



**UNITED STATES OF AMERICA  
FEDERAL COMMUNICATIONS COMMISSION**

**RADIO STATION AUTHORIZATION**

Name: Telesat Network Services, Inc.

Call Sign: KA399

Authorization Type: Modification of License

File Number: SES-MOD-20170630-00727

Non Common Carrier

Grant date: 08/29/2017

Expiration Date: 12/30/2018



Nature of Service: Fixed 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	1305 INDUSTRIAL PARK ROAD MOUNT JACKSON, SHENANDOAH, VA 22842	38°43'42.0"N	78°39'25.0"W	295.9	27

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 December 30, 2003 (3 AM Eastern Standard Time) and ending December 30, 2018 (3 AM Eastern Standard Time). The required date of completion of construction and commencement of operation is August 29, 2018 (3 AM Eastern Standard Time). Grantee must file with the Commission a certification upon completion of construction and commencement of operation.*

**B) Particulars of Operations**

The General Provision 1010 applies to all receiving frequency bands.

The General Provision 1900 applies to all transmitting frequency bands.

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

#	Frequency (MHz)	Polarization Code	Emission	Tx/Rx Mode	Max EIRP /Carrier (dBW)	Max EIRP Density /Carrier (dBW/4kHz)	Associated Antenna	Special Provisions (Refer to Section H)	Modulation/ Services
1)	14000.0000-14500.0000	H,V	200KG7W	Tx	49.50	32.50	1.8M.		
2)	14000.0000-14500.0000	H,V	320KG7W	Tx	49.50	30.50	1.8M.		
3)	14000.0000-14500.0000	H,V	640KG7W	Tx	49.50	27.50	1.8M.		
4)	11700.0000-12200.0000	H,V	200KG7W	Rx			1.8M.		
5)	11700.0000-12200.0000	H,V	320KG7W	Rx			1.8M.		
6)	11700.0000-12200.0000	H,V	640KG7W	Rx			1.8M.		
7)	14001.0000-14499.0000	L,R	960KF2D	Tx	93.10	70.00	15M.		TT&C
8)	14000.5000-14499.5000	H,V	960KF2D	Tx	93.10	70.00	15M.		TT&C
9)	14000.0000-14500.0000	L,R	100HN0N	Tx	64.50	50.50	15M.		



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10)	14000.0000-14500.0000	L,R	17M5F3F	Tx	79.30	52.30	15M.		
11)	14000.0000-14500.0000	L,R	1M80G1D	Tx	61.30	34.80	15M.		
12)	14000.0000-14500.0000	L,R	1M80G1E	Tx	61.30	34.80	15M.		
13)	14000.0000-14500.0000	L,R	1M80G1F	Tx	61.30	34.80	15M.		
14)	14000.0000-14500.0000	L,R	2M70G1C	Tx	78.80	50.50	15M.		
15)	14000.0000-14500.0000	L,R	2M70G1D	Tx	78.80	50.50	15M.		
16)	14000.0000-14500.0000	L,R	2M70G1E	Tx	78.80	50.50	15M.		
17)	14000.0000-14500.0000	L,R	36M0F3F	Tx	70.80	43.80	15M.		
18)	14000.0000-14500.0000	L,R	41M1G1C	Tx	90.60	50.50	15M.		
19)	14000.0000-14500.0000	L,R	41M1G1D	Tx	90.60	50.50	15M.		
20)	14000.0000-14500.0000	L,R	41M1G1E	Tx	90.60	50.50	15M.		
21)	14000.0000-14500.0000	L,R	41M1G1F	Tx	90.60	50.50	15M.		
22)	14000.0000-14500.0000	L,R	49K0G1D	Tx	45.70	34.80	15M.		
23)	14000.0000-14500.0000	L,R	49K0G1E	Tx	45.70	34.80	15M.		
24)	14000.0000-14500.0000	L,R	49K0G1F	Tx	45.70	34.80	15M.		
25)	14000.0000-14500.0000	L,R	54M0G1C	Tx	91.80	50.50	15M.		
26)	14000.0000-14500.0000	L,R	54M0G1D	Tx	91.80	50.50	15M.		
27)	14000.0000-14500.0000	L,R	54M0G1E	Tx	91.80	50.50	15M.		
28)	14000.0000-14500.0000	L,R	7M03G1F	Tx	67.30	34.80	15M.		
29)	14000.0000-14500.0000	L,R	7M04G1D	Tx	67.30	34.80	15M.		
30)	14000.0000-14500.0000	L,R	7M04G1E	Tx	67.30	34.80	15M.		
31)	14000.0000-14500.0000	H,V	600KG7W	Tx	68.10	46.30	15M.		DIGITAL
32)	14000.0000-14500.0000	H,V	500KG7W	Tx	64.40	43.30	15M.		DATA (QPSK, 8PSK, 16APSK)
33)	14000.0000-14500.0000	H,V	54M0G7W	Tx	84.70	43.30	15M.		DATA (QPSK, 8PSK, 16APSK)



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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)	14000.0000-14500.0000	L,R	36M0G7W	Tx	73.40	47.84	15M.		DIGITAL, VIDEO, DATA AND VOICE
35)	14000.0000-14500.0000	L,R	36M0G7W	Tx	86.10	60.54	15M.		DIGITAL, VIDEO, DATA AND VOICE
36)	13811.0000-14000.0000	H,V	54M0G7W	Tx	84.70	43.40	15M.		DIGITAL
37)	13811.0000-14000.0000	H,V	54M0G7W	Tx	84.70	43.40	15M.		DATA (QPSK, 8PSK, 16APSK)
38)	13810.0000-14000.0000	L,R	54M0G7W	Tx	85.00	43.70	15M.		DIGITAL, VIDEO, DATA AND VOICE
39)	13780.0000-14000.0000	H,V	600KG7W	Tx	68.10	46.30	15M.		DATA (QPSK, 8PSK, 16APSK)
40)	13770.0000-13780.0000	H,V	4M00G7W	Tx	69.20	39.20	15M.		DATA (QPSK, 8PSK, 16APSK)
41)	13750.0000-14000.0000	H,V	600KG7W	Tx	68.10	46.30	15M.		DIGITAL
42)	13750.0000-13811.0000	H,V	54M0G7W	Tx	79.90	38.60	15M.		DIGITAL
43)	13750.0000-13811.0000	H,V	54M0G7W	Tx	79.90	38.60	15M.		DATA (QPSK, 8PSK, 16APSK)
44)	13750.0000-13770.0000	H,V	600KG7W	Tx	68.10	46.30	15M.		DATA (QPSK, 8PSK, 16APSK)
45)	11705.5000-12199.0000	L,R	850KF2D	Rx			15M.		TT&C
46)	11700.0000-12200.0000	L,R		Rx			15M.		
47)	11700.0000-12200.0000	H,V	500KG7W	Rx			15M.		540 Kbps, 66 FEC, QPSK
48)	11700.0000-12200.0000	H,V	500KG7W	Rx			15M.		DATA (QPSK, 8PSK, 16APSK)
49)	11700.0000-12200.0000	H,V	54M0G7W	Rx			15M.		DATA (QPSK, 8PSK, 16APSK)
50)	11451.0000-11451.0000	L,R	850KF2D	Rx			15M.		ORION
51)	11450.5000-11450.5000	L,R	850KF2D	Rx			15M.		ORION
52)	11450.0000-11950.0000	L,R		Rx			15M.		INTELSAT
53)	11450.0000-11700.0000	H,V	200KG7W	Rx			15M.		DIGITAL
54)	11450.0000-11700.0000	H,V	54M0G7W	Rx			15M.		DIGITAL
55)	10950.0000-11700.0000	L,R	54M0G7W	Rx			15M.		(WTO-COVERED SERVICES ONLY)
56)	10950.0000-11200.0000	L,R		Rx			15M.		INTELSAT



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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)	10950.0000-11200.0000	H, V	200KG7W	Rx			15M.		DIGITAL
58)	10950.0000-11200.0000	H, V	54M0G7W	Rx			15M.		DIGITAL
59)	10950.0000-11200.0000	H, V	500KG7W	Rx			15M.		DATA (QPSK, 8PSK, 16APSK)
60)	10950.0000-11200.0000	H, V	54M0G7W	Rx			15M.		DATA (QPSK, 8PSK, 16APSK)
61)	14000.0000-14500.0000	H, V	1M28G7W	Tx	58.20	33.10	2.4M.		
62)	14000.0000-14500.0000	H, V	2M56G7W	Tx	58.20	30.10	2.4M.		
63)	14000.0000-14500.0000	H, V	800KG7W	Tx	58.20	35.20	2.4M.		
64)	11700.0000-12200.0000	H, V	2M56G7W	Rx			2.4M.		
65)	11700.0000-12200.0000	H, V	800KG7W	Rx			2.4M.		
66)	11700.0000-12200.0000	H, V	1M28G7W	Rx			2.4M.		ORION, PAS
67)	14200.0000-14470.0000	H, V	943KG7W	Tx	38.10	14.40	2406 ESV		1037 Kbps, QPSK, 33/50 FEC
68)	14000.0000-14500.0000	H, V	943KG7W	Tx	38.10	14.40	2406 ESV		1037 Kbps, QPSK, 33/50 FEC
69)	12500.0000-12750.0000	H, V	943KG7W	Rx			2406 ESV		NULL
70)	11700.0000-12200.0000	H, V	943KG7W	Rx			2406 ESV		NULL
71)	11450.0000-11700.0000	H, V	943KG7W	Rx			2406 ESV		NULL
72)	10950.0000-11200.0000	H, V	943KG7W	Rx			2406 ESV		NULL
73)	12500.0000-12750.0000	H, V	1M76G7W	Rx			4003A ESV		1560 KBPS, .533 FEC, QPSK
74)	12500.0000-12750.0000	H, V	3M52G7W	Rx			4003A ESV		1560 KBPS, .533 FEC, BPSK
75)	12500.0000-12750.0000	H, V	5M77G7W	Rx			4003A ESV		2560 KBPS, .533 FEC, BPSK
76)	11700.0000-12200.0000	H, V	1M76G7W	Rx			4003A ESV		1560 Kbps, .533 FEC, QPSK
77)	11700.0000-12200.0000	H, V	3M52G7W	Rx			4003A ESV		1560 Kbps, .533 FEC, BPSK
78)	11700.0000-12200.0000	H, V	5M77G7W	Rx			4003A ESV		2560 Kbps, .533 FEC, BPSK
79)	11450.0000-11700.0000	H, V	1M76G7W	Rx			4003A ESV		1560 Kbps, .533 FEC, QPSK
80)	11450.0000-11700.0000	H, V	3M52G7W	Rx			4003A ESV		1560 Kbps, .533 FEC, BPSK



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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
81)	11450.0000-11700.0000	H, V	5M77G7W	Rx			4003A ESV		2560 Kbps, .533 FEC, BPSK
82)	10950.0000-11200.0000	H, V	1M76G7W	Rx			4003A ESV		1560 Kbps, .533 FEC, QPSK
83)	10950.0000-11200.0000	H, V	3M52G7W	Rx			4003A ESV		1560 Kbps, .533 FEC, BPSK
84)	10950.0000-11200.0000	H, V	5M77G7W	Rx			4003A ESV		2560 Kbps, .533 FEC, BPSK
85)	14000.0000-14500.0000	H, V	500KG7W	Tx	46.50	25.50	4006 ESV		540 Kbps, .66 FEC, QPSK
86)	14000.0000-14500.0000	H, V	1M60G7W	Tx	50.30	24.30	4006 ESV		1750 Kbps, .66 FEC, QPSK
87)	14000.0000-14500.0000	H, V	400KG7W	Tx	45.50	25.50	4006 ESV		350 Kbps, .533 FEC, QPSK
88)	14000.0000-14500.0000	H, V	470KG7W	Tx	46.20	25.50	4006 ESV		410 Kbps, .533 FEC, QPSK
89)	12500.0000-12750.0000	H, V	1M76G7W	Rx			4006 ESV		1560 KBPS, .533 FEC, QPSK
90)	12500.0000-12750.0000	H, V	3M52G7W	Rx			4006 ESV		1560 KBPS, .533 FEC, BPSK
91)	12500.0000-12750.0000	H, V	5M77G7W	Rx			4006 ESV		2560 KBPS, .533 FEC, BPSK
92)	11700.0000-12200.0000	H, V	1M76G7W	Rx			4006 ESV		1560 Kbps, .533 FEC, QPSK
93)	11700.0000-12200.0000	H, V	5M77G7W	Rx			4006 ESV		2560 Kbps, .533 FEC, BPSK
94)	11450.0000-11700.0000	H, V	1M76G7W	Rx			4006 ESV		1560 Kbps, .533 FEC, QPSK
95)	11450.0000-11700.0000	H, V	3M52G7W	Rx			4006 ESV		1560 Kbps, .533 FEC, BPSK
96)	11450.0000-11700.0000	H, V	5M77G7W	Rx			4006 ESV		2560 Kbps, .533 FEC, BPSK
97)	10950.0000-11200.0000	H, V	1M76G7W	Rx			4006 ESV		1560 Kbps, .533 FEC, QPSK
98)	10950.0000-11200.0000	H, V	3M52G7W	Rx			4006 ESV		1560 Kbps, .533 FEC, BPSK
99)	10950.0000-11200.0000	H, V	5M77G7W	Rx			4006 ESV		2560 Kbps, .533 FEC, BPSK
100)	14200.0000-14470.0000	H, V	400KG7W	Tx	45.50	25.50	4009 ESV		350KBPS, .533 FEC, QPSK
101)	14200.0000-14470.0000	H, V	500KG7W	Tx	46.50	25.50	4009 ESV		540 KBPS, .66 FEC, QPSK
102)	14200.0000-14470.0000	H, V	470KG7W	Tx	46.20	25.50	4009 ESV		410 KBPS, .533 FEC, QPSK
103)	14200.0000-14470.0000	H, V	1M60G7W	Tx	50.30	24.30	4009 ESV		1750 KBPS, .66 FEC, QPSK
104)	12500.0000-12750.0000	H, V	1M76G7W	Rx			4009 ESV		NULL



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105)	12500.0000-12750.0000	H, V	3M52G7W	Rx			4009 ESV		NULL
106)	12500.0000-12750.0000	H, V	5M77G7W	Rx			4009 ESV		NULL
107)	11700.0000-12200.0000	H, V	1M76G7W	Rx			4009 ESV		NULL
108)	11700.0000-12200.0000	H, V	3M52G7W	Rx			4009 ESV		NULL
109)	11700.0000-12200.0000	H, V	5M77G7W	Rx			4009 ESV		NULL
110)	11450.0000-11700.0000	H, V	1M76G7W	Rx			4009 ESV		NULL
111)	11450.0000-11700.0000	H, V	3M52G7W	Rx			4009 ESV		NULL
112)	11450.0000-11700.0000	H, V	5M77G7W	Rx			4009 ESV		NULL
113)	10950.0000-11200.0000	H, V	1M76G7W	Rx			4009 ESV		NULL
114)	10950.0000-11200.0000	H, V	3M52G7W	Rx			4009 ESV		NULL
115)	10950.0000-11200.0000	H, V	5M77G7W	Rx			4009 ESV		NULL
116)	14000.0000-14500.0000	H, V	943KG7W	Tx	47.30	23.60	4012GX4W		1037 KBPS, QPSK, 33/50 FEC
117)	12500.0000-12750.0000	H, V	943KG7W	Rx			4012GX4W		NULL
118)	11700.0000-12200.0000	H, V	943KG7W	Rx			4012GX4W		NULL
119)	11450.0000-11700.0000	H, V	943KG7W	Rx			4012GX4W		NULL
120)	10950.0000-11200.0000	H, V	943KG7W	Rx			4012GX4W		NULL
121)	14000.0000-14500.0000	H, V	943KG7W	Tx	50.30	26.60	4012GX8W		1037 KBPS, QPSK, 33/50 FEC
122)	12500.0000-12750.0000	H, V	943KG7W	Rx			4012GX8W		NULL
123)	11700.0000-12200.0000	H, V	943KG7W	Rx			4012GX8W		NULL
124)	11450.0000-11700.0000	H, V	943KG7W	Rx			4012GX8W		NULL
125)	10950.0000-11200.0000	H, V	943KG7W	Rx			4012GX8W		NULL
126)	14200.0000-14470.0000	H, V	943KG7W	Tx	52.00	28.40	6006 ESV		1037 Kbps, QPSK, 33/50 FEC
127)	14000.0000-14500.0000	H, V	943KG7W	Tx	52.00	28.40	6006 ESV		1037 Kbps, QPSK, 33/50 FEC
128)	12500.0000-12750.0000	H, V	943KG7W	Rx			6006 ESV		NULL



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129)	11700.0000-12200.0000	H, V	943KG7W	Rx			6006 ESV		NULL
130)	11450.0000-11700.0000	H, V	943KG7W	Rx			6006 ESV		NULL
131)	10950.0000-11200.0000	H, V	943KG7W	Rx			6006 ESV		NULL
132)	14200.0000-14470.0000	H, V	943KG7W	Tx	52.00	28.40	6009 ESV		1037 KBPS, QPSK, 33/50 FEC
133)	12500.0000-12750.0000	H, V	943KG7W	Rx			6009 ESV		NULL
134)	11700.0000-12200.0000	H, V	943KG7W	Rx			6009 ESV		NULL
135)	11450.0000-11700.0000	H, V	943KG7W	Rx			6009 ESV		NULL
136)	10950.0000-11200.0000	H, V	943KG7W	Rx			6009 ESV		NULL
137)	14200.0000-14470.0000	H, V	943KG7W	Tx	52.00	28.40	6012 ESV		1037 KBPS, QPSK, 33/50 FEC
138)	12500.0000-12750.0000	H, V	943KG7W	Rx			6012 ESV		NULL
139)	11700.0000-12200.0000	H, V	943KG7W	Rx			6012 ESV		NULL
140)	11450.0000-11700.0000	H, V	943KG7W	Rx			6012 ESV		NULL
141)	10950.0000-11200.0000	H, V	943KG7W	Rx			6012 ESV		NULL
142)	14200.0000-14470.0000	H, V	943KG7W	Tx	57.50	33.80	9797 ESV		1037 KBPS, QPSK, 33/50 FEC
143)	12500.0000-12750.0000	H, V	943KG7W	Rx			9797 ESV		NULL
144)	11700.0000-12200.0000	R	943KG7W	Rx			9797 ESV		NULL
145)	11450.0000-11700.0000	H, V	943KG7W	Rx			9797 ESV		NULL
146)	14498.0000-14500.0000	H, V	850KF2D	Tx	69.70	46.40	LMA4T11N		
147)	14000.0000-14500.0000	H, V	100HN0N	Tx	85.50	46.40	LMA4T11N		
148)	14000.0000-14500.0000	H, V	17M5F3F	Tx	79.30	52.30	LMA4T11N		
149)	14000.0000-14500.0000	H, V	1M80G1D	Tx	61.30	34.80	LMA4T11N		
150)	14000.0000-14500.0000	H, V	1M80G1E	Tx	61.30	34.80	LMA4T11N		
151)	14000.0000-14500.0000	H, V	1M80G1F	Tx	61.30	34.80	LMA4T11N		
152)	14000.0000-14500.0000	H, V	2M70G1C	Tx	74.70	46.40	LMA4T11N		



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Call Sign: KA399

Authorization Type: Modification of License

File Number: SES-MOD-20170630-00727

Non Common Carrier

Grant date: 08/29/2017

Expiration Date: 12/30/2018

**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
153)	14000.0000-14500.0000	H, V	2M70G1D	Tx	74.70	46.40	LMA4T11N		
154)	14000.0000-14500.0000	H, V	2M70G1E	Tx	74.70	46.40	LMA4T11N		
155)	14000.0000-14500.0000	H, V	36M0F3F	Tx	70.80	43.80	LMA4T11N		
156)	14000.0000-14500.0000	H, V	41M1G1C	Tx	86.50	46.40	LMA4T11N		
157)	14000.0000-14500.0000	H, V	41M1G1D	Tx	86.50	46.40	LMA4T11N		
158)	14000.0000-14500.0000	H, V	41M1G1E	Tx	86.50	46.40	LMA4T11N		
159)	14000.0000-14500.0000	H, V	41M1G1F	Tx	86.50	46.40	LMA4T11N		
160)	14000.0000-14500.0000	H, V	49K0G1D	Tx	45.70	34.80	LMA4T11N		
161)	14000.0000-14500.0000	H, V	49K0G1E	Tx	45.70	34.80	LMA4T11N		
162)	14000.0000-14500.0000	H, V	49K0G1F	Tx	45.70	34.80	LMA4T11N		
163)	14000.0000-14500.0000	H, V	7M04G1D	Tx	67.30	34.80	LMA4T11N		
164)	14000.0000-14500.0000	H, V	7M04G1E	Tx	67.30	34.80	LMA4T11N		
165)	14000.0000-14500.0000	H, V	7M04G1F	Tx	67.30	34.80	LMA4T11N		
166)	14000.0000-14500.0000	H, V	1M76G7W	Tx	69.00	42.50	LMA4T11N		1560 Kbps, .533 FEC, QPSK
167)	14000.0000-14500.0000	H, V	3M52G7W	Tx	69.00	39.50	LMA4T11N		2560 Kbps, .533 FEC, BPSK
168)	14000.0000-14500.0000	H, V	5M77G7W	Tx	69.00	37.40	LMA4T11N		2560 Kbps, .533 FEC, BPSK
169)	13810.0000-14000.0000	H, V	1M76G7W	Tx	69.00	42.50	LMA4T11N		1560 Kbps, .533 FEC, QPSK
170)	13810.0000-14000.0000	H, V	3M52G7W	Tx	69.00	39.50	LMA4T11N		1560 Kbps, .533 FEC, QPSK
171)	13810.0000-14000.0000	H, V	5M77G7W	Tx	69.00	37.40	LMA4T11N		2560 Kbps, .533 FEC, BPSK
172)	11700.0000-12200.0000	H, V		Rx			LMA4T11N		
173)	11700.0000-12200.0000	H, V	400KG7W	Rx			LMA4T11N		350 Kbps, 533 FEC, QPSK
174)	11700.0000-12200.0000	H, V	470KG7W	Rx			LMA4T11N		410 Kbps, 533 FEC, QPSK
175)	11700.0000-12200.0000	H, V	1M60G7W	Rx			LMA4T11N		1750 Kbps, 66 FEC, QPSK
176)	11451.0000-11451.0000	H, V	850KF2D	Rx			LMA4T11N		ORION





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File Number: SES-MOD-20170630-00727

Non 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
177)	11450.5000-11450.5000	H,V	850KF2D	Rx			LMA4T11N		ORION
178)	11450.0000-11950.0000	H,V		Rx			LMA4T11N		INTELSAT
179)	11450.0000-11700.0000	H,V	400KG7W	Rx			LMA4T11N		350 Kbps, 533 FEC, QPSK
180)	11450.0000-11700.0000	H,V	470KG7W	Rx			LMA4T11N		410 Kbps, 533 FEC, QPSK
181)	11450.0000-11700.0000	H,V	500KG7W	Rx			LMA4T11N		540 Kbps, 66 FEC, QPSK
182)	11450.0000-11700.0000	H,V	1M60G7W	Rx			LMA4T11N		1750 Kbps, 66 FEC, QPSK
183)	10950.0000-11200.0000	H,V		Rx			LMA4T11N		INTELSAT
184)	10950.0000-11200.0000	H,V	400KG7W	Rx			LMA4T11N		350 Kbps, 533 FEC, QPSK
185)	10950.0000-11200.0000	H,V	500KG7W	Rx			LMA4T11N		540 Kbps, 66 FEC, QPSK
186)	10950.0000-11200.0000	H,V	1M60G7W	Rx			LMA4T11N		1750 Kbps, .66 FEC, QPSK
187)	10950.0000-11200.0000	H,V	470KG7W	Rx			LMA4T11N		410 Kbps, 533 FEC, QPSK
188)	14200.0000-14470.0000	H,V	910KG7W	Tx	48.93	25.37	S900		QPSK
189)	12500.0000-12750.0000	H,V	910KG7W	Rx			S900		NULL
190)	11700.0000-12200.0000	H,V	910KG7W	Rx			S900		NULL
191)	11450.0000-11700.0000	H,V	910KG7W	Rx			S900		NULL
192)	14200.0000-14470.0000	H,V	907KG7W	Tx	46.10	22.55	SE125ESV		1037 KBPS, QPSK, 33/50 FEC
193)	11700.0000-12200.0000	H,V	907KG7W	Rx			SE125ESV		
194)	11450.0000-11700.0000	H,V	907KG7W	Rx			SE125ESV		
195)	10950.0000-11200.0000	H,V	907KG7W	Rx			SE125ESV		
196)	14200.0000-14470.0000	H,V	943KG7W	Tx	38.10	14.40	USAT 24		1037 KBPS, QPSK, 33/50 FEC
197)	12500.0000-12750.0000	H,V	943KG7W	Rx			USAT 24		NULL
198)	11700.0000-12200.0000	H,V	943KG7W	Rx			USAT 24		NULL
199)	11450.0000-11700.0000	H,V	943KG7W	Rx			USAT 24		NULL
200)	10950.0000-11200.0000	H,V	943KG7W	Rx			USAT 24		NULL



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Non 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
201)	14000.0000-14500.0000	H, V	943KG7W	Tx	47.30	23.60	V100GX4W		1037 KBPS, QPSK, 33/50 FEC
202)	12500.0000-12750.0000	H, V	943KG7W	Rx			V100GX4W		NULL
203)	11700.0000-12200.0000	H, V	943KG7W	Rx			V100GX4W		NULL
204)	11450.0000-11700.0000	H, V	943KG7W	Rx			V100GX4W		NULL
205)	10950.0000-11200.0000	H, V	943KG7W	Rx			V100GX4W		NULL
206)	14000.0000-14500.0000	H, V	943KG7W	Tx	50.30	26.60	V100GX8W		1037 KBPS, QPSK, 33/50 FEC
207)	12500.0000-12750.0000	H, V	943KG7W	Rx			V100GX8W		NULL
208)	11700.0000-12200.0000	H, V	943KG7W	Rx			V100GX8W		NULL
209)	11450.0000-11700.0000	H, V	943KG7W	Rx			V100GX8W		NULL
210)	10950.0000-11200.0000	H, V	943KG7W	Rx			V100GX8W		NULL
211)	14200.0000-14470.0000	H, V	970KG7W	Tx	49.30	25.50	V110ESV		QPSK, BPSK
212)	11700.0000-12200.0000	H, V	970KG7W	Rx			V110ESV		QPSK, BPSK
213)	11450.0000-11700.0000	H, V	970KG7W	Rx			V110ESV		QPSK, BPSK
214)	10950.0000-11200.0000	H, V	970KG7W	Rx			V110ESV		QPSK, BPSK
215)	14200.0000-14470.0000	H, V	717KG7W	Tx	38.30	15.80	V60GESV		QPSK, BPSK
216)	11700.0000-12200.0000	H, V	717KG7W	Rx			V60GESV		QPSK, BPSK
217)	11450.0000-11700.0000	H, V	717KG7W	Rx			V60GESV		QPSK, BPSK
218)	10950.0000-11200.0000	H, V	717KG7W	Rx			V60GESV		QPSK, BPSK

**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)	13750.0000-14000.0000	37.5W	37.5W	42.3	42.3	155.9	155.9	-18.4	15M.
2)	13750.0000-14000.0000	63.0W	63.0W	28.4	28.4	125.6	125.6	-22.7	15M.



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**C) Frequency Coordination Limits**

#	Frequency Limits (MHz)	Satellite Arc (Deg. Long.)		Elevation (Degrees)		Azimuth (Degrees)		Max EIRP Density toward Horizon (dBW/4kHz)	Associated Antenna(s)
		East Limit	West Limit	East Limit	West Limit	East Limit	West Limit		
3)	14000.0000-14500.0000	7.0W	-118.7W	05.6	-29.1	101.7	-233.4	-5.2	15M.
4)	14000.0000-14500.0000	7.0W	-106.5W	05.6	-36.7	101.7	-220.2	-5.2	15M.
5)	10950.0000-11200.0000	7.0W	-106.5W	05.6	-36.7	101.7	-220.2	0	15M.
6)	11450.0000-12200.0000	7.0W	-106.5W	05.6	-36.7	101.7	-220.2	0	15M.
7)	13750.0000-14000.0000	15.0W	-15.0W	11.8	-11.8	107.2	-107.2	-8.7	15M.
8)	11450.0000-12200.0000	7.0W	-118.7W	05.6	-29.1	101.7	-233.4		15M.
9)	10950.0000-11200.0000	7.0W	-118.7W	05.6	-29.1	101.7	-233.4		15M.
10)	14000.0000-14500.0000	15.0W	-110.0W	11.7	-34.6	107.2	-224.2	-11.7	15M.
11)	10950.0000-11200.0000	15.0W	-110.0W	11.7	-34.6	107.2	-224.2		15M.
12)	11450.0000-11700.0000	15.0W	-110.0W	11.7	-34.6	107.2	-224.2		15M.
13)	13750.0000-14000.0000	109.2W	-109.2W	35.1	-35.1	223.3	-223.3	-11.7	15M.
14)	14000.0000-14500.0000	37.5W	-37.5W	28.3	-28.3	125.6	-125.6	-25.2	LMA4T11N
15)	10950.0000-11200.0000	37.5W	-37.5W	28.3	-28.3	125.6	-125.6	0	LMA4T11N
16)	11450.0000-12200.0000	37.5W	-37.5W	28.3	-28.3	125.6	-125.6	0	LMA4T11N
17)	14000.0000-14500.0000	37.5W	-37.5W	28.3	-28.3	125.6	-125.6	-15.6	1.8M.
18)	11700.0000-12200.0000	37.5W	-37.5W	28.3	-28.3	125.6	-125.6	0	1.8M.
19)	14000.0000-14500.0000	37.5W	-37.5W	28.3	-28.3	125.6	-125.6	-15.6	2.4M.
20)	11700.0000-12200.0000	37.5W	-37.5W	28.3	-28.3	125.6	-125.6		2.4M.
21)	11700.0000-12200.0000	37.5W	-37.5W	28.3	-28.4	125.6	-125.6		4003A ESV
22)	14000.0000-14500.0000	37.5W	-37.5W	28.3	-28.4	125.6	-125.6		4003A ESV
23)	11700.0000-12200.0000	37.5W	-37.5W	28.3	-28.4	125.6	-125.6		4006 ESV
24)	14000.0000-14500.0000	37.5W	-37.5W	28.3	-28.4	125.6	-125.6		4006 ESV
25)	14200.0000-14470.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		2406 ESV
26)	11700.0000-12200.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		2406 ESV
27)	11450.0000-11700.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		2406 ESV
28)	10950.0000-11200.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		2406 ESV
29)	12500.0000-12750.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		2406 ESV
30)	14200.0000-14470.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		6006 ESV
31)	11700.0000-12200.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		6006 ESV
32)	11450.0000-11700.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		6006 ESV
33)	10950.0000-11200.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		6006 ESV
34)	12500.0000-12750.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		6006 ESV
35)	10950.0000-14470.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		4009 ESV
36)	10950.0000-14470.0000	37.5W	-37.5W	28.4	-28.4	125.6	-125.6		6009 ESV



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Non Common Carrier

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**C) Frequency Coordination Limits**

#	Frequency Limits (MHz)	Satellite Arc (Deg. Long.)		Elevation (Degrees)		Azimuth (Degrees)		Max EIRP Density toward Horizon (dBW/4kHz)	Associated Antenna(s)
		East Limit	West Limit	East Limit	West Limit	East Limit	West Limit		
37)	10950.0000-14470.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		USAT 24
38)	14000.0000-14400.0000	37.5W	37.5W	28.4	28.4	125.6	125.6	-3.2	9797 ESV
39)	10950.0000-12200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		9797 ESV
40)	10950.0000-12200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		SE125ESV
41)	14200.0000-14470.0000	37.5W	37.5W	28.4	28.4	125.6	125.6	-29.95	SE125ESV
42)	14200.0000-14470.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		V60GESV
43)	10950.0000-12200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		V60GESV
44)	14200.0000-14470.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		V110ESV
45)	10950.0000-12200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		V110ESV
46)	14000.0000-14500.0000	37.5W	37.5W	28.4	28.4	125.6	125.6	-6.2	V100GX4W
47)	10950.0000-12200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		V100GX4W
48)	14000.0000-14500.0000	37.5W	37.5W	28.4	28.4	125.6	125.6	-3.2	V100GX8W
49)	10950.0000-12200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		V100GX8W
50)	14000.0000-14500.0000	37.5W	37.5W	28.4	28.4	125.6	125.6	-6.2	4012GX4W
51)	10950.0000-12200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		4012GX4W
52)	14000.0000-14500.0000	37.5W	37.5W	28.4	28.4	125.6	125.6	-3.2	4012GX8W
53)	10950.0000-12200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		4012GX8W
54)	12500.0000-12750.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		6012 ESV
55)	14200.0000-14470.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		6012 ESV
56)	11700.0000-12200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		6012 ESV
57)	11450.0000-11700.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		6012 ESV
58)	10950.0000-11200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		6012 ESV
59)	14200.0000-14470.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		S900
60)	12500.0000-12750.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		S900
61)	11700.0000-12200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		S900
62)	11450.0000-11700.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		S900
63)	10950.0000-11200.0000	37.5W	37.5W	28.4	28.4	125.6	125.6		S900

**D) Points of Communications**

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

- 1) 1 to TELSTAR 11N (S2357) @ 37.55 degrees W.L. (U.S.-licensed)
- 2) 1 to Estrela do Sul 2 (S2821) @ 63 degrees W.L. (Brazil-licensed)
- 3) 1 to MSAT-1 @ 107.5 degrees W.L. (Canadian Licensed) (Non-U.S.-licensed)



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Non Common Carrier

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Expiration Date: 12/30/2018

**D) Points of Communications**

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

- 4) 1 to MSAT-1 @ 107.5 degrees W.L. (Canadian Licensed) (Non-U.S.-licensed)
- 5) 1 to Telstar 12 (S2462) @ 109.2 W.L. (U.S.-licensed)
- 6) 1 to Permitted Space Station List

**E) Antenna Facilities**

Site ID	Antenna ID	Units	Diameter (meters)	Manufacturer	Model number	Site Elevation (Meters)	Max Antenna Height (Meters)	Special Provisions (Refer to Section H)
1	1.8M.	1	1.8	PRODELIN	1184	295.9	3.4 AGL/ 286 AMSL	
Max Gains(s):		45.0 dBi @	12.0000 GHz	46.5 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				49.50				
1	15M.	1	15	VERTEX	15 KPK	295.9	13 AGL/ 295.85 AMSL	
Max Gains(s):		62.9 dBi @	11.7000 GHz	64.5 dBi @	14.5000 GHz	65.1 dBi @		
		13.8000 GHz	62.9 dBi @	12.0000 GHz	65.1 dBi @	14.2500 GHz	62.9	
		12.0000 GHz	65.1 dBi @	14.2500 GHz	65.1 dBi @	13.8000 GHz		
Maximum total input power at antenna flange (Watts) =				1,445.00				
Maximum aggregate output EIRP for all carriers (dBW) =				93.10				
1	2.4M.	11	2.4	PRODELIN	1246	295.9	3.4 AGL/ 286 AMSL	
Max Gains(s):		47.5 dBi @	12.0000 GHz	49.2 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				8.00				
Maximum aggregate output EIRP for all carriers (dBW) =				58.20				
1	2406 ESV	250	0.6	SEATEL	2406	295.9	2 AGL	
Max Gains(s):		34.0 dBi @	12.0000 GHz	36.0 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				8.00				
Maximum aggregate output EIRP for all carriers (dBW) =				45.00				
1	4003A ESV	250	1	SEATEL	4003A	295.9	10 AMSL	
Max Gains(s):		40.1 dBi @	11.7000 GHz	41.8 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				4.00				
Maximum aggregate output EIRP for all carriers (dBW) =								



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Call Sign: KA399

Authorization Type: Modification of License

File Number: SES-MOD-20170630-00727

Non Common Carrier

Grant date: 08/29/2017

Expiration Date: 12/30/2018

**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	4006 ESV	250	1	SEATEL	4006	295.9	10	AMSL
Max Gains(s):		40.1 dBi @	11.7000 GHz	41.8 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				8.00				
Maximum aggregate output EIRP for all carriers (dBW) =				.00				
1	4009 ESV	250	1	SEATEL	4009	295.9	3	AGL
Max Gains(s):		40.1 dBi @	12.0000 GHz	41.8 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				8.00				
Maximum aggregate output EIRP for all carriers (dBW) =				50.30				
1	4012GX4W	500	1.06	SEATEL	4012 GX	295.9	4	AGL
Max Gains(s):		40.8 dBi @	14.2500 GHz	39.8 dBi @	12.5000 GHz			
Maximum total input power at antenna flange (Watts) =				4.00				
Maximum aggregate output EIRP for all carriers (dBW) =				47.30				
1	4012GX8W	500	1.06	SEATEL	4012 GX	295.9	4	AGL
Max Gains(s):		40.8 dBi @	14.2500 GHz	39.8 dBi @	12.5000 GHz			
Maximum total input power at antenna flange (Watts) =				8.00				
Maximum aggregate output EIRP for all carriers (dBW) =				50.30				
1	6006 ESV	250	1.5	SEATEL	6006	295.9	3	AGL
Max Gains(s):		42.5 dBi @	12.0000 GHz	43.5 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				7.10				
Maximum aggregate output EIRP for all carriers (dBW) =				52.00				
1	6009 ESV	250	1.5	SEATEL	6009	295.9	3	AGL
Max Gains(s):		42.5 dBi @	12.0000 GHz	43.5 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				7.10				
Maximum aggregate output EIRP for all carriers (dBW) =				52.00				



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**E) Antenna Facilities**

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1	6012 ESV	250	1.5	SEATEL	6012	295.9	3 AGL	
Max Gains(s):		43.5 dBi @	14.0000 GHz	42.5 dBi @	12.0000 GHz			
Maximum total input power at antenna flange (Watts) =				7.10				
Maximum aggregate output EIRP for all carriers (dBW) =				52.00				
1	9797 ESV	250	2.4	SEATEL	9797	295.9	4 AGL/ 0 AMSL	
Max Gains(s):		47.6 dBi @	12.0000 GHz	48.5 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				8.00				
Maximum aggregate output EIRP for all carriers (dBW) =				57.50				
1	LMA4T11N	1	9	VERTEX	9 KPK	295.9	9.14 AGL/ 291 AMSL	
Max Gains(s):		58.7 dBi @	12.0000 GHz	60.4 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				700.00				
Maximum aggregate output EIRP for all carriers (dBW) =				88.90				
1	S900	250	1.03	THRANE& THRANE	SAILOR 900	295.9	3 AGL	
Max Gains(s):		41.4 dBi @	14.2500 GHz	40.1 dBi @	11.9500 GHz			
Maximum total input power at antenna flange (Watts) =				5.66				
Maximum aggregate output EIRP for all carriers (dBW) =				48.93				
1	SE125ESV	250	1.25	AZIMUTH	SE125	295.9	3 AGL	
Max Gains(s):		42.1 dBi @	12.0000 GHz	42.5 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				8.00				
Maximum aggregate output EIRP for all carriers (dBW) =				51.50				
1	USAT 24	250	0.6	SEATEL	USAT 24	295.9	2 AGL	
Max Gains(s):		34.0 dBi @	12.0000 GHz	36.0 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =				8.00				
Maximum aggregate output EIRP for all carriers (dBW) =				45.00				



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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)
1	V100GX4W	500	1	INTELLIAN	V100GX	295.9	4 AGL	
Max Gains(s):		41.3 dBi @	14.2500 GHz	39.8 dBi @	11.7500 GHz			
Maximum total input power at antenna flange (Watts) =				4.00				
Maximum aggregate output EIRP for all carriers (dBW) =				47.30				
1	V100GX8W	500	1	INTELLIAN	V100GX	295.9	4 AGL	
Max Gains(s):		41.3 dBi @	14.2500 GHz	39.8 dBi @	11.7500 GHz			
Maximum total input power at antenna flange (Watts) =				8.00				
Maximum aggregate output EIRP for all carriers (dBW) =				50.30				
1	V110ESV	250	1.05	INTELLIAN	V110	295.9	3 AGL	
Max Gains(s):		39.6 dBi @	12.2000 GHz	41.7 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				6.97				
Maximum aggregate output EIRP for all carriers (dBW) =				49.80				
1	V60GESV	250	0.6	INTELLIAN	V60G	295.9	3 AGL	
Max Gains(s):		35.3 dBi @	12.2000 GHz	38.1 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				11.59				
Maximum aggregate output EIRP for all carriers (dBW) =				48.70				

**F) Remote Control Point:**

1 ALLAN PARK EARTH STATION, PO BOX 99  
HANOVER, ONTARIO, N4N3C3  
519-370-2841

Call Sign: E030029

**G) Antenna Structure marking and lighting requirements:**

None unless otherwise specified under Special and General Provisions





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## H) Special and General Provisions

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

- 4 --- Licensee must ensure that a current listing of the name, title, mailing address, email address, and telephone number of the responsible point of contact are on file at the FCC. Any changes must be filed electronically in the International Bureau Filing System (IBFS) in the "Other Filings" tab within 10 days of the change.
- 5 --- Licensee must notify the Commission when an earth station is no longer operational or when it has not been used to provide any service during any 6-month operation.
- 6 --- Licensee must comply with the license modification and notification requirements of 47 CFR § 25.118 to change the coordinates of its authorized earth station.
- 367 --- The licensee must assure that no harmful interference will come to US operations broadcast satellite downlink operations from the FSS downlinks in the 12.5-12.75 GHz band.
- 480 --- The grant of this license is pursuant to NG52, which requires that signals received in the 10.7-11.7 GHz band be emanated from uplink transmissions outside the US&P.
- 3462 --- Use of the extended Ku-band frequency band (13.75 GHz to 14.0 GHz) has been approved by The National Telecommunications and Information Administration. This authorization is subject to the terms and conditions set forth in the Commission's Report and Order adopted September 12, 1996, (11 FCC Record 11951).
- 3854 --- Licensee shall comply with EIRP density limit 71 dBW in any 6MHz band from 13.77 to 13.78 GHz, per ITU footnote S5.503 and the Section 25.204 (f) of the Commission's Rules.
- 4334 --- NG182 In the bands 10.95-11.2 GHz and 11.45-11.7 GHz, earth stations on vessels (ESV) may be authorized to communicate with U.S. earth stations through space stations of the fixed satellite service but must accept interference from terrestrial systems operating in accordance with Commission Rules.
- 5241 --- The use of the frequency bands 10950 - 11200 and 11450 - 11700 MHz in the fixed satellite service is limited to international service.
- 5701 --- In Orbit Transfer (IOT) services may be provided using this emission for any viewable satellite angles where the elevation angle is greater than 5 degrees provided that the Licensee coordinates the frequency and power usage with all existing satellites in orbit, which use the same frequency bands, and are in the (IOT) path. The Licensee shall provide all other satellite operators in the (IOT) path with an emergency phone number where the Licensee (or his operators) can be immediately reached in the event that harmful interference occurs.
- 5797 --- The EIRP and EIRP Density values for the digital carriers are the maximum permissible under the Section 25.212 of the Commission's Rules.
- 5841 --- Use of the frequency band 13.75-14 GHz shall comply with United States Footnotes US356 (used to be S5.502) and US357 (used to be S5.503) in the Section 2.106 and the Section 25.204 (f) of the Commission's Rules.
- 5885 --- This authorization does not authorize Licensee to provide any Direct-to-Home ("DTH"), Direct Broadcast Satellite ("DBS") service or Digital Audio Radio Service ("DARS") to, from, or within the United States via a non-U.S.-licensed satellite.



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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:

- 5903 --- Licensee must provide the Naval Electromagnetic Spectrum Center (703-325-2750) a 24hr phone number which would be contacted when national defense and US Naval operation requirements necessitate immediate cessation of operations. The Licensee is aware that they would be required to temporarily cease satellite operations on these frequencies until notified otherwise.
- 5904 --- Licensee is urged, but is not required, to cooperate voluntarily with NASA in order to facilitate continued operation of the NASA TRMIM in the 13.793-13.805 GHz band.
- 5963 --- All operations on 12.50 - 12.75 GHz band are on an unprotected basis. The licensee shall not claim protection from, and is required to accept interference from, other lawfully operating satellites or radio communication systems.
- 5964 --- Telesat Network Services, Inc.'s request for of a waiver in order for ESVs licensed under SES-MOD-20120308-00248 to operate within the contours of the European and African Beams of the Telstar 11N (37.55 WL) satellite downlink in the 12.50-12.75 GHz band is granted on an unprotected basis.
- 5965 --- Telesat Network Services, Inc.'s license under SES-MOD-20120308-00248 is prohibited to receive Estrela Do Sul 2 satellite at 63 degrees WL on frequencies 10.95 - 11.2 GHz and 12.50 - 12.75 GHz.
- 90013 --- The licensee shall not operate in the band 14.0-14.2 GHz within 125 km of the NASA TDRSS facilities on Guam (located at latitude 13°36'55" N, longitude 144°51'22" E) or White Sands, New Mexico (located at latitude 32°20'59" N, longitude 106°36'31" W and latitude 32°32'40" N, longitude 106°36'48" W), or any future TDRSS facility NTIA notifies to the FCC, unless and until the licensee enters into an agreement with NASA that NTIA has approved. The licensee must conform its operations to the terms of any coordination agreement with the NASA and must file a copy of the agreement with the Commission within 30 days of execution.
- 90014 --- The licensee shall not operate in the band 14.47-14.50 GHz within (a) 45 km of the radio observatory on St. Croix, Virgin Islands (located at latitude 17°46' N, longitude 64°35' W); (b) 125 km of the radio observatory on Mauna Kea, Hawaii (located at latitude 19°48' N, longitude 155°28' W); and (c) 90 km of the Arecibo Observatory on Puerto Rico (located at latitude 18°20'46" W, longitude 66°45'11" N) unless and until the licensee enters into an agreement with the National Science Foundation that has been approved by NTIA. The licensee must conform its operations to the terms of any coordination agreement with the National Science Foundation and must file a copy of the agreement with the Commission within 30 days of execution.
- 90021 --- The licensee must restrain the following antennas in the input EIRP power spectral density to the maximum limits as specified below when N the maximum expected number of co-frequency simultaneously transmitting ESV earth stations in the same satellite receiving beam is equal to one: (1) Model 2406 and USAT24 -21.6 dBW/4kHz; (2) Model 4006 and 4009 -16.3 dBW/4kHz; and (3) Model 6006 and 6009 -14.0 dBW/4kHz.



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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:

- 90137 --- Telesat understands and complies with the mandates set forth in the Commission's ESV regulation that operations of ESVs in the 14.47 - 14.5 GHz band with the Thrane and Thrane model Sailor 900 antenna within the distances specified for the facilities set forth in Section 25.222(d) are only permitted after they have been successfully coordinated through NTIA/IRAC. Telesat may in the future pursue coordination of its operations contemplated herein with NTIA/IRAC in regards to the locations specified by Section 25.222(d). Unless and until such coordination is successfully completed Telesat will comply with Section 25.222(d) by not operating Ku-band ESVs at all on the specified frequencies within the specified distances of the facilities set forth in those provisions.
- 90138 --- Telesat will operate the Thrane & Thrane model Sailor 900 antenna in compliance with Section 25.222(c) of the Commission's rules.
- 90139 --- Telesat Network Services, Inc.'s ESVs model Thrane & Thrane Sailor 900 terminals licensed under SES-MOD-20140212-00056 will only communicate with Telstar 11N @ 37.55 degrees W.L. and request of waiver in order for Thrane & Thrane Sailor 900 terminals to operate within the contours of the European and African Beams of the Telstar 11 N @ 37.55 degrees W.L. satellite downlink in the 12.50-12.75 GHz and is granted on an unprotected basis.
- 90398 --- Changes to previously authorized transmitting facilities, operations and devices regulated by the Commission that may have significant environmental impact, and are not excluded by §1.1306, require the preparation of an Environmental Assessment (EA) by the licensee. (See 47 C.F.R. §§1.1307, 1.1308 and 1.1311)
- 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](http://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.