TECHNICAL EXHIBIT
APPLICATION FOR
MODIFICATION OF CONSTRUCTION PERMIT
AURIO A. MATOS BARRETO.
FM TRANSLATOR STATION W279BU
SAN JUAN, PUERTO RICO
FACILITY ID 143465

MARCH 31, 2015

CH 279 0.250 KW 547 M AMSL

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Technical Narrative

The technical exhibit, of which this narrative is part, has been prepared on behalf of Aurio A. Matos Barreto, licensee of FM translator station W279BU, San Juan, Puerto Rico. W279BU currently has a CP, FCC File No. BPFT-20140811ACH, to operate as "fill-in" translator of AM station WCMA. By means of this application, the licensee seeks to modify this construction permit to slightly reduce the antenna height and modify the pattern..

FM translator station W279BU, as proposed, will operates in the same channel, 279 (103.7 MHz) with an effective radiated power (ERP) of 0.250 kW (250 watts), using a directional antenna array, with vertical polarization, at a height of 46.6 meters AGL (546.7 meters AMSL), with the main lobe oriented at an azimuth of 4° True.

The applicant is also the licensee of translator W279BV in Arecibo, Puerto Rico. A minor modification for W279BV has been filed, which will make the present application to modify the CP of W279BU feasible. Thus, this application of W279BU is contingent and conditioned on a grant of the W279BV CP, its construction and licensing.

Proposed Transmitter Location

The proposed transmitting facility would use a Scala, Model CL-FM, vertical stacked, 0.87 wavelength array consisting of four vertically polarized directional antennas, side-mounted the existing self-support tower. The existing and proposed translator location is described by the following NAD27 geographic coordinates:

18° 16' 49.3" North
66° 06' 35.3" West

Tower Registration

The FAA is not being notified of the proposed construction, as it is proposed to side-mount an FM antenna on an existing 55.5 meter (182 foot) self-support tower belonging to FM station WNVM that according to the TOWAIR program does not require registration.

Quiet Zone Notification

As required by FCC rules pertaining to radio Quiet Zones, Section 73.1030(a), the National Astronomy and Ionosphere Center (NAIC) in Arecibo, Puerto Rico is being notified of this application. Copies of the notification letter to the Arecibo Observatory and of the letter of consent are included herein as Appendix 1.

FCC Monitoring Stations

FCC rules pertaining to FCC monitoring stations, Section 73.1030(c), requires that the proposed facility does not produce a field strength greater than 10 mV/m at the FCC stations. The closest FCC monitoring station to the proposed operation is located at Santa Isabel, PR, at a distance of 41 kilometers on a bearing of 223° True. The proposed operation will produce field strengths much lower than 10 mV/m at the FCC Santa Isabel, PR station.

Environmental Considerations

The proposal is excluded from environmental processing, as an existing tower is to be employed and the proposal complies with the FCC Rules concerning human exposure to radio frequency (RF) energy. The proposal would not exceed 0.04 % of the RF exposure limit for general population/uncontrolled environments for the frequency proposed. The calculation of RF energy at 2-m above ground was made under the procedures of OET Bulletin No. 65.* The formula employed is as follows:

$$S = \frac{(33.4)F^2P}{R^2}$$

* Federal Communications Commission OET Bulletin No. 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01, August 1997).

where, S = power density in uW/cm^2, F = relative field factor at the angle to the calculation point, P = the total effective radiated power relative to a dipole in watts, and R = distance from the antenna radiation center to the calculation point in meters.

Based on the vertical radiation pattern of the proposed antenna, (Appendix 2), a relative field factor of 0.131 or less for any depression angle equal or greater than 30 degrees below horizon, a total effective radiated power of 250 watts and an antenna radiation center height above ground of 46.6 m, the calculated power density will not exceed 0.072 uW/cm^2. Therefore, the calculated RF exposure at 2 m above ground will not exceed 0.036 % of the limit of 200 uW/cm^2 for the general population and uncontrolled environments.

The antenna system shall be restricted from access and appropriate warning signs posted. In the event that personnel are required to climb the structure, the proposed FM translator transmissions shall be reduced or terminated as necessary to prevent RF exposure above the FCC recommended limits.

Allocation Considerations and Predicted Coverage Contour

Figure 2 summarizes the allocation study for the proposed facility. As indicated in Figure 2, the spacing requirements with respect to IF related facilities are maintained. The tabulation in Figure 2 also lists the results of a numerical analysis of the potential for contour overlap for all nearby co-channel and first-, second-, and third-adjacent-channel facilities. For the purposes of the numerical study, the maximum HAAT and maximum ERP values were used in determining the maximum distance in any direction to the predicted coverage and interfering contours.[†]

The predicted 60 dBu coverage contour was calculated in accordance with Section 73.313 of the FCC Rules. The average terrain elevations from 3 to 16 km from the proposed site were computed using the USGS 3-second terrain database. The distances to the predicted 60 dBu coverage contour for the proposed facilities were determined using the average elevations of radials spaced every 5-degrees of azimuth. The antenna radiation center height above average terrain and the ERP in each radial direction were used in conjunction with the propagation prediction curves of Section 73.333 to determine the distances to the contour.

[†] Where the maximum HAAT figure was not available the radiation center height above mean sea level was employed as a worst-case estimate.

As no change in site is proposed, there will complete 60 dBu contour overlap between the existing CP and proposed operation.

Figure 3 shows the predicted 60 dBu coverage contour of the proposed translator facility and the licensed 2 mV/m coverage contour of station WCMA. As shown in Figure 3, the predicted 60 dBu coverage contour of the proposed translator facility is within the 2 mV/m daytime contour of WCMA, the primary station to be retransmitted, and within a 25-mile radius of the WCMA transmitter site.

Figure 4, Sheets A to C is a depiction of the allocation situation with respect to the predicted protected contours of those stations close enough to warrant further study. This is based on the analysis in Figure 2, where there is an indication of the potential for prohibited overlapping contours. As shown in Figure 4A, the proposed facility does not involve prohibited contour overlap with the proposed facilities of W279BV

Figure 4B shows that there is no prohibitive overlap with respect to station WXLX. As shown in Figure 4C, while the predicted 54 dBu contour of stations WERR and WVJP-FM encompass the proposed transmitter site of W279BU, booster stations WERR-FM1, WVJP-FM1 and WVJP-FM2 will be properly protected.

With respect to WVJP-FM, processing pursuant to Section 73.1204(d) of the FCC Rules is requested. Specifically, it is demonstrated herein that the proposed translator facility will cause no harmful interference to WVJP-FM.

W279BU operates on Channel 279, second adjacent channel to WVJP-FM. The protection requirements of the undesired signal from W279BU is 40 dB higher that the desired signal of WVJP-FM. The proposed translator site is located 27.2 kilometers, at a bearing of 271 degrees true from station WVJP-FM, which operates on channel 277B with an omni directional antenna having an ERP of 26 kW and an HAAT of 596 meters along radial 271°. The predicted WVJP-FM F(50,50) field strength at the proposed site is 83.1dBu. Using the U/D ratio of 40 db contained in Section 74.1204, the proposed F(50,10) interfering signal is 123.1 dBu.[‡] The 123.1 dBu contour thus defines the maximum extent of predicted interference to WVJP-FM from the proposed translator facility.

Since an ERP of 250-watts is proposed, the 123.1 dBu signal contour is calculated by means of a free-space calculation. Based on free-space calculations, at no point anywhere near the proposed site would the 123.1 dBu contour reach a height less than 94 feet

[‡] *See* In re Application of Living Way Ministries, Inc. for a Construction Permit for a New NCE FM Translator Station at Sun Valley, CA, File No. BPFT-19981001TA, FCC 02-244, Released: September 9, 2002

above ground level. This is graphically depicted in Figure 5B. Therefore, no predicted harmful interference to WVJP-FM will result as a result of the proposed translator facility.

Figure 5A is a table and Figure 5B a graphic representation showing the computed distances to the predicted 123.1 dBu contour under these assumptions. For these calculations, a non-directional horizontal antenna pattern and the antenna radiation center height above ground was used, though it should be noted that the proposed antenna is directional and given the complex topography of the terrain surrounding the site, the antenna height to the potentially affected inhabited structures is will be significantly higher than the value used in these calculations. Appendix 2 shows the vertical antenna pattern data used for the calculations.

With respect to WERR, processing pursuant to Section 73.1204(d) of the FCC Rules is also requested. Specifically, it is demonstrated herein that the proposed translator facility will cause no harmful interference to WERR.

W279Bu operates on Channel 279, second adjacent channel to WERR. The protection requirements of the undesired signal from W279BU is 40 dB higher that the desired signal of WERR. The proposed translator site is located 58.2 kilometers, at a bearing of 91 degrees true from station WERR, which operates on channel 281B with an omni directional antenna having an ERP of 50 kW and an HAAT of 303.3 meters along radial 91°. The predicted WERR F(50,50) field strength at the proposed site is 63.3 dBu. Using the U/D ratio of 40 dB contained in Section 74.1204, the proposed F(50,10) interfering signal is 103.3 dBu. The 103.3 dBu contour thus defines the maximum extent of predicted interference to WERR from the proposed translator facility.

Since an ERP of 250-watts is proposed, the 103.3 dBu signal contour is calculated by means of a free-space calculation. Given the complex topography of the terrain surrounding the site, for the WERR interference calculations the directional horizontal antenna pattern and the antenna radiation center height relative to the potentially affected inhabited structures have been used. Figure 6 shows the area of the proposed site, WNVM at Cerro Marquesa, a well-known communication site housing several TV, FM and communication towers.

Seven distinct areas or locations are identified in Figure 6. Zone “A” in Figure 6 correspond to the area where the various communications facilities are housed. There are no residences or office structures within this area, but only structures which house TV, FM, and other communication equipment and towers belonging to broadcast stations and telecom-

munication companies which are occasionally visited by maintenance personnel. The Cerro Marquesa site is a secluded radio transmission area.

Zone “B” in Figure 6 consist of an arc of land where the closest residences are located, between a bearing of 115° and 165° true relative to the proposed W279BU horizontal antenna pattern. Along this arc, the maximum horizontal field value of the antenna is 0.226 at 115° true, significantly lower at greater azimuth deviations. The highest terrain elevation within this arc is 472 meters AMSL at a distance of 615 feet (the closest inhabited house) from the site, gradually decreasing with increasing distance from the site. Given that the proposed antenna radiation center will be at a height of 546.7 meters AMSL, the delta height for the calculations of field intensity from the proposed facility is 74.7 meters or 245 feet. Figure 7A is a table and Figure 7B a graphic representation showing the computed distances to the predicted 103.3 dBu contour under these assumptions. Appendix 2 shows the antenna pattern data used in the calculations. Based on these free-space calculations, at no point near the proposed site within the Zone B arc where inhabited structures could be present would the 103.3 dBu contour reach a height less than 142 feet above ground level. This is graphically depicted in Figure 7B.

Point “C” to Point “G” in Figure 6 represent the closest potentially inhabited locations closer to the main horizontal radiation lobe of the proposed antenna; to these locations correspond different terrain elevations and horizontal field values of the proposed antenna system, thus each location will be separately treated.

Point “C” in Figure 6 is located at a bearing of no less than 10° true from the proposed W279BU horizontal antenna pattern, corresponding to a horizontal field value of 0.996, at a distance of approximately 1,800 feet. The highest terrain elevation near this point is 382 meters AMSL, gradually decreasing with increasing distance from the site along this radial. Given that the proposed antenna radiation center will be at a height of 546.7 meters AMSL, the delta height for the calculations of field intensity from the proposed facility is 164.7 meters or 540 feet. Figure 8 is a table showing the computed distances to the predicted 103.3 dBu contour under these assumptions based on the antenna pattern data shown in Appendix 2. Based on these free-space calculations, at no point near Point “C” or along this radial where inhabited structures could be present would the 103.3 dBu contour reach a height less than 87 feet above ground level.

Point “D” in Figure 6 is located at a bearing of no less than 17° true from the proposed W279BU horizontal antenna pattern, corresponding to a horizontal field value of 0.983, at a distance of approximately 1,710 feet. The highest terrain elevation near this point is 408 meters AMSL, gradually decreasing with increasing distance from the site along this radial. Given that the proposed antenna radiation center will be at a height of 546.7 meters

AMSL, the delta height for the calculations of field intensity from the proposed facility is 138.7 meters or 455 feet. Figure 9 is a table showing the computed distances to the predicted 103.3 dBu contour under these assumptions based on the antenna pattern data shown in Appendix 2. Based on these free-space calculations, at no point near Point "D", at a distance greater than 1,700 feet along this radial, where inhabited structures could be present, would the 103.3 dBu contour reach a height less than 10 feet above ground level.

Point "E" in Figure 6 is located at a bearing of no less than 20° true from the proposed W279BU horizontal antenna pattern, corresponding to a horizontal field value of 0.973, at a distance of approximately 1,750 feet. The highest terrain elevation near this point is 411 meters AMSL, gradually decreasing with increasing distance from the site along this radial. Given that the proposed antenna radiation center will be at a height of 546.7 meters AMSL, the delta height for the calculations of field intensity from the proposed facility is 135.7 meters or 445 feet. Figure 10 is a table showing the computed distances to the predicted 103.3 dBu contour under these assumptions based on the antenna pattern data shown in Appendix 2. Based on these free-space calculations, at no point near Point "E" ", at a distance greater than 1,750 feet along this radial, where inhabited structures could be present, would the 103.3 dBu contour reach a height less than 12 feet above ground level.

Point "F" in Figure 6 is located at a bearing of no less than 25° true from the proposed W279BU horizontal antenna pattern, corresponding to a horizontal field value of 0.941, at a distance of approximately 1,700 feet. The highest terrain elevation near this point is 400 meters AMSL, gradually decreasing with increasing distance from the site along this radial. Given that the proposed antenna radiation center will be at a height of 546.7 meters AMSL, the delta height for the calculations of field intensity from the proposed facility is 146.7 meters or 481 feet. Figure 11 is a table showing the computed distances to the predicted 103.3 dBu contour under these assumptions based on the antenna pattern data shown in Appendix 2. Based on these free-space calculations, at no point near Point "F" ", at a distance greater than 1,700 feet along this radial, where inhabited structures could be present, would the 103.3 dBu contour reach a height less than 63 feet above ground level.

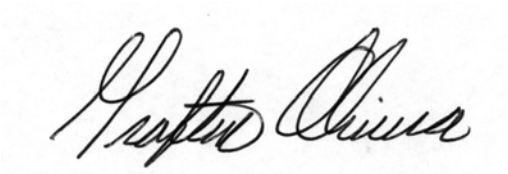
Point "G" in Figure 6 is located at a bearing of no less than 41° true from the proposed W279BU horizontal antenna pattern, corresponding to a horizontal field value of 0.818, at a distance of approximately 1,600 feet. The highest terrain elevation near this point is 410 meters AMSL, gradually decreasing with increasing distance from the site along this radial. Given that the proposed antenna radiation center will be at a height of 546.7 meters AMSL, the delta height for the calculations of field intensity from the proposed facility is 136.7 meters or 448 feet. Figure 12 is a table showing the computed distances to the predicted 103.3 dBu contour under these assumptions based on the antenna pattern data shown in Appendix 2. Based on these free-space calculations, at no point near Point "G, at a distance

greater than 1,600 feet along this radial, where inhabited structures could be present, would the 103.3 dBu contour reach a height less than 94 feet above ground level.

Beyond Point "G", at greater azimuthal deviation from the antenna main lobe, the few scattered potential residences are located at greater distances from the proposed antenna site, within lower horizontal field values and at lower ground elevations or greater the delta heights from the proposed antenna; thus, no impermissible interference is predicted to WERR in this area.

Based on the preceding analysis, no harmful interference to WERR will result as a result of the proposed translator facility.

For all the reasons stated above, it is believed that the proposed facility is in compliance with applicable FCC Rules and Regulations.



Grafton Olivera, P.E.
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March 31, 2015

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Engineering Specifications

Channel / Frequency	279 / 103.7 MHz
Site Coordinates (NAD27)	18° 16' 49.3" North Latitude 66° 06' 35.3" West Longitude
Antenna structure Registration	N/A
Height of antenna radiation center	47 m AGL / 547 AMSL
Antenna radiation center HAAT	328 m
Transmitter	RVR, PJ-50 M
Transmitter power output	0.047 kW
Transmission line	Andrew, LDF5-50A
Transmission line length	60 m
Transmission line efficiency	84.3 %
Antenna	Scala CL-FM Vpol Custom Array
Polarization	Vertical
Power gain	6.31
Antenna input power	0.040 kW
Effective radiated power	0.25 kW (Vert. MAX-DA)

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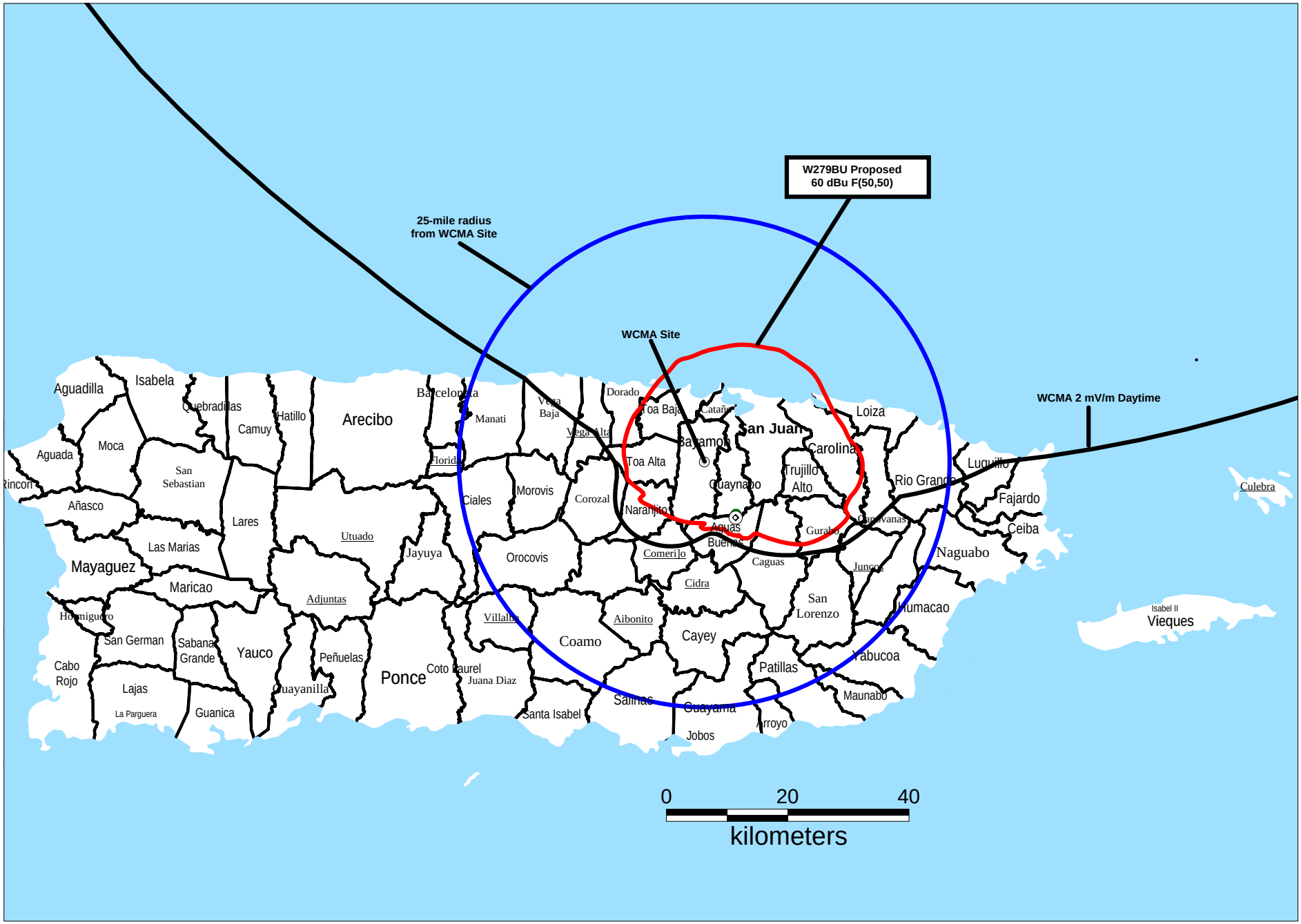
Summary of Allocation Analysis

Channel: 279 Coordinates: 018-16-49.3 066-06-35.3 (NAD 27) *Page: 1 of 1*
Class: A Buffer Distance: 50 km

Callsign / Fac. ID	Status / ARN	Chan. / Class	Serv. / DA	Freq. / Ant. ID	City / ERP(kW)	State / HAAT(m)	Latitude / Longitude	Dist.(km) / Bear.(deg)	Sep.(km) / 73.215	Spacing(km) / Comment
W225AY	LIC	225	FX	92.9	ARROYO	PR	018-00-36	31.25		
157296	BLFT 20071228ABO	D	C	67340	0.05		066-01-28.4	163.31		INFO
WYQE	LIC	225	FM	92.9	NAGUABO	PR	018-16-50	46.47	10	36.47
19056	BLH 19950106KB	A	N		3.9	229	065-40-13	89.9		CLEAR
W276AI	LIC	276	FX	103.1	PONCE	PR	018-00-00	62.32		
53553	BLFT 19860609TH	D	D	13702	0.004		066-37-14	240.07		INFO
WVJP-FM	CP	277	FM	103.3	CAGUAS	PR	018-16-41	27.12	69	-41.88
6441	BPH 20140521AGV	B	N		26	592	065-51-12	90.5	63 N	SHORT
WVJP-FM	LIC	277	FM	103.3	CAGUAS	PR	018-16-41	27.21	69	-41.79
6441	BLH 19890331KI	B			28	581	065-51-09	90.5	63 N	SHORT
W279BV	LIC	279	FX	103.7	SAN JUAN	PR	018-17-42	6.11		
26656	BLFT 20140507ACX	D	D	16150	0.225		066-09-56	285.47		INFO
W279BU	LIC	279	FX	103.7	GURABO	PR	018-09-17	14.25		
143465	BLFT 20140303AEF	D	D	16151	0.25		066-04-50	167.53		INFO
WXLX	LIC	279	FM	103.7	LAJAS	PR	017-59-37	118.21	178	-59.79
55065	BLH 19940113KE	B	N		50	139	067-11-09	254.5	143 N	SHORT
WERR	LIC	281	FM	104.1	VEGA ALTA	PR	018-17-29	58.28	69	-10.72
54750	BLH 20080708AJO	B	N		50	301	066-39-39	271.29	63 N	SHORT

Figure 3



PROPOSED COVERAGE CONTOUR
FM TRANSLATOR W279BU
SAN JUAN, PUERTO RICO
CH 279 0.25 KW 547 M AMSL
du Treil, Lundin & Rackley, Inc. - Sarasota, Florida

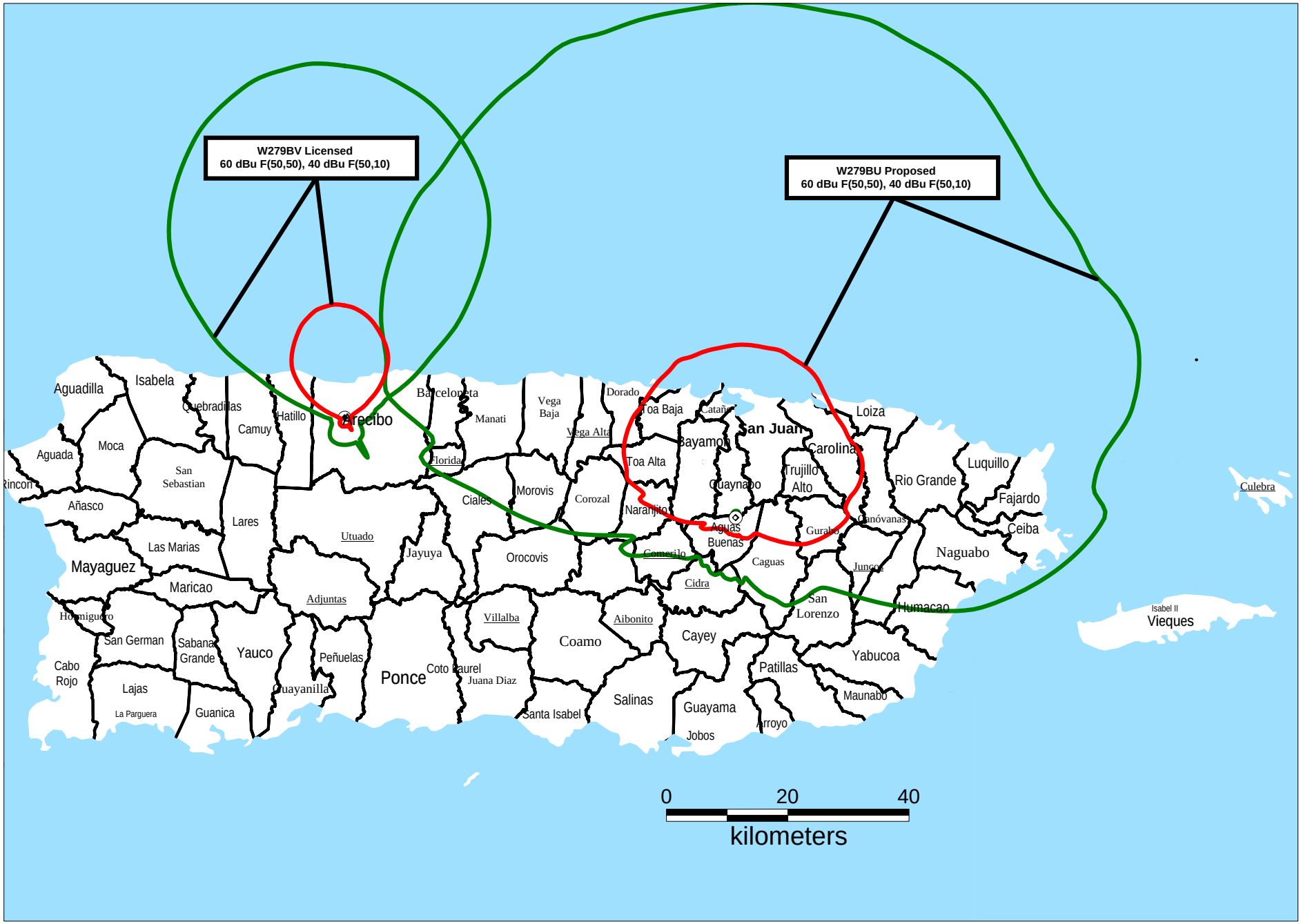


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Figure 4A

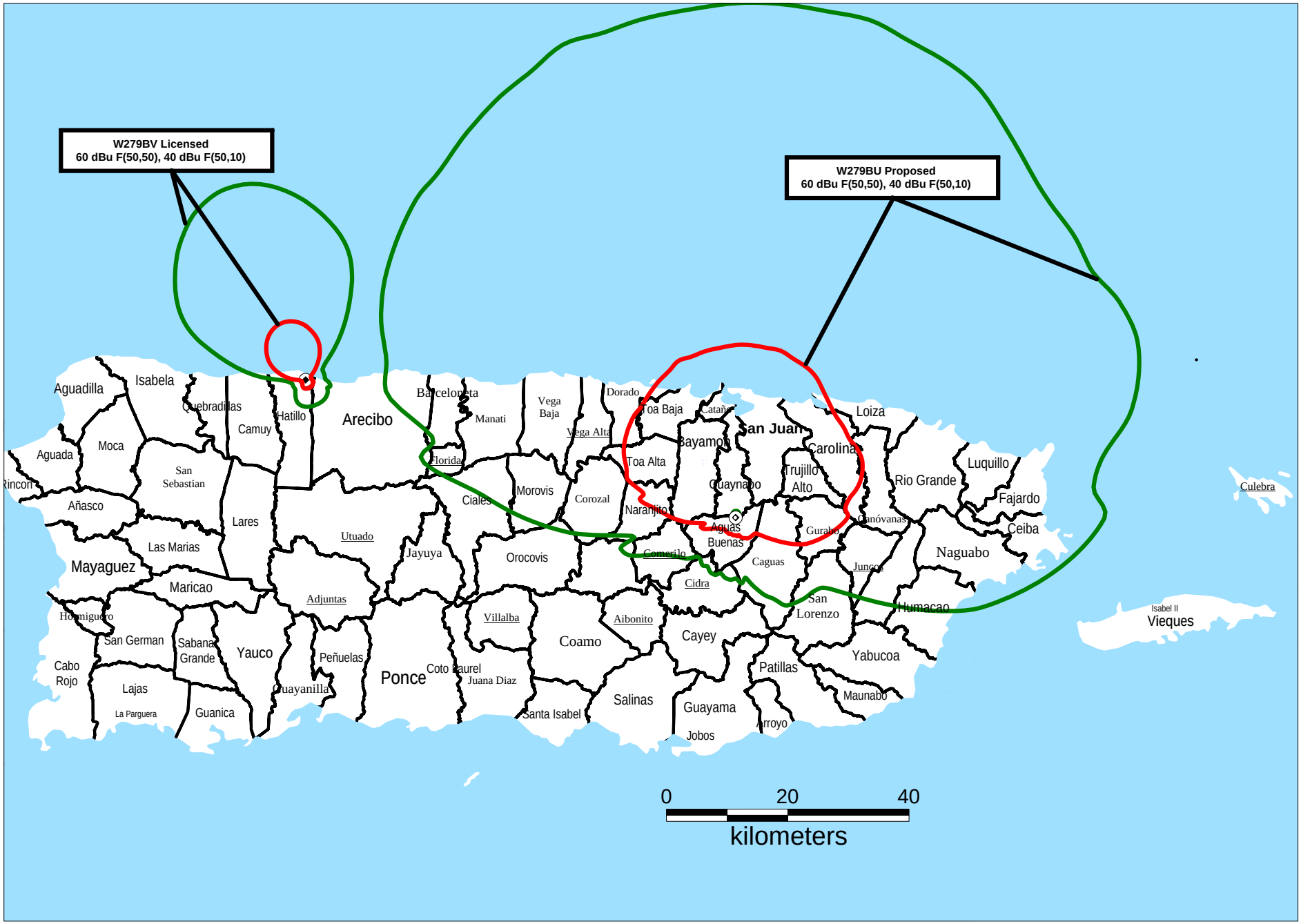

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Figure 4B

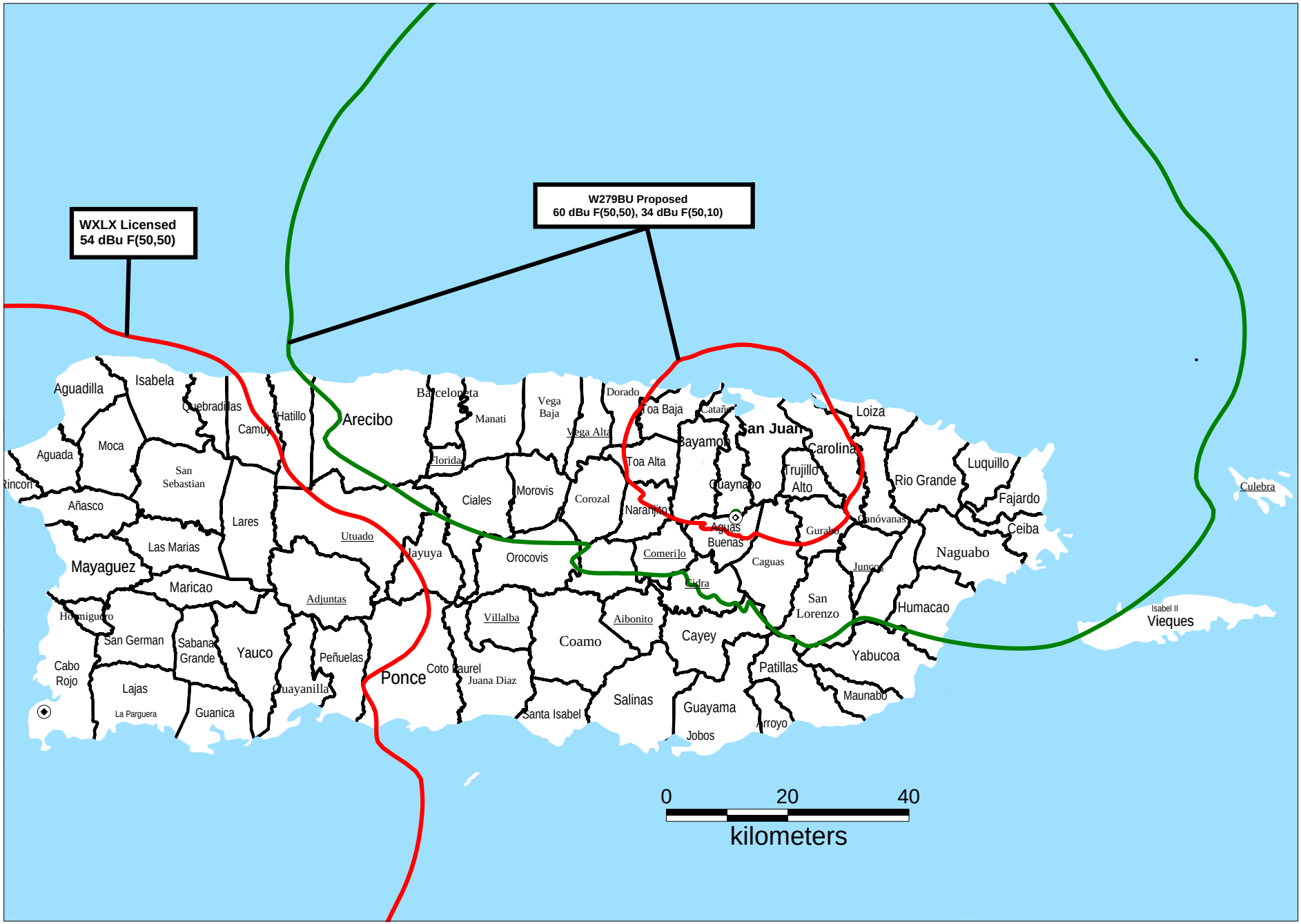

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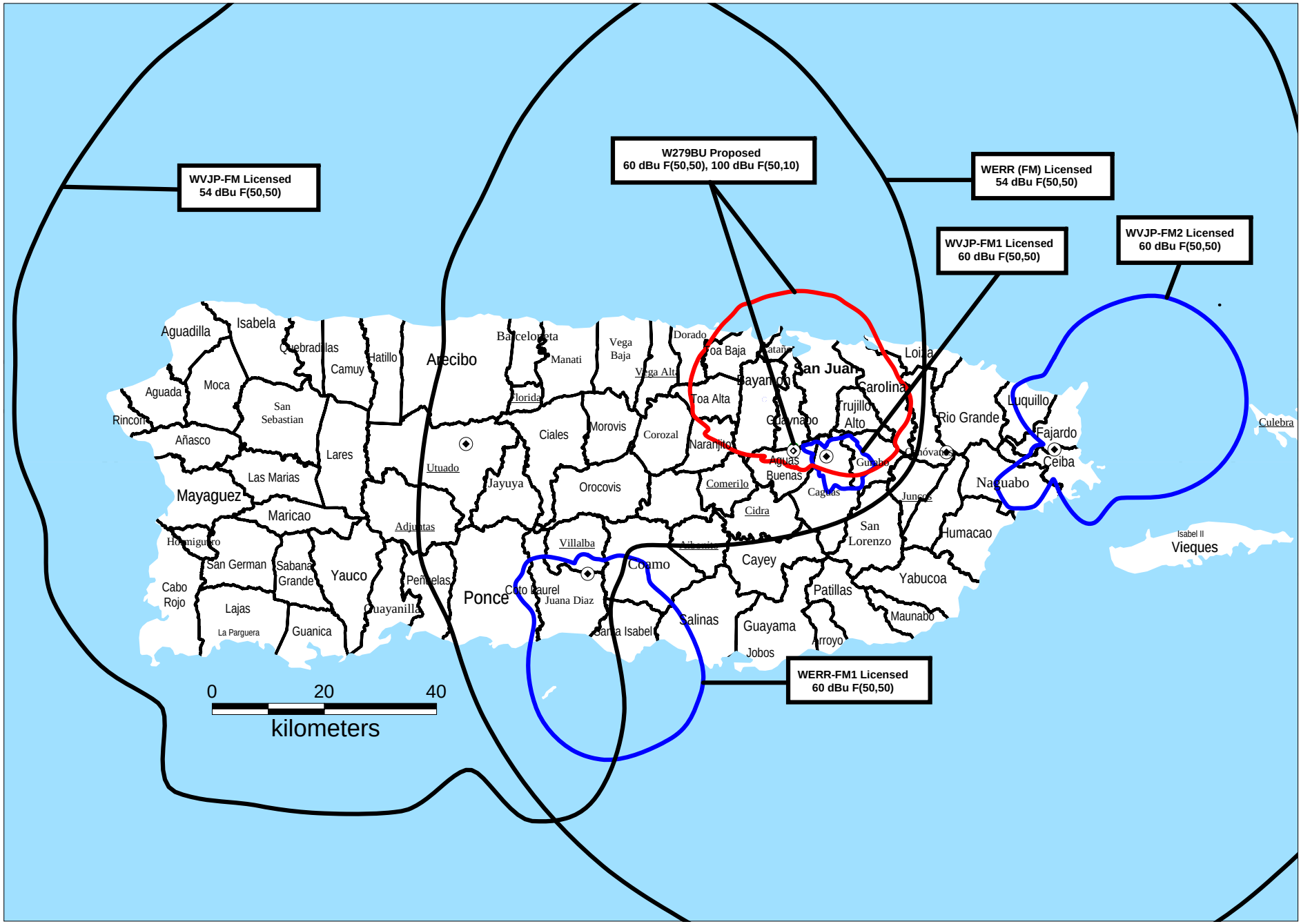
Figure 4C



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Interfering Field Strength Vs. Distance Graph **Figure 5A**

Antenna **CL-FM Array Vert. Pol. Stack @ 0.87 WL**
RCAGL ***153*** feet ERP ***0.25*** kW
Interfering Contour ***123.1*** dBu **WVJP-FM** -6.0206 dBk

Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)	Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)
90	1.00	0.226	-18.9	18.1	59	0	94	44	1.00	0.226	-18.9	18.1	59	43	112
89	1.00	0.226	-18.9	18.1	59	1	94	43	1.00	0.226	-18.9	18.1	59	43	112
88	1.00	0.226	-18.9	18.1	59	2	94	42	1.00	0.226	-18.9	18.1	59	44	113
87	1.00	0.226	-18.9	18.1	59	3	94	41	1.00	0.226	-18.9	18.1	59	45	114
86	1.00	0.226	-18.9	18.1	59	4	94	40	1.00	0.226	-18.9	18.1	59	46	115
85	1.00	0.226	-18.9	18.1	59	5	94	39	1.00	0.226	-18.9	18.1	59	46	116
84	1.00	0.226	-18.9	18.1	59	6	94	38	1.00	0.226	-18.9	18.1	59	47	116
83	1.00	0.226	-18.9	18.1	59	7	94	37	1.00	0.226	-18.9	18.1	59	47	117
82	1.00	0.226	-18.9	18.1	59	8	94	36	1.00	0.226	-18.9	18.1	59	48	118
81	1.00	0.226	-18.9	18.1	59	9	94	35	1.00	0.226	-18.9	18.1	59	49	119
80	1.00	0.226	-18.9	18.1	59	10	94	34	1.00	0.226	-18.9	18.1	59	49	120
79	1.00	0.226	-18.9	18.1	59	11	95	33	1.00	0.226	-18.9	18.1	59	50	121
78	1.00	0.226	-18.9	18.1	59	12	95	32	1.00	0.226	-18.9	18.1	59	50	122
77	1.00	0.226	-18.9	18.1	59	13	95	31	1.00	0.226	-18.9	18.1	59	51	122
76	1.00	0.226	-18.9	18.1	59	14	95	30	1.00	0.226	-18.9	18.1	59	51	123
75	1.00	0.226	-18.9	18.1	59	15	96	29	1.00	0.226	-18.9	18.1	59	52	124
74	1.00	0.226	-18.9	18.1	59	16	96	28	1.00	0.226	-18.9	18.1	59	52	125
73	1.00	0.226	-18.9	18.1	59	17	96	27	1.00	0.226	-18.9	18.1	59	53	126
72	1.00	0.226	-18.9	18.1	59	18	96	26	1.00	0.226	-18.9	18.1	59	53	127
71	1.00	0.226	-18.9	18.1	59	19	97	25	1.00	0.226	-18.9	18.1	59	54	128
70	1.00	0.226	-18.9	18.1	59	20	97	24	1.00	0.226	-18.9	18.1	59	54	129
69	1.00	0.226	-18.9	18.1	59	21	98	23	1.00	0.226	-18.9	18.1	59	55	130
68	1.00	0.226	-18.9	18.1	59	22	98	22	1.00	0.226	-18.9	18.1	59	55	131
67	1.00	0.226	-18.9	18.1	59	23	98	21	1.00	0.226	-18.9	18.1	59	55	132
66	1.00	0.226	-18.9	18.1	59	24	99	20	1.00	0.226	-18.9	18.1	59	56	133
65	1.00	0.226	-18.9	18.1	59	25	99	19	1.00	0.226	-18.9	18.1	59	56	134
64	1.00	0.226	-18.9	18.1	59	26	100	18	1.00	0.226	-18.9	18.1	59	57	135
63	1.00	0.226	-18.9	18.1	59	27	100	17	1.00	0.226	-18.9	18.1	59	57	136
62	1.00	0.226	-18.9	18.1	59	28	101	16	1.00	0.226	-18.9	18.1	59	57	137
61	1.00	0.226	-18.9	18.1	59	29	101	15	1.00	0.226	-18.9	18.1	59	57	138
60	1.00	0.226	-18.9	18.1	59	30	102	14	1.00	0.226	-18.9	18.1	59	58	139
59	1.00	0.226	-18.9	18.1	59	31	102	13	1.00	0.226	-18.9	18.1	59	58	140
58	1.00	0.226	-18.9	18.1	59	31	103	12	1.00	0.226	-18.9	18.1	59	58	141
57	1.00	0.226	-18.9	18.1	59	32	103	11	1.00	0.226	-18.9	18.1	59	58	142
56	1.00	0.226	-18.9	18.1	59	33	104	10	1.00	0.226	-18.9	18.1	59	59	143
55	1.00	0.226	-18.9	18.1	59	34	104	9	1.00	0.226	-18.9	18.1	59	59	144
54	1.00	0.226	-18.9	18.1	59	35	105	8	1.00	0.226	-18.9	18.1	59	59	145
53	1.00	0.226	-18.9	18.1	59	36	106	7	1.00	0.226	-18.9	18.1	59	59	146
52	1.00	0.226	-18.9	18.1	59	37	106	6	1.00	0.226	-18.9	18.1	59	59	147
51	1.00	0.226	-18.9	18.1	59	37	107	5	1.00	0.226	-18.9	18.1	59	59	148
50	1.00	0.226	-18.9	18.1	59	38	107	4	1.00	0.226	-18.9	18.1	59	59	149
49	1.00	0.226	-18.9	18.1	59	39	108	3	1.00	0.226	-18.9	18.1	59	59	150
48	1.00	0.226	-18.9	18.1	59	40	109	2	1.00	0.226	-18.9	18.1	59	59	151
47	1.00	0.226	-18.9	18.1	59	41	110	1	1.00	0.226	-18.9	18.1	59	59	152
46	1.00	0.226	-18.9	18.1	59	41	110	0	1.00	0.226	-18.9	18.1	59	59	153
45	1.00	0.226	-18.9	18.1	59	42	111								

Figure 5B

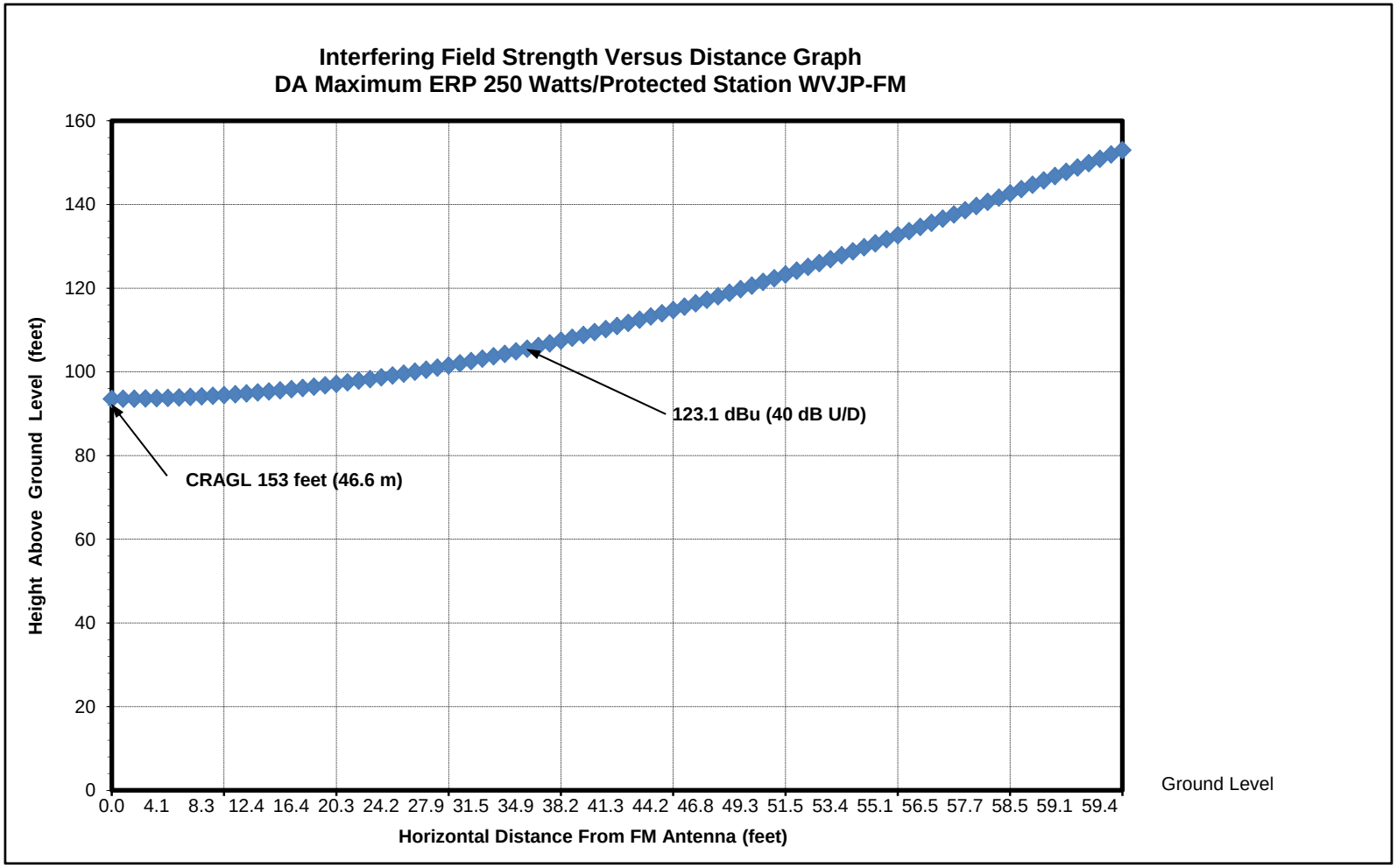
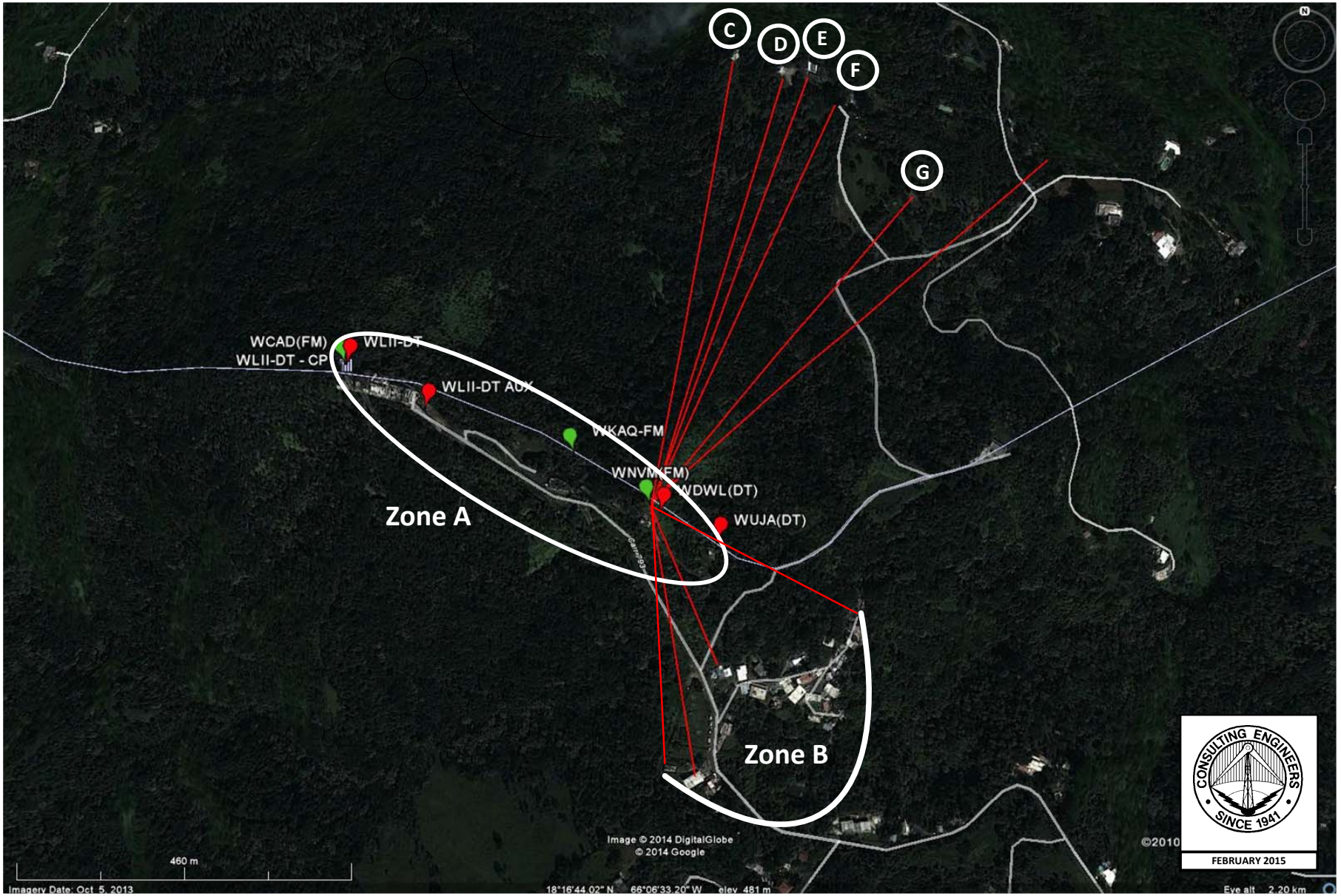

Interfering Field Strength Versus Distance Graph
DA Maximum ERP 250 Watts/Protected Station WVJP-FM
Height Above Ground Level (feet)
160
140
120
100
80
60
40
20
0
0.0 4.1 8.3 12.4 16.4 20.3 24.2 27.9 31.5 34.9 38.2 41.3 44.2 46.8 49.3 51.5 53.4 55.1 56.5 57.7 58.5 59.1 59.4
Horizontal Distance From FM Antenna (feet)
123.1 dBu (40 dB U/D)
CRAGL 153 feet (46.6 m)
Ground Level

Figure 6



PROPOSED FACILITY – W279BU

CP MODIFICATION APPLICATION
FM TRANSLATOR W279BU - SAN JUAN, PUERTO RICO
CH 279 0.25 KW 547 M AMSL

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

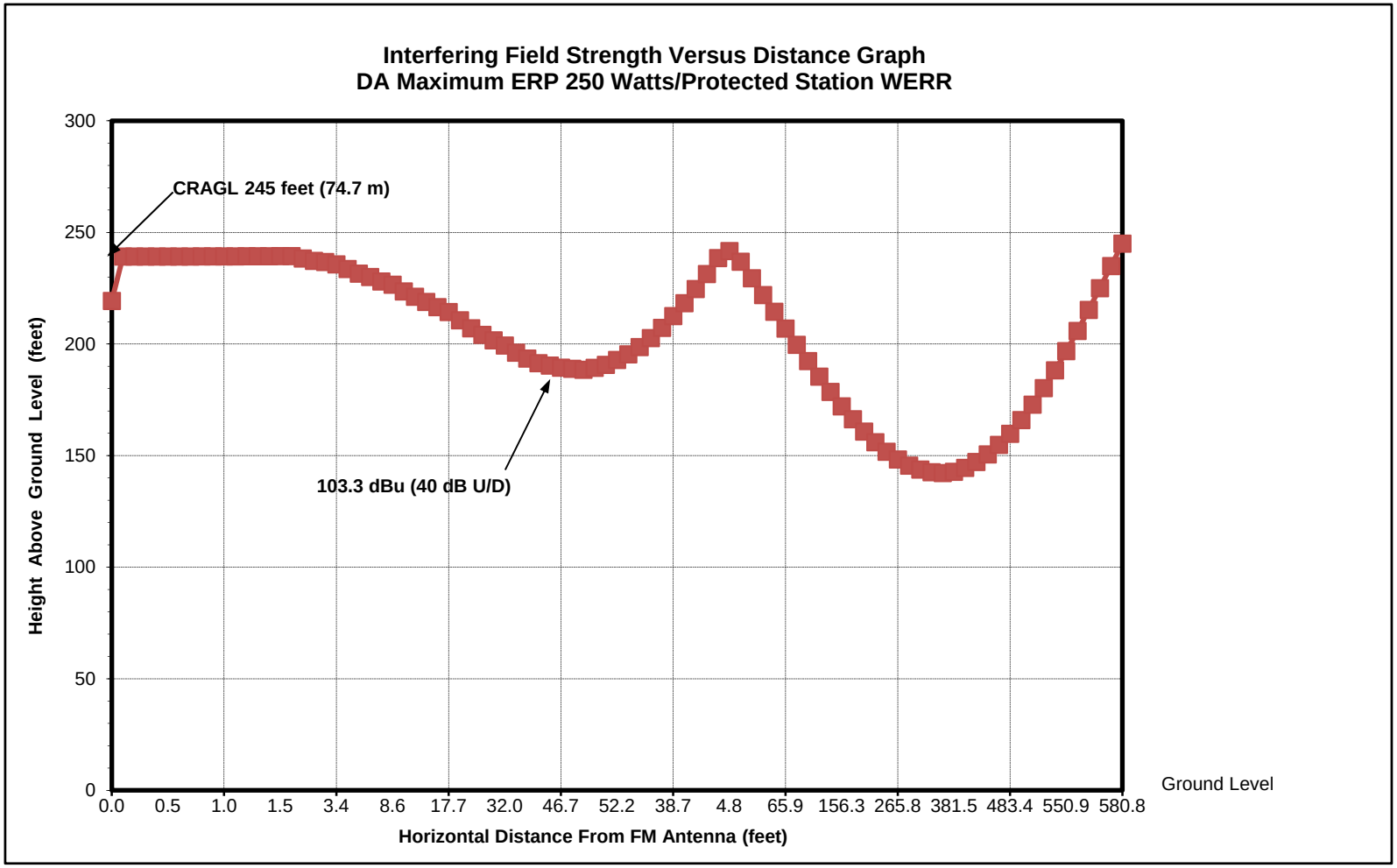
Interfering Field Strength Vs. Distance Graph **Figure 7A**

Antenna **CL-FM Array Vert. Pol. Stack @ 0.87 WL**
RCAGL ***245*** feet ERP ***0.25*** kW
Interfering Contour ***103.3*** dBu -6.0206 dBk

Zone B **472 MTS ELEV. TERR**

Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)	Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)
90	0.01	1	-46.0	7.8	26	0	219	44	0.123	0.226	-37.1	21.8	71	51	195
89	0.01	0.226	-58.9	1.8	6	0	239	43	0.117	0.226	-37.6	20.7	68	50	199
88	0.01	0.226	-58.9	1.8	6	0	239	42	0.109	0.226	-38.2	19.3	63	47	203
87	0.01	0.226	-58.9	1.8	6	0	239	41	0.099	0.226	-39.0	17.5	58	43	207
86	0.01	0.226	-58.9	1.8	6	0	239	40	0.087	0.226	-40.1	15.4	51	39	213
85	0.01	0.226	-58.9	1.8	6	1	239	39	0.073	0.226	-41.7	12.9	42	33	218
84	0.01	0.226	-58.9	1.8	6	1	239	38	0.057	0.226	-43.8	10.1	33	26	225
83	0.01	0.226	-58.9	1.8	6	1	239	37	0.039	0.226	-47.1	6.9	23	18	231
82	0.01	0.226	-58.9	1.8	6	1	239	36	0.019	0.226	-53.4	3.4	11	9	239
81	0.01	0.226	-58.9	1.8	6	1	239	35	0.01	0.226	-58.9	1.8	6	5	242
80	0.01	0.226	-58.9	1.8	6	1	239	34	0.025	0.226	-51.0	4.4	15	12	237
79	0.01	0.226	-58.9	1.8	6	1	239	33	0.049	0.226	-45.1	8.7	28	24	229
78	0.01	0.226	-58.9	1.8	6	1	239	32	0.075	0.226	-41.4	13.3	44	37	222
77	0.01	0.226	-58.9	1.8	6	1	239	31	0.102	0.226	-38.8	18.1	59	51	214
76	0.01	0.226	-58.9	1.8	6	1	239	30	0.131	0.226	-36.6	23.2	76	66	207
75	0.01	0.226	-58.9	1.8	6	2	239	29	0.161	0.226	-34.8	28.5	94	82	200
74	0.01	0.226	-58.9	1.8	6	2	239	28	0.193	0.226	-33.2	34.2	112	99	192
73	0.012	0.226	-57.4	2.1	7	2	238	27	0.226	0.226	-31.9	40.0	131	117	185
72	0.014	0.226	-56.0	2.5	8	3	237	26	0.261	0.226	-30.6	46.2	152	136	179
71	0.015	0.226	-55.4	2.7	9	3	237	25	0.297	0.226	-29.5	52.6	173	156	172
70	0.017	0.226	-54.3	3.0	10	3	236	24	0.333	0.226	-28.5	59.0	193	177	166
69	0.021	0.226	-52.5	3.7	12	4	234	23	0.371	0.226	-27.6	65.7	215	198	161
68	0.025	0.226	-51.0	4.4	15	5	232	22	0.409	0.226	-26.7	72.4	238	220	156
67	0.028	0.226	-50.0	5.0	16	6	230	21	0.448	0.226	-25.9	79.3	260	243	152
66	0.032	0.226	-48.8	5.7	19	8	228	20	0.487	0.226	-25.2	86.2	283	266	148
65	0.035	0.226	-48.1	6.2	20	9	227	19	0.526	0.226	-24.5	93.1	306	289	146
64	0.041	0.226	-46.7	7.3	24	10	224	18	0.564	0.226	-23.9	99.9	328	312	144
63	0.046	0.226	-45.7	8.1	27	12	221	17	0.603	0.226	-23.3	106.8	350	335	143
62	0.051	0.226	-44.8	9.0	30	14	219	16	0.642	0.226	-22.8	113.7	373	358	142
61	0.056	0.226	-44.0	9.9	33	16	217	15	0.68	0.226	-22.3	120.4	395	382	143
60	0.061	0.226	-43.2	10.8	35	18	214	14	0.715	0.226	-21.9	126.6	415	403	145
59	0.069	0.226	-42.2	12.2	40	21	211	13	0.749	0.226	-21.4	132.6	435	424	147
58	0.077	0.226	-41.2	13.6	45	24	207	12	0.782	0.226	-21.1	138.4	454	444	151
57	0.084	0.226	-40.5	14.9	49	27	204	11	0.814	0.226	-20.7	144.1	473	464	155
56	0.09	0.226	-39.9	15.9	52	29	202	10	0.845	0.226	-20.4	149.6	491	483	160
55	0.096	0.226	-39.3	17.0	56	32	199	9	0.87	0.226	-20.1	154.0	505	499	166
54	0.104	0.226	-38.6	18.4	60	36	196	8	0.893	0.226	-19.9	158.1	519	514	173
53	0.111	0.226	-38.0	19.7	64	39	194	7	0.915	0.226	-19.7	162.0	531	528	180
52	0.117	0.226	-37.6	20.7	68	42	191	6	0.935	0.226	-19.5	165.5	543	540	188
51	0.121	0.226	-37.3	21.4	70	44	190	5	0.952	0.226	-19.4	168.5	553	551	197
50	0.125	0.226	-37.0	22.1	73	47	189	4	0.966	0.226	-19.2	171.0	561	560	206
49	0.128	0.226	-36.8	22.7	74	49	189	3	0.978	0.226	-19.1	173.1	568	567	215
48	0.131	0.226	-36.6	23.2	76	51	188	2	0.987	0.226	-19.1	174.7	573	573	225
47	0.131	0.226	-36.6	23.2	76	52	189	1	0.995	0.226	-19.0	176.2	578	578	235
46	0.13	0.226	-36.7	23.0	76	52	191	0	1	0.226	-18.9	177.0	581	581	245
45	0.127	0.226	-36.9	22.5	74	52	193								

Figure 7B


Interfering Field Strength Versus Distance Graph
DA Maximum ERP 250 Watts/Protected Station WERR
CRAGL 245 feet (74.7 m)
103.3 dBu (40 dB U/D)
Height Above Ground Level (feet)
300
250
200
150
100
50
0
0.0 0.5 1.0 1.5 3.4 8.6 17.7 32.0 46.7 52.2 38.7 4.8 65.9 156.3 265.8 381.5 483.4 550.9 580.8
Horizontal Distance From FM Antenna (feet)
Ground Level

Interfering Field Strength Vs. Distance Graph **Figure 8**

Antenna **CL-FM Array Vert. Pol. Stack @ 0.87 WL**
RCAGL ***540*** feet ERP ***0.25*** kW
Interfering Contour ***103.3*** dBu -6.0206 dBk

10° **382 MTS ELEV. TERR**

Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)	Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)
90	0.01	0.996	-46.1	7.8	26	0	514	44	0.123	0.996	-24.3	96.0	315	226	321
89	0.01	0.996	-46.1	7.8	26	0	514	43	0.117	0.996	-24.7	91.3	300	219	336
88	0.01	0.996	-46.1	7.8	26	1	514	42	0.109	0.996	-25.3	85.0	279	207	353
87	0.01	0.996	-46.1	7.8	26	1	514	41	0.099	0.996	-26.1	77.2	253	191	374
86	0.01	0.996	-46.1	7.8	26	2	514	40	0.087	0.996	-27.3	67.9	223	171	397
85	0.01	0.996	-46.1	7.8	26	2	514	39	0.073	0.996	-28.8	57.0	187	145	422
84	0.01	0.996	-46.1	7.8	26	3	515	38	0.057	0.996	-30.9	44.5	146	115	450
83	0.01	0.996	-46.1	7.8	26	3	515	37	0.039	0.996	-34.2	30.4	100	80	480
82	0.01	0.996	-46.1	7.8	26	4	515	36	0.019	0.996	-40.5	14.8	49	39	511
81	0.01	0.996	-46.1	7.8	26	4	515	35	0.01	0.996	-46.1	7.8	26	21	525
80	0.01	0.996	-46.1	7.8	26	4	515	34	0.025	0.996	-38.1	19.5	64	53	504
79	0.01	0.996	-46.1	7.8	26	5	515	33	0.049	0.996	-32.3	38.2	125	105	472
78	0.01	0.996	-46.1	7.8	26	5	515	32	0.075	0.996	-28.6	58.5	192	163	438
77	0.01	0.996	-46.1	7.8	26	6	515	31	0.102	0.996	-25.9	79.6	261	224	406
76	0.01	0.996	-46.1	7.8	26	6	515	30	0.131	0.996	-23.7	102.2	335	290	372
75	0.01	0.996	-46.1	7.8	26	7	515	29	0.161	0.996	-21.9	125.6	412	360	340
74	0.01	0.996	-46.1	7.8	26	7	515	28	0.193	0.996	-20.3	150.6	494	436	308
73	0.012	0.996	-44.5	9.4	31	9	511	27	0.226	0.996	-19.0	176.3	579	515	277
72	0.014	0.996	-43.1	10.9	36	11	506	26	0.261	0.996	-17.7	203.6	668	601	247
71	0.015	0.996	-42.5	11.7	38	13	504	25	0.297	0.996	-16.6	231.7	760	689	219
70	0.017	0.996	-41.4	13.3	44	15	499	24	0.333	0.996	-15.6	259.8	852	779	193
69	0.021	0.996	-39.6	16.4	54	19	490	23	0.371	0.996	-14.7	289.5	950	874	169
68	0.025	0.996	-38.1	19.5	64	24	481	22	0.409	0.996	-13.8	319.1	1047	971	148
67	0.028	0.996	-37.1	21.8	72	28	474	21	0.448	0.996	-13.0	349.5	1147	1071	129
66	0.032	0.996	-36.0	25.0	82	33	465	20	0.487	0.996	-12.3	380.0	1247	1171	114
65	0.035	0.996	-35.2	27.3	90	38	459	19	0.526	0.996	-11.6	410.4	1346	1273	102
64	0.041	0.996	-33.8	32.0	105	46	446	18	0.564	0.996	-11.0	440.1	1444	1373	94
63	0.046	0.996	-32.8	35.9	118	53	435	17	0.603	0.996	-10.4	470.5	1544	1476	89
62	0.051	0.996	-31.9	39.8	131	61	425	16	0.642	0.996	-9.9	500.9	1643	1580	87
61	0.056	0.996	-31.1	43.7	143	69	415	15	0.68	0.996	-9.4	530.6	1741	1681	89
60	0.061	0.996	-30.3	47.6	156	78	405	14	0.715	0.996	-9.0	557.9	1830	1776	97
59	0.069	0.996	-29.3	53.8	177	91	389	13	0.749	0.996	-8.6	584.4	1917	1868	109
58	0.077	0.996	-28.3	60.1	197	104	373	12	0.782	0.996	-8.2	610.1	2002	1958	124
57	0.084	0.996	-27.6	65.5	215	117	360	11	0.814	0.996	-7.8	635.1	2084	2045	142
56	0.09	0.996	-27.0	70.2	230	129	349	10	0.845	0.996	-7.5	659.3	2163	2130	164
55	0.096	0.996	-26.4	74.9	246	141	339	9	0.87	0.996	-7.3	678.8	2227	2200	192
54	0.104	0.996	-25.7	81.1	266	156	325	8	0.893	0.996	-7.0	696.8	2286	2264	222
53	0.111	0.996	-25.1	86.6	284	171	313	7	0.915	0.996	-6.8	713.9	2342	2325	255
52	0.117	0.996	-24.7	91.3	300	184	304	6	0.935	0.996	-6.6	729.5	2393	2380	290
51	0.121	0.996	-24.4	94.4	310	195	299	5	0.952	0.996	-6.5	742.8	2437	2428	328
50	0.125	0.996	-24.1	97.5	320	206	295	4	0.966	0.996	-6.4	753.7	2473	2467	368
49	0.128	0.996	-23.9	99.9	328	215	293	3	0.978	0.996	-6.2	763.1	2504	2500	409
48	0.131	0.996	-23.7	102.2	335	224	291	2	0.987	0.996	-6.2	770.1	2527	2525	452
47	0.131	0.996	-23.7	102.2	335	229	295	1	0.995	0.996	-6.1	776.3	2547	2547	496
46	0.13	0.996	-23.8	101.4	333	231	301	0	1	0.996	-6.1	780.2	2560	2560	540
45	0.127	0.996	-24.0	99.1	325	230	310								

Interfering Field Strength Vs. Distance Graph **Figure 9**

Antenna **CL-FM Array Vert. Pol. Stack @ 0.87 WL**
RCAGL ***455*** feet ERP ***0.25*** kW
Interfering Contour ***103.3*** dBu -6.0206 dBk

17° AZIM 408 MTS ELEV. TERR

Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)	Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)
90	0.01	0.983	-46.2	7.7	25	0	430	44	0.123	0.983	-24.4	94.7	311	224	239
89	0.01	0.983	-46.2	7.7	25	0	430	43	0.117	0.983	-24.8	90.1	296	216	253
88	0.01	0.983	-46.2	7.7	25	1	430	42	0.109	0.983	-25.4	83.9	275	205	271
87	0.01	0.983	-46.2	7.7	25	1	430	41	0.099	0.983	-26.3	76.2	250	189	291
86	0.01	0.983	-46.2	7.7	25	2	430	40	0.087	0.983	-27.4	67.0	220	168	314
85	0.01	0.983	-46.2	7.7	25	2	430	39	0.073	0.983	-28.9	56.2	184	143	339
84	0.01	0.983	-46.2	7.7	25	3	430	38	0.057	0.983	-31.1	43.9	144	113	366
83	0.01	0.983	-46.2	7.7	25	3	430	37	0.039	0.983	-34.3	30.0	99	79	396
82	0.01	0.983	-46.2	7.7	25	4	430	36	0.019	0.983	-40.6	14.6	48	39	427
81	0.01	0.983	-46.2	7.7	25	4	430	35	0.01	0.983	-46.2	7.7	25	21	441
80	0.01	0.983	-46.2	7.7	25	4	430	34	0.025	0.983	-38.2	19.3	63	52	420
79	0.01	0.983	-46.2	7.7	25	5	430	33	0.049	0.983	-32.4	37.7	124	104	388
78	0.01	0.983	-46.2	7.7	25	5	430	32	0.075	0.983	-28.7	57.8	189	161	355
77	0.01	0.983	-46.2	7.7	25	6	430	31	0.102	0.983	-26.0	78.5	258	221	322
76	0.01	0.983	-46.2	7.7	25	6	430	30	0.131	0.983	-23.8	100.9	331	287	290
75	0.01	0.983	-46.2	7.7	25	7	431	29	0.161	0.983	-22.0	124.0	407	356	258
74	0.01	0.983	-46.2	7.7	25	7	431	28	0.193	0.983	-20.5	148.6	488	431	226
73	0.012	0.983	-44.6	9.2	30	9	426	27	0.226	0.983	-19.1	174.0	571	509	196
72	0.014	0.983	-43.2	10.8	35	11	421	26	0.261	0.983	-17.8	201.0	659	593	166
71	0.015	0.983	-42.6	11.6	38	12	419	25	0.297	0.983	-16.7	228.7	750	680	138
70	0.017	0.983	-41.6	13.1	43	15	415	24	0.333	0.983	-15.7	256.4	841	769	113
69	0.021	0.983	-39.7	16.2	53	19	405	23	0.371	0.983	-14.8	285.7	937	863	89
68	0.025	0.983	-38.2	19.3	63	24	396	22	0.409	0.983	-13.9	315.0	1033	958	68
67	0.028	0.983	-37.2	21.6	71	28	390	21	0.448	0.983	-13.1	345.0	1132	1057	49
66	0.032	0.983	-36.1	24.6	81	33	381	20	0.487	0.983	-12.4	375.0	1230	1156	34
65	0.035	0.983	-35.3	27.0	88	37	375	19	0.526	0.983	-11.7	405.1	1329	1257	22
64	0.041	0.983	-33.9	31.6	104	45	362	18	0.564	0.983	-11.1	434.3	1425	1355	15
63	0.046	0.983	-32.9	35.4	116	53	351	17	0.603	0.983	-10.6	464.3	1523	1457	10
62	0.051	0.983	-32.0	39.3	129	60	341	16	0.642	0.983	-10.0	494.4	1622	1559	8
61	0.056	0.983	-31.2	43.1	141	69	331	15	0.68	0.983	-9.5	523.6	1718	1659	10
60	0.061	0.983	-30.5	47.0	154	77	322	14	0.715	0.983	-9.1	550.6	1806	1753	18
59	0.069	0.983	-29.4	53.1	174	90	306	13	0.749	0.983	-8.7	576.8	1892	1844	29
58	0.077	0.983	-28.4	59.3	195	103	290	12	0.782	0.983	-8.3	602.2	1976	1933	44
57	0.084	0.983	-27.7	64.7	212	116	277	11	0.814	0.983	-8.0	626.8	2057	2019	63
56	0.09	0.983	-27.1	69.3	227	127	266	10	0.845	0.983	-7.6	650.7	2135	2102	84
55	0.096	0.983	-26.5	73.9	243	139	256	9	0.87	0.983	-7.4	670.0	2198	2171	111
54	0.104	0.983	-25.8	80.1	263	154	242	8	0.893	0.983	-7.2	687.7	2256	2234	141
53	0.111	0.983	-25.3	85.5	280	169	231	7	0.915	0.983	-6.9	704.6	2312	2294	173
52	0.117	0.983	-24.8	90.1	296	182	222	6	0.935	0.983	-6.8	720.0	2362	2349	208
51	0.121	0.983	-24.5	93.2	306	192	217	5	0.952	0.983	-6.6	733.1	2405	2396	245
50	0.125	0.983	-24.2	96.3	316	203	213	4	0.966	0.983	-6.5	743.9	2441	2435	285
49	0.128	0.983	-24.0	98.6	323	212	211	3	0.978	0.983	-6.4	753.1	2471	2467	326
48	0.131	0.983	-23.8	100.9	331	221	209	2	0.987	0.983	-6.3	760.0	2494	2492	368
47	0.131	0.983	-23.8	100.9	331	226	213	1	0.995	0.983	-6.2	766.2	2514	2513	411
46	0.13	0.983	-23.9	100.1	328	228	219	0	1	0.983	-6.2	770.1	2526	2526	455
45	0.127	0.983	-24.1	97.8	321	227	228								

Interfering Field Strength Vs. Distance Graph **Figure 10**

Antenna **CL-FM Array Vert. Pol. Stack @ 0.87 WL**
RCAGL ***445*** feet ERP ***0.25*** kW
Interfering Contour ***103.3*** dBu -6.0206 dBk

20° AZIM 411 MTS ELEV. TERR

Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)	Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)
90	0.01	0.973	-46.3	7.6	25	0	420	44	0.123	0.973	-24.5	93.8	308	221	231
89	0.01	0.973	-46.3	7.6	25	0	420	43	0.117	0.973	-24.9	89.2	293	214	245
88	0.01	0.973	-46.3	7.6	25	1	420	42	0.109	0.973	-25.5	83.1	273	203	263
87	0.01	0.973	-46.3	7.6	25	1	420	41	0.099	0.973	-26.3	75.5	248	187	283
86	0.01	0.973	-46.3	7.6	25	2	420	40	0.087	0.973	-27.5	66.3	218	167	305
85	0.01	0.973	-46.3	7.6	25	2	420	39	0.073	0.973	-29.0	55.6	183	142	330
84	0.01	0.973	-46.3	7.6	25	3	420	38	0.057	0.973	-31.1	43.4	143	112	357
83	0.01	0.973	-46.3	7.6	25	3	420	37	0.039	0.973	-34.4	29.7	98	78	386
82	0.01	0.973	-46.3	7.6	25	3	420	36	0.019	0.973	-40.7	14.5	48	38	417
81	0.01	0.973	-46.3	7.6	25	4	420	35	0.01	0.973	-46.3	7.6	25	20	431
80	0.01	0.973	-46.3	7.6	25	4	420	34	0.025	0.973	-38.3	19.1	63	52	410
79	0.01	0.973	-46.3	7.6	25	5	420	33	0.049	0.973	-32.5	37.3	123	103	378
78	0.01	0.973	-46.3	7.6	25	5	421	32	0.075	0.973	-28.8	57.2	188	159	346
77	0.01	0.973	-46.3	7.6	25	6	421	31	0.102	0.973	-26.1	77.7	255	219	314
76	0.01	0.973	-46.3	7.6	25	6	421	30	0.131	0.973	-23.9	99.9	328	284	281
75	0.01	0.973	-46.3	7.6	25	6	421	29	0.161	0.973	-22.1	122.7	403	352	250
74	0.01	0.973	-46.3	7.6	25	7	421	28	0.193	0.973	-20.5	147.1	483	426	218
73	0.012	0.973	-44.7	9.1	30	9	416	27	0.226	0.973	-19.2	172.3	565	504	188
72	0.014	0.973	-43.3	10.7	35	11	412	26	0.261	0.973	-17.9	198.9	653	587	159
71	0.015	0.973	-42.7	11.4	38	12	410	25	0.297	0.973	-16.8	226.4	743	673	131
70	0.017	0.973	-41.6	13.0	43	15	405	24	0.333	0.973	-15.8	253.8	833	761	106
69	0.021	0.973	-39.8	16.0	53	19	396	23	0.371	0.973	-14.9	282.8	928	854	82
68	0.025	0.973	-38.3	19.1	63	23	387	22	0.409	0.973	-14.0	311.7	1023	948	62
67	0.028	0.973	-37.3	21.3	70	27	381	21	0.448	0.973	-13.2	341.5	1120	1046	44
66	0.032	0.973	-36.2	24.4	80	33	372	20	0.487	0.973	-12.5	371.2	1218	1144	28
65	0.035	0.973	-35.4	26.7	88	37	366	19	0.526	0.973	-11.8	400.9	1315	1244	17
64	0.041	0.973	-34.0	31.3	103	45	353	18	0.564	0.973	-11.2	429.9	1410	1341	9
63	0.046	0.973	-33.0	35.1	115	52	343	17	0.603	0.973	-10.7	459.6	1508	1442	4
62	0.051	0.973	-32.1	38.9	128	60	332	16	0.642	0.973	-10.1	489.3	1605	1543	2
61	0.056	0.973	-31.3	42.7	140	68	323	15	0.68	0.973	-9.6	518.3	1701	1643	5
60	0.061	0.973	-30.6	46.5	153	76	313	14	0.715	0.973	-9.2	545.0	1788	1735	12
59	0.069	0.973	-29.5	52.6	173	89	297	13	0.749	0.973	-8.8	570.9	1873	1825	24
58	0.077	0.973	-28.5	58.7	193	102	282	12	0.782	0.973	-8.4	596.1	1956	1913	38
57	0.084	0.973	-27.8	64.0	210	114	269	11	0.814	0.973	-8.0	620.5	2036	1998	57
56	0.09	0.973	-27.2	68.6	225	126	258	10	0.845	0.973	-7.7	644.1	2113	2081	78
55	0.096	0.973	-26.6	73.2	240	138	248	9	0.87	0.973	-7.5	663.1	2176	2149	105
54	0.104	0.973	-25.9	79.3	260	153	235	8	0.893	0.973	-7.2	680.7	2233	2211	134
53	0.111	0.973	-25.4	84.6	278	167	223	7	0.915	0.973	-7.0	697.4	2288	2271	166
52	0.117	0.973	-24.9	89.2	293	180	214	6	0.935	0.973	-6.8	712.7	2338	2325	201
51	0.121	0.973	-24.6	92.2	303	190	210	5	0.952	0.973	-6.7	725.6	2381	2372	238
50	0.125	0.973	-24.3	95.3	313	201	206	4	0.966	0.973	-6.6	736.3	2416	2410	276
49	0.128	0.973	-24.1	97.6	320	210	203	3	0.978	0.973	-6.5	745.5	2446	2442	317
48	0.131	0.973	-23.9	99.9	328	219	202	2	0.987	0.973	-6.4	752.3	2468	2467	359
47	0.131	0.973	-23.9	99.9	328	223	205	1	0.995	0.973	-6.3	758.4	2488	2488	402
46	0.13	0.973	-24.0	99.1	325	226	211	0	1	0.973	-6.3	762.2	2501	2501	445
45	0.127	0.973	-24.2	96.8	318	225	220								

Interfering Field Strength Vs. Distance Graph **Figure 11**

Antenna **CL-FM Array Vert. Pol. Stack @ 0.87 WL**
RCAGL ***481*** feet ERP ***0.25*** kW
Interfering Contour ***103.3*** dBu -6.0206 dBk

25° **400 MTS ELEV. TERR**

Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)	Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)
90	0.01	0.941	-46.5	7.4	24	0	457	44	0.123	0.941	-24.8	90.7	297	214	274
89	0.01	0.941	-46.5	7.4	24	0	457	43	0.117	0.941	-25.2	86.2	283	207	288
88	0.01	0.941	-46.5	7.4	24	1	457	42	0.109	0.941	-25.8	80.4	264	196	305
87	0.01	0.941	-46.5	7.4	24	1	457	41	0.099	0.941	-26.6	73.0	239	181	324
86	0.01	0.941	-46.5	7.4	24	2	457	40	0.087	0.941	-27.8	64.1	210	161	346
85	0.01	0.941	-46.5	7.4	24	2	457	39	0.073	0.941	-29.3	53.8	177	137	370
84	0.01	0.941	-46.5	7.4	24	3	457	38	0.057	0.941	-31.4	42.0	138	109	396
83	0.01	0.941	-46.5	7.4	24	3	457	37	0.039	0.941	-34.7	28.7	94	75	424
82	0.01	0.941	-46.5	7.4	24	3	457	36	0.019	0.941	-41.0	14.0	46	37	454
81	0.01	0.941	-46.5	7.4	24	4	457	35	0.01	0.941	-46.5	7.4	24	20	467
80	0.01	0.941	-46.5	7.4	24	4	457	34	0.025	0.941	-38.6	18.4	60	50	447
79	0.01	0.941	-46.5	7.4	24	5	457	33	0.049	0.941	-32.7	36.1	119	99	416
78	0.01	0.941	-46.5	7.4	24	5	457	32	0.075	0.941	-29.0	55.3	181	154	385
77	0.01	0.941	-46.5	7.4	24	5	457	31	0.102	0.941	-26.4	75.2	247	211	354
76	0.01	0.941	-46.5	7.4	24	6	458	30	0.131	0.941	-24.2	96.6	317	274	323
75	0.01	0.941	-46.5	7.4	24	6	458	29	0.161	0.941	-22.4	118.7	389	341	292
74	0.01	0.941	-46.5	7.4	24	7	458	28	0.193	0.941	-20.8	142.3	467	412	262
73	0.012	0.941	-45.0	8.8	29	8	453	27	0.226	0.941	-19.5	166.6	547	487	233
72	0.014	0.941	-43.6	10.3	34	10	449	26	0.261	0.941	-18.2	192.4	631	567	204
71	0.015	0.941	-43.0	11.1	36	12	447	25	0.297	0.941	-17.1	218.9	718	651	177
70	0.017	0.941	-41.9	12.5	41	14	442	24	0.333	0.941	-16.1	245.5	805	736	153
69	0.021	0.941	-40.1	15.5	51	18	434	23	0.371	0.941	-15.2	273.5	897	826	130
68	0.025	0.941	-38.6	18.4	60	23	425	22	0.409	0.941	-14.3	301.5	989	917	110
67	0.028	0.941	-37.6	20.6	68	26	419	21	0.448	0.941	-13.5	330.2	1083	1012	93
66	0.032	0.941	-36.4	23.6	77	31	410	20	0.487	0.941	-12.8	359.0	1178	1107	78
65	0.035	0.941	-35.7	25.8	85	36	404	19	0.526	0.941	-12.1	387.7	1272	1203	67
64	0.041	0.941	-34.3	30.2	99	43	392	18	0.564	0.941	-11.5	415.8	1364	1297	59
63	0.046	0.941	-33.3	33.9	111	51	382	17	0.603	0.941	-10.9	444.5	1458	1395	55
62	0.051	0.941	-32.4	37.6	123	58	372	16	0.642	0.941	-10.4	473.3	1553	1493	53
61	0.056	0.941	-31.6	41.3	135	66	363	15	0.68	0.941	-9.9	501.3	1645	1589	55
60	0.061	0.941	-30.8	45.0	148	74	353	14	0.715	0.941	-9.5	527.1	1729	1678	63
59	0.069	0.941	-29.8	50.9	167	86	338	13	0.749	0.941	-9.1	552.1	1811	1765	74
58	0.077	0.941	-28.8	56.8	186	99	323	12	0.782	0.941	-8.7	576.5	1891	1850	88
57	0.084	0.941	-28.1	61.9	203	111	311	11	0.814	0.941	-8.3	600.0	1969	1932	105
56	0.09	0.941	-27.5	66.3	218	122	301	10	0.845	0.941	-8.0	622.9	2044	2013	126
55	0.096	0.941	-26.9	70.8	232	133	291	9	0.87	0.941	-7.8	641.3	2104	2078	152
54	0.104	0.941	-26.2	76.7	252	148	278	8	0.893	0.941	-7.5	658.3	2160	2139	180
53	0.111	0.941	-25.6	81.8	268	162	267	7	0.915	0.941	-7.3	674.5	2213	2196	211
52	0.117	0.941	-25.2	86.2	283	174	258	6	0.935	0.941	-7.1	689.2	2261	2249	245
51	0.121	0.941	-24.9	89.2	293	184	254	5	0.952	0.941	-7.0	701.8	2302	2294	280
50	0.125	0.941	-24.6	92.1	302	194	249	4	0.966	0.941	-6.8	712.1	2336	2331	318
49	0.128	0.941	-24.4	94.4	310	203	247	3	0.978	0.941	-6.7	720.9	2365	2362	357
48	0.131	0.941	-24.2	96.6	317	212	246	2	0.987	0.941	-6.7	727.6	2387	2386	398
47	0.131	0.941	-24.2	96.6	317	216	249	1	0.995	0.941	-6.6	733.5	2406	2406	439
46	0.13	0.941	-24.3	95.8	314	218	255	0	1	0.941	-6.5	737.2	2418	2418	481
45	0.127	0.941	-24.5	93.6	307	217	264								

Interfering Field Strength Vs. Distance Graph **Figure 12**

Antenna CL-FM Array Vert. Pol. Stack @ 0.87 WL
RCAGL 448 ***feet*** ERP 0.25 ***kW***
Interfering C 103.3 ***dBu*** -6.0206 dBk

41° **410 MTS ELEV. TERR**

Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)	Depression Angle	VRF	HRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)
90	0.01	0.818	-47.8	6.4	21	0	427	44	0.123	0.818	-26.0	78.8	259	186	268
89	0.01	0.818	-47.8	6.4	21	0	427	43	0.117	0.818	-26.4	75.0	246	180	280
88	0.01	0.818	-47.8	6.4	21	1	427	42	0.109	0.818	-27.0	69.8	229	170	295
87	0.01	0.818	-47.8	6.4	21	1	427	41	0.099	0.818	-27.9	63.4	208	157	311
86	0.01	0.818	-47.8	6.4	21	1	427	40	0.087	0.818	-29.0	55.7	183	140	330
85	0.01	0.818	-47.8	6.4	21	2	427	39	0.073	0.818	-30.5	46.8	153	119	351
84	0.01	0.818	-47.8	6.4	21	2	427	38	0.057	0.818	-32.6	36.5	120	94	374
83	0.01	0.818	-47.8	6.4	21	3	427	37	0.039	0.818	-35.9	25.0	82	65	399
82	0.01	0.818	-47.8	6.4	21	3	427	36	0.019	0.818	-42.2	12.2	40	32	425
81	0.01	0.818	-47.8	6.4	21	3	427	35	0.01	0.818	-47.8	6.4	21	17	436
80	0.01	0.818	-47.8	6.4	21	4	427	34	0.025	0.818	-39.8	16.0	53	44	419
79	0.01	0.818	-47.8	6.4	21	4	427	33	0.049	0.818	-34.0	31.4	103	86	392
78	0.01	0.818	-47.8	6.4	21	4	427	32	0.075	0.818	-30.3	48.1	158	134	364
77	0.01	0.818	-47.8	6.4	21	5	428	31	0.102	0.818	-27.6	65.4	214	184	338
76	0.01	0.818	-47.8	6.4	21	5	428	30	0.131	0.818	-25.4	83.9	275	239	310
75	0.01	0.818	-47.8	6.4	21	5	428	29	0.161	0.818	-23.6	103.2	338	296	284
74	0.01	0.818	-47.8	6.4	21	6	428	28	0.193	0.818	-22.1	123.7	406	358	258
73	0.012	0.818	-46.2	7.7	25	7	424	27	0.226	0.818	-20.7	144.8	475	423	232
72	0.014	0.818	-44.8	9.0	29	9	420	26	0.261	0.818	-19.4	167.2	549	493	207
71	0.015	0.818	-44.2	9.6	32	10	418	25	0.297	0.818	-18.3	190.3	624	566	184
70	0.017	0.818	-43.2	10.9	36	12	414	24	0.333	0.818	-17.3	213.4	700	640	163
69	0.021	0.818	-41.3	13.5	44	16	407	23	0.371	0.818	-16.4	237.7	780	718	143
68	0.025	0.818	-39.8	16.0	53	20	399	22	0.409	0.818	-15.5	262.1	860	797	126
67	0.028	0.818	-38.8	17.9	59	23	394	21	0.448	0.818	-14.7	287.1	942	879	110
66	0.032	0.818	-37.7	20.5	67	27	387	20	0.487	0.818	-14.0	312.1	1024	962	98
65	0.035	0.818	-36.9	22.4	74	31	381	19	0.526	0.818	-13.3	337.1	1106	1046	88
64	0.041	0.818	-35.5	26.3	86	38	371	18	0.564	0.818	-12.7	361.4	1186	1128	82
63	0.046	0.818	-34.5	29.5	97	44	362	17	0.603	0.818	-12.2	386.4	1268	1212	77
62	0.051	0.818	-33.6	32.7	107	50	353	16	0.642	0.818	-11.6	411.4	1350	1297	76
61	0.056	0.818	-32.8	35.9	118	57	345	15	0.68	0.818	-11.1	435.7	1430	1381	78
60	0.061	0.818	-32.1	39.1	128	64	337	14	0.715	0.818	-10.7	458.2	1503	1459	84
59	0.069	0.818	-31.0	44.2	145	75	324	13	0.749	0.818	-10.3	480.0	1575	1534	94
58	0.077	0.818	-30.0	49.3	162	86	311	12	0.782	0.818	-9.9	501.1	1644	1608	106
57	0.084	0.818	-29.3	53.8	177	96	300	11	0.814	0.818	-9.6	521.6	1711	1680	121
56	0.09	0.818	-28.7	57.7	189	106	291	10	0.845	0.818	-9.2	541.5	1776	1750	140
55	0.096	0.818	-28.1	61.5	202	116	283	9	0.87	0.818	-9.0	557.5	1829	1807	162
54	0.104	0.818	-27.4	66.6	219	129	271	8	0.893	0.818	-8.7	572.2	1877	1859	187
53	0.111	0.818	-26.9	71.1	233	140	262	7	0.915	0.818	-8.5	586.3	1924	1909	214
52	0.117	0.818	-26.4	75.0	246	151	254	6	0.935	0.818	-8.3	599.1	1966	1955	243
51	0.121	0.818	-26.1	77.5	254	160	250	5	0.952	0.818	-8.2	610.0	2001	1994	274
50	0.125	0.818	-25.8	80.1	263	169	247	4	0.966	0.818	-8.1	619.0	2031	2026	306
49	0.128	0.818	-25.6	82.0	269	177	245	3	0.978	0.818	-8.0	626.7	2056	2053	340
48	0.131	0.818	-25.4	83.9	275	184	243	2	0.987	0.818	-7.9	632.5	2075	2074	376
47	0.131	0.818	-25.4	83.9	275	188	247	1	0.995	0.818	-7.8	637.6	2092	2092	411
46	0.13	0.818	-25.5	83.3	273	190	251	0	1	0.818	-7.8	640.8	2102	2102	448
45	0.127	0.818	-25.7	81.4	267	189	259								

TECHNICAL EXHIBIT
APPLICATION FOR
MINOR CHANGE IN LICENSED FACILITY
AURIO A. MATOS BARRETO.
FM TRANSLATOR STATION W279BU
SAN JUAN, PUERTO RICO
FACILITY ID 143465

CH 279 0.25 KW 547 M AMSL

Notification Letter & Letter of Consent - Arecibo Observatory

{two sheets follow}

du Treil, Lundin & Rackley, Inc.
Consulting Engineers

201 Fletcher Ave.
Sarasota, FL 34237-6019
941-329-6000
941-329-6031 FAX

Grafton Olivera
Direct Dial 941-329-6001
e-mail: grafton@dlr.com

February 23 2015

Via email (prcz@naic.edu)

Angel M. Vázquez, Spectrum Manager
National Astronomy and Ionosphere Center
Arecibo Observatory
HC3 Box 53995
Arecibo, PR 00612

Gentleman:

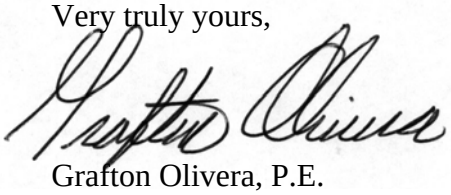
On behalf of our client, Aurio A. Matos Barreto, licensee of FM Translator Station W279BU, Gurabo, Puerto Rico, in accordance with Section 73.1030 of the FCC Rules, we are hereby notifying you of proposed changes in the facility of W279BU. The particulars of the proposal are as follows:

Proposed Facility:

Geographical coordinates of antenna location (NAD27): 18-16-49.3 / 66-06-35.3
Antenna height (Scala CL-FM/Vpol Log Periodic Array): 46.6 m AGL; 546.7 m AMSL
Antenna Gain: 8.0 dB
Antenna Pattern: See attachment
Antenna Orientation: 4° True
Operating channel: 279 (103.7 MHz)
Type of emission: F3E
Effective isotropic radiated power: 0.41 kW – Vertical Polarization

Please review this proposal and let us know your findings. Please feel free to communicate via email (mailto:Grafton@dlr.com), telefax (941-329-6030) or regular mail.

Very truly yours,



Grafton Olivera, P.E.

ARECIBO OBSERVATORY

The William E. Gordon Telescope

March 30, 2015

Mr. Grafton Olivera, P.E.
du Treil, Lundin & Rackley, Inc.
201 Fletcher Ave.
Sarasota, FL 34237-6019

Re: Aurio A. Matos Barreto
Call Sign W279BV

Dear Grafton Olivera:

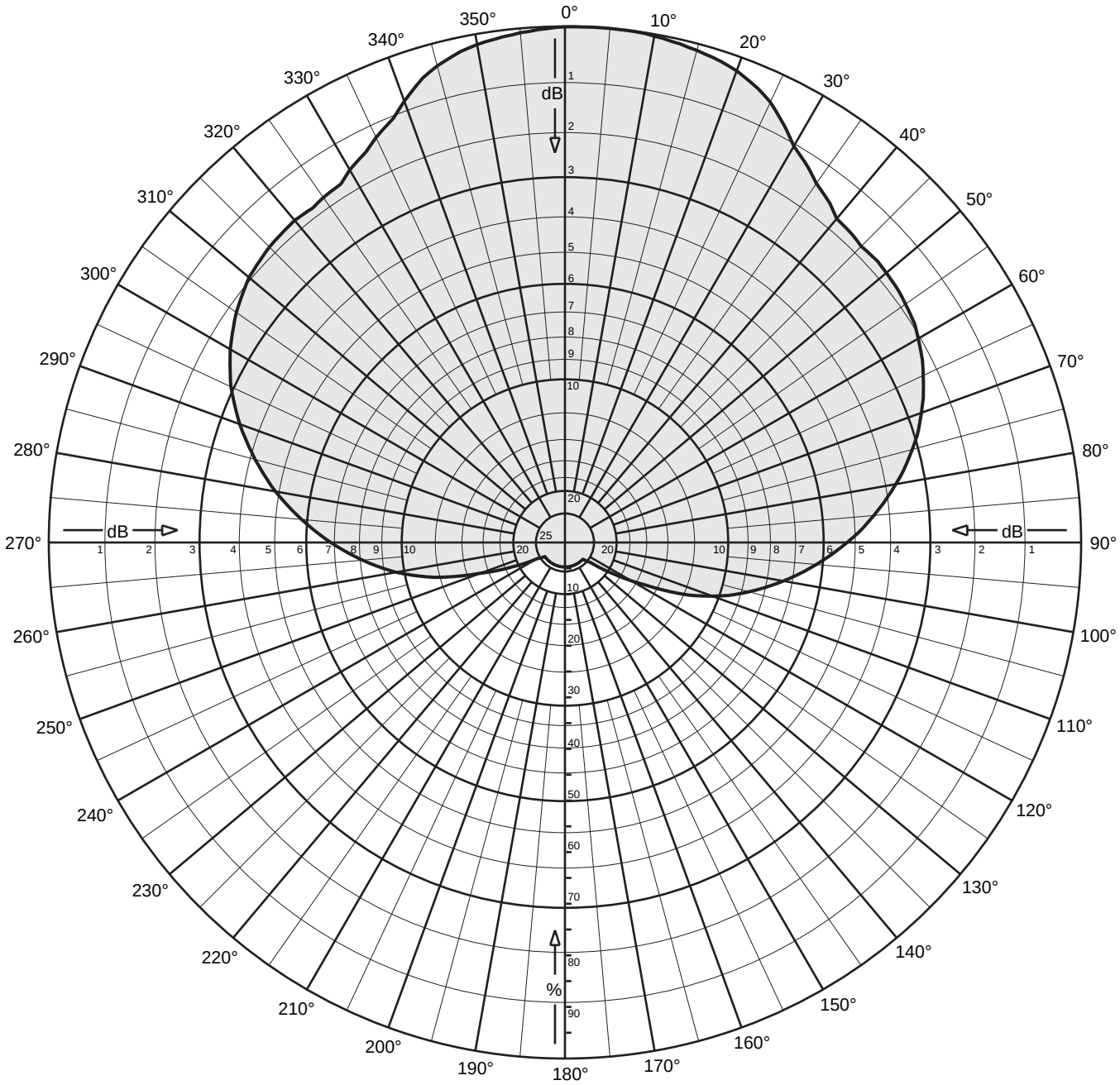
Thank you very much for the copy of your FCC application sent to us in accordance with the Puerto Rico Coordination zone agreements. We have considered the technical aspects of your application and find that your installation/path originating in San Juan is unlikely to cause harmful interference to the passive use of the Radio Astronomy bands at the Observatory. We therefore have no objection to your proposed installation.

Sincerely yours,

Angel M. Vázquez
Spectrum Manager

AV:ws

Cc: PRCZ files [File #00150030055]



Four CL-FM log-periodics (103.7 MHz)
Oriented two each at 48 and 320 degrees
Maximum array gain: 8.0 dBd (x 6.31)
Vertical polarization
Vertical stack @ 0.87 wavelength
Horizontal plane pattern

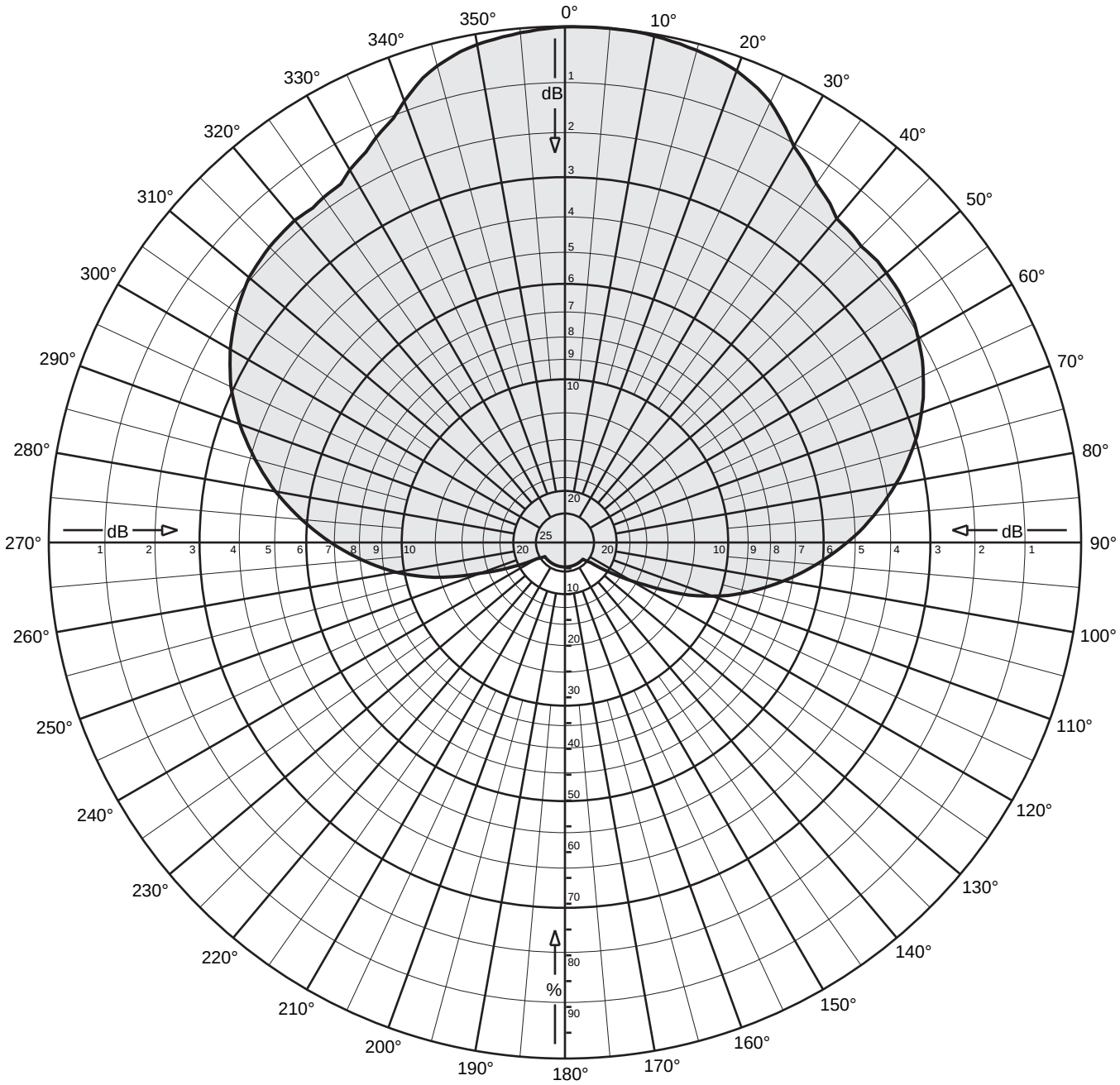
KATHREIN
SCALA DIVISION
Post Office Box 4580
Medford, OR 97501 (USA)
Phone:(541)779-6500
Fax:(541)779-3991
http://www.kathrein-scala.com

TECHNICAL EXHIBIT
APPLICATION FOR
MINOR CHANGE IN LICENSED FACILITY
AURIO A. MATOS BARRETO.
FM TRANSLATOR STATION W279BU
SAN JUAN, PUERTO RICO
FACILITY ID 143465

CH 279 0.25 KW 547 M AMSL

Antenna Pattern Data

{eight sheets follow}



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Horizontal plane pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	0.999	-0.01	7.99	6.30	45	0.812	-1.81	6.19	4.16
1	1.000	-0.00	8.00	6.30	46	0.813	-1.80	6.20	4.17
2	1.000	-0.00	8.00	6.30	47	0.814	-1.79	6.21	4.18
3	1.000	-0.00	8.00	6.31	48	0.815	-1.78	6.22	4.19
4	1.000	0.00	8.00	6.31	49	0.814	-1.79	6.21	4.18
5	1.000	0.00	8.00	6.31	50	0.813	-1.80	6.20	4.17
6	1.000	-0.00	8.00	6.30	51	0.812	-1.81	6.19	4.16
7	1.000	-0.00	8.00	6.30	52	0.811	-1.82	6.18	4.15
8	0.999	-0.01	7.99	6.30	53	0.810	-1.83	6.17	4.14
9	0.998	-0.01	7.99	6.29	54	0.808	-1.85	6.15	4.12
10	0.996	-0.03	7.97	6.26	55	0.805	-1.88	6.12	4.09
11	0.995	-0.04	7.96	6.25	56	0.803	-1.90	6.10	4.07
12	0.993	-0.06	7.94	6.22	57	0.801	-1.93	6.07	4.05
13	0.992	-0.07	7.93	6.21	58	0.799	-1.95	6.05	4.03
14	0.989	-0.10	7.90	6.17	59	0.795	-2.00	6.00	3.98
15	0.987	-0.11	7.89	6.15	60	0.790	-2.04	5.96	3.94
16	0.985	-0.14	7.86	6.12	61	0.786	-2.09	5.91	3.90
17	0.983	-0.15	7.85	6.09	62	0.782	-2.14	5.86	3.85
18	0.980	-0.18	7.82	6.06	63	0.777	-2.19	5.81	3.81
19	0.976	-0.21	7.79	6.01	64	0.772	-2.25	5.75	3.76
20	0.973	-0.24	7.76	5.97	65	0.766	-2.32	5.68	3.70
21	0.967	-0.29	7.71	5.90	66	0.760	-2.38	5.62	3.65
22	0.962	-0.34	7.66	5.83	67	0.754	-2.45	5.55	3.59
23	0.956	-0.39	7.61	5.77	68	0.749	-2.51	5.49	3.54
24	0.949	-0.45	7.55	5.68	69	0.742	-2.60	5.40	3.47
25	0.941	-0.52	7.48	5.59	70	0.735	-2.67	5.33	3.41
26	0.931	-0.62	7.38	5.47	71	0.728	-2.76	5.24	3.34
27	0.920	-0.72	7.28	5.35	72	0.721	-2.84	5.16	3.28
28	0.910	-0.82	7.18	5.23	73	0.714	-2.93	5.07	3.22
29	0.898	-0.93	7.07	5.09	74	0.705	-3.03	4.97	3.14
30	0.887	-1.04	6.96	4.96	75	0.697	-3.14	4.86	3.06
31	0.880	-1.11	6.89	4.88	76	0.688	-3.25	4.75	2.99
32	0.873	-1.18	6.82	4.81	77	0.679	-3.36	4.64	2.91
33	0.866	-1.25	6.75	4.73	78	0.670	-3.47	4.53	2.84
34	0.858	-1.33	6.67	4.64	79	0.661	-3.60	4.40	2.76
35	0.849	-1.42	6.58	4.55	80	0.651	-3.73	4.27	2.67
36	0.844	-1.47	6.53	4.50	81	0.641	-3.86	4.14	2.59
37	0.839	-1.52	6.48	4.44	82	0.631	-4.00	4.00	2.51
38	0.834	-1.58	6.42	4.39	83	0.621	-4.13	3.87	2.44
39	0.826	-1.66	6.34	4.31	84	0.611	-4.28	3.72	2.35
40	0.819	-1.73	6.27	4.23	85	0.601	-4.42	3.58	2.28
41	0.818	-1.74	6.26	4.22	86	0.590	-4.58	3.42	2.20
42	0.817	-1.75	6.25	4.21	87	0.580	-4.73	3.27	2.12
43	0.816	-1.77	6.23	4.20	88	0.570	-4.89	3.11	2.05
44	0.814	-1.79	6.21	4.18	89	0.558	-5.07	2.93	1.97

KATHREIN
SCALA DIVISION

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Vertical stack @ 0.87 wavelength
Horizontal plane pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
90	0.547	-5.25	2.75	1.89	135	0.047	-26.47	-18.47	0.01
91	0.535	-5.43	2.57	1.81	136	0.047	-26.47	-18.47	0.01
92	0.524	-5.62	2.38	1.73	137	0.047	-26.47	-18.47	0.01
93	0.512	-5.81	2.19	1.66	138	0.047	-26.47	-18.47	0.01
94	0.500	-6.01	1.99	1.58	139	0.047	-26.47	-18.47	0.01
95	0.489	-6.22	1.78	1.51	140	0.047	-26.47	-18.47	0.01
96	0.477	-6.43	1.57	1.44	141	0.047	-26.47	-18.47	0.01
97	0.466	-6.64	1.36	1.37	142	0.047	-26.47	-18.47	0.01
98	0.454	-6.86	1.14	1.30	143	0.047	-26.47	-18.47	0.01
99	0.442	-7.09	0.91	1.23	144	0.047	-26.47	-18.47	0.01
100	0.430	-7.34	0.66	1.16	145	0.047	-26.47	-18.47	0.01
101	0.418	-7.58	0.42	1.10	146	0.047	-26.47	-18.47	0.01
102	0.405	-7.84	0.16	1.04	147	0.047	-26.47	-18.47	0.01
103	0.394	-8.10	-0.10	0.98	148	0.047	-26.47	-18.47	0.01
104	0.381	-8.37	-0.37	0.92	149	0.047	-26.47	-18.47	0.01
105	0.369	-8.66	-0.66	0.86	150	0.047	-26.47	-18.47	0.01
106	0.357	-8.95	-0.95	0.80	151	0.047	-26.47	-18.47	0.01
107	0.345	-9.26	-1.26	0.75	152	0.047	-26.47	-18.47	0.01
108	0.332	-9.57	-1.57	0.70	153	0.047	-26.47	-18.47	0.01
109	0.318	-9.95	-1.95	0.64	154	0.047	-26.47	-18.47	0.01
110	0.304	-10.35	-2.35	0.58	155	0.047	-26.47	-18.47	0.01
111	0.290	-10.77	-2.77	0.53	156	0.047	-26.47	-18.47	0.01
112	0.275	-11.20	-3.20	0.48	157	0.047	-26.47	-18.47	0.01
113	0.261	-11.66	-3.66	0.43	158	0.047	-26.47	-18.47	0.01
114	0.244	-12.26	-4.26	0.37	159	0.047	-26.47	-18.47	0.01
115	0.226	-12.91	-4.91	0.32	160	0.047	-26.47	-18.47	0.01
116	0.209	-13.60	-5.60	0.28	161	0.047	-26.47	-18.47	0.01
117	0.191	-14.36	-6.36	0.23	162	0.047	-26.47	-18.47	0.01
118	0.174	-15.19	-7.19	0.19	163	0.047	-26.47	-18.47	0.01
119	0.161	-15.84	-7.84	0.16	164	0.047	-26.47	-18.47	0.01
120	0.149	-16.55	-8.55	0.14	165	0.047	-26.47	-18.47	0.01
121	0.136	-17.32	-9.32	0.12	166	0.047	-26.47	-18.47	0.01
122	0.123	-18.17	-10.17	0.10	167	0.047	-26.47	-18.47	0.01
123	0.111	-19.11	-11.11	0.08	168	0.047	-26.47	-18.47	0.01
124	0.101	-19.89	-11.89	0.06	169	0.047	-26.47	-18.47	0.01
125	0.092	-20.75	-12.75	0.05	170	0.047	-26.47	-18.47	0.01
126	0.082	-21.69	-13.69	0.04	171	0.047	-26.47	-18.47	0.01
127	0.073	-22.76	-14.76	0.03	172	0.047	-26.47	-18.47	0.01
128	0.063	-23.97	-15.97	0.03	173	0.047	-26.47	-18.47	0.01
129	0.060	-24.42	-16.42	0.02	174	0.047	-26.47	-18.47	0.01
130	0.057	-24.89	-16.89	0.02	175	0.047	-26.47	-18.47	0.01
131	0.054	-25.38	-17.38	0.02	176	0.047	-26.47	-18.47	0.01
132	0.051	-25.91	-17.91	0.02	177	0.047	-26.47	-18.47	0.01
133	0.047	-26.47	-18.47	0.01	178	0.047	-26.47	-18.47	0.01
134	0.047	-26.47	-18.47	0.01	179	0.047	-26.47	-18.47	0.01

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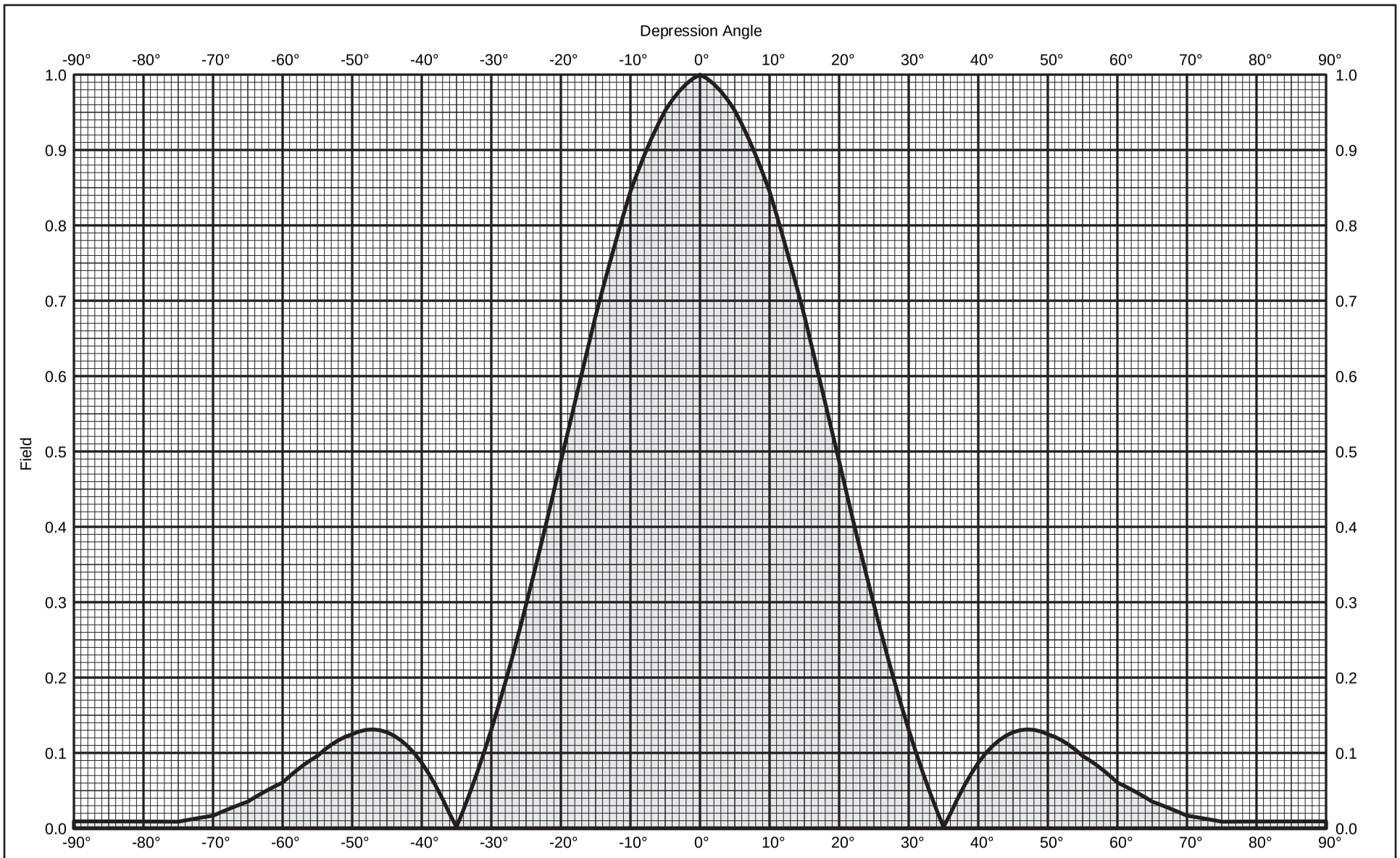
Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
180	0.047	-26.47	-18.47	0.01	225	0.047	-26.47	-18.47	0.01
181	0.047	-26.47	-18.47	0.01	226	0.047	-26.47	-18.47	0.01
182	0.047	-26.47	-18.47	0.01	227	0.047	-26.47	-18.47	0.01
183	0.047	-26.47	-18.47	0.01	228	0.047	-26.47	-18.47	0.01
184	0.047	-26.47	-18.47	0.01	229	0.047	-26.47	-18.47	0.01
185	0.047	-26.47	-18.47	0.01	230	0.047	-26.47	-18.47	0.01
186	0.047	-26.47	-18.47	0.01	231	0.047	-26.47	-18.47	0.01
187	0.047	-26.47	-18.47	0.01	232	0.047	-26.47	-18.47	0.01
188	0.047	-26.47	-18.47	0.01	233	0.047	-26.47	-18.47	0.01
189	0.047	-26.47	-18.47	0.01	234	0.047	-26.47	-18.47	0.01
190	0.047	-26.47	-18.47	0.01	235	0.047	-26.47	-18.47	0.01
191	0.047	-26.47	-18.47	0.01	236	0.051	-25.91	-17.91	0.02
192	0.047	-26.47	-18.47	0.01	237	0.054	-25.38	-17.38	0.02
193	0.047	-26.47	-18.47	0.01	238	0.057	-24.89	-16.89	0.02
194	0.047	-26.47	-18.47	0.01	239	0.060	-24.42	-16.42	0.02
195	0.047	-26.47	-18.47	0.01	240	0.063	-23.97	-15.97	0.03
196	0.047	-26.47	-18.47	0.01	241	0.073	-22.76	-14.76	0.03
197	0.047	-26.47	-18.47	0.01	242	0.082	-21.69	-13.69	0.04
198	0.047	-26.47	-18.47	0.01	243	0.092	-20.75	-12.75	0.05
199	0.047	-26.47	-18.47	0.01	244	0.101	-19.89	-11.89	0.06
200	0.047	-26.47	-18.47	0.01	245	0.111	-19.11	-11.11	0.08
201	0.047	-26.47	-18.47	0.01	246	0.123	-18.17	-10.17	0.10
202	0.047	-26.47	-18.47	0.01	247	0.136	-17.32	-9.32	0.12
203	0.047	-26.47	-18.47	0.01	248	0.149	-16.55	-8.55	0.14
204	0.047	-26.47	-18.47	0.01	249	0.161	-15.84	-7.84	0.16
205	0.047	-26.47	-18.47	0.01	250	0.174	-15.19	-7.19	0.19
206	0.047	-26.47	-18.47	0.01	251	0.191	-14.36	-6.36	0.23
207	0.047	-26.47	-18.47	0.01	252	0.209	-13.60	-5.60	0.28
208	0.047	-26.47	-18.47	0.01	253	0.226	-12.91	-4.91	0.32
209	0.047	-26.47	-18.47	0.01	254	0.244	-12.26	-4.26	0.37
210	0.047	-26.47	-18.47	0.01	255	0.261	-11.66	-3.66	0.43
211	0.047	-26.47	-18.47	0.01	256	0.275	-11.20	-3.20	0.48
212	0.047	-26.47	-18.47	0.01	257	0.290	-10.77	-2.77	0.53
213	0.047	-26.47	-18.47	0.01	258	0.304	-10.35	-2.35	0.58
214	0.047	-26.47	-18.47	0.01	259	0.318	-9.95	-1.95	0.64
215	0.047	-26.47	-18.47	0.01	260	0.332	-9.57	-1.57	0.70
216	0.047	-26.47	-18.47	0.01	261	0.345	-9.26	-1.26	0.75
217	0.047	-26.47	-18.47	0.01	262	0.357	-8.95	-0.95	0.80
218	0.047	-26.47	-18.47	0.01	263	0.369	-8.66	-0.66	0.86
219	0.047	-26.47	-18.47	0.01	264	0.381	-8.37	-0.37	0.92
220	0.047	-26.47	-18.47	0.01	265	0.394	-8.10	-0.10	0.98
221	0.047	-26.47	-18.47	0.01	266	0.405	-7.84	0.16	1.04
222	0.047	-26.47	-18.47	0.01	267	0.418	-7.58	0.42	1.10
223	0.047	-26.47	-18.47	0.01	268	0.430	-7.34	0.66	1.16
224	0.047	-26.47	-18.47	0.01	269	0.442	-7.09	0.91	1.23

KATHREIN
SCALA DIVISION

Four CL-FM log-periodics (103.7 MHz)
Oriented two each at 48 and 320 degrees
Maximum array gain: 8.0 dBd (x 6.31)
Vertical polarization

Vertical stack @ 0.87 wavelength
Horizontal plane pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
270	0.454	-6.86	1.14	1.30	315	0.810	-1.83	6.17	4.14
271	0.466	-6.64	1.36	1.37	316	0.811	-1.82	6.18	4.15
272	0.477	-6.43	1.57	1.44	317	0.812	-1.81	6.19	4.16
273	0.489	-6.22	1.78	1.51	318	0.813	-1.80	6.20	4.17
274	0.500	-6.01	1.99	1.58	319	0.814	-1.79	6.21	4.18
275	0.512	-5.81	2.19	1.66	320	0.815	-1.78	6.22	4.19
276	0.524	-5.62	2.38	1.73	321	0.814	-1.79	6.21	4.18
277	0.535	-5.43	2.57	1.81	322	0.813	-1.80	6.20	4.17
278	0.547	-5.25	2.75	1.89	323	0.812	-1.81	6.19	4.16
279	0.558	-5.07	2.93	1.97	324	0.814	-1.79	6.21	4.18
280	0.570	-4.89	3.11	2.05	325	0.816	-1.77	6.23	4.20
281	0.580	-4.73	3.27	2.12	326	0.817	-1.75	6.25	4.21
282	0.590	-4.58	3.42	2.20	327	0.818	-1.74	6.26	4.22
283	0.601	-4.42	3.58	2.28	328	0.819	-1.73	6.27	4.23
284	0.611	-4.28	3.72	2.35	329	0.826	-1.66	6.34	4.31
285	0.621	-4.13	3.87	2.44	330	0.834	-1.58	6.42	4.39
286	0.631	-4.00	4.00	2.51	331	0.839	-1.52	6.48	4.44
287	0.641	-3.86	4.14	2.59	332	0.844	-1.47	6.53	4.50
288	0.651	-3.73	4.27	2.67	333	0.849	-1.42	6.58	4.55
289	0.661	-3.60	4.40	2.76	334	0.858	-1.33	6.67	4.64
290	0.670	-3.47	4.53	2.84	335	0.866	-1.25	6.75	4.73
291	0.679	-3.36	4.64	2.91	336	0.873	-1.18	6.82	4.81
292	0.688	-3.25	4.75	2.99	337	0.880	-1.11	6.89	4.88
293	0.697	-3.14	4.86	3.06	338	0.887	-1.04	6.96	4.96
294	0.705	-3.03	4.97	3.14	339	0.898	-0.93	7.07	5.09
295	0.714	-2.93	5.07	3.22	340	0.910	-0.82	7.18	5.23
296	0.721	-2.84	5.16	3.28	341	0.920	-0.72	7.28	5.35
297	0.728	-2.76	5.24	3.34	342	0.931	-0.62	7.38	5.47
298	0.735	-2.67	5.33	3.41	343	0.941	-0.52	7.48	5.59
299	0.742	-2.60	5.40	3.47	344	0.949	-0.45	7.55	5.68
300	0.749	-2.51	5.49	3.54	345	0.956	-0.39	7.61	5.77
301	0.754	-2.45	5.55	3.59	346	0.962	-0.34	7.66	5.83
302	0.760	-2.38	5.62	3.65	347	0.967	-0.29	7.71	5.90
303	0.766	-2.32	5.68	3.70	348	0.973	-0.24	7.76	5.97
304	0.772	-2.25	5.75	3.76	349	0.976	-0.21	7.79	6.01
305	0.777	-2.19	5.81	3.81	350	0.980	-0.18	7.82	6.06
306	0.782	-2.14	5.86	3.85	351	0.983	-0.15	7.85	6.09
307	0.786	-2.09	5.91	3.90	352	0.985	-0.14	7.86	6.12
308	0.790	-2.04	5.96	3.94	353	0.987	-0.11	7.89	6.15
309	0.795	-2.00	6.00	3.98	354	0.989	-0.10	7.90	6.17
310	0.799	-1.95	6.05	4.03	355	0.992	-0.07	7.93	6.21
311	0.801	-1.93	6.07	4.05	356	0.993	-0.06	7.94	6.22
312	0.803	-1.90	6.10	4.07	357	0.995	-0.04	7.96	6.25
313	0.805	-1.88	6.12	4.09	358	0.996	-0.03	7.97	6.26
314	0.808	-1.85	6.15	4.12	359	0.998	-0.01	7.99	6.29



Four CL-FM log-periodics (103.7 MHz)

Oriented two each at 48 and 320 degrees

Maximum array gain: 8.0 dBd (x 6.31)

Vertical polarization

Vertical stack @ 0.87 wavelength

Vertical plane pattern

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Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
-90	0.010	-40.00	-32.00	0.00	-45	0.127	-17.89	-9.89	0.10
-89	0.010	-40.00	-32.00	0.00	-44	0.123	-18.20	-10.20	0.10
-88	0.010	-40.00	-32.00	0.00	-43	0.117	-18.65	-10.65	0.09
-87	0.010	-40.00	-32.00	0.00	-42	0.109	-19.28	-11.28	0.07
-86	0.010	-40.00	-32.00	0.00	-41	0.099	-20.11	-12.11	0.06
-85	0.010	-40.00	-32.00	0.00	-40	0.087	-21.22	-13.22	0.05
-84	0.010	-40.00	-32.00	0.00	-39	0.073	-22.78	-14.78	0.03
-83	0.010	-40.00	-32.00	0.00	-38	0.057	-24.94	-16.94	0.02
-82	0.010	-40.00	-32.00	0.00	-37	0.039	-28.21	-20.21	0.01
-81	0.010	-40.00	-32.00	0.00	-36	0.019	-34.24	-26.24	0.00
-80	0.010	-40.00	-32.00	0.00	-35	0.010	-40.00	-32.00	0.00
-79	0.010	-40.00	-32.00	0.00	-34	0.025	-32.19	-24.19	0.00
-78	0.010	-40.00	-32.00	0.00	-33	0.049	-26.21	-18.21	0.02
-77	0.010	-40.00	-32.00	0.00	-32	0.075	-22.53	-14.53	0.04
-76	0.010	-40.00	-32.00	0.00	-31	0.102	-19.82	-11.82	0.07
-75	0.010	-40.00	-32.00	0.00	-30	0.131	-17.67	-9.67	0.11
-74	0.010	-39.62	-31.62	0.00	-29	0.161	-15.85	-7.85	0.16
-73	0.012	-38.35	-30.35	0.00	-28	0.193	-14.28	-6.28	0.24
-72	0.014	-37.26	-29.26	0.00	-27	0.226	-12.90	-4.90	0.32
-71	0.015	-36.32	-28.32	0.00	-26	0.261	-11.67	-3.67	0.43
-70	0.017	-35.49	-27.49	0.00	-25	0.297	-10.55	-2.55	0.56
-69	0.021	-33.65	-25.65	0.00	-24	0.333	-9.54	-1.54	0.70
-68	0.025	-32.17	-24.17	0.00	-23	0.371	-8.62	-0.62	0.87
-67	0.028	-30.94	-22.94	0.01	-22	0.409	-7.77	0.23	1.05
-66	0.032	-29.91	-21.91	0.01	-21	0.448	-6.98	1.02	1.26
-65	0.035	-29.01	-21.01	0.01	-20	0.487	-6.25	1.75	1.50
-64	0.041	-27.74	-19.74	0.01	-19	0.526	-5.59	2.41	1.74
-63	0.046	-26.67	-18.67	0.01	-18	0.564	-4.97	3.03	2.01
-62	0.051	-25.77	-17.77	0.02	-17	0.603	-4.39	3.61	2.30
-61	0.056	-24.99	-16.99	0.02	-16	0.642	-3.85	4.15	2.60
-60	0.061	-24.33	-16.33	0.02	-15	0.680	-3.35	4.65	2.92
-59	0.069	-23.22	-15.22	0.03	-14	0.715	-2.91	5.09	3.23
-58	0.077	-22.30	-14.30	0.04	-13	0.749	-2.51	5.49	3.54
-57	0.084	-21.53	-13.53	0.04	-12	0.782	-2.13	5.87	3.86
-56	0.090	-20.89	-12.89	0.05	-11	0.814	-1.79	6.21	4.18
-55	0.096	-20.35	-12.35	0.06	-10	0.845	-1.46	6.54	4.51
-54	0.104	-19.66	-11.66	0.07	-9	0.870	-1.21	6.79	4.78
-53	0.111	-19.10	-11.10	0.08	-8	0.893	-0.98	7.02	5.03
-52	0.117	-18.66	-10.66	0.09	-7	0.915	-0.77	7.23	5.28
-51	0.121	-18.32	-10.32	0.09	-6	0.935	-0.59	7.41	5.51
-50	0.125	-18.07	-10.07	0.10	-5	0.952	-0.42	7.58	5.72
-49	0.128	-17.82	-9.82	0.10	-4	0.966	-0.30	7.70	5.89
-48	0.131	-17.68	-9.68	0.11	-3	0.978	-0.19	7.81	6.03
-47	0.131	-17.64	-9.64	0.11	-2	0.987	-0.11	7.89	6.15
-46	0.130	-17.71	-9.71	0.11	-1	0.995	-0.04	7.96	6.24
					0	1.000	0.00	8.00	6.31

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Vertical plane pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	8.00	6.31	45	0.127	-17.89	-9.89	0.10
1	0.995	-0.04	7.96	6.24	46	0.130	-17.71	-9.71	0.11
2	0.987	-0.11	7.89	6.15	47	0.131	-17.64	-9.64	0.11
3	0.978	-0.19	7.81	6.03	48	0.131	-17.68	-9.68	0.11
4	0.966	-0.30	7.70	5.89	49	0.128	-17.82	-9.82	0.10
5	0.952	-0.42	7.58	5.72	50	0.125	-18.07	-10.07	0.10
6	0.935	-0.59	7.41	5.51	51	0.121	-18.32	-10.32	0.09
7	0.915	-0.77	7.23	5.28	52	0.117	-18.66	-10.66	0.09
8	0.893	-0.98	7.02	5.03	53	0.111	-19.10	-11.10	0.08
9	0.870	-1.21	6.79	4.78	54	0.104	-19.66	-11.66	0.07
10	0.845	-1.46	6.54	4.51	55	0.096	-20.35	-12.35	0.06
11	0.814	-1.79	6.21	4.18	56	0.090	-20.89	-12.89	0.05
12	0.782	-2.13	5.87	3.86	57	0.084	-21.53	-13.53	0.04
13	0.749	-2.51	5.49	3.54	58	0.077	-22.30	-14.30	0.04
14	0.715	-2.91	5.09	3.23	59	0.069	-23.22	-15.22	0.03
15	0.680	-3.35	4.65	2.92	60	0.061	-24.33	-16.33	0.02
16	0.642	-3.85	4.15	2.60	61	0.056	-24.99	-16.99	0.02
17	0.603	-4.39	3.61	2.30	62	0.051	-25.77	-17.77	0.02
18	0.564	-4.97	3.03	2.01	63	0.046	-26.67	-18.67	0.01
19	0.526	-5.59	2.41	1.74	64	0.041	-27.74	-19.74	0.01
20	0.487	-6.25	1.75	1.50	65	0.035	-29.01	-21.01	0.01
21	0.448	-6.98	1.02	1.26	66	0.032	-29.91	-21.91	0.01
22	0.409	-7.77	0.23	1.05	67	0.028	-30.94	-22.94	0.01
23	0.371	-8.62	-0.62	0.87	68	0.025	-32.17	-24.17	0.00
24	0.333	-9.54	-1.54	0.70	69	0.021	-33.65	-25.65	0.00
25	0.297	-10.55	-2.55	0.56	70	0.017	-35.49	-27.49	0.00
26	0.261	-11.66	-3.66	0.43	71	0.015	-36.32	-28.32	0.00
27	0.227	-12.90	-4.90	0.32	72	0.014	-37.26	-29.26	0.00
28	0.193	-14.28	-6.28	0.24	73	0.012	-38.35	-30.35	0.00
29	0.161	-15.85	-7.85	0.16	74	0.010	-39.62	-31.62	0.00
30	0.131	-17.67	-9.67	0.11	75	0.010	-40.00	-32.00	0.00
31	0.102	-19.82	-11.82	0.07	76	0.010	-40.00	-32.00	0.00
32	0.075	-22.53	-14.53	0.04	77	0.010	-40.00	-32.00	0.00
33	0.049	-26.21	-18.21	0.02	78	0.010	-40.00	-32.00	0.00
34	0.025	-32.19	-24.19	0.00	79	0.010	-40.00	-32.00	0.00
35	0.010	-40.00	-32.00	0.00	80	0.010	-40.00	-32.00	0.00
36	0.019	-34.24	-26.24	0.00	81	0.010	-40.00	-32.00	0.00
37	0.039	-28.21	-20.21	0.01	82	0.010	-40.00	-32.00	0.00
38	0.057	-24.94	-16.94	0.02	83	0.010	-40.00	-32.00	0.00
39	0.073	-22.78	-14.78	0.03	84	0.010	-40.00	-32.00	0.00
40	0.087	-21.22	-13.22	0.05	85	0.010	-40.00	-32.00	0.00
41	0.099	-20.11	-12.11	0.06	86	0.010	-40.00	-32.00	0.00
42	0.109	-19.28	-11.28	0.07	87	0.010	-40.00	-32.00	0.00
43	0.117	-18.65	-10.65	0.09	88	0.010	-40.00	-32.00	0.00
44	0.123	-18.20	-10.20	0.10	89	0.010	-40.00	-32.00	0.00
					90	0.010	-40.00	-32.00	0.00