

Calvary Chapel of the Finger Lakes, Inc.  
Application for Minor Modification of FM Translator W279BO  
Arcade, NY

Engineering Narrative  
August 29, 2007

Introduction:

Calvary Chapel of the Finger Lakes, Inc. (CCFL) proposes the following modifications to the construction permit (file number BNPFT-20030829ALM) of FM Translator Station W279BO (facility ID 151653) in Arcade, New York:

- 1) The principal community to be served will be changed to the Village of Gainesville, New York
- 2) The translator will be relocated 13 km east of the authorized site to an existing structure at 5195 Route 19, Gainesville, at NAD27 coordinates 42° 38' 57" N / 78° 07' 58" W, and the antenna radiation center elevation will change to 519 m above mean sea level.
- 3) The transmit antenna will be a Scala model CA-2, vertically polarized, with maximum effective radiated power of 0.099 kW.

No change in primary station is proposed; the facility will continue to serve as a non-fill-in translator of non-commercial WZXV in Palmyra, NY, which will be received directly off-air. Please note that the proposed 1 mV/m (60 dBu) coverage area overlaps the authorized coverage contour as shown in Exhibit 10; therefore, this application qualifies under 47 CFR §74.1233(a)(1) as a "Minor" change.

All contour distances in this application greater than 1.61 km have been calculated using the FCC prediction curves found in 47 CFR §73.333, while portions of contours at less than this distance are based on "free space" propagation. Elevations of all antenna radiation centers above average terrain are based on the FCC/NGDC 30-second point topographic data file, linearly-interpolated in accordance with 47 CFR §73.312(d). The radials were evaluated in one-degree azimuth increments.

Antenna:

The proposed transmit antenna will be a vertically-polarized Scala model CA-2V (FCC Antenna ID 16130) with the main lobe oriented at 220 degrees azimuth relative to True North. Relative field values provided in the pattern tabulation of the instant application are those of the non-rotated pattern. The antenna will be pole-mounted atop an existing silo structure, 14 meters in height, at a ground elevation of 504 meters above mean sea level. The radiation center will be 15 meters above ground level, 49 meters above average terrain, and 519 meters above mean sea level, and the overall height of the structure, including antenna mast, will extend 16 meters above ground level. A TOWAIR determination at the proposed site indicates that it is exempt from FAA notification and FCC ASR registration.

60 dBu Service Area:

As shown in Exhibit 10, the translator's proposed 60 dBu service contour overlaps a portion of the currently-authorized 60 dBu coverage area. Please note that CCFL has an application pending to construct a new translator in Warsaw, NY; however, the area to be served by that facility is substantially different from the proposed service area.

Allocation Considerations:

As shown in Exhibits 11 and 11A, the interference contours of the proposed facility will fully protect the service contours of all co-channel and adjacent-channel stations, including second-adjacent stations WEDG, Channel 277B and WHTT-FM, Channel 281B, both licensed to Buffalo, NY. In addition, the proposed 34 dBu interference contour will not extend into Canadian territory; therefore no international interference issues are raised.

Power Limitations:

The proposed facility will comply with the Maximum Effective Radiated Power limits on all azimuths, as shown in this table:

Bearing (° True)	Antenna Rel. Field	Avg.Terrain (m)	HAAT (m)	ERP (W)	MERP Limit (W)
0	0.125	363.1	155.9	1.5	10
5	0.17	360.5	158.6	2.9	10
10	0.195	414.3	104.8	3.8	10
15	0.215	443.2	75.9	4.6	10
20	0.23	457.2	61.9	5.2	55
25	0.245	463.2	55.8	6.0	55
30	0.25	459.4	59.7	6.2	55
35	0.26	457.5	61.5	6.7	55
40	0.26	457.3	61.7	6.7	55
45	0.26	454.2	64.9	6.7	55

Bearing (° True)	Antenna Rel. Field	Avg.Terrain (m)	HAAT (m)	ERP (W)	MERP Limit (W)
50	0.25	446.2	72.8	6.2	19
55	0.245	434.9	84.1	6.0	19
60	0.23	422.5	96.5	5.2	19
65	0.215	414.9	104.2	4.6	19
70	0.195	413.4	105.7	3.8	19
75	0.17	399.5	119.5	2.9	19
80	0.125	392.8	126.2	1.5	13
85	0.06	389.6	129.5	0.3	13
90	0.025	388.7	130.4	0.06	13
95	0.02	386.6	132.5	0.04	13
100	0.02	383.9	135.2	0.04	13
105	0.02	382.3	136.8	0.04	13
110	0.02	380.4	138.7	0.04	10
115	0.02	377.2	141.9	0.04	10
120	0.02	377.8	141.2	0.04	10
125	0.02	391.0	128.0	0.04	10
130	0.02	416.5	102.5	0.04	10
135	0.02	425.3	93.7	0.04	10
140	0.03	429.0	90.0	0.09	38
145	0.08	440.2	78.9	0.64	38
150	0.185	441.1	77.9	3.4	38
155	0.305	456.1	63.0	9.3	38
160	0.41	464.0	55.0	17	38
165	0.515	465.5	53.6	26	38
170	0.6	472.8	46.3	36	250
175	0.673	485.8	33.3	45	250
180	0.735	496.1	22.9	54	250
185	0.785	508.2	10.9	61	250
190	0.84	510.1	8.9	70	250
195	0.883	518.6	0.5	77	250
200	0.923	526.5	-7.5	85	250
205	0.95	529.5	-10.4	90	250
210	0.98	539.3	-20.3	95	250
215	0.99	551.9	-32.9	97	250
220 (main lobe)	1	556.8	-37.7	99	250
225	0.99	551.7	-32.6	97	250
230	0.98	536.4	-17.4	95	250
235	0.95	545.3	-26.3	90	250
240	0.923	556.3	-37.2	85	250
245	0.883	564.0	-45.0	77	250
250	0.84	565.3	-46.3	70	250
255	0.785	562.9	-43.8	61	250
260	0.735	561.9	-42.8	54	250
265	0.673	556.2	-37.1	45	250
270	0.6	551.7	-32.7	36	250
275	0.515	550.5	-31.4	26	250
280	0.41	554.3	-35.3	17	250
285	0.305	544.7	-25.7	9.2	250
290	0.185	535.5	-16.4	3.4	250

Bearing (° True)	Antenna Rel. Field	Avg.Terrain (m)	HAAT (m)	ERP (W)	MERP Limit (W)
295	0.08	536.2	-17.2	0.64	250
300	0.03	540.1	-21.0	0.09	250
305	0.02	543.8	-24.8	0.04	250
310	0.02	545.9	-26.8	0.04	250
315	0.02	541.9	-22.9	0.04	250
320	0.02	529.6	-10.5	0.04	250
325	0.02	521.8	-2.7	0.04	250
330	0.02	504.5	14.6	0.04	250
335	0.02	494.0	25.1	0.04	250
340	0.02	484.6	34.4	0.04	250
345	0.02	467.0	52.0	0.04	250
350	0.025	435.9	83.2	0.06	10
355	0.06	386.4	132.7	0.36	10

RF Exposure Considerations:

The proposed effective radiated power is less than 99 watts, therefore the facility is categorically excluded from the the requirement to submit a detailed radiofrequency radiation hazard analysis. However, based on the "worst-case" assumption that the proposed translator's full 99 watt power would be radiated 90 degrees below the horizon, the calculated radiofrequency power density at 2 meters above ground level would not exceed 20 microwatts per square centimeter, which is 10 percent of the general population/uncontrolled limit. Therefore, the translator facility is not expected to pose an RF hazard to any persons at the site. An RF radiation caution sign will be posted at the base of the ladder leading to the antenna.

Mark D. Humphrey, CPBE  
 Technical Consultant

August 29, 2007