

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**TELESAT
Tin City, Alaska**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
August 17, 2010

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1. CONCLUSIONS

An interference study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the proposed earth station demonstrates that this site will operate satisfactorily with the common carrier microwave environment. Further, there will be no restrictions of its operation due to interference considerations.

2. SUMMARY OF RESULTS

A number of great circle interference cases were identified during the interference study of the proposed earth station. Each of the cases, which exceeded the interference objective on a line-of-sight basis, was profiled and the propagation losses estimated using NBS TN101 (Revised) techniques. The losses were found to be sufficient to reduce the signal levels to acceptable magnitudes in every case.

The following companies reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis. When over-the-horizon losses are considered on the interfering paths, sufficient blockage exists to negate harmful interference from occurring with the proposed transmit-receive earth station.

Company

None

No carriers reported potential interference cases.

3. SUPPLEMENTAL SHOWING

Pursuant to Part 25.203(c) of the FCC Rules and Regulations, the satellite earth station proposed in this application was coordinated by Comsearch using computer techniques and in accordance with Part 25 of the FCC Rules and Regulations.

Coordination data for this earth station was sent to the below listed carriers with a letter dated March 22, 2010.

Company

Comsearch

4. EARTH STATION COORDINATION DATA

This section presents the data pertinent to frequency coordination of the proposed earth station that was circulated to all carriers within its coordination contours.

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 <http://www.comsearch.com>

Date: 08/17/2010
Job Number: 100322COMSJC07

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code TELSAT
Licensee Name TELESAT CANADA

Site Information

TIN CITY, ALASKA
Venue Name
Latitude (NAD 83) 65° 34' 1.1" N
Longitude (NAD 83) 167° 58' 29.7" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 111.56 m / 366.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 111° W to 120° West Longitude
Azimuth Range 120.6° to 129.4°
Corresponding Elevation Angles 4.4° / 7.5°
Antenna Centerline (AGL) 4.88 m / 16.0 ft

Antenna Information

		Receive		Transmit	
Manufacturer		General Dynamics		General Dynamics	
Model		4.8 Meter		4.8 Meter	
Gain / Diameter		44.1 dBi / 4.8 m		48.1 dBi / 4.8 m	
3-dB / 15-dB Beamwidth		1.07° / 2.00°		0.67° / 1.26°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-16.4 6.9	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz) (dBW)			31.7 55.0 55.0	
Interference Objectives:	Long Term Short Term	-156.0 dBW/MHz -146.0 dBW/MHz	20% 0.01%	-154.0 dBW/4 kHz -131.0 dBW/4 kHz	20% 0.0025%

Frequency Information

	Receive 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	853KG7D / 3700.0 - 4200.0	853KG7D / 5925.0 - 6425.0
Max Great Circle Coordination Distance	607.4 km / 377.4 mi	249.3 km / 154.9 mi
Precipitation Scatter Contour Radius	644.7 km / 400.5 mi	100.0 km / 62.1 mi

COMSEARCH

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Coordination Values

TIN CITY, AK

Licensee Name TELESAT CANADA
Latitude (NAD 83) 65° 34' 1.1" N
Longitude (NAD 83) 167° 58' 29.7" W
Ground Elevation (AMSL) 111.56 m / 366.0 ft
Antenna Centerline (AGL) 4.88 m / 16.0 ft
Antenna Model General Dynamics 4.8 Meter
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -16.4 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	18.84	119.55	-10.00	100.00	-10.00	100.00
5	16.65	114.99	-10.00	100.00	-10.00	100.00
10	15.00	110.25	-10.00	100.00	-10.00	100.00
15	13.13	105.43	-10.00	100.00	-10.00	100.00
20	12.14	100.52	-10.00	100.00	-10.00	100.00
25	11.64	95.58	-10.00	100.00	-10.00	100.00
30	11.62	90.62	-10.00	100.00	-10.00	100.00
35	5.78	85.62	-10.00	127.32	-10.00	100.00
40	4.87	80.62	-10.00	135.32	-10.00	100.00
45	3.61	75.62	-10.00	156.01	-10.00	100.00
50	1.68	70.64	-10.00	203.11	-10.00	100.00
55	1.68	65.65	-10.00	203.10	-10.00	100.00
60	1.68	60.66	-10.00	203.16	-10.00	100.00
65	0.55	55.71	-10.00	246.58	-10.00	100.25
70	0.00	50.76	-10.00	285.28	-10.00	126.45
75	0.00	45.78	-9.52	288.37	-9.52	127.72
80	0.00	40.81	-8.27	296.52	-8.27	131.05
85	0.00	35.85	-6.86	306.02	-6.86	133.59
90	0.00	30.90	-5.25	317.92	-5.25	138.14
95	0.00	25.96	-3.36	331.50	-3.36	143.87
100	0.00	21.06	-1.08	348.36	-1.08	151.34
105	0.00	16.20	1.76	370.27	1.76	161.55
110	0.00	11.47	5.51	399.93	5.51	177.69
115	0.00	7.11	10.71	445.45	10.71	197.69
120	0.00	4.40	15.92	607.40	15.92	249.31
125	0.00	5.62	13.26	555.46	13.26	221.43
130	0.00	7.27	10.47	507.55	10.47	203.31
135	0.00	9.33	7.75	419.04	7.75	186.36
140	0.00	12.96	4.19	389.03	4.19	172.56
145	0.00	17.27	1.07	364.83	1.07	158.97
150	0.00	21.88	-1.50	345.24	-1.50	149.93
155	0.00	26.62	-3.63	329.52	-3.63	143.02
160	0.00	31.44	-5.44	316.59	-5.44	137.60
165	0.00	36.30	-7.00	305.10	-7.00	133.22
170	0.00	41.19	-8.37	295.86	-8.37	130.78
175	0.00	46.10	-9.59	287.88	-9.59	127.52
180	0.00	51.02	-10.00	285.28	-10.00	126.45
185	0.00	55.96	-10.00	285.28	-10.00	126.45

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Antenna Centerline (AGL)	4.88 m / 16.0 ft		
Antenna Model	General Dynamics 4.8 Meter		
Antenna Mode	Receive 4.0 GHz	Transmit 6.1 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz
Max Available RF Power			0.0025%
			-16.4 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	60.90	-10.00	285.28	-10.00	126.45
195	0.00	65.85	-10.00	285.28	-10.00	126.45
200	0.00	70.80	-10.00	285.28	-10.00	126.45
205	0.00	75.75	-10.00	285.28	-10.00	126.45
210	0.00	80.71	-10.00	285.28	-10.00	126.45
215	0.00	85.67	-10.00	285.28	-10.00	126.45
220	0.00	90.62	-10.00	285.28	-10.00	126.45
225	1.05	95.59	-10.00	218.88	-10.00	100.00
230	3.30	100.60	-10.00	162.71	-10.00	100.00
235	3.30	105.59	-10.00	162.76	-10.00	100.00
240	4.23	110.59	-10.00	144.31	-10.00	100.00
245	6.41	115.62	-10.00	120.67	-10.00	100.00
250	7.63	120.63	-10.00	107.66	-10.00	100.00
255	7.62	125.63	-10.00	107.77	-10.00	100.00
260	10.03	130.58	-10.00	100.00	-10.00	100.00
265	10.28	135.56	-10.00	100.00	-10.00	100.00
270	12.78	140.33	-10.00	100.00	-10.00	100.00
275	12.93	145.25	-10.00	100.00	-10.00	100.00
280	15.01	149.76	-10.00	100.00	-10.00	100.00
285	14.27	154.75	-10.00	100.00	-10.00	100.00
290	15.68	159.02	-10.00	100.00	-10.00	100.00
295	15.51	163.57	-10.00	100.00	-10.00	100.00
300	18.52	165.54	-10.00	100.00	-10.00	100.00
305	19.68	164.07	-10.00	100.00	-10.00	100.00
310	19.06	162.61	-10.00	100.00	-10.00	100.00
315	17.11	160.87	-10.00	100.00	-10.00	100.00
320	15.28	157.86	-10.00	100.00	-10.00	100.00
325	15.44	153.36	-10.00	100.00	-10.00	100.00
330	15.25	148.84	-10.00	100.00	-10.00	100.00
335	15.60	144.04	-10.00	100.00	-10.00	100.00
340	16.28	139.14	-10.00	100.00	-10.00	100.00
345	16.87	134.25	-10.00	100.00	-10.00	100.00
350	20.16	128.79	-10.00	100.00	-10.00	100.00
355	20.60	124.00	-10.00	100.00	-10.00	100.00

5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



Jeffrey E. Cowles
Principal Frequency Planner
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Va. 20147

DATED: August 17, 2010