



**UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION**

RADIO STATION AUTHORIZATION

Name: HNS License Sub, LLC

Call Sign: E940460

Authorization Type: Modification of License

File Number: SES-MOD-20190405-00446

Non Common Carrier

Grant date: 09/11/2020

Expiration Date: 12/23/2034

Nature of Service: Fixed Satellite Service

Class of Station: VSAT Network

A) Site Location(s)

#	Site ID	Address	Latitude	Longitude	Elevation (Meters)	Special Provisions NAD (Refer to Section H)
1)	HUB 4.6M	ONE AEROJET WAY NORTH LAS VEGAS, CLARK, NV 89030	36°14'11.8"N	115°7'4.3"W	583.1	83
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209				
2)	HUB 5.6M (2)	ONE AEROJET WAY NORTH LAS VEGAS, CLARK, NV 89030	36°14'11.9"N	115°7'4.6"W	583.1	83
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209				
3)	HUB 6.1M	ONE AEROJET WAY NORTH LAS VEGAS, CLARK, NV 89030	36°14'12.7"N	115°7'4.2"W	583.1	83
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209				
4)	HUB 6.1M(2)	ONE AEROJET WAY NORTH LAS VEGAS, CLARK, NV 89030	36°14'11.0"N	115°7'5.0"W	588.3	83
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209				
5)	HUB 7.6M (4)	ONE AEROJET WAY NORTH LAS VEGAS, CLARK, NV 89030	36°14'11.0"N	115°7'4.0"W	583.1	83
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209				
6)	TF TR 1.2M	CONUS, AK, HI, VI, PR (50,000 1.2M antennas)				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)	TF TR 74-2CM	Network Management Ctr CONUS, AK, HI, VI, PR 60,200 .74cm antenna,				83 Licensee certifies antenna(s) do not comply with Section 25.209. Please refer to Section E for special conditions placed upon antennas at this site.
8)	TF TR 74CM	Network Management Ctr CONUS, AK, HI, VI, PR 60,200 .74M antennas,				83 Licensee certifies antenna(s) do not comply with Section 25.209. Please refer to Section E for special conditions placed upon antennas at this site.
9)	TFTR 98CM	Network Management Ctr CONUS, AK, HI, PR, VI				83
10)	TR 1.0M	CONUS, AK, HI, VI, PR (10,000 1.0M antennas)				83 Licensee certifies antenna(s) do not comply with Section 25.209. Please refer to Section E for special conditions placed upon antennas at this site.
11)	TR 1.2M	CONUS, AK, HI, VI, PR (100,000 1.2M antennas)				83 Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209
12)	TR 1.8M	CONUS, AK, HI, VI, PR (50,000 1.8M antennas) CONUS, AK, HI, VI, P,				83 Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209



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#	Site ID	Address	Latitude	Longitude	Elevation (Meters)	Special Provisions NAD (Refer to Section H)
13)	TR 2.4M	CONUS, AK, HI, VI, PR (11,000 2.4M antennas)				83
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209				
14)	TR 74-2CM	Network Management Ctr CONUS, AK, HI, VI, PR 500,000 .74cm antenn,				83
		Licensee certifies antenna(s) do not comply with Section 25.209. Please refer to Section E for special conditions placed upon antennas at this site.				
15)	TR 74CM	Network Management Ctr CONUS, AK, HI, VI, PR 350,000 .74M antenna,				83
		Licensee certifies antenna(s) do not comply with Section 25.209. Please refer to Section E for special conditions placed upon antennas at this site.				
16)	TR 90CM	CONUS, AK, HI, VI, PR (500,000 0.9-Meter remote terminals)				NA
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209				
17)	TR 98CM	Network Management Ctr CONUS, AK, HI, VI, PR 60,000 .98M antennas,				83
		Licensee certifies antenna(s) do not comply with Section 25.209. Please refer to Section E for special conditions placed upon antennas at this site.				

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 December 23, 2019 (3 AM Eastern Standard Time) and ending December 23, 2034 (3 AM Eastern Standard Time) . The required date of completion of construction and commencement of operation is September 11, 2021 (3 AM Eastern Standard Time) . Grantee must file with the Commission a certification upon completion of construction and commencement of operation.



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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
1)	14000.0000-14500.0000	H, V	6M00G7D	Tx	67.70	35.90	HUB 5.6M/2		QPSK, DATA, 5 MSPS, OUTROUTE CARRIER
2)	14000.0000-14500.0000	H, V	12M0G7D	Tx	70.70	35.90	HUB 5.6M/2		QPSK, DATA, 10 MSPS, OUTROUTE CARRIER
3)	14000.0000-14500.0000	H, V	24M0G7D	Tx	77.70	39.90	HUB 5.6M/2		QPSK, DATA, 20 MSPS, OUTROUTE CARRIER
4)	14000.0000-14500.0000	H, V	36M0G7D	Tx	77.70	38.20	HUB 5.6M/2		QPSK, DATA, 30 MSPS, OUTROUTE CARRIER
5)	14000.0000-14500.0000	H, V	400KG7D	Tx	52.90	32.90	HUB 5.6M/2		QPSK, DATA, 256 KSPS, OUTROUTE CARRIER
6)	14000.0000-14500.0000	H, V	1M60G7D	Tx	58.90	32.90	HUB 5.6M/2		QPSK, DATA, 1024 KSPS, OUTROUTE CARRIER
7)	11700.0000-12200.0000	H, V	200KG7D	Rx			HUB 5.6M/2		QPSK, DATA, 128 KSPS, INROUTE CARRIER
8)	11700.0000-12200.0000	H, V	400KG7D	Rx			HUB 5.6M/2		BPSK, DATA, 256 KSPS, OUTROUTE CARRIER
9)	11700.0000-12200.0000	H, V	400KG7D	Rx			HUB 5.6M/2		QPSK, DATA, 256 KSPS, INROUTE CARRIER
10)	11700.0000-12200.0000	H, V	800KG7D	Rx			HUB 5.6M/2		QPSK, DATA, 512 KSPS, INROUTE CARRIER
11)	11700.0000-12200.0000	H, V	800KG7D	Rx			HUB 5.6M/2		QPSK, DIGITAL, 512 KSPS, RETURN CARRIER
12)	11700.0000-12200.0000	H, V	1M60G7D	Rx			HUB 5.6M/2		QPSK, DIGITAL, 1024 KSPS, INROUTE CARRIER
13)	14000.0000-14500.0000	H, V	400KG7D	Tx	63.30	43.30	HUB 6.1M-2		BPSK, DATA, 256 KSPS, OUTROUTE CARRIER
14)	14000.0000-14500.0000	H, V	1M60G7D	Tx	63.30	43.30	HUB 6.1M-2		BPSK, DATA, 1024 KSPS, OUTROUTE CARRIER
15)	14000.0000-14500.0000	H, V	6M00G7D	Tx	75.10	43.30	HUB 6.1M-2		OPSK, DATA, 5 MSPS, MULTIMEDIA BROADCAST CARRIER
16)	14000.0000-14500.0000	H, V	12M0G7D	Tx	78.10	43.30	HUB 6.1M-2		OPSK, DATA, 10 MSPS, MULTIMEDIA BROADCAST CARRIER
17)	11700.0000-12200.0000	H, V	200KG7D	Rx			HUB 6.1M-2		QPSK, DIGITAL, 128 KSPS, RETURN CARRIER



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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
18)	11700.0000-12200.0000	H, V	400KG7D	Rx			HUB 6.1M-2		QPSK, DIGITAL, 256 KSPS, RETURN CARRIER
19)	11700.0000-12200.0000	H, V	200KG7D	Rx			HUB 6.1M-2		BPSK OR MSK, DATA, 128 KSPS, INROUTE CARRIER
20)	11700.0000-12200.0000	H, V	400KG7D	Rx			HUB 6.1M-2		BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER
21)	11700.0000-12200.0000	H, V	800KG7D	Rx			HUB 6.1M-2		BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER
22)	14000.0000-14500.0000	H, V	800KG7W	Tx	46.10	23.10	TF TR 1.2		QPSK, DIGITAL, 512 KSPS, RETURN CARRIER
23)	14000.0000-14500.0000	H, V	1M60G7D	Tx	46.10	20.10	TF TR 1.2		QPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
24)	11700.0000-12200.0000	H, V	800KG7W	Rx			TF TR 1.2		QPSK, DIGITAL, 512 KSPS, RETURN CARRIER
25)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TF TR 1.2		QPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
26)	14000.0000-14500.0000	H, V	200KG7D	Tx	39.00	22.00	TF TR 74CM		QPSK, DIGITAL, 128 KSPS, RETURN CARRIER
27)	14000.0000-14500.0000	H, V	400KG7D	Tx	42.00	22.00	TF TR 74CM		QPSK, DIGITAL, 256 KSPS, RETURN CARRIER
28)	14000.0000-14500.0000	H, V	400KG7W	Tx	42.00	22.00	TF TR 74CM		QPSK, DIGITAL, 256 KSPS, RETURN CARRIER
29)	14000.0000-14500.0000	H, V	800KG7D	Tx	42.00	19.00	TF TR 74CM		QPSK, DIGITAL, 512 KSPS, RETURN CARRIER
30)	14000.0000-14500.0000	H, V	1M60G7D	Tx	42.00	16.00	TF TR 74CM		QPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
31)	11700.0000-12200.0000	H, V	400KG7W	Rx			TF TR 74CM		QPSK, DIGITAL, 256 KSPS, RETURN CARRIER
32)	11700.0000-12200.0000	H, V	800KG7D	Rx			TF TR 74CM		QPSK, DIGITAL, 512 KSPS, RETURN CARRIER
33)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TF TR 74CM		QPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
34)	11700.0000-12200.0000	H, V	24M0G7D	Rx			TF TR 74CM		QPSK, DATA, 20 MSPS, MULTIMEDIA BROADCAST 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
35)	11700.0000-12200.0000	H, V	36M0G7D	Rx			TF TR 74CM	QPSK, DATA, MULTIMEDIA CARRIER	30 MSPS, BROADCAST
36)	14000.0000-14500.0000	H, V	200KG7D	Tx	38.70	21.70	TFTR 74-2	QPSK, DIGITAL, RETURN CARRIER	128 KSPS,
37)	14000.0000-14500.0000	H, V	400KG7D	Tx	41.70	21.70	TFTR 74-2	QPSK, DIGITAL, RETURN CARRIER	256 KSPS,
38)	14000.0000-14500.0000	H, V	800KG7D	Tx	41.70	18.70	TFTR 74-2	QPSK, DIGITAL, RETURN CARRIER	512 KSPS,
39)	14000.0000-14500.0000	H, V	1M60G7D	Tx	41.70	15.70	TFTR 74-2	QPSK, DIGITAL, RETURN CARRIER	1024 KSPS,
40)	11700.0000-12200.0000	H, V	6M00G7D	Rx			TFTR 74-2	QPSK, DATA, MULTIMEDIA	5 MSPS,
41)	11700.0000-12200.0000	H, V	12M0G7D	Rx			TFTR 74-2	QPSK, DATA, MULTIMEDIA	10 MSPS,
42)	11700.0000-12200.0000	H, V	24M0G7D	Rx			TFTR 74-2	QPSK, DATA, MULTIMEDIA	20 MSPS,
43)	11700.0000-12200.0000	H, V	36M0G7D	Rx			TFTR 74-2	QPSK, DATA, MULTIMEDIA	30 MSPS,
44)	14000.0000-14500.0000	H, V	800KG7D	Tx	44.30	21.30	TFTR 98CM	QPSK, DIGITAL, RETURN CARRIER	512 KSPS,
45)	14000.0000-14500.0000	H, V	1M60G7D	Tx	44.30	18.30	TFTR 98CM	QPSK, DIGITAL, RETURN CARRIER	1024 KSPS,
46)	14000.0000-14500.0000	H, V	200KG7D	Tx	44.30	27.30	TFTR 98CM	OQPSK, DIGITAL, RETURN CARRIER	128 KSPS,
47)	14000.0000-14500.0000	H, V	400KG7D	Tx	44.30	24.30	TFTR 98CM	OQPSK, DIGITAL, RETURN CARRIER	256 KSPS,
48)	11700.0000-12200.0000	H, V	800KG7D	Rx			TFTR 98CM	QPSK, DIGITAL, RETURN CARRIER	512 KSPS,
49)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TFTR 98CM	QPSK, DIGITAL, RETURN CARRIER	1024 KSPS,
50)	11700.0000-12200.0000	H, V	24M0G7D	Rx			TFTR 98CM	QPSK, DATA, MULTIMEDIA CARRIER	20 MSPS, BROADCAST
51)	11700.0000-12200.0000	H, V	36M0G7D	Rx			TFTR 98CM	QPSK, DATA, MULTIMEDIA CARRIER	30 MSPS, BROADCAST



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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
52)	14000.0000-14500.0000	H, V	200KG7D	Tx	44.00	27.00	TR 1.0M		OQPSK, DIGITAL, 128 KSPS, RETURN CARRIER
53)	14000.0000-14500.0000	H, V	400KG7D	Tx	44.00	24.00	TR 1.0M		OQPSK, DIGITAL, 256 KSPS, RETURN CARRIER
54)	14000.0000-14500.0000	H, V	200KG7D	Tx	44.00	27.00	TR 1.0M		BPSK OR MSK, DATA, 128 KSPS, INROUTE CARRIER
55)	14000.0000-14500.0000	H, V	400KG7D	Tx	44.00	24.00	TR 1.0M		BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER
56)	14000.0000-14500.0000	H, V	800KG7D	Tx	44.00	21.00	TR 1.0M		BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER
57)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TR 1.0M		BPSK, DATA, 1024 KSPS, OUTROUTE CARRIER
58)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 1.0M		BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER
59)	11700.0000-12200.0000	H, V	6M00G7D	Rx			TR 1.0M		QPSK, DATA, 5 MSPS, MULTIMEDIA BROADCAST CARRIER
60)	11700.0000-12200.0000	H, V	12M0G7D	Rx			TR 1.0M		QPSK, DATA, 10 MSPS, MULTIMEDIA BROADCAST CARRIER
61)	14000.0000-14500.0000	H, V	200KG7D	Tx	46.10	29.10	TR 1.2M		OQPSK, DIGITAL, 128 KSPS, RETURN CARRIER
62)	14000.0000-14500.0000	H, V	400KG7D	Tx	46.10	29.10	TR 1.2M		OQPSK, DIGITAL, 256 KSPS, RETURN CARRIER
63)	14000.0000-14500.0000	H, V	800KG7D	Tx	46.10	23.10	TR 1.2M		OQPSK, DIGITAL, 512 KSPS, RETURN CARRIER
64)	14000.0000-14500.0000	H, V	1M60G7D	Tx	46.10	20.10	TR 1.2M		OQPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
65)	14000.0000-14500.0000	H, V	200KG7D	Tx	46.10	29.10	TR 1.2M		BPSK OR MSK, DATA, 128 KSPS, INROUTE CARRIER
66)	14000.0000-14500.0000	H, V	400KG7D	Tx	46.10	26.10	TR 1.2M		BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER
67)	14000.0000-14500.0000	H, V	800KG7D	Tx	46.10	23.10	TR 1.2M		BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER
68)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 1.2M		BPSK, DATA, 256 KSPS, OUTROUTE 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
69)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TR 1.2M		BPSK, DATA, 1024 KSPS, OUTROUTE CARRIER
70)	11700.0000-12200.0000	H, V	800KG7D	Rx			TR 1.2M		OQPSK, DIGITAL, 512 KSPS, RETURN CARRIER
71)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TR 1.2M		OQPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
72)	11700.0000-12200.0000	H, V	6M00G7D	Rx			TR 1.2M		QPSK, DATA, 5 MSPS, MULTIMEDIA BROADCAST CARRIER
73)	11700.0000-12200.0000	H, V	12M0G7D	Rx			TR 1.2M		QPSK, DATA, 10 MSPS, MULTIMEDIA BROADCAST CARRIER
74)	14000.0000-14500.0000	H, V	200KG7D	Tx	49.70	32.70	TR 1.8M		OQPSK, DIGITAL, 128 KSPS, RETURN CARRIER
75)	14000.0000-14500.0000	H, V	400KG7D	Tx	49.70	29.70	TR 1.8M		OQPSK, DIGITAL, 256 KSPS, RETURN CARRIER
76)	14000.0000-14500.0000	H, V	800KG7D	Tx	49.70	26.70	TR 1.8M		OQPSK, DIGITAL, 512 KSPS, RETURN CARRIER
77)	14000.0000-14500.0000	H, V	1M60G7D	Tx	49.70	23.70	TR 1.8M		OQPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
78)	14000.0000-14500.0000	H, V	200KG7D	Tx	49.70	32.70	TR 1.8M		BPSK OR MSK, DATA, 128 KSPS, INROUTE CARRIER
79)	14000.0000-14500.0000	H, V	400KG7D	Tx	49.70	29.70	TR 1.8M		BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER
80)	14000.0000-14500.0000	H, V	800KG7D	Tx	49.70	26.70	TR 1.8M		BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER
81)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 1.8M		BPSK, DATA, 256 KSPS, OUTROUTE CARRIER
82)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TR 1.8M		BPSK, DATA, 1024 KSPS, OUTROUTE CARRIER
83)	11700.0000-12200.0000	H, V	800KG7D	Rx			TR 1.8M		OQPSK, DIGITAL, 512 KSPS, RETURN CARRIER
84)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TR 1.8M		OQPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
85)	11700.0000-12200.0000	H, V	6M00G7D	Rx			TR 1.8M		QPSK, DATA, 5 MSPS, MULTIMEDIA BROADCAST CARRIER



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86)	11700.0000-12200.0000	H, V	12M0G7D	Rx			TR 1.8M		QPSK, DATA, 10 MSPS, MULTIMEDIA BROADCAST CARRIER
87)	14000.0000-14500.0000	H, V	800KG7D	Tx	52.20	29.20	TR 2.4M		QPSK, DIGITAL, 512 KSPS, RETURN CARRIER
88)	14000.0000-14500.0000	H, V	1M60G7D	Tx	52.20	26.20	TR 2.4M		QPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
89)	14000.0000-14500.0000	H, V	200KG7D	Tx	52.20	35.20	TR 2.4M		OQPSK, DIGITAL, 128 KSPS, RETURN CARRIER
90)	14000.0000-14500.0000	H, V	400KG7D	Tx	52.20	32.20	TR 2.4M		OQPSK, DIGITAL, 256 KSPS, RETURN CARRIER
91)	14000.0000-14500.0000	H, V	200KG7D	Tx	52.20	35.20	TR 2.4M		BPSK OR MSK, DATA, 128 KSPS, INROUTE CARRIER
92)	14000.0000-14500.0000	H, V	400KG7D	Tx	52.20	32.20	TR 2.4M		BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER
93)	14000.0000-14500.0000	H, V	800KG7D	Tx	52.20	29.20	TR 2.4M		BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER
94)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 2.4M		BPSK, DATA, 256 KSPS, OUTROUTE CARRIER
95)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TR 2.4M		BPSK, DATA, 1024 KSPS, OUTROUTE CARRIER
96)	11700.0000-12200.0000	H, V	800KG7D	Rx			TR 2.4M		QPSK, DIGITAL, 512 KSPS, RETURN CARRIER
97)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TR 2.4M		QPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
98)	11700.0000-12200.0000	H, V	6M00G7D	Rx			TR 2.4M		QPSK, DATA, 5 MSPS, MULTIMEDIA BROADCAST CARRIER
99)	11700.0000-12200.0000	H, V	12M0G7D	Rx			TR 2.4M		QPSK, DATA, 10 MSPS, MULTIMEDIA BROADCAST CARRIER
100)	14000.0000-14500.0000	H, V	400KG7D	Tx	60.90	40.90	TR 4.6M		BPSK, DATA, 256 KSPS, OUTROUTE CARRIER
101)	14000.0000-14500.0000	H, V	1M60G7D	Tx	66.90	40.90	TR 4.6M		BPSK, DATA, 1024 KSPS, OUTROUTE CARRIER
102)	14000.0000-14500.0000	H, V	24M0G7D	Tx	78.30	40.90	TR 4.6M		QPSK, DATA, 20 MSPS, MULTIMEDIA BROADCAST CARRIER



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RADIO STATION AUTHORIZATION

Name: HNS License Sub, LLC

Call Sign: E940460

Authorization Type: Modification of License

File Number: SES-MOD-20190405-00446

Non Common Carrier

Grant date: 09/11/2020

Expiration Date: 12/23/2034

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
103)	14000.0000-14500.0000	H, V	36M0G7D	Tx	78.30	40.10	TR 4.6M		QPSK, DATA, 30 MSPS, MULTIMEDIA BROADCAST CARRIER
104)	11700.0000-12200.0000	H, V	200KG7D	Rx			TR 4.6M		OQPSK, DIGITAL, 128 KSPS, RETURN CARRIER
105)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 4.6M		OQPSK, DIGITAL, 256 KSPS, RETURN CARRIER
106)	11700.0000-12200.0000	H, V	200KG7D	Rx			TR 4.6M		BPSK OR MSK, DATA, 128 KSPS, INROUTE CARRIER
107)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 4.6M		BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER
108)	11700.0000-12200.0000	H, V	800KG7D	Rx			TR 4.6M		BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER
109)	14000.0000-14500.0000	H, V	400KG7D	Tx	63.30	43.30	TR 6.1M		BPSK, DATA, 256 KSPS, OUTROUTE CARRIER
110)	14000.0000-14500.0000	H, V	1M60G7D	Tx	63.30	43.30	TR 6.1M		BPSK, DATA, 1024 KSPS, OUTROUTE CARRIER
111)	14000.0000-14500.0000	H, V	6M00G7D	Tx	75.10	43.30	TR 6.1M		QPSK, DATA, 5 MSPS, MULTIMEDIA BROADCAST CARRIER
112)	14000.0000-14500.0000	H, V	12M0G7D	Tx	78.10	43.30	TR 6.1M		QPSK, DATA, 10 MSPS, MULTIMEDIA BROADCAST CARRIER
113)	11700.0000-12200.0000	H, V	200KG7D	Rx			TR 6.1M		OQPSK, DIGITAL, 128 KSPS, RETURN CARRIER
114)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 6.1M		OQPSK, DIGITAL, 256 KSPS, RETURN CARRIER
115)	11700.0000-12200.0000	H, V	200KG7D	Rx			TR 6.1M		BPSK OR MSK, DATA, 128 KSPS, INROUTE CARRIER
116)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 6.1M		BPSK OR MSK, DATA, 256 KSPS, INROUTE CARRIER
117)	11700.0000-12200.0000	H, V	800KG7D	Rx			TR 6.1M		BPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER
118)	14000.0000-14500.0000	H, V	24M0G7D	Tx	78.30	45.30	TR 7.6M		OQPSK, DATA, 20 MSPS, OUTROUTE CARRIER
119)	14000.0000-14500.0000	H, V	36M0G7D	Tx	78.30	45.30	TR 7.6M		OQPSK, DATA, 30 MSPS, OUTROUTE 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
120)	14000.0000-14500.0000	H, V	400KG7D	Tx	65.30	45.30	TR 7.6M		QPSK, DATA, 256 KSPS, OUTROUTE CARRIER
121)	14000.0000-14500.0000	H, V	1M60G7D	Tx	71.30	45.30	TR 7.6M		QPSK, DATA, 1024 KSPS, OUTROUTE CARRIER
122)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 7.6M		QPSK, DIGITAL, 256 KSPS, RETURN CARRIER
123)	11700.0000-12200.0000	H, V	200KG7D	Rx			TR 7.6M		QPSK, DIGITAL, 128 KSPS, INROUTE CARRIER
124)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 7.6M		QPSK, DIGITAL, 256 KSPS, INROUTE CARRIER
125)	11700.0000-12200.0000	H, V	200KG7D	Rx			TR 7.6M		QPSK OR MSK, DATA, 128 KSPS, INROUTE CARRIER
126)	11700.0000-12200.0000	H, V	800KG7D	Rx			TR 7.6M		QPSK OR MSK, DATA, 512 KSPS, INROUTE CARRIER
127)	14000.0000-14500.0000	H, V	200KG7D	Tx	38.70	21.70	TR 74-2		QPSK, DIGITAL, 128 KSPS, RETURN CARRIER
128)	14000.0000-14500.0000	H, V	400KG7D	Tx	41.70	21.70	TR 74-2		QPSK, DIGITAL, 256 KSPS, RETURN CARRIER
129)	14000.0000-14500.0000	H, V	800KG7D	Tx	41.70	18.70	TR 74-2		QPSK, DIGITAL, 512 KSPS, RETURN CARRIER
130)	14000.0000-14500.0000	H, V	1M60G7D	Tx	41.70	15.70	TR 74-2		QPSK, DIGITAL, 1024 RSPS, RETURN CARRIER
131)	11700.0000-12200.0000	H, V	6M00G7D	Rx			TR 74-2		QPSK, DATA, 5 MSPS, MULTIMEDIA
132)	11700.0000-12200.0000	H, V	12M0G7D	Rx			TR 74-2		QPSK, DATA, 10 MSPS, MULTIMEDIA
133)	11700.0000-12200.0000	H, V	24M0G7D	Rx			TR 74-2		QPSK, DATA, 20 MSPS, MULTIMEDIA
134)	11700.0000-12200.0000	H, V	36M0G7D	Rx			TR 74-2		QPSK, DATA, 30 MSPS, MULTIMEDIA
135)	14000.0000-14500.0000	H, V	200KG7D	Tx	39.00	22.00	TR 74M		QPSK, DIGITAL, 128 KSPS, RETURN CARRIER
136)	14000.0000-14500.0000	H, V	400KG7D	Tx	42.00	22.00	TR 74M		QPSK, DIGITAL, 256 KSPS, RETURN CARRIER
137)	14000.0000-14500.0000	H, V	400KG7D	Tx	42.00	22.00	TR 74M		QPSK, DIGITAL, 256 KSPS, RETURN CARRIER



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Non Common Carrier

Grant date: 09/11/2020

Expiration Date: 12/23/2034

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
138)	14000.0000-14500.0000	H, V	800KG7D	Tx	42.00	19.00	TR 74M		QPSK, DIGITAL, 512 KSPS, RETURN CARRIER
139)	14000.0000-14500.0000	H, V	1M60G7D	Tx	42.00	16.00	TR 74M		QPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
140)	11700.0000-12200.0000	H, V	400KG7D	Rx			TR 74M		QPSK, DIGITAL, 256 KSPS, RETURN CARRIER
141)	11700.0000-12200.0000	H, V	800KG7D	Rx			TR 74M		QPSK, DIGITAL, 512 KSPS, RETURN CARRIER
142)	11700.0000-12200.0000	H, V	1M60G7D	Rx			TR 74M		QPSK, DIGITAL, 1024 KSPS, RETURN CARRIER
143)	11700.0000-12200.0000	H, V	24M0G7D	Rx			TR 74M		QPSK, DATA, 20 MSPS, MULTIMEDIA BROADCAST CARRIER
144)	11700.0000-12200.0000	H, V	36M0G7D	Rx			TR 74M		QPSK, DATA, 30 MSPS, MULTIMEDIA BROADCAST CARRIER
145)	14000.0000-14500.0000	H, V	650KG7W	Tx	44.00	21.00	TR 90CM		512 KSPS, PSK, DIGITAL CARRIER
146)	11700.0000-12200.0000	H, V	100KG7W	Rx			TR 90CM		100 KHZ, PSK, DIGITAL CARRIER
147)	11700.0000-12200.0000	H, V	500MG7W	Rx			TR 90CM		500 MHZ, PSK, DIGITAL CARRIER
148)	14000.0000-14500.0000	H, V	800KG7D	Tx	44.30	21.30	TR 98CM		DIGITAL PSK, DIGITAL 512 KSPS, RETURN CARRIER
149)	14000.0000-14500.0000	H, V	200KG7D	Tx	44.30	27.30	TR 98CM		DIGITAL PSK, DIGITAL, 128 KSPS, RETURN CARRIER
150)	14000.0000-14500.0000	H, V	400KG7D	Tx	44.30	24.30	TR 98CM		DIGITAL PSK, DIGITAL, 256 KSPS, RETURN CARRIER
151)	14000.0000-14500.0000	H, V	1M60G7D	Tx	44.30	18.30	TR 98CM		DIGITAL PSK, DIGITAL, 1024 KSPS, RETURN CARRIER
152)	11700.0000-12200.0000	H, V	24M0G7D	Rx			TR 98CM		DIGITAL PSK, DATA, 20 MSPS, MULTIMEDIA BROADCAST CARRIER



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Non Common Carrier

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Expiration Date: 12/23/2034

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	62.0W	-143.0W	05.0	-05.0			-2.5	TR 1.8M
2)	11700.0000-12200.0000	62.0W	-143.0W	05.0	-05.0				TR 1.8M
3)	14000.0000-14500.0000	62.0W	-143.0W	05.0	-05.0			-2.5	TR 2.4M
4)	11700.0000-12200.0000	62.0W	-143.0W	05.0	-05.0				TR 2.4M
5)	11700.0000-12200.0000	62.0W	-143.0W	20.8	-38.7	113.9	-221.8		TR 4.6M
6)	14000.0000-14500.0000	62.0W	-143.0W	20.8	-38.7	113.9	-221.8	-15	TR 4.6M
7)	11700.0000-12200.0000	62.0W	-143.0W	05.0	-05.0				TR 74M
8)	14000.0000-14500.0000	62.0W	-143.0W	05.0	-05.0			-5.5	TR 74M
9)	11700.0000-12200.0000	50.0W	-150.0W	36.0	-08.0	134.0	-257.0	0	TF TR 74CM
10)	14000.0000-14500.0000	50.0W	-150.0W	36.0	-08.0	134.0	-257.0	-9	TF TR 74CM
11)	11700.0000-12200.0000	62.0W	-143.0W	05.0	-05.0				TR 98CM
12)	14000.0000-14500.0000	62.0W	-143.0W	05.0	-05.0			-2.5	TR 98CM
13)	14000.0000-14500.0000	62.0W	-143.0W	20.8	-38.7	113.9	-221.8	-14.95	TR 6.1M
14)	11700.0000-12200.0000	62.0W	-143.0W	20.8	-38.7	113.9	-221.8		TR 6.1M
15)	11700.0000-12200.0000	62.0W	-143.0W	05.0	-05.0				TFTR 98CM
16)	14000.0000-14500.0000	62.0W	-143.0W	05.0	-05.0			-2.5	TFTR 98CM
17)	14000.0000-14500.0000	62.0W	-143.0W	05.0	-05.0			-2.5	TR 90CM
18)	11700.0000-12200.0000	62.0W	-143.0W	05.0	-05.0				TR 90CM
19)	14000.0000-14500.0000	62.0W	-143.0W	20.8	-38.7	113.9	-221.8	-14.95	HUB 6.1M-2
20)	11700.0000-12200.0000	62.0W	-143.0W	20.8	-38.7	113.9	-221.8		HUB 6.1M-2
21)	14000.0000-14500.0000	62.0W	-143.0W	20.8	-38.7	113.9	-221.8	-15	TR 7.6M
22)	11700.0000-12200.0000	62.0W	-143.0W	20.8	-38.7	113.9	-221.8		TR 7.6M
23)	14000.0000-14500.0000	50.0W	-150.0W	36.7	-08.3	134.0	-257.0	-9	TR 74-2
24)	11700.0000-12200.0000	50.0W	-150.0W	36.7	-08.3	134.0	-237.0		TR 74-2
25)	14000.0000-14500.0000	50.0W	-150.0W	36.7	-08.3	134.3	-257.0	-9	TFTR 74-2
26)	11700.0000-12200.0000	50.0W	-150.0W	36.7	-08.3	134.3	-257.0		TFTR 74-2
27)	14000.0000-14500.0000	62.0W	-143.0W	05.0	-05.0			-2.5	TF TR 1.2
28)	11700.0000-12200.0000	62.0W	-143.0W	05.0	-05.0				TF TR 1.2
29)	14000.0000-14500.0000	62.0W	-143.0W	05.0	-05.0			-2.5	TR 1.2M
30)	11700.0000-12200.0000	62.0W	-143.0W	05.0	-05.0				TR 1.2M
31)	14000.0000-14500.0000	62.0W	-143.0W	05.0	-05.0			-2.5	TR 1.0M
32)	11700.0000-12200.0000	62.0W	-143.0W	05.0	-05.0				TR 1.0M



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RADIO STATION AUTHORIZATION

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Call Sign: E940460

Authorization Type: Modification of License

File Number: SES-MOD-20190405-00446

Non Common Carrier

Grant date: 09/11/2020

Expiration Date: 12/23/2034

D) Points of Communications

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

- 1) TR 1.8M to Permitted Space Station List
- 2) TR 2.4M to Permitted Space Station List
- 3) HUB 4.6M to Permitted Space Station List
- 4) TR 74CM to AMC-9 (S2434) @ 85 degrees W.L. (U.S.-Licensed)
- 5) TR 74CM to AMC-3 (S2162) @ 72 degrees W.L. (U.S.-licensed)
- 6) TR 74CM to IA-8 Intelsat Americas satellite @ 89 degrees W.L., of the INTELSAT system (U.S.-licensed)
- 7) TR 74CM to GALAXY 10R satellite @ 123 W.L. (U.S.-licensed domestic satellite)
- 8) TR 74CM to HORIZONS 1 (S2475) @ 127 degrees W.L. (Japan-licensed)
- 9) TR 74CM to AMC-6 (S2347) @ 139.0 degrees W.L. (U.S.-licensed)
- 10) TR 74CM to GALAXY 16 (S2687) @ 99 degrees W.L. (U.S.-licensed)
- 11) TR 74CM to GALAXY 3C (S2381) @ 95.05 W.L. (U.S.-licensed)
- 12) TR 74CM to GALAXY XI @ 91 W.L. (U.S.-licensed domestic satellite)
- 13) TR 74CM to INTELSAT AMERICAS 5 @ 97 degrees W.L., satellite of the INTELSAT system (U.S.-licensed)
- 14) TR 74CM to SATMEX-5 @ 116.8 W.L. (Mexico-licensed)
- 15) TR 74CM to AMC-4 (S2135) @ 134.9 degrees W.L. (U.S.-licensed)
- 16) TR 74CM to Eutelsat 113WA (S2695) @ 113 degrees W.L. (formerly SATMEX 6) (Mexico-licensed)
- 17) TR 74CM to GALAXY 18 satellite (S2733) @ 123 W.L.(U.S.-licensed satellite)
- 18) TR 74CM to GALAXY 10R satellite @ 123 W.L. (U.S.-licensed domestic satellite)
- 19) TR 74CM to GALAXY 17 (S2715) @ 91 degrees W.L. (U.S.-licensed)
- 20) TR 74CM to GALAXY 19 (S2647) @ 97 W.L. (U.S.-licensed)
- 21) TF TR 74CM to GALAXY 18 satellite (S2733) @ 123 W.L.(U.S.-licensed satellite)
- 22) TF TR 74CM to GALAXY 19 (S2647) @ 97 W.L. (U.S.-licensed)
- 23) TF TR 74CM to AMC-9 (S2434) @ 85 degrees W.L. (U.S.-Licensed)
- 24) TF TR 74CM to AMC-3 (S2162) @ 72 degrees W.L. (U.S.-licensed)
- 25) TF TR 74CM to IA-8 Intelsat Americas satellite @ 89 degrees W.L., of the INTELSAT system (U.S.-licensed)
- 26) TF TR 74CM to GALAXY 10R satellite @ 123 W.L. (U.S.-licensed domestic satellite)
- 27) TF TR 74CM to HORIZONS 1 (S2475) @ 127 degrees W.L. (Japan-licensed)
- 28) TF TR 74CM to AMC-4 (S2135) @ 134.9 degrees W.L. (U.S.-licensed)
- 29) TF TR 74CM to GALAXY XI @ 91 W.L. (U.S.-licensed domestic satellite)
- 30) TF TR 74CM to INTELSAT AMERICAS 5 @ 97 degrees W.L., satellite of the INTELSAT system (U.S.-licensed)
- 31) TF TR 74CM to SATMEX-5 @ 116.8 W.L. (Mexico-licensed)
- 32) TF TR 74CM to AMC-6 (S2347) @ 139.0 degrees W.L. (U.S.-licensed)
- 33) TF TR 74CM to GALAXY 16 (S2687) @ 99 degrees W.L. (U.S.-licensed)
- 34) TF TR 74CM to GALAXY 3C (S2381) @ 95.05 W.L. (U.S.-licensed)
- 35) TF TR 74CM to Eutelsat 113WA (S2695) @ 113 degrees W.L. (formerly SATMEX 6) (Mexico-licensed)
- 36) TF TR 74CM to GALAXY 17 (S2715) @ 91 degrees W.L. (U.S.-licensed)



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Non Common Carrier

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D) Points of Communications

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

- 37) TR 98CM to GALAXY 17 (S2715) @ 91 degrees W.L. (U.S.-licensed)
- 38) TR 98CM to GALAXY 18 satellite (S2733) @ 123 W.L.(U.S.-licensed satellite)
- 39) TR 98CM to GALAXY 19 (S2647) @ 97 W.L. (U.S.-licensed)
- 40) TR 98CM to AMC-9 (S2434) @ 85 degrees W.L. (U.S.-Licensed)
- 41) TR 98CM to AMC-3 (S2162) @ 72 degrees W.L. (U.S.-licensed)
- 42) TR 98CM to IA-8 Intelsat Americas satellite @ 89 degrees W.L., of the INTELSAT system (U.S.-licensed)
- 43) TR 98CM to GALAXY 10R satellite @ 123 W.L. (U.S.-licensed domestic satellite)
- 44) TR 98CM to HORIZONS 1 (S2475) @ 127 degrees W.L. (Japan-licensed)
- 45) TR 98CM to SATMEX-5 @ 116.8 W.L. (Mexico-licensed)
- 46) TR 98CM to INTELSAT AMERICAS 5 @ 97 degrees W.L., satellite of the INTELSAT system (U.S.-licensed)
- 47) TR 98CM to GALAXY XI @ 91 W.L. (U.S.-licensed domestic satellite)
- 48) TR 98CM to AMC-4 (S2135)@ 134.9 degrees W.L. (U.S.-licensed)
- 49) TR 98CM to GALAXY 3C (S2381) @ 95.05 W.L. (U.S.-licensed)
- 50) TR 98CM to GALAXY 16 (S2687) @ 99 degrees W.L. (U.S.-licensed)
- 51) TR 98CM to AMC-6 (S2347) @ 139.0 degrees W.L. (U.S.-licensed)
- 52) TR 98CM to Eutelsat 113WA (S2695) @ 113 degrees W.L. (formerly SATMEX 6) (Mexico-licensed)
- 53) HUB 6.1M to Permitted Space Station List
- 54) HUB 6.1M to IA-8 Intelsat Americas satellite @ 89 degrees W.L., of the INTELSAT system (U.S.-licensed)
- 55) HUB 6.1M to GALAXY 10R satellite @ 123 W.L. (U.S.-licensed domestic satellite)
- 56) HUB 6.1M to HORIZONS 1 (S2475) @ 127 degrees W.L. (Japan-licensed)
- 57) HUB 5.6M (2) to Permitted Space Station List
- 58) TFTR 98CM to GALAXY 17 (S2715) @ 91 degrees W.L. (U.S.-licensed)
- 59) TFTR 98CM to GALAXY 18 satellite (S2733) @ 123 W.L.(U.S.-licensed satellite)
- 60) TFTR 98CM to GALAXY 19 (S2647) @ 97 W.L. (U.S.-licensed)
- 61) TFTR 98CM to AMC-9 (S2434) @ 85 degrees W.L. (U.S.-Licensed)
- 62) TFTR 98CM to AMC-3 (S2162) @ 72 degrees W.L. (U.S.-licensed)
- 63) TFTR 98CM to IA-8 Intelsat Americas satellite @ 89 degrees W.L., of the INTELSAT system (U.S.-licensed)
- 64) TFTR 98CM to GALAXY 10R satellite @ 123 W.L. (U.S.-licensed domestic satellite)
- 65) TFTR 98CM to HORIZONS 1 (S2475) @ 127 degrees W.L. (Japan-licensed)
- 66) TFTR 98CM to SATMEX-5 @ 116.8 W.L. (Mexico-licensed)
- 67) TFTR 98CM to INTELSAT AMERICAS 5 @ 97 degrees W.L., satellite of the INTELSAT system (U.S.-licensed)
- 68) TFTR 98CM to GALAXY XI @ 91 W.L. (U.S.-licensed domestic satellite)
- 69) TFTR 98CM to AMC-4 (S2135)@ 134.9 degrees W.L. (U.S.-licensed)
- 70) TFTR 98CM to GALAXY 3C (S2381) @ 95.05 W.L. (U.S.-licensed)
- 71) TFTR 98CM to GALAXY 16 (S2687) @ 99 degrees W.L. (U.S.-licensed)
- 72) TFTR 98CM to AMC-6 (S2347) @ 139.0 degrees W.L. (U.S.-licensed)



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RADIO STATION AUTHORIZATION

Name: HNS License Sub, LLC

Call Sign: E940460

Authorization Type: Modification of License

File Number: SES-MOD-20190405-00446

Non Common Carrier

Grant date: 09/11/2020

Expiration Date: 12/23/2034

D) Points of Communications

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

- 73) TFTR 98CM to Eutelsat 113WA (S2695) @ 113 degrees W.L. (formerly SATMEX 6) (Mexico-licensed)
- 74) TR 90CM to Permitted Space Station List
- 75) HUB 6.1M(2) to Permitted Space Station List
- 76) HUB 7.6M (4) to Permitted Space Station List
- 77) HUB 7.6M (4) to IA-8 Intelsat Americas satellite @ 89 degrees W.L., of the INTELSAT system (U.S.-licensed)
- 78) HUB 7.6M (4) to GALAXY 10R satellite @ 123 W.L. (U.S.-licensed domestic satellite)
- 79) HUB 7.6M (4) to HORIZONS 1 (S2475) @ 127 degrees W.L. (Japan-licensed)
- 80) HUB 7.6M (4) to Eutelsat 113WA (S2695) @ 113 degrees W.L. (formerly SATMEX 6) (Mexico-licensed)
- 81) TR 74-2CM to GALAXY 19 (S2647) @ 97 W.L. (U.S.-licensed)
- 82) TR 74-2CM to GALAXY 18 satellite (S2733) @ 123 W.L.(U.S.-licensed satellite)
- 83) TR 74-2CM to GALAXY 17 (S2715) @ 91 degrees W.L. (U.S.-licensed)
- 84) TR 74-2CM to AMC-4 (S2135)@ 134.9 degrees W.L. (U.S.-licensed)
- 85) TR 74-2CM to AMC-9 (S2434) @ 85 degrees W.L. (U.S.-Licensed)
- 86) TR 74-2CM to AMC-3 (S2162) @ 72 degrees W.L. (U.S.-licensed)
- 87) TR 74-2CM to SATMEX-5 @ 116.8 W.L. (Mexico-licensed)
- 88) TR 74-2CM to INTELSAT AMERICAS 5 @ 97 degrees W.L., satellite of the INTELSAT system (U.S.-licensed)
- 89) TR 74-2CM to AMC-6 (S2347) @ 139.0 degrees W.L. (U.S.-licensed)
- 90) TR 74-2CM to GALAXY 10R satellite @ 123 W.L. (U.S.-licensed domestic satellite)
- 91) TR 74-2CM to HORIZONS 1 (S2475) @ 127 degrees W.L. (Japan-licensed)
- 92) TR 74-2CM to GALAXY 3C (S2381) @ 95.05 W.L. (U.S.-licensed)
- 93) TR 74-2CM to GALAXY 16 (S2687) @ 99 degrees W.L. (U.S.-licensed)
- 94) TR 74-2CM to IA-8 Intelsat Americas satellite @ 89 degrees W.L., of the INTELSAT system (U.S.-licensed)
- 95) TR 74-2CM to GALAXY XI @ 91 W.L. (U.S.-licensed domestic satellite)
- 96) TR 74-2CM to Eutelsat 113WA (S2695) @ 113 degrees W.L. (formerly SATMEX 6) (Mexico-licensed)
- 97) TF TR 74-2CM to GALAXY 17 (S2715) @ 91 degrees W.L. (U.S.-licensed)
- 98) TF TR 74-2CM to GALAXY 18 satellite (S2733) @ 123 W.L.(U.S.-licensed satellite)
- 99) TF TR 74-2CM to GALAXY 19 (S2647) @ 97 W.L. (U.S.-licensed)
- 100) TF TR 74-2CM to INTELSAT AMERICAS 5 @ 97 degrees W.L., satellite of the INTELSAT system (U.S.-licensed)
- 101) TF TR 74-2CM to AMC-6 (S2347) @ 139.0 degrees W.L. (U.S.-licensed)
- 102) TF TR 74-2CM to GALAXY 16 (S2687) @ 99 degrees W.L. (U.S.-licensed)
- 103) TF TR 74-2CM to AMC-3 (S2162) @ 72 degrees W.L. (U.S.-licensed)
- 104) TF TR 74-2CM to GALAXY 10R satellite @ 123 W.L. (U.S.-licensed domestic satellite)
- 105) TF TR 74-2CM to SATMEX-5 @ 116.8 W.L. (Mexico-licensed)
- 106) TF TR 74-2CM to AMC-4 (S2135)@ 134.9 degrees W.L. (U.S.-licensed)
- 107) TF TR 74-2CM to GALAXY XI @ 91 W.L. (U.S.-licensed domestic satellite)
- 108) TF TR 74-2CM to INTELSAT 8 @ 89 degrees satellites(s) of the INTELSATsystem. (U.S.-licensed)



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RADIO STATION AUTHORIZATION

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Call Sign: E940460

Authorization Type: Modification of License

File Number: SES-MOD-20190405-00446

Non Common Carrier

Grant date: 09/11/2020

Expiration Date: 12/23/2034

D) Points of Communications

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

- 109) TF TR 74-2CM to HORIZONS 1 (S2475) @ 127 degrees W.L. (Japan-licensed)
- 110) TF TR 74-2CM to GALAXY 3C (S2381) @ 95.05 W.L. (U.S.-licensed)
- 111) TF TR 74-2CM to AMC-9 (S2434) @ 85 degrees W.L. (U.S.-Licensed)
- 112) TF TR 74-2CM to Eutelsat 113WA (S2695) @ 113 degrees W.L. (formerly SATMEX 6) (Mexico-licensed)
- 113) TF TR 1.2M to Permitted Space Station List
- 114) TR 1.2M to Permitted Space Station List
- 115) TR 1.0M to Permitted Space Station List
- 116) TR 1.0M to IA-8 Intelsat Americas satellite @ 89 degrees W.L., of the INTELSAT system (U.S.-licensed)
- 117) TR 1.0M to GALAXY 10R satellite @ 123 W.L. (U.S.-licensed domestic satellite)
- 118) TR 1.0M to HORIZONS 1 (S2475) @ 127 degrees W.L. (Japan-licensed)
- 119) TR 1.0M to Eutelsat 113WA (S2695) @ 113 degrees W.L. (formerly SATMEX 6) (Mexico-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)
HUB 5.6M (2)	HUB 5.6M/2	2	5.6	ANDREW CORP.	ES56.1	583.1	6.5 AGL/ 589.6 AMSL	
Max Gains(s):		55.4 dBi @	12.0000 GHz	56.8 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =						125.00		
Maximum aggregate output EIRP for all carriers (dBW) =						77.70		
HUB 6.1M(2)	HUB 6.1M-2	2	6.1	VERTEX	6.1KPK	588.3	8.2 AGL/ 596.2 AMSL	
Max Gains(s):		55.9 dBi @	11.9500 GHz	57.3 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =						350.00		
Maximum aggregate output EIRP for all carriers (dBW) =						82.70		
TF TR 1.2M	TF TR 1.2	50000	1.2	PRODELIN	1134			
Max Gains(s):		41.5 dBi @	11.9500 GHz	43.1 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =						2.00		
Maximum aggregate output EIRP for all carriers (dBW) =						46.10		



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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)
TF TR 74CM	TF TR 74CM	60200	0.74	PRODELIN	HANT-91TR		0 AGL	
Max Gains(s):		37.9 dBi @	11.9500 GHz	39.0 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				42.00				
TF TR 74-2CM	TFTR 74-2	60200	0.74	RAVEN/PRODELIN	HNS-1035610; 1741			
Max Gains(s):		38.7 dBi @	14.2500 GHz	36.7 dBi @	11.9500 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				41.70				
TFTR 98CM	TFTR 98CM	54000	0.98	PRODELIN	9008668			
Max Gains(s):		39.3 dBi @	11.9500 GHz	41.3 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				44.30				
TR 1.0M	TR 1.0M	1	1	HUGHES NETWORK SYSTEMS	SCE 3000172		0 AGL	
Max Gains(s):		39.8 dBi @	11.9500 GHz	41.0 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				44.00				
TR 1.2M	TR 1.2M	100000	1.2	PRODELIN	1134			
Max Gains(s):		41.5 dBi @	11.9500 GHz	43.1 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				46.10				
TR 1.8M	TR 1.8M	50000	1.8	PRODELIN	1184			
Max Gains(s):		45.0 dBi @	11.9500 GHz	46.7 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				49.70				



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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)
TR 2.4M	TR 2.4M	11000	2.4	PRODELIN	1244			
		Max Gains(s):		47.7 dBi @ 11.9500 GHz	49.2 dBi @ 14.2500 GHz			
		Maximum total input power at antenna flange (Watts) =		2.00				
		Maximum aggregate output EIRP for all carriers (dBW) =		52.20				
HUB 4.6M	TR 4.6M	1	4.6	ANDREW CORP.	ES46	583.1	8.5 AGL/ 591.6 AMSL	
		Max Gains(s):		53.5 dBi @ 11.9500 GHz	54.9 dBi @ 14.2500 GHz			
		Maximum total input power at antenna flange (Watts) =		300.00				
		Maximum aggregate output EIRP for all carriers (dBW) =		79.70				
HUB 6.1M	TR 6.1M	2	6.1	VERTEX	6.1 KPK	583.1	7.2 AGL/ 590.3 AMSL	
		Max Gains(s):		55.9 dBi @ 11.9500 GHz	57.3 dBi @ 14.2500 GHz			
		Maximum total input power at antenna flange (Watts) =		350.00				
		Maximum aggregate output EIRP for all carriers (dBW) =		82.70				
HUB 7.6M (4)	TR 7.6M	4	7.6	ANDREW CORP.	ES76K-1	583.1	8.5 AGL/ 591.6 AMSL	
		Max Gains(s):		57.8 dBi @ 11.9500 GHz	59.3 dBi @ 14.2500 GHz			
		Maximum total input power at antenna flange (Watts) =		500.00				
		Maximum aggregate output EIRP for all carriers (dBW) =		86.30				
TR 74-2CM	TR 74-2	500000	0.74	RAVEN/PRODELIN	HNS-1035610; 1741			
		Max Gains(s):		36.7 dBi @ 11.9500 GHz	38.7 dBi @ 14.2500 GHz			
		Maximum total input power at antenna flange (Watts) =		2.00				
		Maximum aggregate output EIRP for all carriers (dBW) =		41.70				
TR 74CM	TR 74M	350000	0.74	PRODELIN	HANT-91TR		0 AGL/ 0 AMSL	
		Max Gains(s):		37.9 dBi @ 11.9500 GHz	39.0 dBi @ 14.2500 GHz			
		Maximum total input power at antenna flange (Watts) =		2.00				
		Maximum aggregate output EIRP for all carriers (dBW) =		42.00				



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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)
TR 90CM	TR 90CM	500000	0.9	SKYWARE GLOBAL	90130		5 AGL/ 5 AMSL	
		Max Gains(s):	39.3 dBi @	11.9500 GHz	40.8 dBi @	14.2500 GHz		
		Maximum total input power at antenna flange (Watts) =				2.00		
		Maximum aggregate output EIRP for all carriers (dBW) =				45.00		
TR 98CM	TR 98CM	60000	0.98	PRODELIN	3981-226		0 AGL	
		Max Gains(s):	39.9 dBi @	11.9500 GHz	41.3 dBi @	14.2500 GHz		
		Maximum total input power at antenna flange (Watts) =				2.00		
		Maximum aggregate output EIRP for all carriers (dBW) =				44.30		

F) Remote Control Point:

HUB 6.1M(2)	11717 EXPLORATION LANE GERMANTOWN, MONTGOMERY, MD 20876 301-428-7205	Call Sign: E940460
TF TR 74-2CM	ONE AEROJET WAY NORTH LAS VEGAS, CLARK, NV 89030 301-428-7205	Call Sign: E940460
TF TR 74-2CM	11717 EXPLORATION LANE GERMANTOWN, MONTGOMERY, MD 20876 301-428-7205	Call Sign: E000166
TF TR 74CM	ONE AEROJET WAY NORTH LAS VEGAS, CLARK, NV 89030 301-428-7205	Call Sign: E940460
TF TR 74CM	11717 EXPLORATION LANE GERMANTOWN, MONTGOMERY, MD 20876 301-428-7205	Call Sign: E000166



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F) Remote Control Point:

TFTR 98CM ONE AEROJET WAY Call Sign: E940460
NORTH LAS VEGAS, CLARK, NV 89030
301-428-7205

TFTR 98CM 11717 EXPLORATION LANE Call Sign: E000166
GERMANTOWN, MONTGOMERY, MD 20876
301-428-7205

TR 74-2CM ONE AEROJET WAY Call Sign: E940460
NORTH LAS VEGAS, CLARK, NV 89030
301-428-7205

TR 74-2CM 11717 EXPLORATION LANE Call Sign: E000166
GERMANTOWN, MONTGOMERY, MD 20876
301-428-7205

TR 74CM ONE AEROJET WAY Call Sign: E940460
NORTH LAS VEGAS, CLARK, NV 89030
301-428-7205

TR 74CM 11717 EXPLORATION LANE Call Sign: E000166
GERMANTOWN, MONTGOMERY, MD 20876
301-428-7205

TR 90CM 11717 EXPLORATION LANE Call Sign: E940460
GERMANTOWN, MONTGOMERY, MD 20876
301-428-7205

TR 98CM ONE AEROJET WAY Call Sign: E940460
NORTH LAS VEGAS, CLARK, NV 89030
301-428-7205

TR 98CM 11717 EXPLORATION LANE Call Sign: E000166
GERMANTOWN, MONTGOMERY, MD 20876
301-428-7205



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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 (MyIBFS) using the "Pleadings and Comments" link on the MyIBFS homepage within 10 days of the change.

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.

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.

9 --- Site location coordinates are based on the WGS84 datum.

102 --- 24 Hour Contact: Applicant has provided the name and telephone number of a contact person in the United States, available seven days a week, twenty-four hours a day, for cessation of emissions from suspected source of interference in the event of need to resolve interference issues, on direction from authority with jurisdiction for licensing in the area of operation.

2068 --- The use of these small diameter earth station facilities is authorized pursuant to the Commission's Declaratory Order in Routine Licensing of Large Networks of Small Antenna Earth Stations Operating in the 12/14 GHz Frequency Bands released April 9, 1986.

2325 --- Antennas and all antenna supporting structures used under this authorization shall not exceed 20 feet in height.

2633 --- This authorization is subject to all actions taken by the Commission and currently effective with respect to provision of service by Intelsat to ensure Intelsat's operations are consistent with the requirements of the Open-Market Reorganization for the Betterment of International Telecommunications Act, Pub. Law 106-180, 114 Stat. 48 (2000), most recently amended by Pub. Law 108-371, 118 Stat. 1752 (2004) (ORBIT Act).

2635 --- In communications from Horizons I in the 11.7-12.2 GHz band, the licensee is only authorized to operate with emissions that do not exceed the maximum e.i.r.p. and e.i.r.p. densities authorized in this license and cannot exceed a bandwidth of 35.9 megahertz for digital or analog carriers. The maximum downlink e.i.r.p. density of the digital carrier shall not exceed +10 dBW/4kHz from Horizons 1.

2636 --- In communications from Horizons I in the 11.7-12.2 GHz band, the licensee cannot exceed a bandwidth of 35.9 megahertz for digital or analog carriers. See also PanAmSat Licensee Corporation, Order and Authorization, DA 05-0007, (released January 4, 2005).



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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:

- 2939 --- Upon completion of construction, each licensee must file with the Commission a certification including the following information: name of 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. In addition, each licensee must file a certification once the network is put into operation.
- 5694 --- "Waiver request to Section 25.143(a) of the Commission's Rules is hereby granted for 100,000 transmit & receive 0.74 meter (98x56 cm) and 20,000 temporary-fixed 0.74 meter (98x56 cm) Prodeline Model HANT-91TR antennas, 30,000 transmit & receive 0.98 meter and 6,000 temporary-fixed 0.98 meter Prodeline model 9008668 antennas to receive a maximum downlink EIRP density of +12.0 dBW/4kHz from the AMC-3 satellite located at 87 degrees West Longitude for the associated emissions 24M0G7D and 36M0G7D."
- 5839 --- This equivalent 1.0-meter antenna complies with the antenna gain pattern as specified in Section 25.209(a) and Section 25.209(g) for off-axis angles greater than 1.25 degrees and up to 90 degrees in the GSO plane.
- 9964 --- This VSAT network authorization consolidates the remote terminals authorized under former licenses E890426, E890427, E890428 and E950471 into the authorization for this call sign E940460.
- 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.



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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.