



PATTERN CERTIFICATION

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PATTERN CERTIFICATION

Method of Measurement

The azimuth pattern for "WFUV", Dielectric Document Sketch #37 revA, was measured in the following manner.

A single 4.4 to 1 scale model "DCRM" 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 #37 revA. 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 8752C 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

Keith L. Pelletier is a Senior Electrical Engineer here at Dielectric. He received a BS in Electrical Engineering Technology from the University of Maine in 1998. He has over 6 years experience in RF antenna engineering and has been employed by Dielectric Communications since 1997.

Signed By: Keith L. Pelletier

Date: 12/9/05



Proposal Number **79602**
Date **Dec 9, 2005**
Call Letters **WFUV**
Location **New York, NY**
Customer **Fordham University**
Antenna Type **DCRM10B5PT65**

AZIMUTH PATTERN

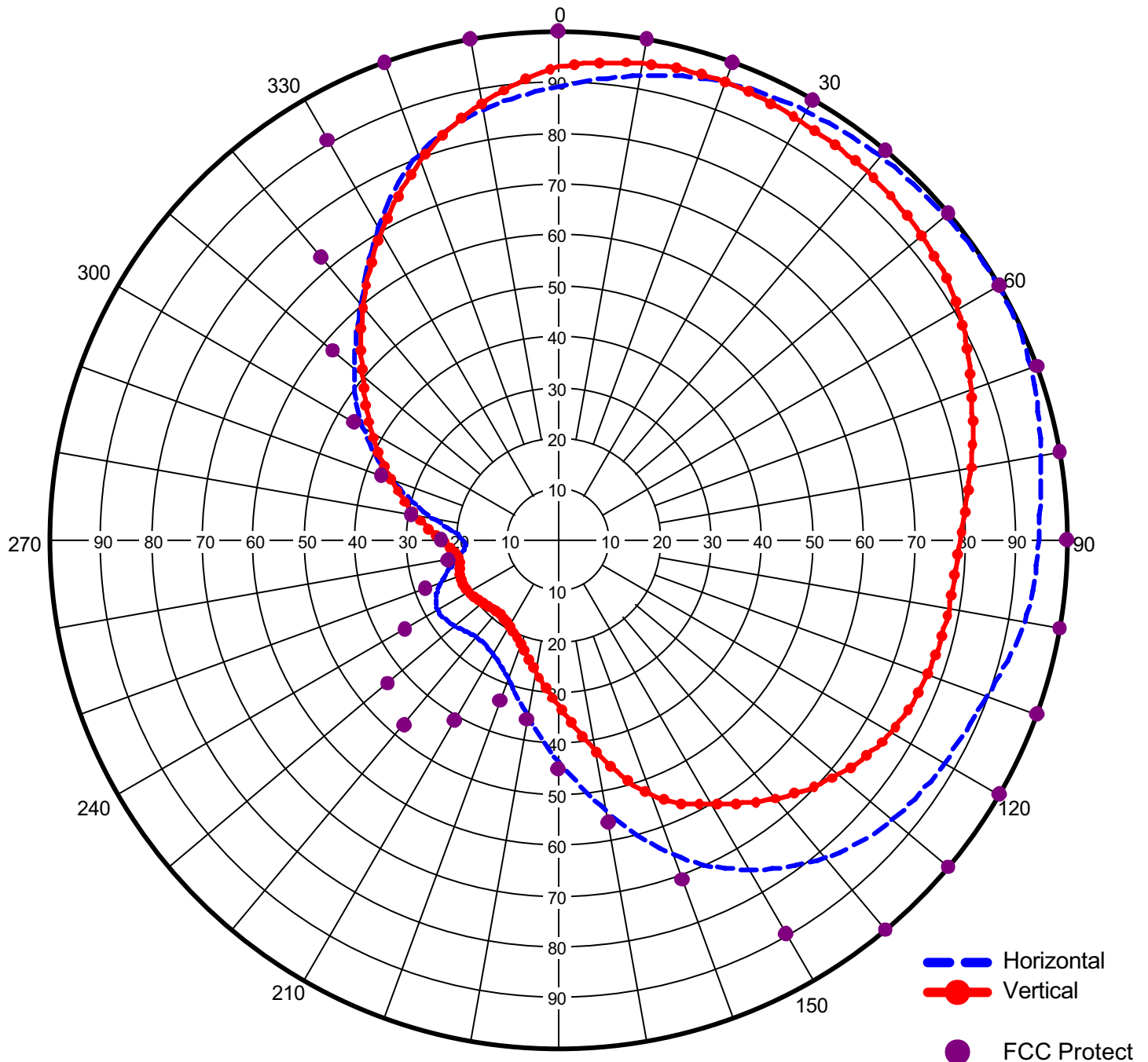
91.0% Ccov - 52.2% Hrms - 47.8% Vrms

Gain
Calculated / Measured

1.99 (2.99) HPOL 2.18 (3.38) VPOL
Measured

Frequency
Drawing #

90.7
37 revA





Proposal Number	79602
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Location	New York, NY
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Antenna Type	DCRM10B5PT65
Frequency	90.70 MHz
Drawing #:	37 revA

TABULATION OF HORIZONTAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
0	0.892	15.682	36.998
10	0.928	16.025	40.045
20	0.957	16.293	42.587
30	0.974	16.446	44.113
40	0.985	16.543	45.115
50	0.992	16.605	45.759
60	1.000	16.675	46.500
70	0.989	16.578	45.483
80	0.962	16.338	43.033
90	0.944	16.174	41.438
100	0.931	16.054	40.304
110	0.897	15.730	37.414
120	0.876	15.525	35.683
130	0.857	15.334	34.152
140	0.815	14.898	30.886
150	0.749	14.164	26.087
160	0.659	13.052	20.194
170	0.541	11.338	13.610
180	0.435	9.444	8.799
190	0.350	7.556	5.696
200	0.291	5.952	3.938
210	0.258	4.907	3.095
220	0.250	4.633	2.906
230	0.264	5.107	3.241
240	0.274	5.430	3.491
250	0.247	4.528	2.837
260	0.199	2.652	1.841
270	0.187	2.111	1.626
280	0.252	4.703	2.953
290	0.348	7.506	5.631
300	0.443	9.603	9.126
310	0.524	11.061	12.768
320	0.604	12.295	16.964
330	0.708	13.675	23.309
340	0.805	14.790	30.133
350	0.858	15.344	34.232



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Drawing #: **37 revA**

TABULATION OF VERTICAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
0	0.931	16.054	40.304
10	0.952	16.247	42.143
20	0.958	16.302	42.676
30	0.952	16.247	42.143
40	0.945	16.183	41.526
50	0.931	16.054	40.304
60	0.908	15.836	38.338
70	0.864	15.405	34.712
80	0.824	14.993	31.572
90	0.790	14.627	29.021
100	0.780	14.516	28.291
110	0.773	14.438	27.785
120	0.755	14.233	26.506
130	0.719	13.809	24.039
140	0.664	13.118	20.502
150	0.601	12.252	16.796
160	0.533	11.209	13.210
170	0.423	9.201	8.320
180	0.326	6.939	4.942
190	0.262	5.041	3.192
200	0.216	3.364	2.170
210	0.194	2.431	1.750
220	0.185	2.018	1.591
230	0.194	2.431	1.750
240	0.203	2.824	1.916
250	0.206	2.952	1.973
260	0.199	2.652	1.841
270	0.229	3.871	2.439
280	0.286	5.802	3.804
290	0.350	7.556	5.696
300	0.423	9.201	8.320
310	0.502	10.689	11.718
320	0.597	12.194	16.573
330	0.697	13.539	22.590
340	0.793	14.660	29.241
350	0.872	15.485	35.358



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AZIMUTH PATTERN

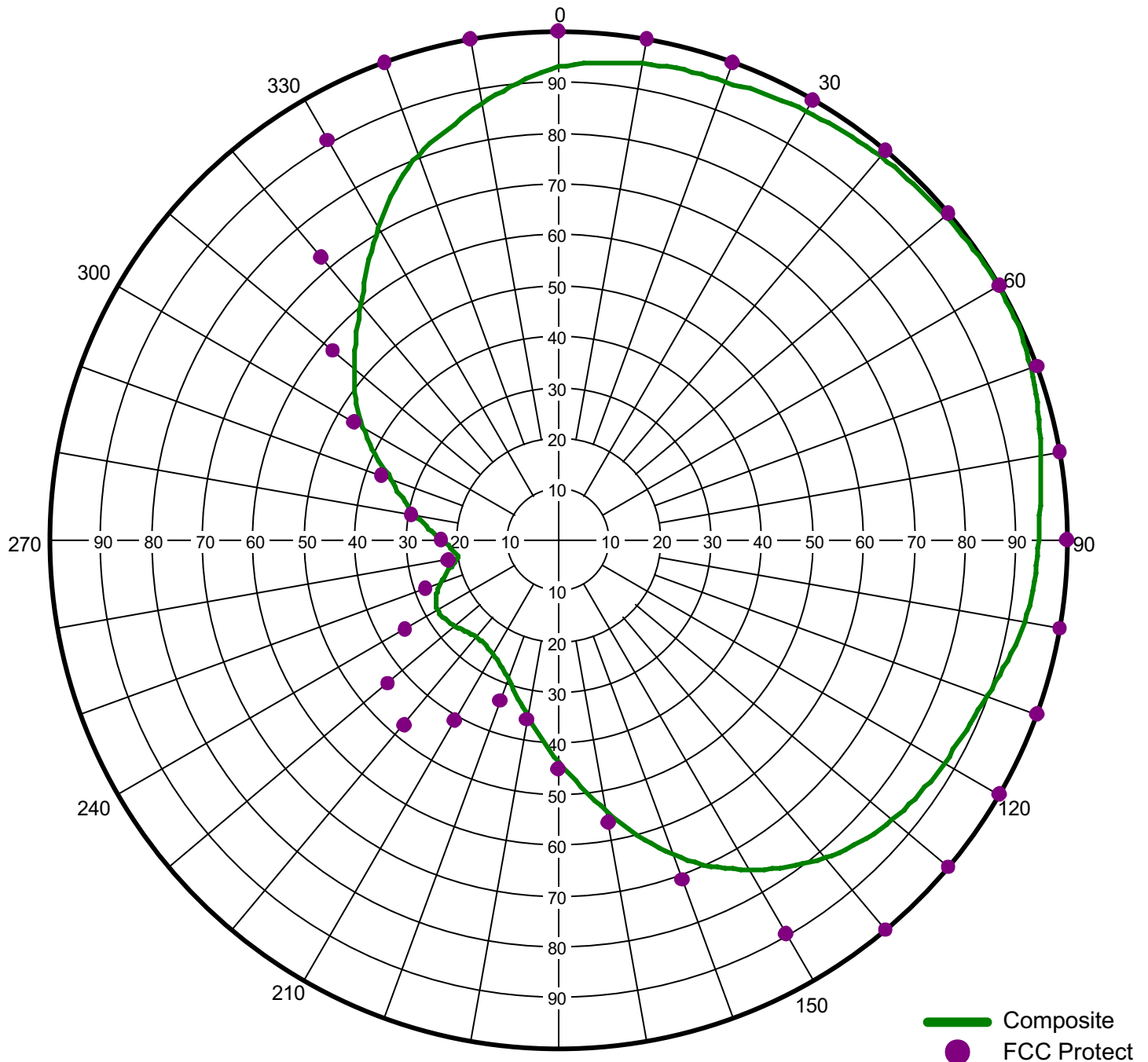
91.0% Ccov - 52.2% Hrms - 47.8% Vrms

Gain
Calculated / Measured

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Measured

Frequency
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90.7
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TABULATION OF COMPOSITE AZIMUTH PATTERN

Angle	Field	dBk	Power kW	Input Power
0	0.931	16.054	40.304	46.500
10	0.952	16.247	42.143	46.500
20	0.958	16.302	42.676	46.500
30	0.974	16.446	44.113	46.500
40	0.985	16.543	45.115	46.500
50	0.992	16.605	45.759	46.500
60	1.000	16.675	46.500	46.500
70	0.989	16.578	45.483	46.500
80	0.962	16.338	43.033	46.500
90	0.944	16.174	41.438	46.500
100	0.931	16.054	40.304	46.500
110	0.897	15.730	37.414	46.500
120	0.876	15.525	35.683	46.500
130	0.857	15.334	34.152	46.500
140	0.815	14.898	30.886	46.500
150	0.749	14.164	26.087	46.500
160	0.659	13.052	20.194	46.500
170	0.541	11.338	13.610	46.500
180	0.435	9.444	8.799	46.500
190	0.350	7.556	5.696	46.500
200	0.291	5.952	3.938	46.500
210	0.258	4.907	3.095	46.500
220	0.250	4.633	2.906	46.500
230	0.264	5.107	3.241	46.500
240	0.274	5.430	3.491	46.500
250	0.247	4.528	2.837	46.500
260	0.199	2.652	1.841	46.500
270	0.229	3.871	2.439	46.500
280	0.286	5.802	3.804	46.500
290	0.350	7.556	5.696	46.500
300	0.443	9.603	9.126	46.500
310	0.524	11.061	12.768	46.500
320	0.604	12.295	16.964	46.500
330	0.708	13.675	23.309	46.500
340	0.805	14.790	30.133	46.500
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CUSTOMER GAIN SUMMARY

Azimuth Pattern Gain of Horizontal Polarization	1.99	(2.99 dB)
Elevation Pattern Gain Per Polarization	2.70	(4.31 dB)
Peak Gain at Horizontal Polarization	5.37	(7.30 dB)

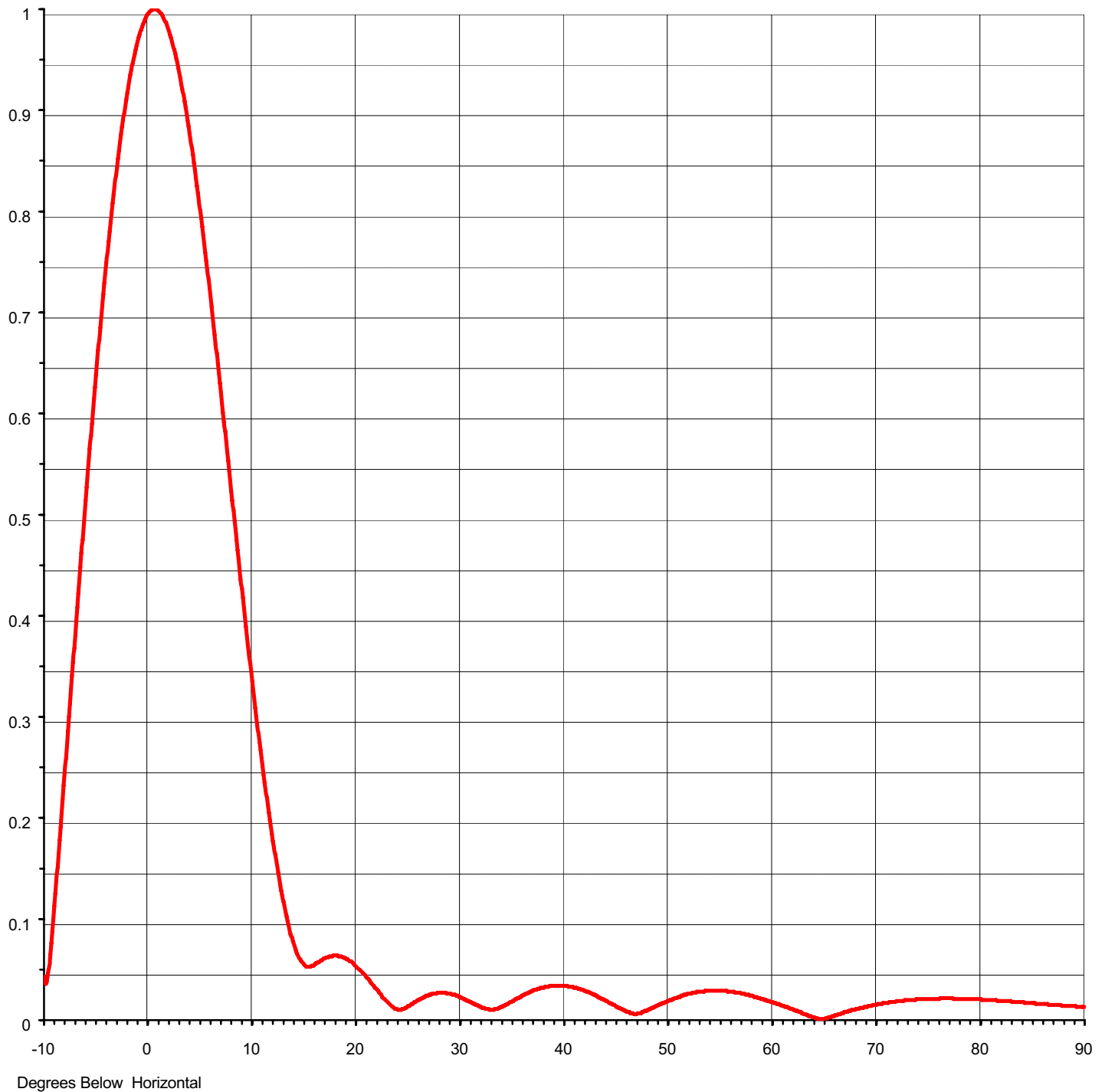


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ELEVATION PATTERN

RMS Gain at Main Lobe per polarization **2.70 (4.31 dB)** Beam Tilt **0.65 deg**
Frequency **90.70 MHz**

Calculated / Measured **Calculated**



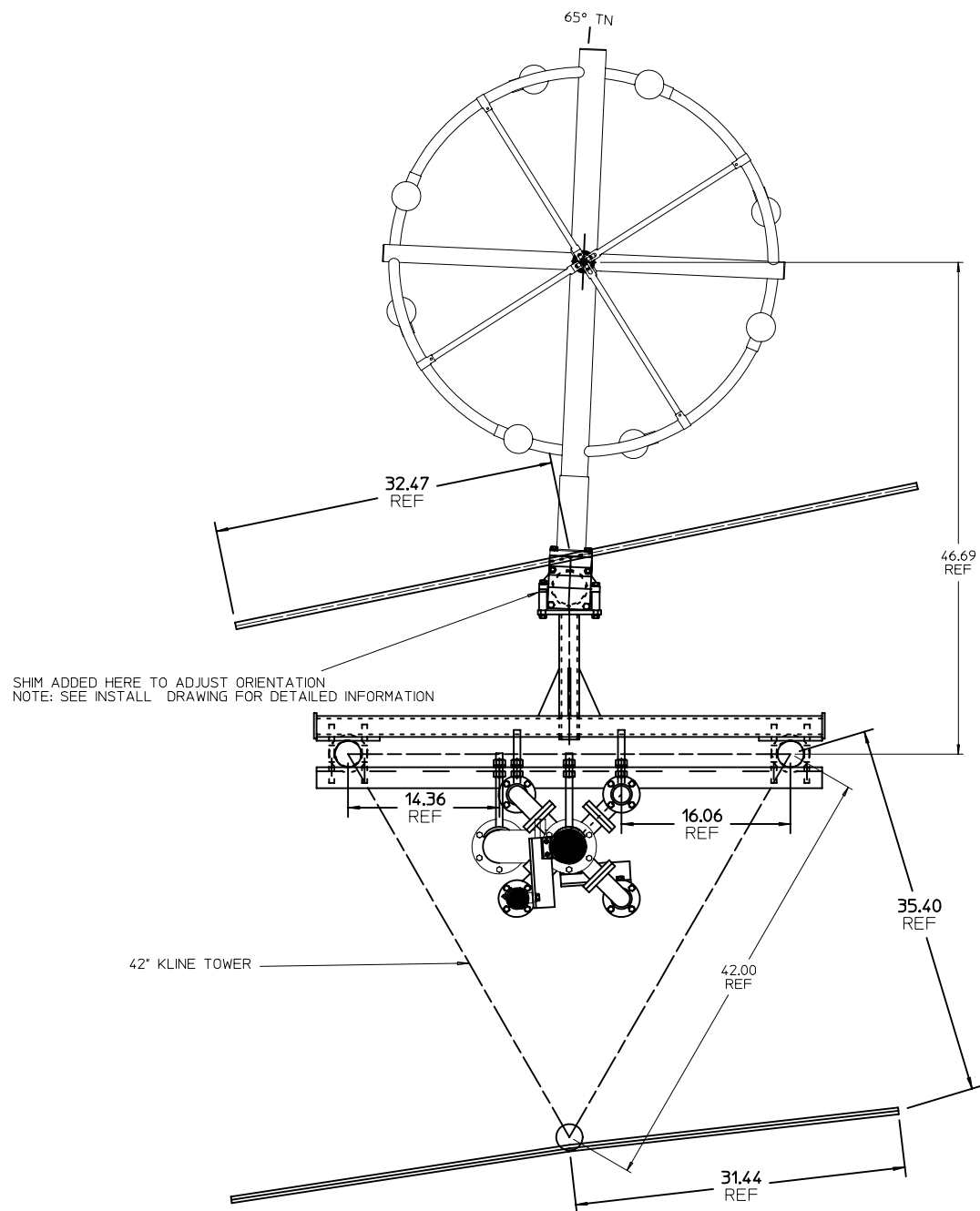
Calculated Free Space Pattern



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TABULATION OF ELEVATION PATTERN

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.043	2.4	0.964	10.6	0.292	30.5	0.021	51.0	0.023	71.5	0.018
-9.5	0.054	2.6	0.956	10.8	0.275	31.0	0.018	51.5	0.024	72.0	0.019
-9.0	0.113	2.8	0.947	11.0	0.259	31.5	0.016	52.0	0.026	72.5	0.019
-8.5	0.178	3.0	0.937	11.5	0.220	32.0	0.013	52.5	0.027	73.0	0.020
-8.0	0.245	3.2	0.926	12.0	0.184	32.5	0.011	53.0	0.028	73.5	0.020
-7.5	0.313	3.4	0.915	12.5	0.152	33.0	0.010	53.5	0.028	74.0	0.021
-7.0	0.381	3.6	0.903	13.0	0.123	33.5	0.011	54.0	0.029	74.5	0.021
-6.5	0.448	3.8	0.890	13.5	0.098	34.0	0.013	54.5	0.029	75.0	0.021
-6.0	0.514	4.0	0.877	14.0	0.078	34.5	0.015	55.0	0.029	75.5	0.021
-5.5	0.578	4.2	0.863	14.5	0.064	35.0	0.018	55.5	0.029	76.0	0.021
-5.0	0.638	4.4	0.848	15.0	0.056	35.5	0.021	56.0	0.028	76.5	0.022
-4.5	0.696	4.6	0.833	15.5	0.053	36.0	0.024	56.5	0.027	77.0	0.022
-4.0	0.749	4.8	0.818	16.0	0.054	36.5	0.026	57.0	0.027	77.5	0.021
-3.5	0.799	5.0	0.801	16.5	0.057	37.0	0.029	57.5	0.025	78.0	0.021
-3.0	0.843	5.2	0.785	17.0	0.061	37.5	0.031	58.0	0.024	78.5	0.021
-2.8	0.860	5.4	0.768	17.5	0.063	38.0	0.032	58.5	0.023	79.0	0.021
-2.6	0.876	5.6	0.751	18.0	0.064	38.5	0.033	59.0	0.021	79.5	0.021
-2.4	0.890	5.8	0.733	18.5	0.063	39.0	0.034	59.5	0.020	80.0	0.021
-2.2	0.904	6.0	0.715	19.0	0.061	39.5	0.034	60.0	0.018	80.5	0.020
-2.0	0.917	6.2	0.696	19.5	0.058	40.0	0.034	60.5	0.016	81.0	0.020
-1.8	0.929	6.4	0.678	20.0	0.054	40.5	0.033	61.0	0.014	81.5	0.020
-1.6	0.940	6.6	0.659	20.5	0.049	41.0	0.032	61.5	0.013	82.0	0.019
-1.4	0.951	6.8	0.640	21.0	0.044	41.5	0.031	62.0	0.011	82.5	0.019
-1.2	0.960	7.0	0.621	21.5	0.037	42.0	0.029	62.5	0.009	83.0	0.018
-1.0	0.968	7.2	0.601	22.0	0.031	42.5	0.027	63.0	0.007	83.5	0.018
-0.8	0.975	7.4	0.582	22.5	0.025	43.0	0.025	63.5	0.005	84.0	0.018
-0.6	0.982	7.6	0.562	23.0	0.019	43.5	0.022	64.0	0.003	84.5	0.017
-0.4	0.987	7.8	0.543	23.5	0.014	44.0	0.020	64.5	0.001	85.0	0.017
-0.2	0.992	8.0	0.523	24.0	0.011	44.5	0.017	65.0	0.001	85.5	0.016
0.0	0.995	8.2	0.504	24.5	0.011	45.0	0.014	65.5	0.003	86.0	0.016
0.2	0.998	8.4	0.485	25.0	0.013	45.5	0.011	66.0	0.005	86.5	0.015
0.4	0.999	8.6	0.465	25.5	0.016	46.0	0.009	66.5	0.006	87.0	0.015
0.6	1.000	8.8	0.446	26.0	0.020	46.5	0.007	67.0	0.008	87.5	0.015
0.8	1.000	9.0	0.427	26.5	0.022	47.0	0.006	67.5	0.009	88.0	0.014
1.0	0.998	9.2	0.408	27.0	0.024	47.5	0.007	68.0	0.011	88.5	0.014
1.2	0.996	9.4	0.389	27.5	0.026	48.0	0.009	68.5	0.012	89.0	0.014
1.4	0.993	9.6	0.371	28.0	0.027	48.5	0.012	69.0	0.013	89.5	0.013
1.6	0.989	9.8	0.362	28.5	0.027	49.0	0.014	69.5	0.014	90.0	0.013
1.8	0.984	10.0	0.344	29.0	0.026	49.5	0.017	70.0	0.015		
2.0	0.978	10.2	0.326	29.5	0.025	50.0	0.019	70.5	0.016		
2.2	0.972	10.4	0.309	30.0	0.023	50.5	0.021	71.0	0.017		



DCRM10B5PT65
WFUV
90.7 FM
C. FOGG

REVISED BY CRAIG B- ADDED SHIM AT BLOCK SO ANTENNA WOULD FACE 65°TN NOT 62.5° AS BUILT.