB	2120 RIVER ROAD (12.8M.) -C-BAND/L-BAND SOUTHBURY, NEW HAVEN, CT 06488	41°27'4.1"N	73°17'20.9"W	35.7	83
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						
4)	21LBAND	2120 RIVER ROAD (12.8M.) -L-BAND SOUTHBURY, NEW HAVEN, CT 06488	41°27'4.1"N	73°17'21.0"W	35.7	83
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						
5)	23ACNOR	2120 RIVER ROAD (10.4M.) -C-BAND SOUTHBURY, NEW HAVEN, CT 06488	41°27'4.5"N	73°17'21.0"W	35.7	83
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						
6)	23ACTTC	2120 RIVER ROAD (10.4M.) -C-BAND SOUTHBURY, NEW HAVEN, CT 06488	41°27'4.5"N	73°17'21.5"W	35.7	83
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						



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A) Site Location(s)

#	Site ID	Address	Latitude	Longitude	Elevation (Meters)	Special Provisions NAD (Refer to Section H)
7)	23BLBAND	2120 RIVER ROAD (1.8M.) -BL-BAND SOUTHBURY, NEW HAVEN, CT 06488	41°27'4.5"N	73°17'21.8"W	35.7	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 April 8, 2003 (3 AM Eastern Standard Time) and ending April 8, 2018 (3 AM Eastern Standard Time). The required date of completion of construction and commencement of operation is June 27, 2017 (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)	5925.0000-6425.0000	L,R	36M0F8W	Tx	86.50	59.50	21CTTC		ANALOG CARRIER TO MONITOR TRANSPONDER PERFORMANCE
2)	6454.4000-6456.6000	L,R	2M20G1D	Tx	80.70	53.30	21CNORM		BPSK SPREAD SPECTRUM DATA (NAVIGATION)
3)	6424.0000-6454.0000	L,R	34K0F3E	Tx	62.00	58.20	21CNORM		FM TELEPHONY COMPANDED AND UNCOMPANDED
4)	6424.0000-6454.0000	L,R	NON	Tx	62.00	62.00	21CNORM		UNMODULATED AFC PILOT (CLOSE LOOP)
5)	6424.0000-6454.0000	L,R	27K0F3W	Tx	62.00	59.20	21CNORM		FM9 ANALOG BROADCAST CARRIER
6)	6424.0000-6454.0000	L,R	400KG1F	Tx	62.00	42.00	21CNORM		QPSK, DIGITAL VIDEO/DATA
7)	6424.0000-6454.0000	L,R	40K0G1D	Tx	63.30	53.30	21CNORM		16 QAM DIGITAL TELEPHONY
8)	5927.0000-5927.0000	L,R	NON	Tx	53.30	53.30	21CNORM		TT&C RANGING CARRIER
9)	6424.0000-6454.0000	L,R	5K60G1E	Tx	54.80	53.30	21CNORM		QPSK, TELEPHONY
10)	6424.0000-6454.0000	L,R	24K0G1E	Tx	61.10	53.30	21CNORM		QPSK, TELEPHONY



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B) Particulars of Operations

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

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11)	6424.0000-6454.0000	L,R	5K60G1W	Tx	54.80	53.30	21CNORM		QPSK, DATA/FAX
12)	6424.0000-6454.0000	L,R	2M20G1D	Tx	62.00	34.60	21CNORM		BPSK, DATA/TDM
13)	6424.0000-6454.0000	L,R	2K40G7D	Tx	51.10	51.10	21CNORM		BPSK, DATA/TDM
14)	6424.0000-6454.0000	L,R	2K40G1D	Tx	51.10	51.10	21CNORM		BPSK, DATA/TDM
15)	6424.0000-6454.0000	L,R	24K0G1W	Tx	61.10	53.30	21CNORM		QPSK, DATA/FAX
16)	6424.0000-6454.0000	L,R	132KG7D	Tx	62.00	46.80	21CNORM		BPSK, DATA/TDM
17)	6425.0000-6454.0000	L,R	7K50G1W	Tx	58.40	55.70	21CNORM		DIGITAL DATA
18)	6425.0000-6454.0000	L,R	7K50G1E	Tx	62.20	59.50	21CNORM		DIGITAL DATA
19)	6425.0000-6454.0000	L,R	7K50G1D	Tx	59.10	56.40	21CNORM		DIGITAL DATA
20)	6425.0000-6454.0000	L,R	60K0D1W	Tx	65.90	54.10	21CNORM		DIGITAL DATA
21)	6425.0000-6454.0000	L,R	5K00G1W	Tx	51.90	50.90	21CNORM		DIGITAL DATA
22)	6425.0000-6454.0000	L,R	5K00G1E	Tx	51.90	50.90	21CNORM		DIGITAL DATA
23)	6425.0000-6454.0000	L,R	5K00G1D	Tx	61.80	60.80	21CNORM		DIGITAL DATA
24)	6425.0000-6454.0000	L,R	45K0G7D	Tx	66.00	55.50	21CNORM		DIGITAL DATA
25)	6425.0000-6454.0000	L,R	2K50G1D	Tx	65.70	65.70	21CNORM		DIGITAL DATA
26)	6425.0000-6454.0000	L,R	2K50F1D	Tx	58.80	58.80	21CNORM		DIGITAL DATA
27)	6425.0000-6454.0000	L,R	20K0G1E	Tx	56.80	49.80	21CNORM		DIGITAL DATA
28)	6425.0000-6454.0000	L,R	17K5G1D	Tx	61.40	55.00	21CNORM		DIGITAL DATA
29)	6425.0000-6454.0000	L,R	10K0G1X	Tx	61.20	57.20	21CNORM		DIGITAL DATA
30)	6425.0000-6454.0000	L,R	10K0G1W	Tx	59.70	55.70	21CNORM		DIGITAL DATA
31)	6425.0000-6454.0000	L,R	100KG1X	Tx	60.80	46.80	21CNORM		DIGITAL DATA
32)	3700.0000-4200.0000	L,R	36M0F8W	Rx			21CNORM		TEST ANALOG CARRIER TO MONITOR TRANSPONDER PERFORMANCE
33)	3600.0000-3629.0000	L,R	2M20G1D	Rx			21CNORM		BPSK SPREAD SPECTRUM DATA-NAVIGATION CLOSE LOOP



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#	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
34)	3600.0000-3629.0000	L,R	34K0F3E	Rx			21CNORM		FM TELEPHONY COMPANDED AND UNCOMPANDED
35)	3947.0000-3953.0000	L,R	131KG2D	Rx			21CNORM		PCM/PSK/BI-PHASE TRACKING BEACON
36)	3600.0000-3629.0000	L,R	NON	Rx			21CNORM		UNMODULATED AFC PILOT (CLOSE LOOP)
37)	3600.0000-3629.0000	L,R	40K0G1W	Rx			21CNORM		16 QAM, DIGITAL TELEPHONY
38)	3600.0000-3629.0000	L,R	400KG1F	Rx			21CNORM		QPSK, DIGITAL VIDEO/DATA
39)	3600.0000-3629.0000	L,R	5K60G1E	Rx			21CNORM		QPSK, TELEPHONY
40)	3600.0000-3629.0000	L,R	5K60G1W	Rx			21CNORM		QPSK, DATA/FAX
41)	3600.0000-3629.0000	L,R	2K40G7D	Rx			21CNORM		BPSK, DATA/TDM
42)	3600.0000-3629.0000	L,R	24K0G1W	Rx			21CNORM		QPSK, DATA/FAX
43)	3600.0000-3629.0000	L,R	132KG7D	Rx			21CNORM		BPSK, DATA/TDM
44)	3600.0000-3629.0000	L,R	7K50G1W	Rx			21CNORM		DIGITAL DATA
45)	3600.0000-3629.0000	L,R	7K50G1E	Rx			21CNORM		DIGITAL DATA
46)	3600.0000-3629.0000	L,R	7K50G1D	Rx			21CNORM		DIGITAL DATA
47)	3600.0000-3629.0000	L,R	60K0D1W	Rx			21CNORM		DIGITAL DATA
48)	3600.0000-3629.0000	L,R	5K00G1W	Rx			21CNORM		DIGITAL DATA
49)	3600.0000-3629.0000	L,R	5K00G1E	Rx			21CNORM		DIGITAL DATA
50)	3600.0000-3629.0000	L,R	5K00G1D	Rx			21CNORM		DIGITAL DATA
51)	3600.0000-3629.0000	L,R	45K0G7D	Rx			21CNORM		DIGITAL DATA
52)	3600.0000-3629.0000	L,R	2K50G1D	Rx			21CNORM		DIGITAL DATA
53)	3600.0000-3629.0000	L,R	2K50F1D	Rx			21CNORM		DIGITAL DATA
54)	3600.0000-3629.0000	L,R	20K0G1X	Rx			21CNORM		DIGITAL DATA
55)	3600.0000-3629.0000	L,R	20K0G1E	Rx			21CNORM		DIGITAL DATA
56)	3600.0000-3629.0000	L,R	17K5G1D	Rx			21CNORM		DIGITAL DATA



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#	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
57)	3600.0000-3629.0000	L,R	10K0G1W	Rx			21CNORM		DIGITAL DATA
58)	3600.0000-3629.0000	L,R	100KG1X	Rx			21CNORM		DIGITAL DATA
59)	3600.0000-3629.0000	L,R	2M20G1D	Rx			21CNORM		BPSK, DATA
60)	3600.0000-3629.0000	L,R	2K40G1D	Rx			21CNORM		BPSK, DATA
61)	6454.4000-6456.6000	R	600HG1D	Tx	44.50	44.50	12.8M.		DIGITAL CARRIER
62)	6454.4000-6456.6000	R	1K20G2D	Tx	44.50	44.50	12.8M.		DIGITAL CARRIER
63)	6454.4000-6456.6000	R	2K40G2D	Tx	44.50	44.50	12.8M.		DIGITAL CARRIER
64)	6454.4000-6456.6000	R	10K5G2F	Tx	44.50	40.30	12.8M.		DIGITAL CARRIER
65)	6454.4000-6456.6000	R	2M20G1D	Tx	78.00	50.60	12.8M.		DIGITAL CARRIER
66)	6454.4000-6456.6000	R	2M20G1D	Tx	82.30	54.90	12.8M.		DIGITAL CARRIER
67)	6425.0000-6454.0000	R	1K20G1D	Tx	44.50	44.50	12.8M.		DIGITAL CARRIER
68)	6425.0000-6454.0000	R	600HG1D	Tx	44.50	44.50	12.8M.		DIGITAL CARRIER
69)	6425.0000-6454.0000	R	600HG2D	Tx	44.50	44.50	12.8M.		DIGITAL CARRIER
70)	6425.0000-6454.0000	R	1K20G2D	Tx	44.50	44.50	12.8M.		DIGITAL CARRIER
71)	6425.0000-6454.0000	R	2K40G2D	Tx	44.50	44.50	12.8M.		DIGITAL CARRIER
72)	6425.0000-6454.0000	R	10K5G2F	Tx	44.50	40.30	12.8M.		DIGITAL CARRIER
73)	6425.0000-6454.0000	R	2M20G1D	Tx	78.00	50.60	12.8M.		DIGITAL CARRIER
74)	6425.0000-6454.0000	R	2M20G1D	Tx	82.30	54.90	12.8M.		DIGITAL CARRIER
75)	6425.0000-6443.0000	R	6K00G1D	Tx			12.8M.		Feeder link for INMARSAT-B & M
76)	6425.0000-6443.0000	R	12K0G3E	Tx			12.8M.		Feeder link for INMARSAT-B & M
77)	6425.0000-6443.0000	R	12K0G1D	Tx			12.8M.		Feeder link for INMARSAT-B & M
78)	6425.0000-6443.0000	R	7K50G3E	Tx			12.8M.		Feeder link for INMARSAT-B & M



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#	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
79)	6425.0000-6443.0000	R	4K00G3E	Tx			12.8M.		Feeder link for INMARSAT-B & M
80)	6425.0000-6443.0000	R	4K00G1D	Tx			12.8M.		Feeder link for INMARSAT-B & M
81)	6420.0000-6424.0000	R	6K00G1D	Tx			12.8M.		Feeder link for INMARSAT-B & M
82)	6420.0000-6424.0000	R	12K0G3E	Tx			12.8M.		Feeder link for INMARSAT-B & M
83)	6420.0000-6424.0000	R	12K0G1D	Tx			12.8M.		Feeder link for INMARSAT-B & M
84)	6420.0000-6424.0000	R	7K50G3E	Tx			12.8M.		Feeder link for INMARSAT-B & M
85)	6420.0000-6424.0000	R	4K00G3E	Tx			12.8M.		Feeder link for INMARSAT-B & M
86)	6420.0000-6424.0000	R	4K00G1D	Tx			12.8M.		Feeder link for INMARSAT-B & M
87)	6417.5000-6443.0000	R	600HG1D	Tx	65.00	65.00	12.8M.		Aeronautical Digital transmit channels
88)	6417.5000-6443.0000	R	1K20G1D	Tx	65.00	65.00	12.8M.		Aeronautical Digital transmit channels
89)	6417.5000-6443.0000	R	2K40G1D	Tx	65.00	65.00	12.8M.		Aeronautical Digital transmit channels
90)	6417.5000-6443.0000	R	10K5G1E	Tx	69.20	65.00	12.8M.		Aeronautical Digital transmit channels
91)	6417.5000-6440.0000	R	1K20G1D	Tx	77.00	77.00	12.8M.		STD A Telex
92)	6417.5000-6440.0000	R	600HG1D	Tx	77.00	77.00	12.8M.		STD-C Digital
93)	6417.5000-6440.0000	R	1K20G1D	Tx	77.00	77.00	12.8M.		STD-C Digital
94)	6417.5000-6440.0000	R	NON	Tx	77.00	77.00	12.8M.		PILOT
95)	4195.0000-4199.0000	L	3K00G1D	Rx			12.8M.		Feeder link for INMARSAT-B & M
96)	4195.0000-4199.0000	L	12K0G3E	Rx			12.8M.		Feeder link for INMARSAT-B & M
97)	4195.0000-4199.0000	L	12K0G1D	Rx			12.8M.		Feeder link for INMARSAT-B & M



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98)	4195.0000-4199.0000	L	7K50G3E	Rx			12.8M.		Feeder link for INMARSAT-B & M
99)	4195.0000-4199.0000	L	4K00G3E	Rx			12.8M.		Feeder link for INMARSAT-B & M
100)	4195.0000-4199.0000	L	4K00G1D	Rx			12.8M.		Feeder link for INMARSAT-B & M
101)	3600.0000-3629.0000	L	2M20G1D	Rx	0.00		12.8M.		DIGITAL CARRIER
102)	3600.0000-3623.0000	L	3K00G1D	Rx			12.8M.		Feeder link for INMARSAT-B & M
103)	3600.0000-3623.0000	L	12K0G3E	Rx			12.8M.		Feeder link for INMARSAT-B & M
104)	3600.0000-3623.0000	L	120KG1D	Rx			12.8M.		Feeder link for INMARSAT-B & M
105)	3600.0000-3623.0000	L	7K50G3E	Rx			12.8M.		Feeder link for INMARSAT-B & M
106)	3600.0000-3623.0000	L	4K00G3E	Rx			12.8M.		Feeder link for INMARSAT-B & M
107)	3600.0000-3623.0000	L	4K00G1D	Rx			12.8M.		Feeder link for INMARSAT-B & M
108)	3600.0000-3623.0000	L	10K5G1E	Rx			12.8M.		AERO
109)	3600.0000-3623.0000	L	1K20G1D	Rx			12.8M.		AERO
110)	3600.0000-3623.0000	L	600HG1D	Rx			12.8M.		AERO
111)	3600.0000-3623.0000	L	2K40G1D	Rx			12.8M.		AERO
112)	3600.0000-3620.0000	L	30K0F3E	Rx			12.8M.		STD A VOICE
113)	3600.0000-3620.0000	L	4K80G1D	Rx			12.8M.		STD A TELEX
114)	3600.0000-3620.0000	L	NON	Rx			12.8M.		PILOT
115)	3600.0000-3620.0000	L	600HG1D	Rx			12.8M.		STD-C
116)	1626.5000-1660.5000	R	24K0F3E	Tx	36.00	33.70	12.8M.		ANALOG CARRIER
117)	1626.5000-1660.5000	R	NON	Tx	31.00	31.00	12.8M.		PILOT
118)	1626.5000-1660.5000	R	24K0G2D	Tx	36.00	36.00	12.8M.		DIGITAL CARRIER



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#	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
119)	1626.5000-1660.5000	R	1K20G1D	Tx	36.00	36.00	12.8M.		DIGITAL CARRIER
120)	1626.5000-1660.5000	R	600HG1D	Tx	36.00	36.00	12.8M.		DIGITAL CARRIER
121)	1626.5000-1660.5000	R	600HG2D	Tx	36.00	36.00	12.8M.		DIGITAL CARRIER
122)	1626.5000-1660.5000	R	1K20G2D	Tx	36.00	36.00	12.8M.		DIGITAL CARRIER
123)	1626.5000-1649.5000	R	600HG1D	Tx	15.00	15.00	12.8M.		AERO
124)	1626.5000-1649.5000	R	1K20G1D	Tx	18.00	18.00	12.8M.		AERO
125)	1626.5000-1649.5000	R	2K40G1D	Tx	21.00	21.00	12.8M.		AERO
126)	1626.5000-1649.5000	R	10K5G1E	Tx	31.20	27.00	12.8M.		AERO
127)	1626.5000-1647.5000	R	30K0F3E	Tx	37.00	33.70	12.8M.		STD A VOICE
128)	1626.5000-1647.5000	R	NON	Tx	37.00	37.00	12.8M.		PILOT
129)	1626.5000-1647.5000	R	1K20G1D	Tx	16.00	16.00	12.8M.		STD-C
130)	1626.5000-1647.5000	R	600HG1D	Tx	16.00	16.00	12.8M.		STD-C
131)	1626.5000-1647.5000	R	4K80G1D	Tx	37.00	37.00	12.8M.		STD A TELEX
132)	1574.4000-1576.6000	R	2K40G2D	Rx			12.8M.		DIGITAL CARRIER
133)	1574.4000-1576.6000	R	1K20G1D	Rx			12.8M.		DIGITAL CARRIER
134)	1574.4000-1576.6000	R	600HG1D	Rx			12.8M.		DIGITAL CARRIER
135)	1574.4000-1576.6000	R	600HG2D	Rx			12.8M.		DIGITAL CARRIER
136)	1574.4000-1576.6000	R	1K20G2D	Rx			12.8M.		DIGITAL CARRIER
137)	1574.4000-1576.6000	R	10K5G2F	Rx			12.8M.		DIGITAL CARRIER
138)	1530.0000-1548.0000	R	10K5G1E	Rx			12.8M.		AERO
139)	1530.0000-1548.0000	R	2K40G1D	Rx			12.8M.		AERO
140)	1530.0000-1548.0000	R	1K20G1D	Rx			12.8M.		AERO
141)	1530.0000-1548.0000	R	600HG1D	Rx			12.8M.		AERO
142)	1530.0000-1545.0000	L	30K0F3E	Rx			12.8M.		STD A VOICE



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Name: Comsat, Inc.

Call Sign: WA28

Authorization Type: Modification of License

File Number: SES-MFS-20160222-00152

Common Carrier

Grant date: 06/27/2016

Expiration Date: 04/08/2018

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
143)	1530.0000-1545.0000	L	NON	Rx			12.8M.		PILOT
144)	1530.0000-1545.0000	L	1K20G1D	Rx			12.8M.		STD A TELEX
145)	1530.0000-1545.0000	L	1K20G1D	Rx			12.8M.		STD-C
146)	1530.0000-1545.0000	L	600HG1D	Rx			12.8M.		STD-C
147)	1525.0000-1559.0000	R	2K40G2D	Rx	0.00		12.8M.		DIGITAL CARRIER
148)	1525.0000-1559.0000	R	1K20G1D	Rx			12.8M.		DIGITAL CARRIER
149)	1525.0000-1559.0000	R	600HG1D	Rx			12.8M.		DIGITAL CARRIER
150)	1525.0000-1559.0000	R	600HG2D	Rx			12.8M.		DIGITAL CARRIER
151)	1525.0000-1559.0000	R	1K20G2D	Rx			12.8M.		DIGITAL CARRIER
152)	1525.0000-1559.0000	R	10K5G2F	Rx			12.8M.		DIGITAL CARRIER
153)	3600.0000-3629.0000	L,R	100KG1X	Rx			12.8M.		DIGITAL DATA
154)	3600.0000-3629.0000	L,R	10K0G1W	Rx			12.8M.		DIGITAL DATA
155)	3600.0000-3629.0000	L,R	17K5G1D	Rx			12.8M.		DIGITAL DATA
156)	3600.0000-3629.0000	L,R	20K0G1E	Rx			12.8M.		DIGITAL DATA
157)	3600.0000-3629.0000	L,R	20K0G1X	Rx			12.8M.		DIGITAL DATA
158)	3600.0000-3629.0000	L,R	2K50F1D	Rx			12.8M.		DIGITAL DATA
159)	3600.0000-3629.0000	L,R	2K50G1D	Rx			12.8M.		DIGITAL DATA
160)	3600.0000-3629.0000	L,R	5K00G1D	Rx			12.8M.		DIGITAL DATA
161)	3600.0000-3629.0000	L,R	5K00G1E	Rx			12.8M.		DIGITAL DATA
162)	3600.0000-3629.0000	L,R	5K00G1W	Rx			12.8M.		DIGITAL DATA
163)	3600.0000-3629.0000	L,R	60K0D1W	Rx			12.8M.		DIGITAL DATA
164)	3600.0000-3629.0000	L,R	7K50G1D	Rx			12.8M.		DIGITAL DATA
165)	3600.0000-3629.0000	L,R	7K50G1E	Rx			12.8M.		DIGITAL DATA
166)	3600.0000-3629.0000	L,R	7K50G1W	Rx			12.8M.		DIGITAL DATA



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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
167)	6425.0000-6454.0000	L,R	100KG1X	Tx	60.80	46.80	12.8M.		DIGITAL DATA
168)	6425.0000-6454.0000	L,R	10K0G1W	Tx	59.70	55.70	12.8M.		DIGITAL DATA
169)	6425.0000-6454.0000	L,R	10K0G1X	Tx	61.20	57.20	12.8M.		DIGITAL DATA
170)	6425.0000-6454.0000	L,R	17K5G1D	Tx	61.40	55.00	12.8M.		DIGITAL DATA
171)	6425.0000-6454.0000	L,R	20K0G1E	Tx	56.80	49.80	12.8M.		DIGITAL DATA
172)	6425.0000-6454.0000	L,R	2K50F1D	Tx	58.80	58.80	12.8M.		DIGITAL DATA
173)	6425.0000-6454.0000	L,R	2K50G1D	Tx	65.70	65.70	12.8M.		DIGITAL DATA
174)	6425.0000-6454.0000	L,R	45K0G7D	Tx	66.00	55.50	12.8M.		DIGITAL DATA
175)	6425.0000-6454.0000	L,R	5K00G1D	Tx	61.80	60.80	12.8M.		DIGITAL DATA
176)	6425.0000-6454.0000	L,R	5K00G1E	Tx	51.90	50.90	12.8M.		DIGITAL DATA
177)	6425.0000-6454.0000	L,R	5K00G1W	Tx	51.90	50.90	12.8M.		DIGITAL DATA
178)	6425.0000-6454.0000	L,R	60K0D1W	Tx	65.90	54.10	12.8M.		DIGITAL DATA
179)	6425.0000-6454.0000	L,R	7K50G1D	Tx	59.10	56.40	12.8M.		DIGITAL DATA
180)	6425.0000-6454.0000	L,R	7K50G1E	Tx	62.20	59.50	12.8M.		DIGITAL DATA
181)	6425.0000-6454.0000	L,R	7K50G1W	Tx	58.40	55.70	12.8M.		DIGITAL DATA
182)	1626.5000-1660.5000	L,R	34K0F3E	Tx	36.00	32.20	21LBAND		TEST FM, TELEPHONY COMPANDED OR UNCOMPANDED
183)	1626.5000-1660.5000	L,R	NON	Tx	40.50	40.50	21LBAND		UNMODULATED AFC PILOT (CLOSE LOOP)
184)	1626.5000-1660.5000	L,R	400KG1F	Tx	36.00	16.00	21LBAND		TEST QPSK DIGITAL VIDEO/DATA
185)	1626.5000-1660.5000	L,R	5K60G1E	Tx	36.00	34.50	21LBAND		TEST QPSK, TELEPHONY
186)	1626.5000-1660.5000	L,R	2K40G7D-	Tx	36.00	36.00	21LBAND		TEST BPSK, DATA/TDM
187)	1626.5000-1660.5000	L,R	24K0G1E	Tx	36.00	28.20	21LBAND		TEST QPSK, TELEPHONY
188)	1626.5000-1660.5000	L,R	5K60G1W	Tx	36.00	34.50	21LBAND		TEST QPSK, DATA/FAX
189)	1626.5000-1660.5000	L,R	2K40G1W	Tx	36.00	36.00	21LBAND		TEST QPSK, DATA/FAX



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Common Carrier

Grant date: 06/27/2016

Expiration Date: 04/08/2018

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
190)	1626.5000-1660.5000	L,R	132KG7D	Tx	36.00	20.80	21LBAND		TEST BPSK, DATA/TDM
191)	1626.5000-1660.5000	L,R	2M20G1D	Tx	36.00	8.60	21LBAND		TEST BPSK, DATA
192)	1626.5000-1660.5000	L,R	2K40G1D	Tx	36.00	36.00	21LBAND		TEST BPSK, DATA
193)	1574.4000-1576.6000	L,R	2M20G1D	Rx			21LBAND		TEST BPSK SPREAD SPECTRUM DATA- CLOSE LOOP
194)	1525.0000-1559.0000	L,R	34K0F3E	Rx			21LBAND		TEST FM, TELEPHONY COMPANDED OR UNCOMPANDED
195)	1525.0000-1559.0000	L,R	2M20G1D	Rx			21LBAND		TEST BPSK SPREAD SPECTRUM DATA- CLOSE LOOP
196)	1525.0000-1559.0000	L,R	NON	Rx			21LBAND		UNMODULATED AFC PILOT (CLOSE LOOP)
197)	1525.0000-1559.0000	L,R	40K0G1W	Rx			21LBAND		TEST 16 QAM DIGITAL TELEPHONY
198)	1525.0000-1559.0000	L,R	400KG1F	Rx			21LBAND		TEST QPSK DIGITAL VIDEO/DATA
199)	1525.0000-1559.0000	L,R	5K60G1E	Rx			21LBAND		TEST QPSK, TELEPHONY
200)	1525.0000-1559.0000	L,R	24K0G1E	Rx			21LBAND		TEST QPSK, TELEPHONY
201)	1525.0000-1559.0000	L,R	5K60G1W	Rx			21LBAND		TEST QPSK, DATA/FAX
202)	1525.0000-1559.0000	L,R	2K40G7D	Rx			21LBAND		TEST BPSK, DATA/TDM
203)	1525.0000-1559.0000	L,R	2K40G1W	Rx			21LBAND		TEST QPSK, DATA/FAX
204)	1525.0000-1559.0000	L,R	132KG7D	Rx			21LBAND		TEST BPSK, DATA/TDM
205)	1525.0000-1559.0000	L,R	2M20G1D	Rx			21LBAND		TEST BPSK, DATA
206)	1525.0000-1559.0000	L,R	2K40G1D	Rx			21LBAND		TEST BPSK, DATA
207)	5925.0000-6425.0000	L,R	36M0F8W	Tx	86.50	59.50	23ACTTC		TEST ANALOG CARRIER TO MONITOR TRANSPONDER PERFORMANCE
208)	6454.4000-6456.6000	L,R	2M20G1D	Tx	73.50	46.10	23ACNOR		BPSK SPREAD SPECTRUM DATA (NAVIGATION)
209)	6424.0000-6454.0000	L,R	27K0F3W	Tx	59.50	56.70	23ACNOR		FM9 ANALOG BROADCAST CARRIER
210)	6424.0000-6454.0000	L,R	400KG1F	Tx	59.50	39.50	23ACNOR		QPSK, DIGITAL VIDEO/DATA



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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
211)	6424.0000-6454.0000	L,R	40K0G1W	Tx	60.80	50.80	23ACNOR		16 QAM DIGITAL TELEPHONY
212)	6424.0000-6454.0000	L,R	NON	Tx	59.50	59.50	23ACNOR		UNMODULATED AFC PILOT
213)	5927.0000-5927.0000	L,R	NON	Tx	50.80	50.80	23ACNOR		TT&C RANGING CARRIER
214)	6424.0000-6454.0000	L,R	5K60G1E	Tx	53.20	50.80	23ACNOR		QPSK, TELEPHONY
215)	6424.0000-6454.0000	L,R	24K0G1E	Tx	58.60	50.80	23ACNOR		QPSK, TELEPHONY
216)	6424.0000-6454.0000	L,R	5K60G1W	Tx	52.30	50.80	23ACNOR		QPSK, DATA/FAX
217)	6424.0000-6454.0000	L,R	2K40G7D	Tx	48.60	48.60	23ACNOR		BPSK, DATA/TDM
218)	6424.0000-6454.0000	L,R	24K0G1W	Tx	58.60	50.80	23ACNOR		QPSK, DATA/FAX
219)	6424.0000-6454.0000	L,R	132KG7D	Tx	59.50	44.30	23ACNOR		BPSK, DATA/TDM
220)	6425.0000-6454.0000	L,R	7K50G1W	Tx	58.40	55.70	23ACNOR		DIGITAL DATA
221)	6425.0000-6454.0000	L,R	7K50G1D	Tx	59.10	56.40	23ACNOR		DIGITAL DATA
222)	6425.0000-6454.0000	L,R	60K0D1W	Tx	65.90	54.10	23ACNOR		DIGITAL DATA
223)	6425.0000-6454.0000	L,R	5K00G1W	Tx	51.90	50.90	23ACNOR		DIGITAL DATA
224)	6425.0000-6454.0000	L,R	5K00G1E	Tx	51.90	50.90	23ACNOR		DIGITAL DATA
225)	6425.0000-6454.0000	L,R	5K00G1D	Tx	61.80	60.80	23ACNOR		DIGITAL DATA
226)	6425.0000-6454.0000	L,R	45K0G7D	Tx	66.00	55.50	23ACNOR		DIGITAL DATA
227)	6425.0000-6454.0000	L,R	2K50G1D	Tx	65.70	65.70	23ACNOR		DIGITAL DATA
228)	6425.0000-6454.0000	L,R	2K50F1D	Tx	58.80	58.80	23ACNOR		DIGITAL DATA
229)	6425.0000-6454.0000	L,R	20K0G1E	Tx	56.80	49.80	23ACNOR		DIGITAL DATA
230)	6425.0000-6454.0000	L,R	17K5G1D	Tx	61.40	55.00	23ACNOR		DIGITAL DATA
231)	6425.0000-6454.0000	L,R	10K0G1X	Tx	61.20	57.20	23ACNOR		DIGITAL DATA
232)	6424.0000-6454.0000	L,R	2M20G1D	Tx	71.70	44.30	23ACNOR		BPSK, DATA
233)	6425.0000-6454.0000	L,R	10K0G1W	Tx	59.70	55.70	23ACNOR		DIGITAL DATA
234)	6425.0000-6454.0000	L,R	100KG1X	Tx	60.80	46.80	23ACNOR		DIGITAL DATA



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Common Carrier

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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
235)	6424.0000-6454.0000	L,R	2K40G1D	Tx	48.60	48.60	23ACNOR		BPSK, DATA
236)	3700.0000-4200.0000	L,R	36M0F8W	Rx			23ACNOR		TEST ANALOG CARRIER TO MONITOR TRANSPONDER PERFORMANCE
237)	3600.0000-3629.0000	L,R	34K0F3E	Rx			23ACNOR		FM TELEPHONY COMPANDED AND UNCOMPANDED
238)	3600.0000-3629.0000	L,R	2M20G1D	Rx			23ACNOR		BPSK SPREAD SPECTRUM DATA (NAVIGATION)
239)	3947.0000-3953.0000	L,R	131KG2D	Rx			23ACNOR		PCM/PSK/BI-PHASE TRACKING BEACON
240)	3600.0000-3629.0000	L,R	400KG1F	Rx			23ACNOR		QPSK, DIGITAL VIDEO/DATA
241)	3600.0000-3629.0000	L,R	40K0G1W	Rx			23ACNOR		16 QAM DIGITAL TELEPHONY
242)	3600.0000-3629.0000	L,R	NON	Rx			23ACNOR		UNMODULATED AFC PILOT
243)	3600.0000-3629.0000	L,R	5K60G1E	Rx			23ACNOR		QPSK, TELEPHONY
244)	3600.0000-3629.0000	L,R	24K0G1E	Rx			23ACNOR		QPSK, TELEPHONY
245)	3600.0000-3629.0000	L,R	5K60G1W	Rx			23ACNOR		QPSK, DATA/FAX
246)	3600.0000-3629.0000	L,R	2K40G7D	Rx			23ACNOR		BPSK, DATA/TDM
247)	3600.0000-3629.0000	L,R	24K0G1W	Rx			23ACNOR		QPSK, DATA/FAX
248)	3600.0000-3629.0000	L,R	132KG7D	Rx			23ACNOR		BPSK, DATA/TDM
249)	3600.0000-3629.0000	L,R	7K50G1W	Rx			23ACNOR		DIGITAL DATA
250)	3600.0000-3629.0000	L,R	7K50G1E	Rx			23ACNOR		DIGITAL DATA
251)	3600.0000-3629.0000	L,R	60K0D1W	Rx			23ACNOR		DIGITAL DATA
252)	3600.0000-3629.0000	L,R	5K00G1W	Rx			23ACNOR		DIGITAL DATA
253)	3600.0000-3629.0000	L,R	5K00G1E	Rx			23ACNOR		DIGITAL DATA
254)	3600.0000-3629.0000	L,R	5K00G1D	Rx			23ACNOR		DIGITAL DATA
255)	3600.0000-3629.0000	L,R	45K0G7D	Rx			23ACNOR		DIGITAL DATA
256)	3600.0000-3629.0000	L,R	2K50G1D	Rx			23ACNOR		DIGITAL DATA



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The General Provision 1010 applies to all receiving frequency bands.
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#	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
257)	3600.0000-3629.0000	L,R	2K50F1D	Rx			23ACNOR		DIGITAL DATA
258)	3600.0000-3629.0000	L,R	20K0G1X	Rx			23ACNOR		DIGITAL DATA
259)	3600.0000-3629.0000	L,R	20K0G1E	Rx			23ACNOR		DIGITAL DATA
260)	3600.0000-3629.0000	L,R	10K0G1W	Rx			23ACNOR		DIGITAL DATA
261)	3600.0000-3629.0000	L,R	100KG1X	Rx			23ACNOR		DIGITAL DATA
262)	3600.0000-3629.0000	L,R	2M20G1D	Rx			23ACNOR		BPSK, DATA
263)	3600.0000-3629.0000	L,R	2K40G1D	Rx			23ACNOR		BPSK, DATA
264)	1626.5000-1660.5000	L,R	NON	Tx	27.20	27.20	23BLBAND		UNMODULATED AFC PILOT (CLOSE LOOP)
265)	1574.4000-1576.6000	L,R	2M20G1D	Rx			23BLBAND		TEST BPSK SPREAD SPECTRUM DATA- CLOSE LOOP
266)	1525.0000-1559.0000	L,R	34K0F3E	Rx			23BLBAND		TEST FM, TELEPHONY COMPANDED AND UNCOMPANDED
267)	1525.0000-1559.0000	L,R	2M20G1D	Rx			23BLBAND		TEST BPSK SPREAD SPECTRUM DATA- CLOSE LOOP
268)	1525.0000-1559.0000	L,R	400KG1F	Rx			23BLBAND		TEST QPSK, DIGITAL VIDEO/DATA
269)	1525.0000-1559.0000	L,R	40K0G1W	Rx			23BLBAND		TEST 16 QAM DIGITAL TELEPHONY
270)	1525.0000-1559.0000	L,R	5K60G1E	Rx			23BLBAND		TEST QPSK, TELEPHONY
271)	1525.0000-1559.0000	L,R	24K0G1E	Rx			23BLBAND		TEST QPSK, TELEPHONY
272)	1525.0000-1559.0000	L,R	5K60G1W	Rx			23BLBAND		TEST QPSK, DATA/FAX
273)	1525.0000-1559.0000	L,R	2K40G7D	Rx			23BLBAND		TEST BPSK, DATA/TDM
274)	1525.0000-1559.0000	L,R	24K0G1W	Rx			23BLBAND		TEST QPSK, DATA/FAX
275)	1525.0000-1559.0000	L,R	132KG7D	Rx			23BLBAND		TEST BPSK, DATA/TDM
276)	1525.0000-1559.0000	L,R	NON	Rx			23BLBAND		UNMODULATED AFC PILOT
277)	1525.0000-1559.0000	L,R	2M20G1D	Rx			23BLBAND		TEST BPSK, DATA
278)	1525.0000-1559.0000	L,R	2K40G1D	Rx			23BLBAND		TEST BPSK, DATA



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The General Provision 1010 applies to all receiving frequency bands.
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#	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
279)	6454.4000-6456.6000	R	600HG2D	Tx	44.50	44.50	12.8M.		DIGITAL CARRIER
280)	1626.5000-1660.5000	L,R	40K0G1W	Tx	48.20	38.20	21LBAND		TEST 16 QAM DIGITAL TELEPHONY
281)	6425.0000-6454.0000	L,R	7K50G1E	Tx	62.20	59.50	23ACNOR		DIGITAL DATA
282)	3600.0000-3629.0000	L,R	24K0G1E	Rx			21CNORM		QPSK, TELEPHONY
283)	3600.0000-3629.0000	L,R	7K50G1D	Rx			23ACNOR		DIGITAL DATA
284)	6417.5000-6440.0000	R	30K0F3E	Tx	77.00	73.75	12.8M.		STD A VOICE
285)	3600.0000-3620.0000	L	1K20G1D	Rx			12.8M.		STD-C
286)	1626.5000-1660.5000	R	10K5G2F	Tx	36.00	31.80	12.8M.		DIGITAL CARRIER
287)	3600.0000-3629.0000	L,R	45K0G7D	Rx			12.8M.		DIGITAL DATA
288)	6424.0000-6454.0000	L,R	34K0F3E	Tx	59.50	55.70	23ACNOR		FM TELEPHONY COMPANDED AND UNCOMPANDED
289)	3600.0000-3629.0000	L,R	17K5G1D	Rx			23ACNOR		DIGITAL DATA

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)	6454.0000-6456.0000	2.0W	-144.0W	05.2	-05.7	102.6	-257.0	25.44	21CNORM
2)	6424.0000-6454.0000	2.0W	-144.0W	05.2	-05.7	102.6	-257.0	30.5	21CNORM
3)	5927.0000-5927.0000	2.0W	-144.0W	05.2	-05.7	102.6	-257.0	57.14	21CNORM
4)	5925.0000-6425.0000	2.0W	-144.0W	05.2	-05.7	102.6	-257.0	31.64	21CNORM
5)	3600.0000-3629.0000	2.0W	-144.0W	05.2	-05.7	102.6	-257.0		21CNORM
6)	3947.0000-3953.0000	2.0W	-144.0W	05.2	-05.7	102.6	-257.0		21CNORM
7)	3700.0000-4200.0000	2.0W	-144.0W	05.2	-05.7	102.6	-257.0		21CNORM
8)	1574.4000-1576.6000	2.0W	-144.0W	05.3	-05.7	102.6	-257.0	0	12.8M.
9)	6417.5000-6454.0000	2.0W	-144.0W	05.3	-05.7	102.6	-257.0	11.9	12.8M.
10)	3600.0000-3629.0000	2.0W	-144.0W	05.3	-05.7	102.6	-257.0	0	12.8M.



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Common Carrier

Grant date: 06/27/2016

Expiration Date: 04/08/2018

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		
11)	4195.0000-4199.0000	2.0W-144.0W		05.3-05.7		102.6-257.0		0	12.8M.
12)	1626.5000-1660.5000	2.0W-144.0W		05.3-05.7		102.6-257.0		0	12.8M.
13)	1525.0000-1559.0000	2.0W-144.0W		05.3-05.7		102.6-257.0		0	12.8M.
14)	6454.4000-6456.6000	2.0W-144.0W		05.3-05.7		102.6-257.0		11.9	12.8M.
15)	3600.0000-3629.0000	2.0W-144.0W		05.3-05.7		102.6-257.0			12.8M.
16)	6425.0000-6454.0000	2.0W-144.0W		05.3-05.7		102.6-257.0		24	12.8M.
17)	1626.5000-1660.5000	2.0W-144.0W		05.2-05.7		102.6-257.0		27.64	21LBAND
18)	1574.4000-1576.6000	2.0W-144.0W		05.2-05.7		102.6-257.0			21LBAND
19)	1525.0000-1559.0000	2.0W-144.0W		05.2-05.7		102.6-257.0			21LBAND
20)	6454.0000-6456.0000	2.0W-144.0W		05.2-05.7		102.6-257.0		27.76	23ACNOR
21)	6424.0000-6454.0000	2.0W-144.0W		05.3-05.7		102.6-257.0		27.1	23ACNOR
22)	5927.0000-5927.0000	2.0W-144.0W		05.2-05.7		102.6-257.0		66.66	23ACNOR
23)	5925.0000-6425.0000	2.0W-144.0W		05.2-05.7		102.6-257.0		41.16	23ACNOR
24)	1626.5000-1660.5000	2.0W-144.0W		05.2-05.7		102.6-257.0		34.66	23BLBAND
25)	1574.4000-1576.6000	2.0W-144.0W		05.2-05.7		102.6-257.0			23BLBAND
26)	1525.0000-1559.0000	2.0W-144.0W		05.2-05.7		102.6-257.0			23BLBAND

D) Points of Communications

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

- 1) 21CTTC/HUB to Permitted Space Station List
- 2) 21CTTC/HUB to INMARSAT 3F5 satellite (S2949) @ 54 W.L. (United Kingdom-licensed)
- 3) 21CTTC/HUB to INMARSAT 3F2 satellite @15.5 degrees W.L. (United Kingdom-licensed)
- 4) 21CTTC/HUB to INMARSAT 4F3 satellite(s) @ 97.65 degrees W.L. (United Kingdom-licensed)
- 5) 21CNORM to Permitted Space Station List
- 6) 21CNORM to INMARSAT 3F5 satellite (S2949) @ 54 W.L. (United Kingdom-licensed)
- 7) 21CNORM to INMARSAT 3F2 satellite @15.5 degrees W.L. (United Kingdom-licensed)
- 8) 21CNORM to INMARSAT 4F3 satellite(s) @ 97.65 degrees W.L. (United Kingdom-licensed)
- 9) 1 to INMARSAT 4F2 satellite(s) @52.75 W.L. in AOR-EAST (United Kingdom-licensed)
- 10) 1 to All Inmarsat satellites on "ISAT List" authorized to access U.S. in the L-Band
- 11) 1 to INMARSAT 4F3 satellite(s) @ 98 degrees W.L. (United Kingdom-licensed)
- 12) 21LBAND to All Inmarsat satellites on "ISAT List" authorized to access U.S. in the L-Band
- 13) 23ACTTC to INMARSAT 4F3 satellite(s) @ 97.65 degrees W.L. (United Kingdom-licensed)
- 14) 23ACTTC to Permitted Space Station List



UNITED STATES OF AMERICA
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RADIO STATION AUTHORIZATION

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Call Sign: WA28

Authorization Type: Modification of License

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Common Carrier

Grant date: 06/27/2016

Expiration Date: 04/08/2018

D) Points of Communications

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

- 15) 23ACTTC to INMARSAT 3F5 satellite (S2949) @ 54 W.L. (United Kingdom-licensed)
- 16) 23ACTTC to INMARSAT 3F2 satellite @15.5 degrees W.L. (United Kingdom-licensed)
- 17) 23ACNOR to Permitted Space Station List
- 18) 23ACNOR to INMARSAT 3F5 satellite (S2949) @ 54 W.L. (United Kingdom-licensed)
- 19) 23ACNOR to INMARSAT 3F5 satellite (S2949) @ 54 W.L. (United Kingdom-licensed)
- 20) 23ACNOR to INMARSAT 3F2 satellite @15.5 degrees W.L. (United Kingdom-licensed)
- 21) 23BLBAND 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	12.8M.	1	12.8	PHILCO-FORD	42 FOOT	36.6	15.2 AGL/ 51.8 AMSL	
Max Gains(s):		52.8 dBi @	3.6000 GHz	56.0 dBi @	6.4250 GHz			
Maximum total input power at antenna flange (Watts) =						1,000.00		
Maximum aggregate output EIRP for all carriers (dBW) =						86.00		
21CNORM	21CNORM	1	12.8	PHILCO FORD	12.8M.	35.7	14.6 AGL/ 51.2 AMSL	
Max Gains(s):		52.8 dBi @	3.6000 GHz	56.0 dBi @	6.4250 GHz			
Maximum total input power at antenna flange (Watts) =						790.00		
Maximum aggregate output EIRP for all carriers (dBW) =						85.00		
21CTTC/HUB	21CTTC	0	12.8	PHILCO FORD	12.8M.	35.7	14.6 AGL/ 51.2 AMSL	
Max Gains(s):								
Maximum total input power at antenna flange (Watts) =						1,125.00		
Maximum aggregate output EIRP for all carriers (dBW) =						86.50		
21LBAND	21LBAND	0	12.8	PHILCO FORD	12.8M.	35.7	14.6 AGL/ 51.2 AMSL	
Max Gains(s):		36.9 dBi @	1.5000 GHz	41.0 dBi @	1.6400 GHz			
Maximum total input power at antenna flange (Watts) =						25.00		
Maximum aggregate output EIRP for all carriers (dBW) =						55.00		



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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)
23ACNOR	23ACNOR	1	10.4	PHILCO FORD	10.4M.	35.7	11 AGL/ 46.7 AMSL	
Max Gains(s):		50.4 dBi @	3.6000 GHz	53.5 dBi @	6.4250 GHz			
Maximum total input power at antenna flange (Watts) =					800.00			
Maximum aggregate output EIRP for all carriers (dBW) =					82.50			
23ACTTC	23ACTTC	0	10.4	PHILCO FORD	10.4M.	35.7	11 AGL/ 46.7 AMSL	
Max Gains(s):								
Maximum total input power at antenna flange (Watts) =					2,000.00			
Maximum aggregate output EIRP for all carriers (dBW) =					86.50			
23BLBAND	23BLBAND	1	1.8	TRUE FOCUS	1.8M.	35.7	7 AGL/ 42.7 AMSL	
Max Gains(s):		26.9 dBi @	1.5000 GHz	27.7 dBi @	1.6400 GHz			
Maximum total input power at antenna flange (Watts) =					10.70			
Maximum aggregate output EIRP for all carriers (dBW) =					38.00			

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:

- 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 ±0.05° 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.



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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:

- 1010 --- Applicable to all receiving frequency bands. Emission designator indicates the maximum bandwidth of received signal at associated station(s). Maximum EIRP and maximum EIRP density are not applicable to receive operations.
- 1900 --- Applicable to all transmitting frequency bands. Authority is granted to transmit any number of RF carriers with the specified parameters on any discrete frequencies within associated band in accordance with the other terms and conditions of this authorization, subject to any additional limitations that may be required to avoid unacceptable levels of inter-satellite interference.
- 2038 --- The licensee shall take extraordinary measures to ensure that the antenna does not create the potential for exposure of persons who may be within the immediate vicinity to radiofrequency radiation in excess of FCC safety guidelines. The earth station antenna shall be surrounded by a fence, at least 2 meters tall with a locked gate, to prevent human exposure in excess of the FCC-specified safety limit of 1 mW/cm². Warning signs, such as those discussed in the FCC's OET Bulletin 65, shall be posted informing members of the public to keep outside the locked area.
- 2627 --- All services are interconnected to the Public Switched Network.
- 2916 --- Transmitter(s) must be turned off during antenna maintenance to ensure compliance with the FCC-specified safety guidelines for human exposure to radiofrequency radiation in the region between the antenna feed and the reflector. Appropriate measures must also be taken to restrict access to other regions in which the earth station's power flux density levels exceed the specified guidelines.
- 3219 --- All existing transmitting facilities, operations and devices regulated by the Commission must be in compliance with the Commission's radiofrequency (RF) exposure guidelines, pursuant to Section 1.1307(b)(1) through (b)(3) of the Commission's rules, or if not in compliance, file an Environmental Assessment (EA) as specified in Section 1.1311. See 47 CFR § 1.1307 (b) (5).
- 3465 --- This authorization is subject to the policies adopted in the Report and Order, "Amendment of the Commission's Regulatory Policies to allow Non-US-Licensed Space Stations to provide Domestic and International Satellite Services in the United States," IB Docket 96-111, FCC 97-399 (Released November 26, 1997). (DISCO II)
- 4325 --- Frequencies in the L-bands will be used only for occasional testing of the L-to-C and C-to-L INMARSAT or INMARSAT Ltd. satellite transponders, frequency translation error correction, and network coordination purposes.
- 5011 --- The Licensee(s) shall maintain on file with the Commission a current list or plan of the precise frequencies in use at the station, specifying for each frequency the RF center frequency, polarization, emission designator, nominal EIRP (in dBW) and maximum EIRP density (in dBW/4kHz). This list or plan may be submitted either on a station-by-station basis or on a system-wide basis and shall be updated within seven (7) days of any changes in frequency usage at this station. The Licensee(s) need not notify the Commission of temporary usage of frequencies for periods of less than seven (7) days. However, the Licensee(s) shall maintain accurate station records of the times and particulars of such temporary frequency usage.
- 5012 --- The authority granted here is limited to the operation of the facilities described above and does not include any authority to install and operate channelizing equipment or any other authority under Section 214 of the Communications Act of 1934, as amended, to establish channels of communications.



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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:

- 5014 --- With respect to potential co-channel interference to or from terrestrial microwave radio stations, the transmit and receive frequency bands listed in this license have been cleared for transmissions to and from satellites located in the geostationary or non-geostationary orbit for the emissions designated in Section B of this license.
- 5015 --- 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 the facility as authorized has been completed, that each antenna facility has been tested and is within 2 dB of the pattern specified in Section 25.209 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.
- 5017 --- Operation of this station is governed by the terms, conditions and limitations in Part 25 of the Commission's Rules and Regulations and the following additional conditions: 1. This license shall not vest in the Licensee(s) any right to operate the station or any right in the use of the frequencies designated in the license beyond its term or in any other manner than authorized in the license; 2. Neither the license nor the right granted under it shall be assigned or otherwise transferred in violation of the Commissions or otherwise transferred in violation of the Communications Act of 1934, as amended, or the Commission's Rules and Regulations issued under it; and 3. This station is subject to the right of use or control conferred by Section 706 of the Communications Act of 1934, as amended.
- 5018 --- This license shall be forfeited automatically if this station is not ready for operation within the time specified unless, prior to the expiration date of this license, the Commission receives an Application for Additional Time to Construct a Radio Station (FCC Form 701) filed by the Licensee(s) showing good cause why the Licensee(s) could not complete construction on time.
- 5058 --- All operations shall be conducted on a common carrier basis and shall comply with the Commission's decisions in CC Docket No. 87-75 and General Docket 84-1234.
- 5062 --- the Licensee(s) shall maintain as its first priority the service of maritime commercial, safety and distress needs, and in particular uphold the safety and distress requirements of the Global Maritime Distress and Safety System.
- 5202 --- Use of this facility to provide international service on a common carrier basis will require appropriate authorization under Section 214 of the Communication Act of 1934, as amended.
- 5215 --- All operations shall be on a common carrier basis.
- 5630 --- International services shall be consistent with this emission designator, the underlying title III application(s) and the acquisition of any necessary Section 214 authority.
- 5813 --- This authorization is issued pursuant to and subject to the terms and conditions in the Commission's Order released March 19, 1991, DA 91-303.
- 5814 --- This authorization is issued pursuant to and subject to the terms and conditions in the Commission's Order released July 8, 1996, DA 96-1079, and Erratum released July 9, 1996.



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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:

5830 --- This authorization is subject to the conditions and terms set forth in the Commission's Memorandum Opinion, Order and Authorization, FCC 01-272, released October 9, 2001 (INMARSAT Ltd. Order).

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.



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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.