

COMPLIANCE WITH SPECIAL OPERATING CONDITIONS
AND CALCULATION OF TRANSMITTER POWER OUTPUT

The applicant recognizes the responsibility to reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

Special Operating Condition #2: A complete antenna proof-of-performance prepared by Dielectric is included as part of the attachment.

Special Operating Condition #3: A certification is attached from licensed/professional surveyor and mapper Derek S. Miller, P.S.M. 6341, of Miller Surveying, Inc., establishing that the WVIJ directional antenna has been oriented to the proper azimuth.

Special Operating Condition #4: An affidavit from Harold Kneller, SBE certified Professional Broadcast Engineer (#4153), concerning oversight of the WVIJ transmitting antenna installation is included as part of the attachment.

Special Operating Condition #5: An exhibit prepared by William Jeffrey Reynolds, Technical Consultant with du Treil, Lundin & Rackley, Inc., Consulting Engineers, demonstrating that the measured directional antenna pattern complies with the community coverage provisions of section 73.315 is included as part of the attachment. As indicated, the 70 dBu contour based on the Dielectric measured composite directional antenna pattern encompasses 100% of the 2010 Census defined land area within Port Charlotte.

Special Operating Condition #6: The measured horizontally and vertically polarized radiation components do not exceed, at any azimuth, the composite radiation pattern authorized by the construction permit. Furthermore, the principal minima and the associated field strength limit of 0.285 kilowatts across the arc of azimuths from 140 clockwise to 160 degrees true is not exceeded by the measured horizontally or vertically polarized radiation components.

Compliance with Section 73.316(c)(2)(ix)(A): It was determined that the calculated root mean square (RMS) of the measured composite antenna pattern (in relative field) is 0.6000, which is 85.5% percent of the RMS of the authorized composite directional antenna pattern of 0.7015. This complies with the 85% threshold value.

Calculation of Transmitter Power Output (TPO): The 1.41 kW (1.49 dBk) figure is based on consideration of total transmission system attenuation of 0.73 dB (84.57%). Given an antenna power gain of 7.56 (8.78 dB), a TPO of 1.41 kW produces an ERP of 9 kW (9.54 dBk).



Date	7/8/2021
Call Letters	WVIJ
Location	Port Charlotte, FL
Customer	Call Communications
Antenna Type	DCRT4
Frequency	91.7
Drawing #	P22

PATTERN CERTIFICATION

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Elevation Pattern



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PATTERN CERTIFICATION

Method of Measurement

The azimuth pattern for WVIJ, Dielectric Document Sketch #P22, was measured in the following manner.

A single 4.4 to 1 scale model "DCRT4" bay radiator was mounted on a similarly scaled model of the tower according to information provided to Dielectric by the customer; refer to Dielectric Document Sketch #P22. The antenna under test, all parasitics, all known tower appurtenances, and the tower section were rotated through 360 degrees while receiving a signal at the appropriate frequency from a linear cavity-backed source antenna. Both the horizontal and vertical polarization azimuth patterns were measured in an anechoic test range.

The transmit and scale model antennas are mounted at identical elevations and at opposite ends of the chamber. A Hewlett Packard model 8753ET network analyzer was used to supply the RF signal to the source antenna at 4.4 times the fundamental FM frequency and to receive the signal intercepted by the antenna under test. The received signal was converted to a relative level, referenced to the source. This level was stored on a computer acting as the master controller. The computer controls the measurement system via IEEE-488 control bus through a GPIB card.

Statement of Qualifications

Nicole Starrett is an Electrical Engineer here at Dielectric. She received a BS in Electrical Engineering from the University of Maine in 2014. She has 6 year(s) experience in RF antenna engineering and has been employed by Dielectric since 2014.

Signed by:

A handwritten signature in black ink, appearing to be "N. Starrett", written over a horizontal line.

Date:

7/8/2021



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FM AZIMUTH PATTERN APPROVAL

The azimuth pattern of the horizontal polarization and vertical polarization as supplied by Dielectric in the document labeled "Pattern P22", is acknowledged as acceptable. We understand that Dielectric does not guarantee or predict signal strength in any particular location.

(Customer's name)

By:

(Name typed or printed)

Title:

(Signature)



Date
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7/8/2021
WVIJ
Port Charlotte, FL
Call Communications
DCRT4
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P22

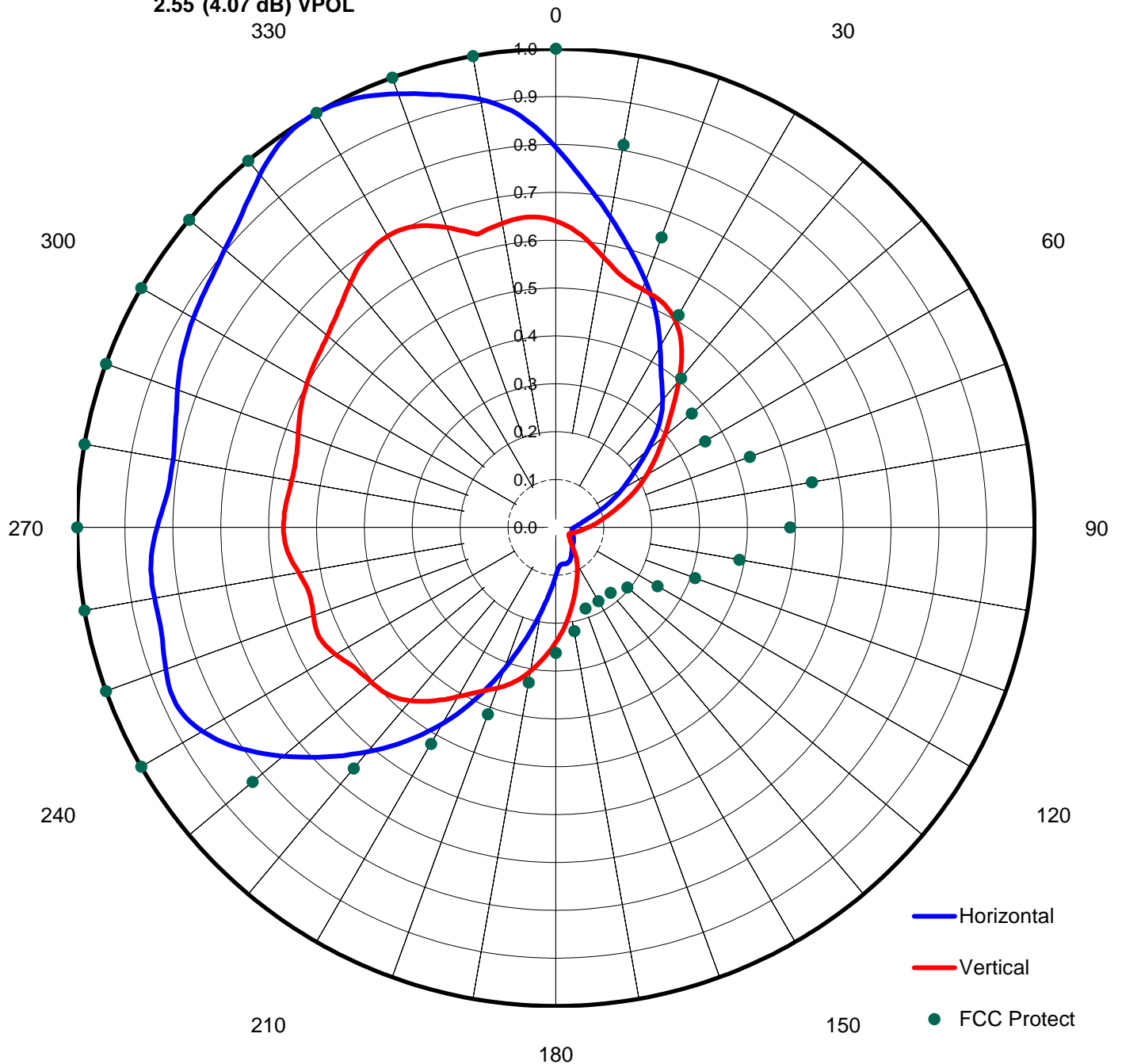
AZIMUTH PATTERN

85.53% Ccov 57.4% Hrms - 42.6% Vrms

Gain **2.85 (4.55 dB) HPOL**
2.55 (4.07 dB) VPOL

Calculated / Measured

Measured





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TABULATION OF HORIZONTAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
	0.794	7.539	5.674
10	0.658	5.907	3.897
20	0.548	4.318	2.703
30	0.435	2.312	1.703
40	0.347	0.349	1.084
50	0.250	-2.499	0.563
60	0.160	-6.375	0.230
70	0.092	-11.182	0.076
80	0.054	-15.810	0.026
90	0.038	-18.862	0.013
100	0.035	-19.576	0.011
110	0.038	-18.862	0.013
120	0.042	-17.993	0.016
130	0.047	-17.016	0.020
140	0.054	-15.810	0.026
150	0.065	-14.199	0.038
160	0.077	-12.728	0.053
170	0.078	-12.616	0.055
180	0.100	-10.458	0.090
190	0.181	-5.304	0.295
200	0.314	-0.519	0.887
210	0.473	3.040	2.014
220	0.612	5.277	3.371
230	0.744	6.974	4.982
240	0.852	8.151	6.533
250	0.867	8.303	6.765
260	0.851	8.141	6.518
270	0.833	7.955	6.245
280	0.812	7.734	5.934
290	0.841	8.038	6.366
300	0.874	8.373	6.875
310	0.903	8.656	7.339
320	0.962	9.206	8.329
330	1.000	9.542	9.000
340	0.964	9.224	8.364
350	0.908	8.704	7.420



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TABULATION OF VERTICAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
	0.640	5.666	3.686
10	0.573	4.706	2.955
20	0.529	4.012	2.519
30	0.499	3.504	2.241
40	0.400	1.584	1.440
50	0.295	-1.061	0.783
60	0.219	-3.649	0.432
70	0.150	-6.936	0.203
80	0.099	-10.545	0.088
90	0.067	-13.936	0.040
100	0.048	-16.833	0.021
110	0.035	-19.576	0.011
120	0.001	-50.458	0.000
130	0.038	-18.862	0.013
140	0.056	-15.494	0.028
150	0.089	-11.470	0.071
160	0.125	-8.519	0.141
170	0.177	-5.498	0.282
180	0.240	-2.853	0.518
190	0.305	-0.772	0.837
200	0.357	0.596	1.147
210	0.408	1.756	1.498
220	0.473	3.040	2.014
230	0.503	3.574	2.277
240	0.531	4.044	2.538
250	0.539	4.174	2.615
260	0.545	4.270	2.673
270	0.569	4.645	2.914
280	0.561	4.522	2.832
290	0.573	4.706	2.955
300	0.601	5.120	3.251
310	0.623	5.432	3.493
320	0.668	6.038	4.016
330	0.703	6.482	4.448
340	0.667	6.025	4.004
350	0.645	5.734	3.744

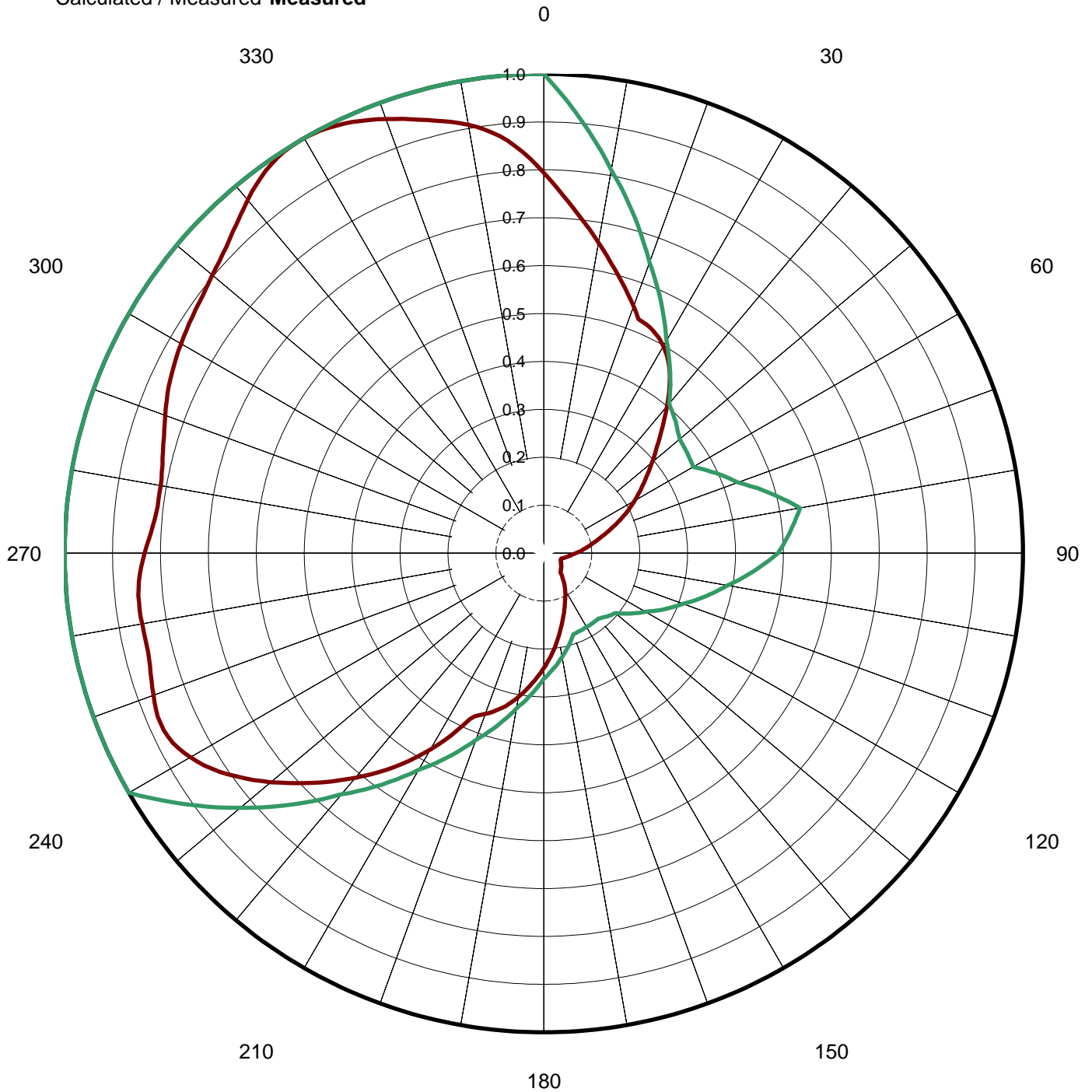


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COMPOSITE AZIMUTH PATTERN

Calculated / Measured **Measured**





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TABULATION OF COMPOSITE AZIMUTH PATTERN

Angle	Field	dBk	Power kW	Input Power
	0.794	7.539	5.674	9.000
10	0.658	5.907	3.897	9.000
20	0.548	4.318	2.703	9.000
30	0.499	3.504	2.241	9.000
40	0.400	1.584	1.440	9.000
50	0.295	-1.061	0.783	9.000
60	0.219	-3.649	0.432	9.000
70	0.150	-6.936	0.203	9.000
80	0.099	-10.545	0.088	9.000
90	0.067	-13.936	0.040	9.000
100	0.048	-16.833	0.021	9.000
110	0.038	-18.862	0.013	9.000
120	0.042	-17.993	0.016	9.000
130	0.047	-17.016	0.020	9.000
140	0.056	-15.494	0.028	9.000
150	0.089	-11.470	0.071	9.000
160	0.125	-8.519	0.141	9.000
170	0.177	-5.498	0.282	9.000
180	0.240	-2.853	0.518	9.000
190	0.305	-0.772	0.837	9.000
200	0.357	0.596	1.147	9.000
210	0.473	3.040	2.014	9.000
220	0.612	5.277	3.371	9.000
230	0.744	6.974	4.982	9.000
240	0.852	8.151	6.533	9.000
250	0.867	8.303	6.765	9.000
260	0.851	8.141	6.518	9.000
270	0.833	7.955	6.245	9.000
280	0.812	7.734	5.934	9.000
290	0.841	8.038	6.366	9.000
300	0.874	8.373	6.875	9.000
310	0.903	8.656	7.339	9.000
320	0.962	9.206	8.329	9.000
330	1.000	9.542	9.000	9.000
340	0.964	9.224	8.364	9.000
350	0.908	8.704	7.420	9.000



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CUSTOMER GAIN SUMMARY

Azimuth Pattern Gain of Horizontal Polarization	2.85 (4.55 dB)
Elevation Pattern Gain Per Polarization	2.65 (4.23 dB)
Peak Gain of Horizontal Polarization	7.56 (8.79 dB)

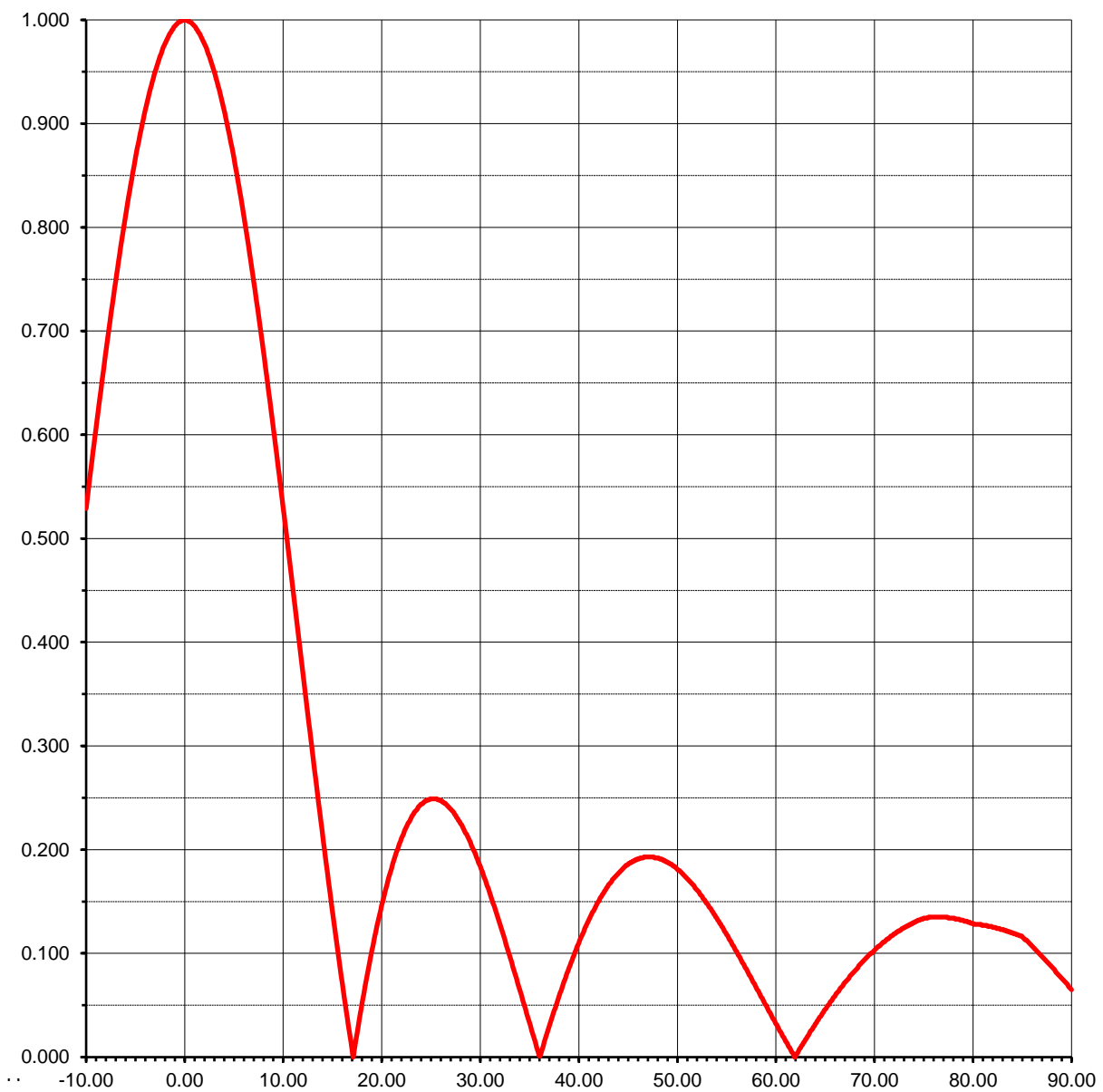


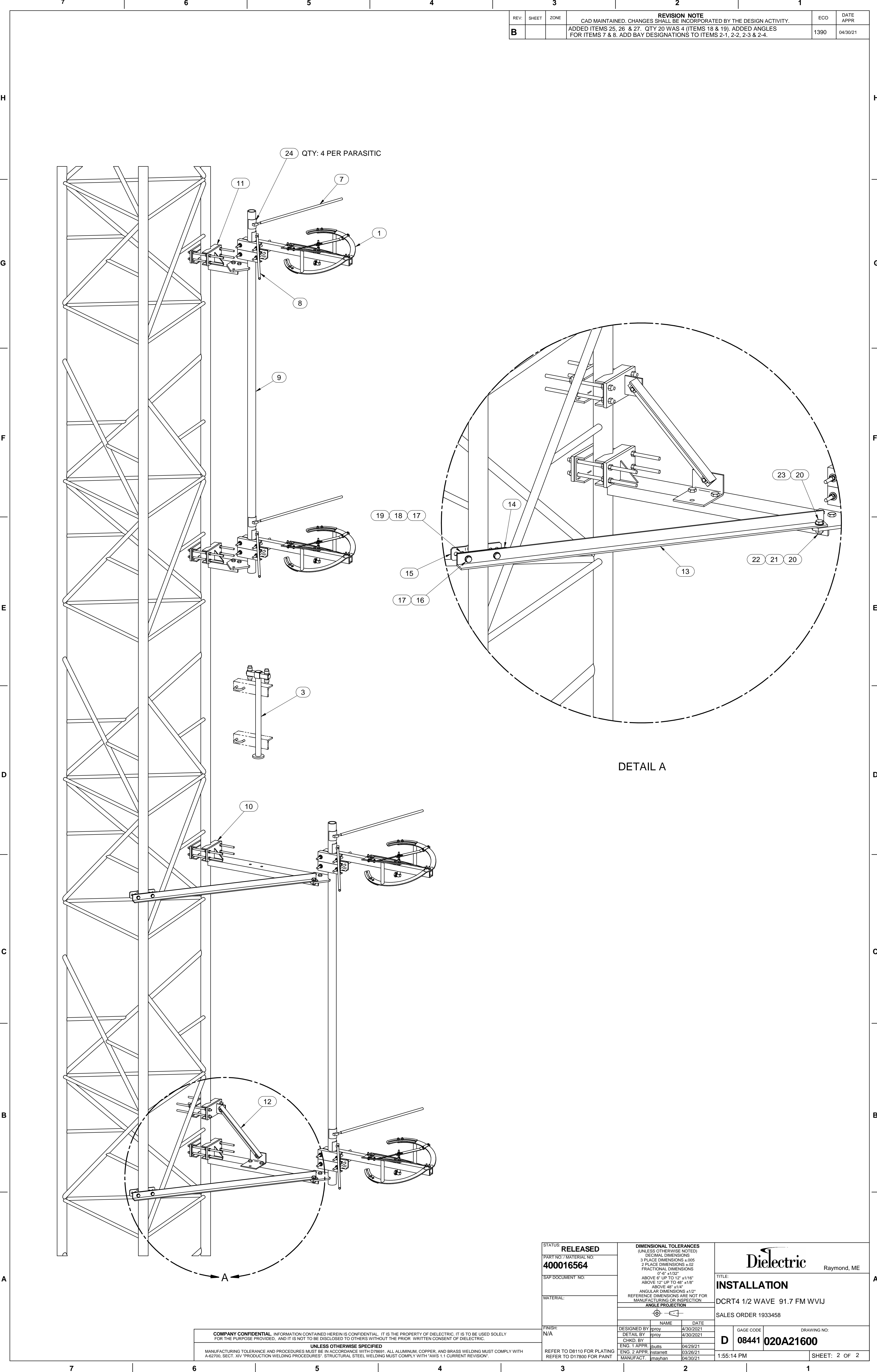
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ELEVATION PATTERN

RMS Gain at Main Lobe **2.65 (4.23 dB)**
Per Polarization
Calculated / Measured **Calculated**

Beam Tilt **0 deg**
Frequency **91.7 MHz**






REV:	SHEET	ZONE	CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.	ECO	DATE APPR
B			ADDED ITEMS 25, 26 & 27. QTY 20 WAS 4 (ITEMS 18 & 19). ADDED ANGLES FOR ITEMS 7 & 8. ADD BAY DESIGNATIONS TO ITEMS 2-1, 2-2, 2-3 & 2-4.	1390	04/30/21

COMPANY CONFIDENTIAL. INFORMATION CONTAINED HEREIN IS CONFIDENTIAL. IT IS THE PROPERTY OF DIELECTRIC. IT IS TO BE USED SOLELY FOR THE PURPOSE PROVIDED, AND IT IS NOT TO BE DISCLOSED TO OTHERS WITHOUT THE PRIOR WRITTEN CONSENT OF DIELECTRIC.

UNLESS OTHERWISE SPECIFIED
MANUFACTURING TOLERANCE AND PROCEDURES MUST BE IN ACCORDANCE WITH D78691. ALL ALUMINUM, COPPER, AND BRASS WELDING MUST COMPLY WITH A-62700, SECT. XIV "PRODUCTION WELDING PROCEDURES". STRUCTURAL STEEL WELDING MUST COMPLY WITH "AWS 1.1 CURRENT REVISION".

STATUS: RELEASED		DIMENSIONAL TOLERANCES (UNLESS OTHERWISE NOTED) DECIMAL DIMENSIONS 3 PLACE DIMENSIONS ±.005 2 PLACE DIMENSIONS ±.02 FRACTIONAL DIMENSIONS 0"-6" ±1/32" ABOVE 6" UP TO 12" ±1/16" ABOVE 12" UP TO 48" ±1/8" ABOVE 48" ±1/4" ANGULAR DIMENSIONS ±1/2° REFERENCE DIMENSIONS ARE NOT FOR MANUFACTURING OR INSPECTION		Dielectric Raymond, ME	
PARTY NO.: MATERIAL NO: 400016564				TITLE: INSTALLATION	
SAP DOCUMENT NO:				DCRT4 1/2 WAVE 91.7 FM WVJ	
MATERIAL:				SALES ORDER 1933458	
FINISH: N/A		NAME		DATE	
		DESIGNED BY rproy		4/30/2021	
		DETAIL BY rproy		4/30/2021	
		CHKD. BY			
		ENG. 1 APPR. jbutts		04/29/21	
REFER TO D8110 FOR PLATING REFER TO D17800 FOR PAINT		ENG. 2 APPR. jstarrett		03/28/21	
		MANUFACT. jmayhan		04/30/21	
		1:55:14 PM		GAGE CODE D 08441	
				DRAWING NO: 020A21600	
				SHEET: 2 OF 2	

MILLER SURVEYING, INC.

Surveying and Mapping Services Wetland Delineation

21053 Peachland Boulevard
Port Charlotte, Florida 33954
941-743-8423 – office
941-743-8404 – fax
email: millersurveying@comcast.net



July 12, 2021

Hal Kneller, CPBE
Director of engineering
LECOM Radio
3679 Webber St.
Sarasota, FL. 34232

RE: FM Antenna Orientation (Station WVIJ 91.7)

Dear Rob;

As a result of field work on July 8, 2021 and calculations we have determined that the orientation of the above referenced FM Broadcast Station Antenna is bearing 315 degrees (+/- 1 degree) to True North (Grid North).

If you require any additional information regarding this matter please do not hesitate to contact our office.

Sincerely:



Miller Surveying, Inc.
Derek S. Miller, PSM
21053 Peachland Blvd.
Port Charlotte, FL. 33954
LS 6341
LB 7413

Supervision and Qualifications of Harold (Hal) Kneller

July 10, 2021

I, Harold (Hal) Kneller have supervised the WVJ antenna project since its inception, along with the Consulting Engineer (Robert Robbins) who performed the FCC filings for the Construction Permit.

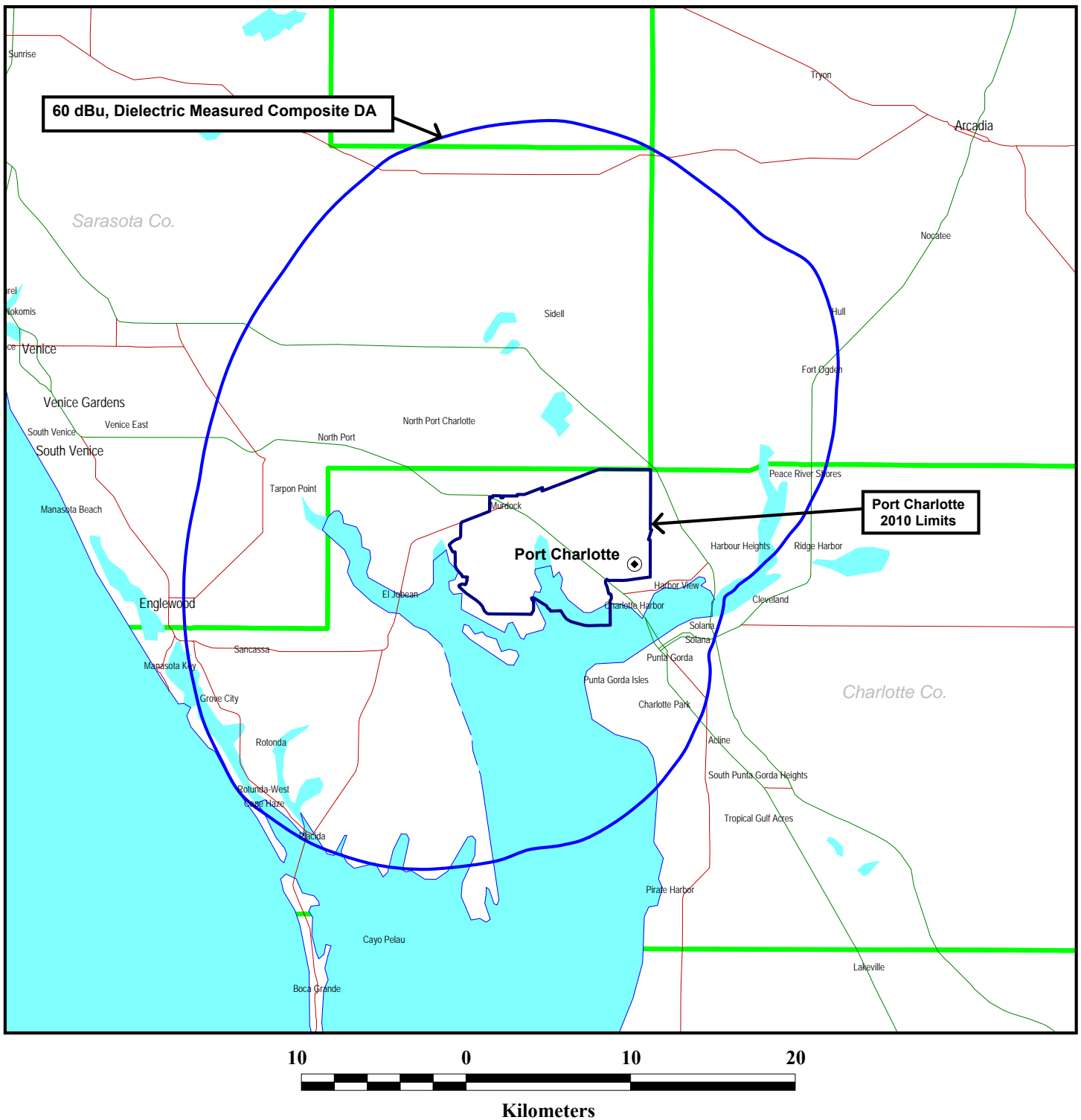
Working with Dielectric Communications, we created an antenna which pattern is compliant with the Commission's requirements as demonstrated in the antenna package elsewhere in this filing. Further, I was on site during the entire antenna installation to verify proper orientation and manufacturer instructions were followed.

My qualifications are a matter of record with the Federal Communications Commission. I have held an FCC First Class Radio/Telephone license since 1966 and currently hold a Lifetime FCC General Radio/Telephone License (PG-2-20804) and General Class Amateur Radio License (KD4RLX). I am also a Certified Professional Broadcast Engineer by the Society of Broadcast Engineers (#4153) and hold additional certifications in Digital Broadcast, AM Directional Antennas and Broadcast Network Engineering. I have practiced broadcast engineering since graduation from Emerson College, Boston, Mass. with a Degree in Mass Communications in 1972.

Prior to relocating to Florida in 1986, I was a broadcast engineer at radio stations in New York, NY, Long Island, NY and in New England. I have built numerous radio stations, both AM and FM and owned eight radio stations in Florida and Arkansas.

A handwritten signature in cursive script that reads "Hal Kneller". The signature is written in dark ink and is positioned at the bottom left of the document.

Figure 1



COMPLIANCE WITH SECTION 73.515

STATION WVIJ
PORT CHARLOTTE, FLORIDA
CH 219C3 (91.7 MHZ) 9 KW (DA) 89.6 M

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