

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

TELESAT
Cape Lisburne, 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.

<u>Company</u>

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: 100322COMSJC04

Administrative Information

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

Site Information

CAPE LISBURNE, AK

Venue Name:
Latitude (NAD 83): 68° 52' 17.4" N
Longitude (NAD 83): 166° 5' 32.4" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 18.59 m / 61.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 111° W to 120° West Longitude
Azimuth Range: 123.1° to 131.9°
Corresponding Elevation Angles: 3.2° / 5.8°
Antenna Centerline (AGL): 4.88 m / 16.0 ft

Antenna Information

Receive

Transmit

Manufacturer: General Dynamics
Model: 4.8 Meter
Gain / Diameter: 44.1 dBi / 4.8 m
3-dB / 15-dB Beamwidth: 1.07° / 2.00°

General Dynamics
4.8 Meter
48.1 dBi / 4.8 m
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: -156.0 dBW/MHz 20%
Short Term: -146.0 dBW/MHz 0.01%

-154.0 dBW/4 kHz 20%
-131.0 dBW/4 kHz 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: 624.4 km / 388.0 mi
Precipitation Scatter Contour Radius: 698.0 km / 433.7 mi

260.3 km / 161.7 mi
100.0 km / 62.1 mi

COMSEARCH

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Coordination Values

CAPE LISBURNE, AK

Licensee Name TELESAT CANADA
Latitude (NAD 83) 68° 52' 17.4" N
Longitude (NAD 83) 166° 5' 32.4" W
Ground Elevation (AMSL) 18.59 m / 61.0 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	0.00	123.00	-10.00	285.28	-10.00	126.45
5	0.00	118.01	-10.00	285.28	-10.00	126.45
10	0.00	113.02	-10.00	285.28	-10.00	126.45
15	0.00	108.03	-10.00	285.28	-10.00	126.45
20	0.00	103.04	-10.00	285.28	-10.00	126.45
25	0.00	98.05	-10.00	285.28	-10.00	126.45
30	0.00	93.06	-10.00	285.28	-10.00	126.45
35	0.00	88.07	-10.00	285.28	-10.00	126.45
40	0.00	83.07	-10.00	285.28	-10.00	126.45
45	0.00	78.08	-10.00	285.28	-10.00	126.45
50	0.00	73.09	-10.00	285.28	-10.00	126.45
55	0.00	68.10	-10.00	285.28	-10.00	126.45
60	0.00	63.11	-10.00	285.28	-10.00	126.45
65	0.00	58.12	-10.00	285.28	-10.00	126.45
70	0.00	53.13	-10.00	285.28	-10.00	126.45
75	0.00	48.14	-10.00	285.28	-10.00	126.45
80	0.00	43.16	-8.88	292.52	-8.88	129.43
85	0.00	38.18	-7.55	301.37	-7.55	132.99
90	0.00	33.20	-6.03	311.80	-6.03	135.90
95	0.00	28.23	-4.27	324.91	-4.27	141.06
100	2.62	23.07	-2.08	216.93	-2.08	100.00
105	2.66	18.07	0.58	231.64	0.58	100.00
110	1.67	13.15	4.03	286.08	4.03	101.31
115	1.49	8.25	9.09	336.69	9.09	121.89
120	1.07	3.74	17.67	432.49	17.67	168.04
125	1.48	2.26	23.15	624.42	23.15	260.26
130	1.42	3.71	17.75	577.55	17.75	231.94
135	2.04	4.87	14.81	365.69	14.81	128.79
140	2.93	8.58	8.67	283.89	8.67	100.00
145	4.24	13.17	4.01	217.69	4.01	100.00
150	6.16	18.08	0.57	174.61	0.57	100.00
155	8.77	23.25	-2.16	129.46	-2.16	100.00
160	10.85	28.49	-4.37	103.60	-4.37	100.00
165	9.66	33.27	-6.05	105.29	-6.05	100.00
170	8.78	38.17	-7.54	106.77	-7.54	100.00
175	8.18	43.13	-8.87	106.72	-8.87	100.00
180	7.65	48.10	-10.00	107.48	-10.00	100.00
185	7.88	53.11	-10.00	105.01	-10.00	100.00

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Coordination Values

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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 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)
190	9.74	58.16	-10.00	100.00	-10.00	100.00
195	12.74	63.29	-10.00	100.00	-10.00	100.00
200	14.71	68.35	-10.00	100.00	-10.00	100.00
205	15.37	73.32	-10.00	100.00	-10.00	100.00
210	12.55	78.16	-10.00	100.00	-10.00	100.00
215	10.71	83.10	-10.00	100.00	-10.00	100.00
220	11.24	88.09	-10.00	100.00	-10.00	100.00
225	11.73	93.06	-10.00	100.00	-10.00	100.00
230	10.88	98.05	-10.00	100.00	-10.00	100.00
235	9.52	103.05	-10.00	100.00	-10.00	100.00
240	9.81	108.03	-10.00	100.00	-10.00	100.00
245	10.57	112.99	-10.00	100.00	-10.00	100.00
250	11.34	117.94	-10.00	100.00	-10.00	100.00
255	11.40	122.90	-10.00	100.00	-10.00	100.00
260	11.56	127.85	-10.00	100.00	-10.00	100.00
265	11.60	132.81	-10.00	100.00	-10.00	100.00
270	8.97	137.98	-10.00	100.00	-10.00	100.00
275	6.51	143.07	-10.00	119.64	-10.00	100.00
280	3.46	148.00	-10.00	159.12	-10.00	100.00
285	0.46	152.59	-10.00	253.76	-10.00	105.26
290	0.00	157.35	-10.00	285.28	-10.00	126.45
295	0.00	162.13	-10.00	285.28	-10.00	126.45
300	0.00	166.75	-10.00	285.28	-10.00	126.45
305	0.00	170.96	-10.00	285.28	-10.00	126.45
310	0.00	172.36	-10.00	285.28	-10.00	126.45
315	0.00	167.64	-10.00	285.28	-10.00	126.45
320	0.00	162.77	-10.00	285.28	-10.00	126.45
325	0.00	157.84	-10.00	285.28	-10.00	126.45
330	0.00	152.89	-10.00	285.28	-10.00	126.45
335	0.00	147.92	-10.00	285.28	-10.00	126.45
340	0.00	142.94	-10.00	285.28	-10.00	126.45
345	0.00	137.96	-10.00	285.28	-10.00	126.45
350	0.00	132.98	-10.00	285.28	-10.00	126.45
355	0.00	127.99	-10.00	285.28	-10.00	126.45

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