

## **Exhibit 12**

### **Interference Analysis - US and Canadian Treaty Requirements**

According to CFR 47 §74.1204(a), translators are required to protect all existing FM stations from interference due to overlap of the protected contours of the existing stations with the interfering contours of the new translators.

#### **US Stations**

In the attached tabular printout, only WARX and W233BE have outgoing contour overlaps from the proposed translator, so no interference to other stations is anticipated. Incoming overlap is not prohibited.

W233BE is the current application, and need not be protected.

WARX is third adjacent to the proposed translator, and, according to §74.1204(d),

**"The provisions of this section concerning prohibited overlap will not apply where the area of such overlap lies entirely over water. In addition, an application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to ... lack of population ... ."**

A 5 bay half wave spaced Shively 6812 antenna was used to achieve this result.

# Shively Labs®

Antenna Mfr.: Shively Labs

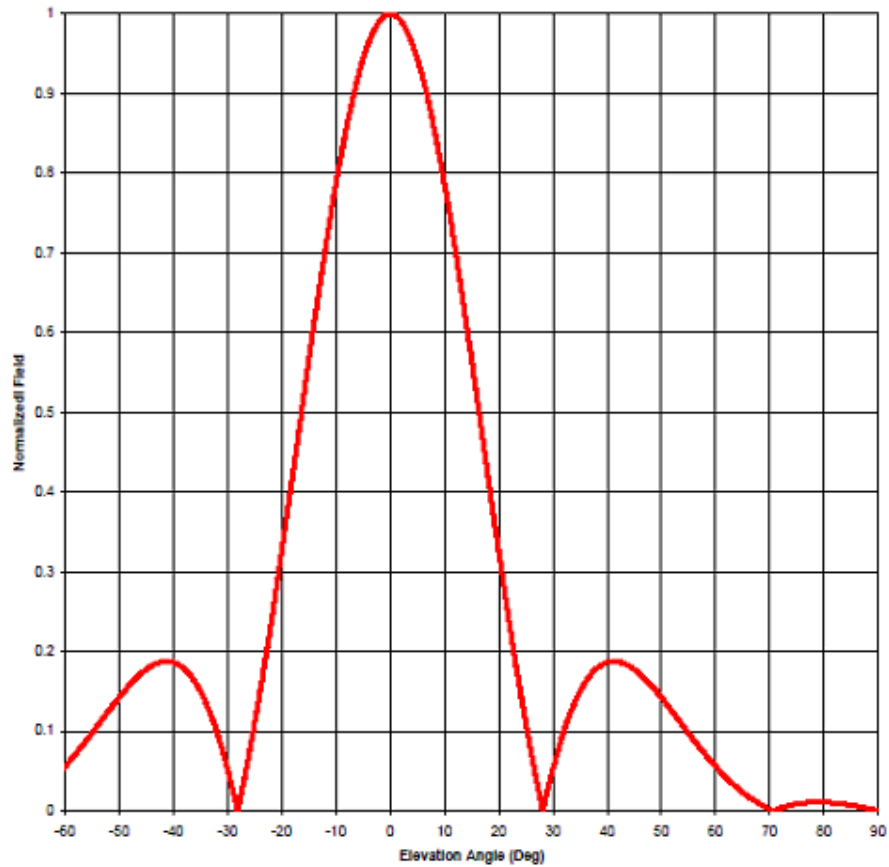
Date: 12/30/2004

Antenna Type: 6812B or 6602B 5-Bay, 1/2-wave-spaced

Frequency: 98.1

6812B Gain (Max) 1.40 1.45 dB

6602B Gain (Max) 2.80 3.45 dB



Elevation Pattern Tabulation, 6602B and 6812B 5-Bay Half-Wave-Spaced

Relative Field at 0° Depression = 1.000

Degrees	Rel. Field
1	0.998
2	0.991
3	0.979
4	0.964
5	0.943
6	0.919
7	0.891
8	0.860
9	0.825
10	0.787
11	0.747
12	0.704
13	0.659
14	0.613
15	0.566
16	0.518
17	0.470
18	0.421

Degrees	Rel. Field
19	0.373
20	0.326
21	0.279
22	0.234
23	0.191
24	0.149
25	0.110
26	0.072
27	0.037
28	0.005
29	0.025
30	0.053
31	0.077
32	0.099
33	0.119
34	0.135
35	0.150
36	0.161

Degrees	Rel. Field
37	0.171
38	0.178
39	0.183
40	0.186
41	0.187
42	0.187
43	0.185
44	0.182
45	0.177
46	0.172
47	0.165
48	0.158
49	0.150
50	0.142
51	0.133
52	0.125
53	0.116
54	0.106

Degrees	Rel. Field
55	0.097
56	0.089
57	0.080
58	0.071
59	0.063
60	0.056
61	0.048
62	0.041
63	0.035
64	0.029
65	0.023
66	0.018
67	0.013
68	0.009
69	0.005
70	0.002
71	0.001
72	0.003

Degrees	Rel. Field
73	0.005
74	0.007
75	0.008
76	0.009
77	0.010
78	0.010
79	0.011
80	0.010
81	0.010
82	0.010
83	0.009
84	0.008
85	0.007
86	0.006
87	0.004
88	0.003
89	0.002
90	0.000

The F(50,50) signal from WARX at the proposed site is 72.70 dBu (See Contour Overlap exhibit). A 40 dB ratio of undesired to desired signal strength gives an allowable interfering F(50,10) field strength of 112.70 dBu. With 170 Watts ERP and the 5 bay half wave spaced Shively 6800 antenna, this spreadsheet shows that no interfering contours reach the ground.

## ME Richmond Center

*Freespace Interference Study based on Vertical Radiation Pattern*

*SHI 6812-5H 5 Bay Half Wave Spaced Antenna*

Depression Angle from Antenna	Antenna Relative Field	ERP Watts	ERP dBk	Distance to Ground from Antenna (m)	Free Space Signal (dBu)	dB Loss for Reflection	Signal Strength at Ground (dBu)	Circular Distance From Tower (m)	Distance to Contour using Free Space (m)	Height of Contour above Ground (m)
90	0.001	0.000	-67.70	41.00	66.97	0	66.97	0.00	0.21	40.79
85	0.007	0.008	-50.79	41.16	83.84	0	83.84	3.59	1.48	39.52
80	0.010	0.017	-47.70	41.63	86.84	0	86.84	7.23	2.12	38.91
75	0.008	0.011	-49.63	42.45	84.73	0	84.73	10.99	1.70	39.36
70	0.002	0.001	-61.67	43.63	72.45	0	72.45	14.92	0.42	40.60
65	0.023	0.090	-40.46	45.24	93.35	0	93.35	19.12	4.87	36.58
60	0.056	0.533	-32.73	47.34	100.68	0	100.68	23.67	11.87	30.72
55	0.097	1.600	-27.96	50.05	104.97	0	104.97	28.71	20.56	24.16
50	0.142	3.428	-24.65	53.52	107.70	0	107.70	34.40	30.10	17.94
45	0.177	5.326	-22.74	57.98	108.92	0	108.92	41.00	37.51	14.47
40	0.186	5.881	-22.31	63.78	108.52	0	108.52	48.86	39.42	15.66
35	0.150	3.825	-24.17	71.48	105.66	0	105.66	58.55	31.79	22.76
30	0.053	0.478	-33.21	82.00	95.43	0	95.43	71.01	11.23	35.38
25	0.110	2.057	-26.87	97.01	100.32	0	100.32	87.92	23.31	31.15
20	0.326	18.067	-17.43	119.88	107.91	0	107.91	112.65	69.09	17.37
15	0.566	54.461	-12.64	158.41	110.29	0	110.29	153.01	119.96	9.95
10	0.787	105.293	-9.78	236.11	109.68	0	109.68	232.52	166.80	12.04
5	0.943	151.172	-8.21	470.42	105.26	0	105.26	468.63	199.86	23.58

Distance to Ground Level assumes flat ground or a site where the site level is above average terrain in all azimuths.

Maximum ERP	170 watts	Max dBu at Ground Level	110.29	Lowest Height of Contour (m)	9.95
Radiation Center AG	41 m				
Radiation Center AG	135 ft.				
Maximum ERP	-7.70 dBk				
Protected dBu	72.7 dBu				
Interfering dBu	112.7 dBu				
Free Space Distance	211.95 m				

Hence §74.1204(d) applies, and the predicted area of interference is acceptable to the Commission.

## Canadian Considerations

The proposed translator is within the 320 km limit established by treaty. The 0.170 kW ERP does not exceed the maximum 250 Watts, and the maximum 34.0 km F(50,10) 33.7 dBu contour does not exceed the statutory 60 km.

Terrain and Contour Data ME Richmond Center Prop						
ERP 0.170 kW N. Lat. 44 19 41 W. Lon. 69 45 54 Center of Radiation 70.00 m AMSL						
Az. Deg T.	Avg Elev 3-16 km Meters AMSL	Effective Antenna Ht Meters AAT	ERP Kilowatts	Distance to Contour (km)		
				60.0 dBu F(50,50)	34.0 dBu F(50,10)	
0	108.1	-38.1	0.1700	6.4	31.2	
30	50.6	19.4	0.1700	6.4	31.2	
60	79.7	-9.7	0.1700	6.4	31.2	
90	77.1	-7.1	0.1700	6.4	31.2	
120	73.7	-3.7	0.1700	6.4	31.2	
150	69.0	1.0	0.1700	6.4	31.2	
180	35.5	34.5	0.1700	6.9	33.7	
210	64.0	6.0	0.1700	6.4	31.2	
240	80.1	-10.1	0.1700	6.4	31.2	
270	77.8	-7.8	0.1700	6.4	31.2	
300	103.0	-33.0	0.1700	6.4	31.2	
330	92.2	-22.2	0.1700	6.4	31.2	
Average	75.900	-5.900	<--HAAT m			
Area (sq. km.)				131.56	3101.83	
2000 Block Population				20,154	130,087	

Because the 34 dBu F(50,10) contour does not cross the common border (the nearest proximity of Canada is 129 km, much greater than the 33.7 km 34 dBu F(50,10) contour distance), no Canadian concurrence is required. The relevant document for this analysis is the July 9, 1997 modification to the February 25, 1991 agreement.