



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

Name: Telesat Network Services, Inc.

Call Sign: E020101

Authorization Type: Renewal of License

File Number: SES-RWL-20170724-00798

Non Common Carrier

Grant date: 09/08/2017

Expiration Date: 09/17/2032



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 9.3-M	1305 INDUSTRIAL PARK ROAD (9.3M. HUB) MT. JACKSON, SHENANDOAH, VA 22842 Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209	38°43'47.4"N	78°39'29.9"W	282.6	83
2)	REMOTE 0.95M	VSAT (0.95M) CONUS, (5000 UNITS), 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.				NA
3)	REMOTE 1.2M	VSAT (1.2M) CONUS, (5000 UNITS), Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209				NA
4)	REMOTE 1.8M	VSAT (1.8M) CONUS, (5000 UNITS), Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209				NA
5)	REMOTE 5	VSAT (0.96M) CONUS, (5000 UNITS), 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.				NA
6)	REMOTE 6	VSAT (1.2M) CONUS, (5000 UNITS), Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209				NA



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7)	REMOTE 7	VSAT (1.8M) CONUS, (5000 UNITS),				NA	
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209					
8)	REMOTE 8	VSAT (2.4M) CONUS, (5000 UNITS),				NA	
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209					
9)	REMOTE10P	VSAT (1.8M) 1305 INDUSTRIAL PARK ROAD CONUS, (5000 UNITS),				NA	
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209					
10)	REMOTE11 PROD	VSAT (2.4M) 1305 INDUSTRIAL PARK ROAD CONUS, (5000 UNITS),				NA	
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209					
11)	REMOTE12	1305 INDUSTRIAL PARK ROAD (1.2M. VSAT) ENSURE CONUS, 5000 UNITS,				NA	
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209					
12)	REMOTE13	1305 INDUSTRIAL PARK ROAD (1.2M. VSAT) ENSURE CONUS, 5000 UNITS,				NA	
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209					
13)	REMOTE14	1305 INDUSTRIAL PARK ROAD (1.8M. VSAT) ENSURE CONUS, 5000 UNITS,				NA	
		Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209					



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14)	REMOTEL5	1305 INDUSTRIAL PARK ROAD (1.8M. VSAT) ENSURE CONUS, 5000 UNITS,				NA
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						
15)	REMOTEL8P	VSAT (2.4M) 1305 INDUSTRIAL PARK ROAD CONUS, (5000 UNITS),				NA
Licensee certifies antenna(s) comply with gain patterns specified in Section 25.209						
16)	REMOTEL9P	VSAT (1.2M) 1305 INDUSTRIAL PARK ROAD CONUS, (5000 UNITS),				NA
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 September 17, 2017 (3 AM Eastern Standard Time) and ending September 17, 2032 (3 AM Eastern Standard Time) . The required date of completion of construction and commencement of operation is 00/00/0000. Grantee must file with the Commission a certification upon completion of construction and commencement of operation.

B) Particulars of Operations

The General Provision 1010 applies to all receiving frequency bands.
The General Provision 1900 applies to all transmitting frequency bands.
For the text of these provisions, refer to Section H.

#	Frequency (MHz)	Polarization Code	Emission	Tx/Rx Mode	Max EIRP /Carrier (dBW)	Max EIRP Density /Carrier (dBW/4kHz)	Associated Antenna	Special Provisions (Refer to Section H)	Modulation/ Services
1)	14000.0000-14500.0000	H,V	3M17G7W	Tx	49.50	20.50	0.95M/R		QPSK 2048 KBPS, RATE 1/2 CODE
2)	14000.0000-14500.0000	H,V	360KG7W	Tx	41.70	22.20	0.95M/R		QPSK 144 KBPS, CONCATENATED CODE
3)	14000.0000-14500.0000	H,V	360KG7W	Tx	44.70	25.20	0.95M/R		QPSK 144 KBPS, CONCATENATED CODE



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4)	14000.0000-14500.0000	H, V	842KG7W	Tx	44.70	21.50	0.95M/R		QPSK 384 KBPS, CONCATENATED CODE
5)	14000.0000-14500.0000	H, V	936KG7W	Tx	41.70	17.80	0.95M/R		QPSK 384 KBPS, CONCATENATED CODE
6)	14000.0000-14500.0000	H, V	936KG7W	Tx	44.70	21.00	0.95M/R		QPSK 384 KBPS, CONCATENATED CODE
7)	14000.0000-14500.0000	H, V	2M45G7W	Tx	41.70	13.80	0.95M/R		QPSK 1024 KBPS, CONCATENATED CODE
8)	14000.0000-14500.0000	H, V	2M45G7W	Tx	44.70	16.80	0.95M/R		QPSK 1024 KBPS, CONCATENATED CODE
9)	14000.0000-14500.0000	H, V	324KG7W	Tx	44.70	25.60	0.95M/R		QPSK 144 KBPS, CONCATENATED CODE
10)	14000.0000-14500.0000	H, V	4M41G7W	Tx	44.70	14.30	0.95M/R		QPSK 2048 KBPS, CONCATENATED CODE
11)	14000.0000-14500.0000	H, V	4M90G7W	Tx	41.70	10.80	0.95M/R		QPSK 2048 KBPS, CONCATENATED CODE
12)	14000.0000-14500.0000	H, V	4M90G7W	Tx	44.70	13.80	0.95M/R		QPSK 2048 KBPS, CONCATENATED CODE
13)	11700.0000-12200.0000	H, V	54M0G7W	Rx			0.95M/R		QPSK 48MBPS 2/3 FEC
14)	11700.0000-12200.0000	H, V	3M91G7W	Rx			0.95M/R		QPSK 3MBPS HUB OUTBOUND TO VSAT
15)	11700.0000-12200.0000	H, V	8M79G7W	Rx			0.95M/R		QPSK 8MBPS HUB OUTBOUND TO VSAT
16)	14000.0000-14500.0000	H, V	380KG7W	Tx	38.20	18.40	0.96M/CM		QPSK 256 KBPS, TURBO CODE
17)	14000.0000-14500.0000	H, V	380KG7W	Tx	44.20	24.40	0.96M/CM		QPSK 256 KBPS, TURBO CODE
18)	14000.0000-14500.0000	H, V	3M00G7W	Tx	38.20	9.40	0.96M/CM		QPSK 2048 KBPS, TURBO CODE
19)	14000.0000-14500.0000	H, V	750KG7W	Tx	38.20	15.50	0.96M/CM		QPSK 512 KBPS, TURBO CODE
20)	14000.0000-14500.0000	H, V	750KG7W	Tx	44.20	21.50	0.96M/CM		QPSK 512 KBPS, TURBO CODE
21)	14000.0000-14500.0000	H, V	1M50G7W	Tx	38.20	12.40	0.96M/CM		QPSK 1024 KBPS, TURBO CODE
22)	14000.0000-14500.0000	H, V	1M50G7W	Tx	44.20	18.40	0.96M/CM		QPSK 1024 KBPS, TURBO CODE
23)	14000.0000-14500.0000	H, V	3M00G7W	Tx	44.20	15.40	0.96M/CM		QPSK 2048 KBPS, TURBO CODE



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24)	14000.0000-14500.0000	H, V	360KG7W	Tx	38.20	18.60	0.96M/CM		QPSK 144 KBPS, CONCATENATED CODE
25)	14000.0000-14500.0000	H, V	360KG7W	Tx	44.20	24.70	0.96M/CM		QPSK 144 KBPS, CONCATENATED CODE
26)	14000.0000-14500.0000	H, V	4M90G7W	Tx	38.20	7.30	0.96M/CM		QPSK 2048 KBPS, CONCATENATED CODE
27)	14000.0000-14500.0000	H, V	936KG7W	Tx	38.20	14.50	0.96M/CM		QPSK 384 KBPS, CONCATENATED CODE
28)	14000.0000-14500.0000	H, V	936KG7W	Tx	44.20	20.50	0.96M/CM		QPSK 384 KBPS, CONCATENATED CODE
29)	14000.0000-14500.0000	H, V	2M45G7W	Tx	38.20	10.30	0.96M/CM		QPSK 1024 KBPS, CONCATENATED CODE
30)	14000.0000-14500.0000	H, V	2M45G7W	Tx	44.20	16.30	0.96M/CM		QPSK 1024 KBPS, CONCATENATED CODE
31)	14000.0000-14500.0000	H, V	4M90G7W	Tx	44.20	13.30	0.96M/CM		QPSK 2048 KBPS, CONCATENATED CODE
32)	11700.0000-12200.0000	H, V	54M0G7W	Rx			0.96M/CM		QPSK 48MBPS 2/3 FEC
33)	11700.0000-12200.0000	H, V	3M91G7W	Rx			0.96M/CM		QPSK 3MBPS HUB OUTBOUND TO VSAT
34)	11700.0000-12200.0000	H, V	8M79G7W	Rx			0.96M/CM		QPSK 8MBPS HUB OUTBOUND TO VSAT
35)	14000.0000-14500.0000	H, V	380KG7W	Tx	46.50	26.60	1.2M PAT		256 KBPS 2/3FEC TURBO CODE
36)	14000.0000-14500.0000	H, V	3M00G7W	Tx	46.50	17.70	1.2M PAT		2048 KBPS 2/3FEC TURBO CODE
37)	14000.0000-14500.0000	H, V	360KG7W	Tx	43.30	23.80	1.2M PAT		QPSK, 144 KBPS, 1/2 FEC CONCATENATED CODE
38)	14000.0000-14500.0000	H, V	4M90G7W	Tx	46.00	15.10	1.2M PAT		QPSK, 2048 KBPS, 1/2 FEC CONCATENATED CODE
39)	11700.0000-12200.0000	H, V	3M91G7W	Rx			1.2M PAT		3 MBPS 2/3 FEC HUB OUTBOUND TO VSAT
40)	11700.0000-12200.0000	H, V	54M0G7W	Rx			1.2M PAT		48 MBPS 2/3 FEC HUB OUTBOUND TO VSAT
41)	11700.0000-12200.0000	H, V	3M91G7W	Rx			1.2M PAT		QPSK, 3 MBPS 2/3 FEC HUB OUTBOUND TO VSAT
42)	11700.0000-12200.0000	H, V	54M0G7W	Rx			1.2M PAT		QPSK, 48 MBPS 2/3 FEC HUB OUTBOUND TO VSAT



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43)	14000.0000-14500.0000	H, V	380KG7W	Tx	43.30	23.50	1.2M.CM		QPSK 256 KBPS, TURBO CODE
44)	14000.0000-14500.0000	H, V	380KG7W	Tx	46.30	26.50	1.2M.CM		QPSK 256 KBPS, TURBO CODE
45)	14000.0000-14500.0000	H, V	750KG7W	Tx	43.30	20.60	1.2M.CM		QPSK 512 KBPS, TURBO CODE
46)	14000.0000-14500.0000	H, V	750KG7W	Tx	46.30	23.60	1.2M.CM		QPSK 512 KBPS, TURBO CODE
47)	14000.0000-14500.0000	H, V	1M50G7W	Tx	43.30	17.60	1.2M.CM		QPSK 1024 KBPS, TURBO CODE
48)	14000.0000-14500.0000	H, V	1M50G7W	Tx	46.30	20.60	1.2M.CM		QPSK 1024 KBPS, TURBO CODE
49)	14000.0000-14500.0000	H, V	3M00G7W	Tx	43.30	14.60	1.2M.CM		QPSK 2048 KBPS, TURBO CODE
50)	14000.0000-14500.0000	H, V	3M00G7W	Tx	46.30	17.60	1.2M.CM		QPSK 2048 KBPS, TURBO CODE
51)	14000.0000-14500.0000	H, V	360KG7W	Tx	43.30	23.80	1.2M.CM		QPSK 144 KBPS, CONCATENATED CODE
52)	14000.0000-14500.0000	H, V	360KG7W	Tx	46.30	26.80	1.2M.CM		QPSK 144 KBPS, CONCATENATED CODE
53)	14000.0000-14500.0000	H, V	936KG7W	Tx	43.30	19.60	1.2M.CM		QPSK 384 KBPS, CONCATENATED CODE
54)	14000.0000-14500.0000	H, V	936KG7W	Tx	46.30	22.60	1.2M.CM		QPSK 384 KBPS, CONCATENATED CODE
55)	14000.0000-14500.0000	H, V	2M45G7W	Tx	43.30	15.40	1.2M.CM		QPSK 1024 KBPS, CONCATENATED CODE
56)	14000.0000-14500.0000	H, V	2M45G7W	Tx	46.30	18.40	1.2M.CM		QPSK 1024 KBPS, CONCATENATED CODE
57)	14000.0000-14500.0000	H, V	4M90G7W	Tx	43.30	12.40	1.2M.CM		QPSK 2048 KBPS, CONCATENATED CODE
58)	14000.0000-14500.0000	H, V	4M90G7W	Tx	46.30	15.40	1.2M.CM		QPSK 2048 KBPS, CONCATENATED CODE
59)	11700.0000-12200.0000	H, V	54M0G7W	Rx			1.2M.CM		QPSK 48MBPS 2/3 FEC
60)	11700.0000-12200.0000	H, V	3M91G7W	Rx			1.2M.CM		QPSK 3MBPS HUB OUTBOUND TO VSAT
61)	11700.0000-12200.0000	H, V	8M79G7W	Rx			1.2M.CM		QPSK 8MBPS HUB OUTBOUND TO VSAT
62)	14000.0000-14500.0000	H, V	3M17G7W	Tx	49.50	20.50	1.2M/P		QPSK 2048 KBPS 1/2 FEC
63)	14000.0000-14500.0000	H, V	380KG7W	Tx	43.30	23.50	1.2M/P		QPSK 256 KBPS, TURBO CODE



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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
64)	14000.0000-14500.0000	H, V	750KG7W	Tx	43.30	20.60	1.2M/P		QPSK 512 KBPS, TURBO CODE
65)	14000.0000-14500.0000	H, V	1M50G7W	Tx	43.30	17.60	1.2M/P		QPSK 1024 KBPS, TURBO CODE
66)	14000.0000-14500.0000	H, V	3M00G7W	Tx	43.30	14.60	1.2M/P		QPSK 2048 KBPS, TURBO CODE
67)	14000.0000-14500.0000	H, V	324KG7W	Tx	46.00	26.90	1.2M/P		QPSK 144 KBPS, CONCATENATED CODE
68)	14000.0000-14500.0000	H, V	360KG7W	Tx	43.10	23.60	1.2M/P		QPSK 144 KBPS, CONCATENATED CODE
69)	14000.0000-14500.0000	H, V	360KG7W	Tx	43.30	23.80	1.2M/P		QPSK 144 KBPS, CONCATENATED CODE
70)	14000.0000-14500.0000	H, V	842KG7W	Tx	46.00	22.80	1.2M/P		QPSK 384 KBPS, CONCATENATED CODE
71)	14000.0000-14500.0000	H, V	936KG7W	Tx	43.10	19.40	1.2M/P		QPSK 384 KBPS, CONCATENATED CODE
72)	14000.0000-14500.0000	H, V	936KG7W	Tx	43.30	19.60	1.2M/P		QPSK 384 KBPS, CONCATENATED CODE
73)	14000.0000-14500.0000	H, V	2M45G7W	Tx	43.10	15.20	1.2M/P		QPSK 1024 KBPS, CONCATENATED CODE
74)	14000.0000-14500.0000	H, V	2M45G7W	Tx	43.30	15.40	1.2M/P		QPSK 1024 KBPS, CONCATENATED CODE
75)	14000.0000-14500.0000	H, V	4M41G7W	Tx	46.00	15.60	1.2M/P		QPSK 2048 KBPS, CONCATENATED CODE
76)	14000.0000-14500.0000	H, V	4M90G7W	Tx	43.10	12.20	1.2M/P		QPSK 2048 KBPS, CONCATENATED CODE
77)	14000.0000-14500.0000	H, V	4M90G7W	Tx	43.30	12.40	1.2M/P		QPSK 2048 KBPS, CONCATENATED CODE
78)	11700.0000-12200.0000	H, V	54M0G7W	Rx			1.2M/P		QPSK 48MBPS 2/3 FEC
79)	11700.0000-12200.0000	H, V	3M91G7W	Rx			1.2M/P		QPSK 3MBPS HUB OUTBOUND TO VSAT
80)	11700.0000-12200.0000	H, V	8M79G7W	Rx			1.2M/P		QPSK 8MBPS HUB OUTBOUND TO VSAT
81)	14000.0000-14500.0000	H, V	380KG7W	Tx	56.00	36.20	1.8M PAT		QPSK, 256 KBPS, 2/3 FEC TURBOCODING
82)	14000.0000-14500.0000	H, V	3M00G7W	Tx	56.00	27.20	1.8M PAT		QPSK, 2048 KBPS, 2/3 FEC TURBOCODING



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83)	11700.0000-12200.0000	H, V	380KG7W	Rx			1.8M PAT		QPSK, 256 KBPS, 2/3 FEC TURBOCODING
84)	11700.0000-12200.0000	H, V	3M00G7W	Rx			1.8M PAT		QPSK, 2048 KBPS, 2/3 FEC TURBOCODING
85)	14000.0000-14500.0000	H, V	380KG7W	Tx	49.80	30.00	1.8M/CM		QPSK 256 KBPS, TURBO CODE
86)	14000.0000-14500.0000	H, V	380KG7W	Tx	52.60	32.80	1.8M/CM		QPSK 256 KBPS, TURBO CODE
87)	14000.0000-14500.0000	H, V	750KG7W	Tx	49.80	27.10	1.8M/CM		QPSK 512 KBPS, TURBO CODE
88)	14000.0000-14500.0000	H, V	750KG7W	Tx	52.80	30.10	1.8M/CM		QPSK 512 KBPS, TURBO CODE
89)	14000.0000-14500.0000	H, V	1M50G7W	Tx	49.80	24.10	1.8M/CM		QPSK 1024 KBPS, TURBO CODE
90)	14000.0000-14500.0000	H, V	1M50G7W	Tx	52.80	27.10	1.8M/CM		QPSK 1024 KBPS, TURBO CODE
91)	14000.0000-14500.0000	H, V	3M00G7W	Tx	49.80	21.10	1.8M/CM		QPSK 2048 KBPS, TURBO CODE
92)	14000.0000-14500.0000	H, V	3M00G7W	Tx	52.80	24.10	1.8M/CM		QPSK 2048 KBPS, TURBO CODE
93)	14000.0000-14500.0000	H, V	360KG7W	Tx	49.80	30.30	1.8M/CM		QPSK 144 KBPS, CONCATENATED CODE
94)	14000.0000-14500.0000	H, V	360KG7W	Tx	52.30	32.80	1.8M/CM		QPSK 144 KBPS, CONCATENATED CODE
95)	14000.0000-14500.0000	H, V	936KG7W	Tx	49.80	26.10	1.8M/CM		QPSK 384 KBPS, CONCATENATED CODE
96)	14000.0000-14500.0000	H, V	936KG7W	Tx	52.80	29.10	1.8M/CM		QPSK 384 KBPS, CONCATENATED CODE
97)	14000.0000-14500.0000	H, V	2M45G7W	Tx	49.80	21.90	1.8M/CM		QPSK 1024 KBPS, CONCATENATED CODE
98)	14000.0000-14500.0000	H, V	2M45G7W	Tx	52.80	24.90	1.8M/CM		QPSK 1024 KBPS, CONCATENATED CODE
99)	14000.0000-14500.0000	H, V	4M90G7W	Tx	49.80	18.90	1.8M/CM		QPSK 2048 KBPS, CONCATENATED CODE
100)	14000.0000-14500.0000	H, V	4M90G7W	Tx	52.80	21.90	1.8M/CM		QPSK 2048 KBPS, CONCATENATED CODE
101)	11700.0000-12200.0000	H, V	54M0G7W	Rx			1.8M/CM		QPSK 48MBPS 2/3 FEC
102)	11700.0000-12200.0000	H, V	3M91G7W	Rx			1.8M/CM		QPSK 3MBPS HUB OUTBOUND TO VSAT



UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION

RADIO STATION AUTHORIZATION

Name: Telesat Network Services, Inc.
 Authorization Type: Renewal of License
 Non Common Carrier

Call Sign: E020101
 File Number: SES-RWL-20170724-00798
 Grant date: 09/08/2017 Expiration Date: 09/17/2032

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)	11700.0000-12200.0000	H, V	8M79G7W	Rx			1.8M/CM		QPSK 8MBPS HUB OUTBOUND TO VSAT
104)	14000.0000-14500.0000	H, V	380KG7W	Tx	49.80	30.00	1.8M/P		QPSK 256 KBPS, TURBO CODE
105)	14000.0000-14500.0000	H, V	380KG7W	Tx	52.50	32.70	1.8M/P		QPSK 256 KBPS, TURBO CODE
106)	14000.0000-14500.0000	H, V	750KG7W	Tx	49.80	27.10	1.8M/P		QPSK 512 KBPS, TURBO CODE
107)	14000.0000-14500.0000	H, V	750KG7W	Tx	52.80	30.10	1.8M/P		QPSK 512 KBPS, TURBO CODE
108)	14000.0000-14500.0000	H, V	1M50G7W	Tx	49.80	24.10	1.8M/P		QPSK 1024 KBPS, TURBO CODE
109)	14000.0000-14500.0000	H, V	1M50G7W	Tx	52.80	27.10	1.8M/P		QPSK 1024 KBPS, TURBO CODE
110)	14000.0000-14500.0000	H, V	3M00G7W	Tx	49.80	21.10	1.8M/P		QPSK 2048 KBPS, TURBO CODE
111)	14000.0000-14500.0000	H, V	3M00G7W	Tx	52.80	24.10	1.8M/P		QPSK 2048 KBPS, TURBO CODE
112)	14000.0000-14500.0000	H, V	3M17G7W	Tx	52.70	23.70	1.8M/P		QPSK 2048 KBPS, RATE 1/2 CODE
113)	14000.0000-14500.0000	H, V	324KG7W	Tx	49.70	30.60	1.8M/P		QPSK 144 KBPS, CONCATENATED CODE
114)	14000.0000-14500.0000	H, V	360KG7W	Tx	49.80	30.30	1.8M/P		QPSK 144 KBPS, CONCATENATED CODE
115)	14000.0000-14500.0000	H, V	360KG7W	Tx	52.20	32.70	1.8M/P		QPSK 144 KBPS, CONCATENATED CODE
116)	14000.0000-14500.0000	H, V	842KG7W	Tx	49.70	26.50	1.8M/P		QPSK 384 KBPS, CONCATENATED CODE
117)	14000.0000-14500.0000	H, V	936KG7W	Tx	49.80	26.10	1.8M/P		QPSK 384 KBPS, CONCATENATED CODE
118)	14000.0000-14500.0000	H, V	936KG7W	Tx	52.80	29.10	1.8M/P		QPSK 384 KBPS, CONCATENATED CODE
119)	14000.0000-14500.0000	H, V	2M45G7W	Tx	49.80	21.90	1.8M/P		QPSK 1024 KBPS, CONCATENATED CODE
120)	14000.0000-14500.0000	H, V	2M45G7W	Tx	52.80	24.90	1.8M/P		QPSK 1024 KBPS, CONCATENATED CODE
121)	14000.0000-14500.0000	H, V	4M41G7W	Tx	49.70	19.30	1.8M/P		QPSK 2048 KBPS, CONCATENATED CODE
122)	14000.0000-14500.0000	H, V	4M90G7W	Tx	49.70	18.90	1.8M/P		QPSK 2048 KBPS, CONCATENATED CODE



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RADIO STATION AUTHORIZATION

Name: Telesat Network Services, Inc.

Call Sign: E020101

Authorization Type: Renewal of License

File Number: SES-RWL-20170724-00798

Non Common Carrier

Grant date: 09/08/2017

Expiration Date: 09/17/2032

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
123)	14000.0000-14500.0000	H, V	4M90G7W	Tx	52.80	21.90	1.8M/P		QPSK 2048 KBPS, CONCATENATED CODE
124)	11700.0000-12200.0000	H, V	54M0G7W	Rx			1.8M/P		QPSK 48MBPS 2/3 FEC
125)	11700.0000-12200.0000	H, V	3M91G7W	Rx			1.8M/P		QPSK 3MBPS HUB OUTBOUND TO VSAT
126)	11700.0000-12200.0000	H, V	8M79G7W	Rx			1.8M/P		QPSK 8MBPS HUB OUTBOUND TO VSAT
127)	14000.0000-14500.0000	H, V	380KG7W	Tx	58.50	38.80	2.4M PAT		QPSK, 256 KBPS, TURBOCODE, 2/3 FEC
128)	14000.0000-14500.0000	H, V	3M00G7W	Tx	58.50	29.90	2.4M PAT		QPSK 2048 KBPS, TURBOCODE, 2/3 FEC
129)	11700.0000-12200.0000	H, V	3M91G7W	Rx			2.4M PAT		QPSK, 3 MBPS, HUB OUTBOUND TO VSAT
130)	11700.0000-12200.0000	H, V	54M0G7W	Rx			2.4M PAT		QPSK, 48 MBPS, HUB OUTBOUND TO VSAT
131)	14000.0000-14500.0000	H, V	380KG7W	Tx	54.10	34.30	2.4M PROD		QPSK, 256KBPS, 2/3 FEC TURBOCODING
132)	14000.0000-14500.0000	H, V	750KG7W	Tx	52.50	29.80	2.4M PROD		QPSK, 512 KBPS, 2/3 FEC TURBOCODING
133)	14000.0000-14500.0000	H, V	1M50G7W	Tx	52.80	27.10	2.4M PROD		QPSK, 1024 KBPS, 2/3 FEC TURBOCODING
134)	14000.0000-14500.0000	H, V	3M00G7W	Tx	52.80	24.10	2.4M PROD		QPSK, 2048 KBPS, 2/3 FEC TURBOCODING
135)	14000.0000-14500.0000	H, V	360KG7W	Tx	52.80	33.30	2.4M PROD		QPSK, 144 KBPS, 2/3 FEC CONCATENATED CODE
136)	14000.0000-14500.0000	H, V	4M90G7W	Tx	52.80	21.90	2.4M PROD		QPSK, 2048 KBPS, 2/3 FEC CONCATENATED CODE
137)	11700.0000-12200.0000	H, V	54M0G7W	Rx			2.4M PROD		QPSK 48 MBPS 2/3 FEC
138)	11700.0000-12200.0000	H, V	3M91G7W	Rx			2.4M PROD		QPSK 3 MBPS HUB OUTBOUND TO VSAT
139)	11700.0000-12200.0000	H, V	8M79G7W	Rx			2.4M PROD		QPSK 8 MBPS HUB OUTBOUND TO VSAT
140)	11700.0000-12200.0000	H, V	380KG7W	Rx			2.4M PROD		QPSK, 256 KBPS, 2/3 FEC TURBOCODING
141)	11700.0000-12200.0000	H, V	750KG7W	Rx			2.4M PROD		QPSK, 512 KBPS, 2/3 FEC TURBOCODING



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RADIO STATION AUTHORIZATION

Name: Telesat Network Services, Inc.

Call Sign: E020101

Authorization Type: Renewal of License

File Number: SES-RWL-20170724-00798

Non Common Carrier

Grant date: 09/08/2017

Expiration Date: 09/17/2032

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
142)	11700.0000-12200.0000	H,V	1M50G7W	Rx			2.4M PROD		QPSK, 1024 KBPS, 2/3 FEC TURBOCODING
143)	11700.0000-12200.0000	H,V	3M00G7W	Rx			2.4M PROD		QPSK, 2048 KBPS, 2/3 FEC TURBOCODING
144)	11700.0000-12200.0000	H,V	360KG7W	Rx			2.4M PROD		QPSK, 144 KBPS, 2/3 FEC CONCATENATED CODE
145)	11700.0000-12200.0000	H,V	4M90G7W	Rx			2.4M PROD		QPSK, 2048 KBPS, 2/3 FEC CONCATENATED CODE
146)	14000.0000-14500.0000	H,V	380KG7W	Tx	55.10	35.30	2.4M/CM		QPSK 256 KBPS, TIRBO CODE
147)	14000.0000-14500.0000	H,V	750KG7W	Tx	58.00	35.30	2.4M/CM		QPSK 512 KBPS, TURBO CODE
148)	14000.0000-14500.0000	H,V	1M50G7W	Tx	58.30	32.60	2.4M/CM		QPSK 1024 KBPS, TURBO CODE
149)	14000.0000-14500.0000	H,V	3M00G7W	Tx	58.30	29.60	2.4M/CM		QPSK 2048 KBPS, TURBO CODE
150)	14000.0000-14500.0000	H,V	360KG7W	Tx	54.80	35.30	2.4M/CM		QPSK 144 KBPS, CONCATENATED CODE
151)	14000.0000-14500.0000	H,V	936KG7W	Tx	58.30	34.60	2.4M/CM		QPSK 384 KBPS, CONCATENATED CODE
152)	14000.0000-14500.0000	H,V	2M45G7W	Tx	58.30	30.40	2.4M/CM		QPSK 1024 KBPS, CONCATENATED CODE
153)	14000.0000-14500.0000	H,V	4M90G7W	Tx	58.30	27.40	2.4M/CM		QPSK 2048 KBPS, CONCATENATED CODE
154)	11700.0000-12200.0000	H,V	54M0G7W	Rx			2.4M/CM		QPSK 48MBPS 2/3 FEC
155)	11700.0000-12200.0000	H,V	3M91G7W	Rx			2.4M/CM		QPSK 3MBPS HUB OUTBOUND TO VSAT
156)	11700.0000-12200.0000	H,V	8M79G7W	Rx			2.4M/CM		QPSK 8MBPS HUB OUTBOUND TO VSAT
157)	14000.0000-14500.0000	H,V	54M0G7W	Tx	78.30	37.00	9.3-MT. J		QPSK 48MBPS 2/3 FEC
158)	14000.0000-14500.0000	H,V	3M91G7W	Tx	67.00	37.10	9.3-MT. J		QPSK 3MBPS HUB OUTBOUND TO VSAT
159)	14000.0000-14500.0000	H,V	8M79G7W	Tx	66.70	33.30	9.3-MT. J		QPSK 8MBPS HUB OUTBOUND TO VSAT
160)	13800.0000-14500.0000	H,V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		11.385 MBPS QPSK, FEC TPC, 0.495 SCPC
161)	13800.0000-14500.0000	H,V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		9.913 MBPS QPSK, FEC TPC, 0.431, SCPC



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RADIO STATION AUTHORIZATION

Name: Telesat Network Services, Inc.

Call Sign: E020101

Authorization Type: Renewal of License

File Number: SES-RWL-20170724-00798

Non Common Carrier

Grant date: 09/08/2017

Expiration Date: 09/17/2032

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
162)	13800.0000-14500.0000	H,V	6M90G7W	Tx	77.20	44.83	9.3-MT. J		5.6925 MBPS QPSK, FEC TPC, 0.495 SCPC
163)	13800.0000-14500.0000	H,V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		31.68 KBPS BPSK, FEC TPC, 0.495, SCPC
164)	13800.0000-14500.0000	H,V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		34.112 KBPS BPSK, FC TPC, 0.533, SCPC
165)	13800.0000-14500.0000	H,V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		55.168 KBPS QPSK, FEC TPC, 0.431, SCPC
166)	13800.0000-14500.0000	H,V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		63.36 KBPS QPSK, FEC TPC, 0.495, SCPC
167)	13800.0000-14500.0000	H,V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		12.259 MBPS QPSK, FEC TPC, 0.533, SCPC
168)	13800.0000-14500.0000	H,V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		18.239 MBPS QPSK, FEC TPC, 0.793, SCPC
169)	13800.0000-14500.0000	H,V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		20.217 MBPS QPSK, FEC TPC, 0.879, SCPC
170)	13800.0000-14500.0000	H,V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		4.9565 MBPS BPSK, FEC TPC, 0.431, SCPC
171)	13800.0000-14500.0000	H,V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		5.6925 MBPS BPSK, FEC TPC, 0.495, SCPC
172)	13800.0000-14500.0000	H,V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		6.1295 MBPS BPSK, FEC TPC, 0.533, SCPC
173)	13800.0000-14500.0000	H,V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		9.1195 MBPS BPSK, FEC TPC, 0.793, SCPC
174)	13800.0000-14500.0000	H,V	6M90G7W	Tx	77.20	44.83	9.3-MT. J		9.1195 MBPS QPSK, FEC TPC, 0.793, SCPC
175)	13800.0000-14500.0000	H,V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		27.584 KBPS BPSK, FEC TPC, 0.431, SCPC
176)	13800.0000-14500.0000	H,V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		50.752 KBPS BPSK, FEC TPC, 0.793, SCPC
177)	13800.0000-14500.0000	H,V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		56.256 KBPS BPSK, FEC TPC, 0.879, SCPC
178)	13800.0000-14500.0000	H,V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		68.224 KBPS QPSK, FEC TPC, 0.533, SCPC
179)	13800.0000-14500.0000	H,V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		10.1085 MBPS BPSK, FEC TPC, 0.879, SCPC



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RADIO STATION AUTHORIZATION

Name: Telesat Network Services, Inc.

Call Sign: E020101

Authorization Type: Renewal of License

File Number: SES-RWL-20170724-00798

Non Common Carrier

Grant date: 09/08/2017

Expiration Date: 09/17/2032

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
180)	13800.0000-14500.0000	H, V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		27.3585 MBPS 8PSK, FEC TPC, 0.793, SCPC
181)	13800.0000-14500.0000	H, V	13M8G7W	Tx	77.20	41.82	9.3-MT. J		30.3255 MBPS 8PSK, FEC TPC, 0.879, SCPC
182)	13800.0000-14500.0000	H, V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		101.504 KBPS QPSK, FEC TPC, 0.793, SCPC
183)	13800.0000-14500.0000	H, V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		112.512 KBPS QPSK, FEC TPC, 0.879, SCPC
184)	13800.0000-14500.0000	H, V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		152.256 KBPS 8PSK, FEC TPC, 0.793, SCPC
185)	13800.0000-14500.0000	H, V	76K8G7W	Tx	77.20	64.36	9.3-MT. J		168,768 KBPS 8PSK, FEC TPC, 0.879, SCPC
186)	11700.0000-12200.0000	H, V	380KG7W	Rx			9.3-MT. J		QPSK 256 KBPS, TURBO CODE
187)	11700.0000-12200.0000	H, V	750KG7W	Rx			9.3-MT. J		QPSK 512 KBPS, TURBO CODE
188)	11700.0000-12200.0000	H, V	1M50G7W	Rx			9.3-MT. J		QPSK 1024 KBPS, TURBO CODE
189)	11700.0000-12200.0000	H, V	3M00G7W	Rx			9.3-MT. J		QPSK 2048 KBPS, TURBO CODE
190)	11700.0000-12200.0000	H, V	3M17G7W	Rx			9.3-MT. J		QPSK 2048 KBPS, RATE 1/2 CODE
191)	11700.0000-12200.0000	H, V	324KG7W	Rx			9.3-MT. J		QPSK 144 KBPS, CONCATENATED CODE
192)	11700.0000-12200.0000	H, V	360KG7W	Rx			9.3-MT. J		QPSK 144 KBPS, CONCATENATED CODE
193)	11700.0000-12200.0000	H, V	842KG7W	Rx			9.3-MT. J		QPSK 384 KBPS, CONCATENATED CODE
194)	11700.0000-12200.0000	H, V	936KG7W	Rx			9.3-MT. J		QPSK 384 KBPS, CONCATENATED CODE
195)	11700.0000-12200.0000	H, V	2M45G7W	Rx			9.3-MT. J		QPSK 1024 KBPS, CONCATENATED CODE
196)	11700.0000-12200.0000	H, V	4M41G7W	Rx			9.3-MT. J		QPSK 2048 KBPS, CONCATENATED CODE
197)	11700.0000-12200.0000	H, V	4M90G7W	Rx			9.3-MT. J		QPSK 2048 KBPS, CONCATENATED CODE
198)	11700.0000-12200.0000	H, V	3M45G1W	Rx			9.3-MT. J		3.795 MBPS QPSK, FEC TPC, 0.66, TDMA



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RADIO STATION AUTHORIZATION

Name: Telesat Network Services, Inc.

Call Sign: E020101

Authorization Type: Renewal of License

File Number: SES-RWL-20170724-00798

Non Common Carrier

Grant date: 09/08/2017

Expiration Date: 09/17/2032

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
199)	11700.0000-12200.0000	H,V	76K8G7W	Rx			9.3-MT. J		42.24 KBPS BPSK, FEC TPC, 0.66, TDMA
200)	11700.0000-12200.0000	H,V	76K8G7W	Rx			9.3-MT. J		84.48 KBPS QPSK, FEC TPC, 0.66, TDMA
201)	11700.0000-12200.0000	H,V	3M45G1W	Rx			9.3-MT. J		1.8975 MBPS BPSK, FEC TPC, 0.66, TDMA
202)	11700.0000-12200.0000	H,V	3M45G1W	Rx			9.3-MT. J		5.6925 MBPS BPSK, FEC TPC, 0.66, TDMA
203)	11700.0000-12200.0000	H,V	76K8G7W	Rx			9.3-MT. J		126.72 KBPS 8PSK, FEC TPC, 0.66, TDMA
204)	11700.0000-12200.0000	H,V	76K8G7W	Rx			9.3-MT. J		68.224 KBPS QPSK, FEC TPC, .533, TDMA
205)	11700.0000-12200.0000	H,V	3M45G1W	Rx			9.3-MT. J		2.4825 MBPS QPSK, FEC TPC, 0.431, TDMA
206)	11700.0000-12200.0000	H,V	76K8G7W	Rx			9.3-MT. J		27.584 KBPS BPSK, FEC TPC, 0.431, TDMA
207)	11700.0000-12200.0000	H,V	76K8G7W	Rx			9.3-MT. J		34.112 KBPS BPSK, FEC TPC, 0.533, TDMA
208)	11700.0000-12200.0000	H,V	76K8G7W	Rx			9.3-MT. J		50.752 KBPS BPSK, FEC TPC, 0.793, TDMA
209)	11700.0000-12200.0000	H,V	76K8G7W	Rx			9.3-MT. J		55.168 KBPS QPSK, FEC TPC, 0.431, TDMA
210)	11700.0000-12200.0000	H,V	3M45G1W	Rx			9.3-MT. J		1.239125 MBPS BPSK, FEC TPC, 0431, TDMA
211)	11700.0000-12200.0000	H,V	3M45G1W	Rx			9.3-MT. J		1.532375 MBPS BPSK, FEC TPC, 0533, TDMA
212)	11700.0000-12200.0000	H,V	3M45G1W	Rx			9.3-MT. J		3.06475 MBPS QPSK, FEC TPC, 0.533, TDMA
213)	11700.0000-12200.0000	H,V	3M45G1W	Rx			9.3-MT. J		4.55975 MBPS QPSK, FEC TPC, 0.793, TDMA
214)	11700.0000-12200.0000	H,V	76K8G7W	Rx			9.3-MT. J		101.504 KBPS QPSK, FEC TPC, 0.793, TDMA
215)	11700.0000-12200.0000	H,V	76K8G7W	Rx			9.3-MT. J		152.256 KBPS 8PSK, FEC TPC, 0.793, TDMA
216)	11700.0000-12200.0000	H,V	3M45G1W	Rx			9.3-MT. J		2.279875 MBPS BPSK, FEC TPC, 0.793, TDMA



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Authorization Type: Renewal of License

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Non Common Carrier

Grant date: 09/08/2017

Expiration Date: 09/17/2032

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
217)	11700.0000-12200.0000	H, V	3M45G1W	Rx			9.3-MT. J		6.839625 MBPS BPSK, FEC TPC, 0.793, TDMA
218)	14000.0000-14500.0000	H, V	356KG7W	Tx	45.50	27.70	ENS 1.2 2W		395 QPSK
219)	14000.0000-14500.0000	H, V	693KG7W	Tx	45.50	27.70	ENS 1.2 2W		770 QPSK
220)	11700.0000-12200.0000	H, V	356KG7W	Rx			ENS 1.2 2W		395 QPSK
221)	11700.0000-12200.0000	H, V	693KG7W	Rx			ENS 1.2 2W		770 QPSK
222)	14000.0000-14500.0000	H, V	356KG7W	Tx	48.20	29.50	ENS 1.2 4W		395 QPSK
223)	14000.0000-14500.0000	H, V	693KG7W	Tx	48.20	29.50	ENS 1.2 4W		770 QPSK
224)	11700.0000-12200.0000	H, V	356KG7W	Rx			ENS 1.2 4W		395 QPSK
225)	11700.0000-12200.0000	H, V	693KG7W	Rx			ENS 1.2 4W		770 QPSK
226)	14000.0000-14500.0000	H, V	356KG7W	Tx	49.00	30.30	ENS 1.8 2W		395 QPSK
227)	14000.0000-14500.0000	H, V	693KG7W	Tx	49.00	27.40	ENS 1.8 2W		770 QPSK
228)	11700.0000-12200.0000	H, V	356KG7W	Rx			ENS 1.8 2W		395 QPSK
229)	11700.0000-12200.0000	H, V	693KG7W	Rx			ENS 1.8 2W		770 QPSK
230)	14000.0000-14500.0000	H, V	356KG7W	Tx	51.70	33.00	ENS 1.8 4W		395 QPSK
231)	14000.0000-14500.0000	H, V	693KG7W	Tx	52.60	31.00	ENS 1.8 4W		770 QPSK
232)	11700.0000-12200.0000	H, V	356KG7W	Rx			ENS 1.8 4W		395 QPSK
233)	11700.0000-12200.0000	H, V	693KG7W	Rx			ENS 1.8 4W		770 QPSK

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							-12.1	0.95M/R
2)	11700.0000-12200.0000								0.95M/R
3)	11700.0000-12200.0000								1.2M/P



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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		
4)	14000.0000-14500.0000							-12.1	1.2M/P
5)	14000.0000-14500.0000							-12.1	0.96M/CM
6)	11700.0000-12200.0000								0.96M/CM
7)	11700.0000-12200.0000								1.2M.CM
8)	14000.0000-14500.0000							-12.1	1.2M.CM
9)	14000.0000-14500.0000							-12.1	1.8M/CM
10)	11700.0000-12200.0000								1.8M/CM
11)	14000.0000-14500.0000							-12.1	2.4M/CM
12)	11700.0000-12200.0000								2.4M/CM
13)	14000.0000-14500.0000	12.0W-143.0W						-12.1	1.2M PAT
14)	11700.0000-12200.0000	12.0W-143.0W							1.2M PAT
15)	14000.0000-14500.0000	12.0W-143.0W						-12.1	1.8M PAT
16)	11700.0000-12200.0000	12.0W-143.0W							1.8M PAT
17)	14000.0000-14500.0000	12.0W-143.0W						-12.1	2.4M PAT
18)	11700.0000-12200.0000	12.0W-143.0W							2.4M PAT
19)	14000.0000-14500.0000							-12.1	2.4M PROD
20)	11700.0000-12200.0000								2.4M PROD
21)	14000.0000-14500.0000							-12.1	1.8M/P
22)	11700.0000-12200.0000								1.8M/P
23)	14000.0000-14500.0000	12.0W-143.0W		09.4-11.2		105.1-253.3		-25.1	9.3-MT. J
24)	11700.0000-12200.0000	12.0W-143.0W		09.4-11.2		105.1-253.3			9.3-MT. J
25)	11700.0000-12200.0000	67.0W-129.0W		43.5-21.8		161.8-242.6			9.3-MT. J
26)	13800.0000-14500.0000	67.0W-129.0W		43.5-21.8		161.8-242.6		116.5	9.3-MT. J
27)	14000.0000-14500.0000	68.0W-168.0W		10.8-19.3		248.0-134.0		-13.1	ENS 1.2 2W
28)	11700.0000-12200.0000	68.0W-168.0W		10.8-19.3		248.0-134.0			ENS 1.2 2W
29)	14000.0000-14500.0000	68.0W-168.0W		10.8-19.3		248.0-134.0		-13.1	ENS 1.8 2W
30)	11700.0000-12200.0000	68.0W-168.0W		10.8-19.3		248.0-134.0			ENS 1.8 2W
31)	14000.0000-14500.0000	68.0W-168.0W		10.8-19.3		248.0-134.0		-10.1	ENS 1.8 4W
32)	11700.0000-12200.0000	68.0W-168.0W		10.8-19.3		248.0-134.0			ENS 1.8 4W
33)	14000.0000-14500.0000	68.0W-168.0W		10.8-19.3		248.0-134.0		-10.1	ENS 1.2 4W
34)	11700.0000-12200.0000	68.0W-168.0W		10.8-19.3		248.0-134.0			ENS 1.2 4W



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Non Common Carrier

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Expiration Date: 09/17/2032

D) Points of Communications

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

- 1) REMOTE 0.95M to TELESTAR 11 (used to be ORION F1) @ 37.5 W.L. (U.S.-licensed)
- 2) REMOTE 1.2M to Permitted Space Station List
- 3) REMOTE 6 to Permitted Space Station List
- 4) REMOTE 7 to Permitted Space Station List
- 5) REMOTE 8 to Permitted Space Station List
- 6) REMOTE9P to Permitted Space Station List
- 7) REMOTE10P to Permitted Space Station List
- 8) REMOTE8P to Permitted Space Station List
- 9) REMOTE11 PROD to Permitted Space Station List
- 10) REMOTE 1.8M to Permitted Space Station List
- 11) HUB 9.3-M to Permitted Space Station List
- 12) HUB 9.3-M to Estrela do Sul 2 (S2821) @ 63 degrees W.L. (Brazil-licensed)
- 13) REMOTE13 to Permitted Space Station List
- 14) REMOTE14 to Permitted Space Station List
- 15) REMOTE15 to Permitted Space Station List
- 16) REMOTE12 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)
REMOTE 0.95M	0.95M/R	5000	0.95	RAYTHEON	SMDS2100			
Max Gains(s):		40.1 dBi @	11.9500 GHz	41.7 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =		2.00						
Maximum aggregate output EIRP for all carriers (dBW) =		44.70						
REMOTE 5	0.96M/CM	5000	0.96	CHANNEL MASTER	TYPE 960			
Max Gains(s):		39.7 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) =		44.20						



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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)
REMOTE9P	1.2M PAT	5000	1.2	PATRIOT	TXFCC-120KU			
Max Gains(s):		48.0 dBi @	11.7250 GHz	49.6 dBi @	14.1250 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				46.30				
REMOTE 6	1.2M.CM	5000	1.2	CHANNEL MASTER	TYPE 120			
Max Gains(s):		41.8 dBi @	11.9500 GHz	43.3 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				46.30				
REMOTE 1.2M	1.2M/P	5000	1.2	PRODELIN	1134			
Max Gains(s):		41.3 dBi @	11.9500 GHz	43.0 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				46.00				
REMOTE10P	1.8M PAT	5000	1.8	PATRIOT	TXFCC-180KU			
Max Gains(s):		47.0 dBi @	14.5000 GHz	44.4 dBi @	11.7000 GHz			
Maximum total input power at antenna flange (Watts) =				8.00				
Maximum aggregate output EIRP for all carriers (dBW) =				56.00				
REMOTE 7	1.8M/CM	5000	1.8	CHANNEL MASTER	TYPE 180			
Max Gains(s):		46.8 dBi @	14.2500 GHz	45.3 dBi @	11.9500 GHz			
Maximum total input power at antenna flange (Watts) =				4.00				
Maximum aggregate output EIRP for all carriers (dBW) =				52.80				
REMOTE 1.8M	1.8M/P	5000	1.8	PRODELIN	1194			
Max Gains(s):		45.2 dBi @	11.9500 GHz	46.7 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				4.00				
Maximum aggregate output EIRP for all carriers (dBW) =				52.70				



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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)
REMOTE8P	2.4M PAT	5000	2.4	PATRIOT	TXFCC-240KU			
Max Gains(s):		49.3 dBi @	14.2500 GHz	47.6 dBi @	11.9500 GHz			
Maximum total input power at antenna flange (Watts) =						8.00		
Maximum aggregate output EIRP for all carriers (dBW) =						58.30		
REMOTE11 PRO	2.4M PROD	5000	2.4	PRODELIN	P24			
Max Gains(s):		49.2 dBi @	14.5000 GHz	47.6 dBi @	11.7000 GHz			
Maximum total input power at antenna flange (Watts) =						2.00		
Maximum aggregate output EIRP for all carriers (dBW) =						58.30		
REMOTE 8	2.4M/CM	5000	2.4	CHANNEL MASTER	TYPE 240			
Max Gains(s):		47.6 dBi @	11.9500 GHz	49.3 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =						8.00		
Maximum aggregate output EIRP for all carriers (dBW) =						58.30		
HUB 9.3-M	9.3-MT. J	1	9.3	VERTEX	9KPC	282.6	4.15 AGL/ 282.9 AMSL	
Max Gains(s):		58.8 dBi @	12.0000 GHz	60.3 dBi @	14.0000 GHz			
Maximum total input power at antenna flange (Watts) =						285.00		
Maximum aggregate output EIRP for all carriers (dBW) =						84.74		
REMOTE13	ENS 1.2 2W	5000	1.2	PATRIOT	TXFLY-120KU			
Max Gains(s):		41.8 dBi @	11.7500 GHz	43.5 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =						2.00		
Maximum aggregate output EIRP for all carriers (dBW) =						45.90		
REMOTE12	ENS 1.2 4W	5000	1.2	PATRIOT	TXFLY-120KU			
Max Gains(s):		41.8 dBi @	11.7500 GHz	43.5 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =						4.00		
Maximum aggregate output EIRP for all carriers (dBW) =						48.90		



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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)
REMOTE14	ENS 1.8 2W	5000	1.8	PATRIOT	TXFLY-180KU			
Max Gains(s):		45.3 dBi @	11.7500 GHz	47.0 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				2.00				
Maximum aggregate output EIRP for all carriers (dBW) =				49.60				
REMOTE15	ENS 1.8 4W	5000	1.8	PATRIOT	TXFLY-180KU			
Max Gains(s):		45.3 dBi @	11.7500 GHz	47.0 dBi @	14.2500 GHz			
Maximum total input power at antenna flange (Watts) =				4.00				
Maximum aggregate output EIRP for all carriers (dBW) =				52.60				

F) Remote Control Point:

REMOTE10P	Technical Control Centre, 133438 Allan Park Road, VSAT (1.8M)	Call Sign: E020101
	Allan Park, Ontario, N4N 3B8	
	519-364-1013	
REMOTE11 PROD	Technical Control Centre, 133438 Allan Park Road, VSAT (2.4M)	Call Sign: E020101
	Allan Park, Ontario, N4N 3B8	
	519-364-1013	

G) Antenna Structure marking and lighting requirements:

None unless otherwise specified under Special and General Provisions

H) Special and General Provisions

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

- 4 --- Licensee must ensure that a current listing of the name, title, mailing address, email address, and telephone number of the responsible point of contact are on file at the FCC. Any changes must be filed electronically in the International Bureau Filing System (IBFS) in the "Other Filings" tab within 10 days of the change.
- 5 --- Licensee must notify the Commission when an earth station is no longer operational or when it has not been used to provide any service during any 6-month operation.



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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:

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.

179 --- THE USER MUST PROVIDE THE NAVAL ELECTROMAGNETIC SPECTRUM CENTER (703-325-2750) A 24HR PHONE NUMBER (908-470-3430) WHICH WOULD BE CONTACTED WHEN NATIONAL DEFENSE AND US NAVAL OPERATION REQUIREMENTS NECESSITATE IMMEDIATE CESSATION OF OPERATIONS. THE APPLICANT IS AWARE THAT THEY WOULD BE REQUIRED TO TEMPORARILY CEASE SATELLITE OPERATIONS ON THESE FREQUENCIES UNTIL NOTIFIED OTHERWISE.

208 --- Remote Control of this earth station in Allen Park, Ontario, Canada, pursuant to the Modification Application in IBFS File No. SES-MOD-20071101-01507 is limited to the 9.3 meter hub antenna.

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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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.