



KQTP

St. Marys, Kansas

Antenna Pattern Certification



A Unit of SPX Corporation

PATTERN CERTIFICATION

Method of Measurement

The azimuth pattern for "KQTP", Dielectric Document Sketch # 67, 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 # 67. 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 8711A network analyzer was used to supply the RF signal 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

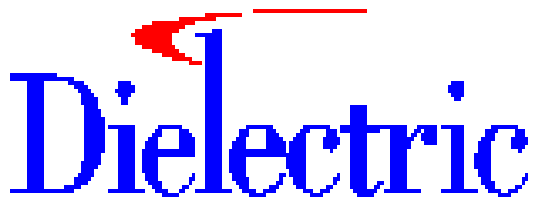
Manuel J. Sone is an Assistant Principal Engineer here at Dielectric. He received a B.Sc. in Electrical Engineering from the Universidad Nacional Pedro Henriquez Ureña in Dominican Republic in 1983 and a Masters Degree in Electrical Engineering from Polytechnic University, Brooklyn, N.Y. in 1990. He has over 13 years of experience in R.F. engineering and broadcast technology and has been employed by Dielectric Communications since early 1997.

Signed by:  _____

Date: 09/05/02

Post Office Box 949, 22 Tower Road, Raymond, Maine 04071

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Proposal Number **72849**
Date **Sep 4, 2002**
Call Letters **KQTP**
Location **Topeka, Ks**
Customer **Gary Kline**
Antenna Type **DCRM6ED**

AZIMUTH PATTERN

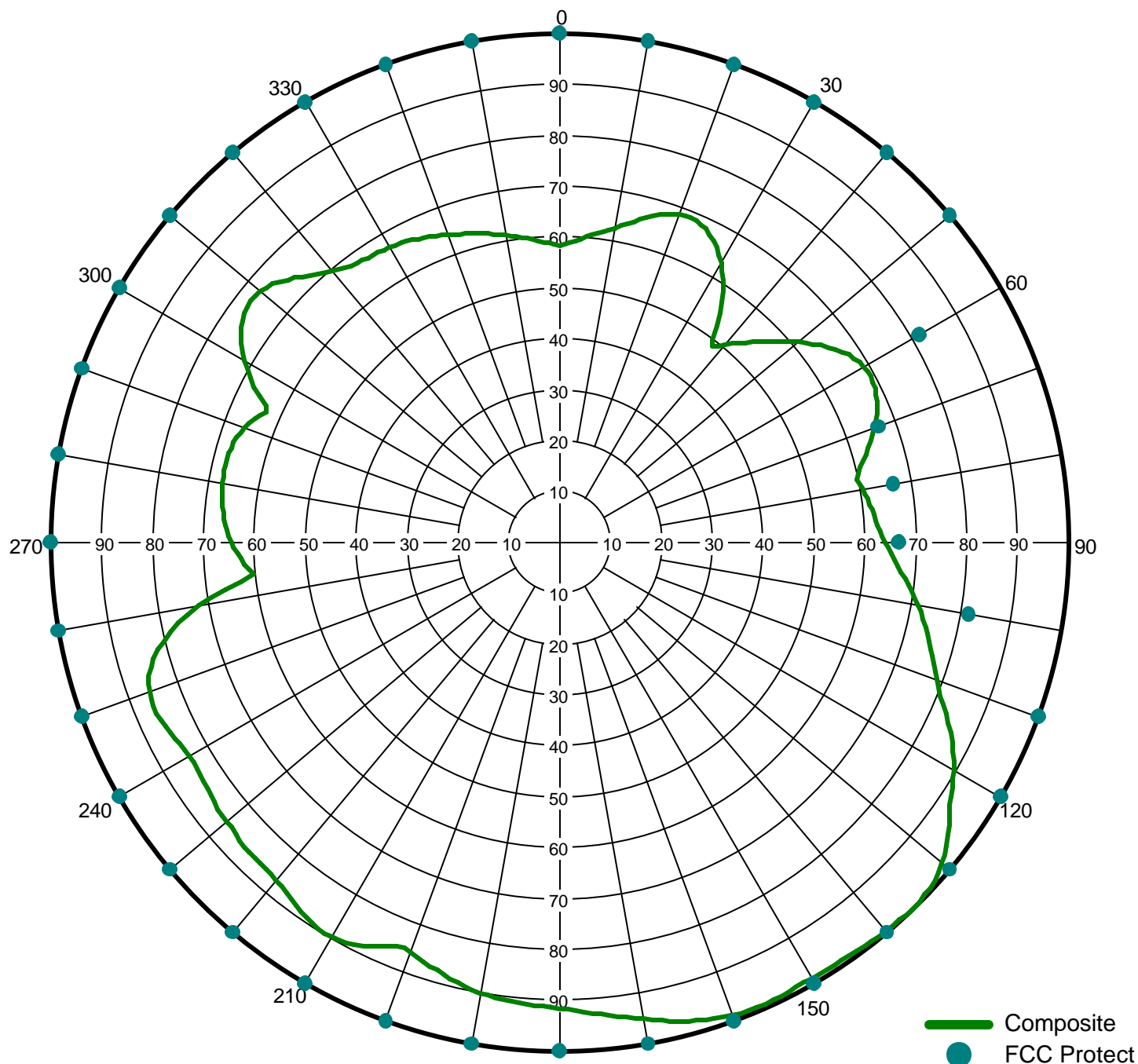
79.7% Ccov - 52.4% Hrms 47.6% Vrms

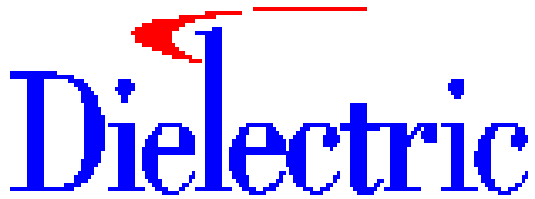
Calculated / Measured

Measured

Frequency **102.9**

Drawing # **67**





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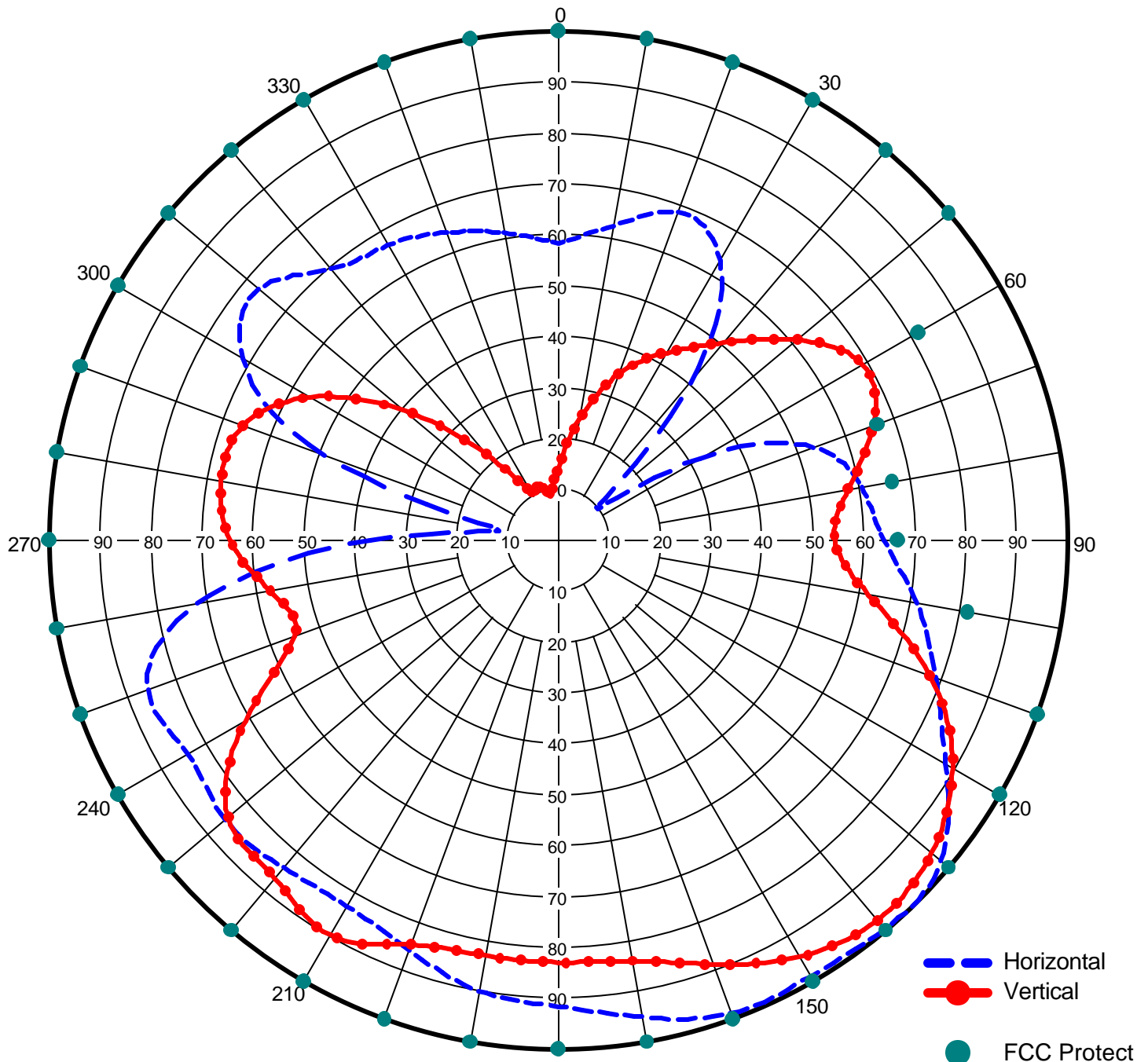
AZIMUTH PATTERN

79.7% Ccov - 52.4% Hrms 47.6% Vrms

Calculated / Measured

Measured

Frequency **102.9**
Drawing # **67**



Proposal Number **72849**
 Date **Sep 04, 2002**
 Call Letters **KQTP**
 Location **Topeka, KS**
 Customer **Gary Kilne**
 Antenna Type **DCRM6ED**
 Frequency **102.90 MHz**
 Drawing #: **67**

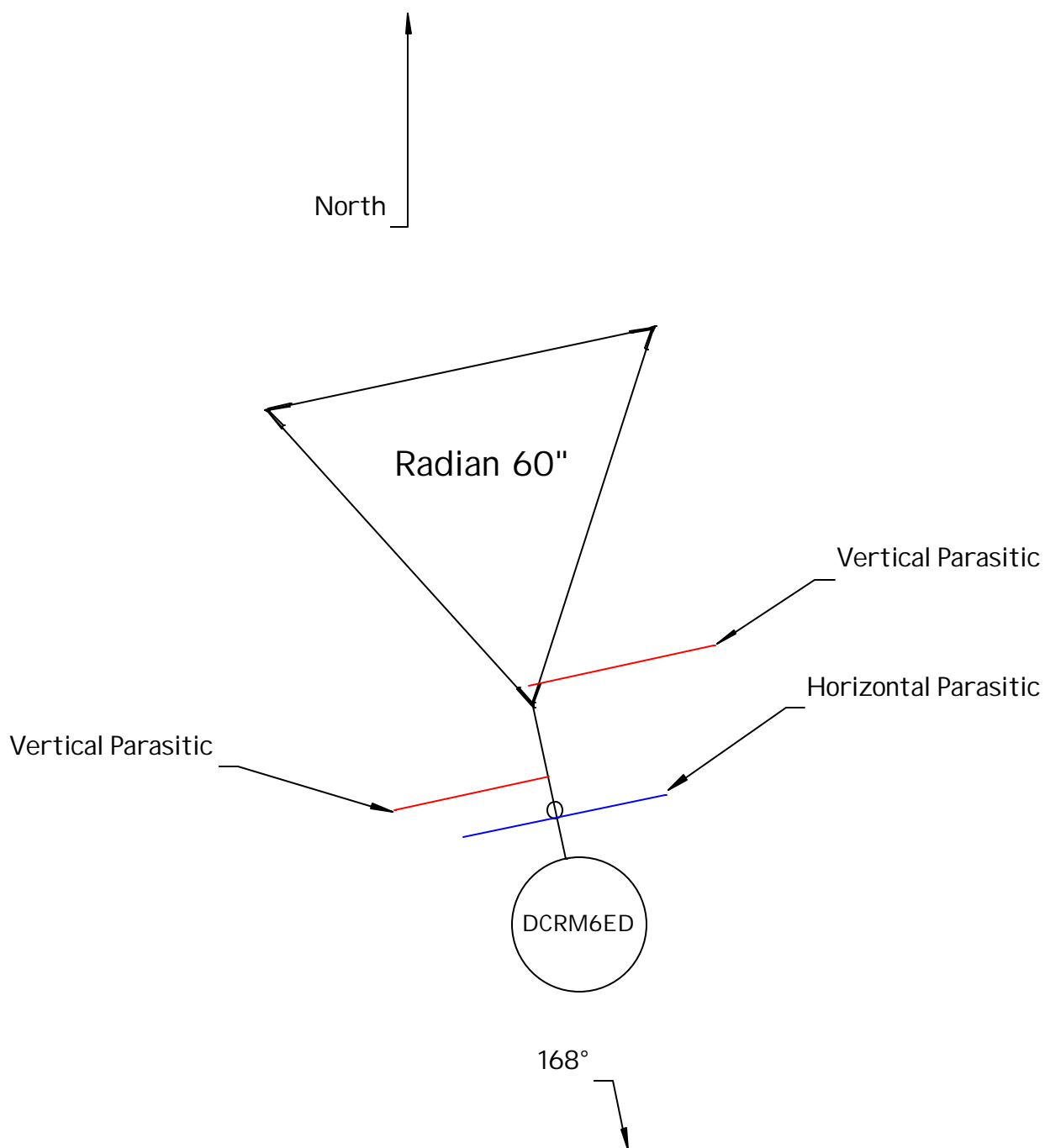
TABULATION OF VERTICAL AZIMUTH PATTERN

Angle	Field	dBk	Power kW
0	0.141	-2.244	0.596
10	0.252	2.799	1.905
20	0.356	5.800	3.802
30	0.432	7.481	5.599
40	0.517	9.041	8.019
50	0.623	10.661	11.644
60	0.692	11.573	14.366
70	0.651	11.043	12.714
80	0.571	9.904	9.781
90	0.545	9.499	8.911
100	0.632	10.786	11.983
110	0.792	12.746	18.818
120	0.902	13.875	24.408
130	0.961	14.426	27.706
140	0.974	14.542	28.460
150	0.941	14.243	26.564
160	0.881	13.671	23.285
170	0.837	13.226	21.017
180	0.829	13.142	20.617
190	0.829	13.142	20.617
200	0.851	13.370	21.726
210	0.896	13.817	24.084
220	0.865	13.512	22.447
230	0.840	13.257	21.168
240	0.691	11.561	14.324
250	0.546	9.515	8.943
260	0.582	10.070	10.162
270	0.650	11.029	12.675
280	0.673	11.332	13.588
290	0.653	11.069	12.792
300	0.547	9.531	8.976
310	0.378	6.321	4.287
320	0.204	0.964	1.248
330	0.109	-4.480	0.356
340	0.111	-4.322	0.370
350	0.098	-5.404	0.288

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TABULATION OF HORIZONTAL AZIMUTH PATTERN

Angle	Field	dBk	Power kW
0	0.581	10.055	10.127
10	0.633	10.799	12.021
20	0.687	11.510	14.159
30	0.621	10.633	11.569
40	0.367	6.065	4.041
50	0.099	-5.316	0.294
60	0.351	5.677	3.696
70	0.545	9.499	8.911
80	0.608	10.449	11.090
90	0.646	10.976	12.519
100	0.722	11.942	15.639
110	0.797	12.800	19.056
120	0.889	13.749	23.710
130	0.988	14.666	29.284
140	0.997	14.745	29.820
150	0.990	14.684	29.403
160	0.988	14.666	29.284
170	0.947	14.298	26.904
180	0.914	13.990	25.062
190	0.896	13.817	24.084
200	0.853	13.390	21.828
210	0.829	13.142	20.617
220	0.843	13.288	21.319
230	0.853	13.390	21.828
240	0.842	13.277	21.269
250	0.854	13.400	21.879
260	0.693	11.586	14.407
270	0.329	5.115	3.247
280	0.136	-2.558	0.555
290	0.526	9.191	8.300
300	0.727	12.002	15.856
310	0.764	12.433	17.511
320	0.689	11.536	14.242
330	0.667	11.254	13.347
340	0.640	10.895	12.288
350	0.609	10.464	11.126



KQTP - 102.9

Document Sketch # 67

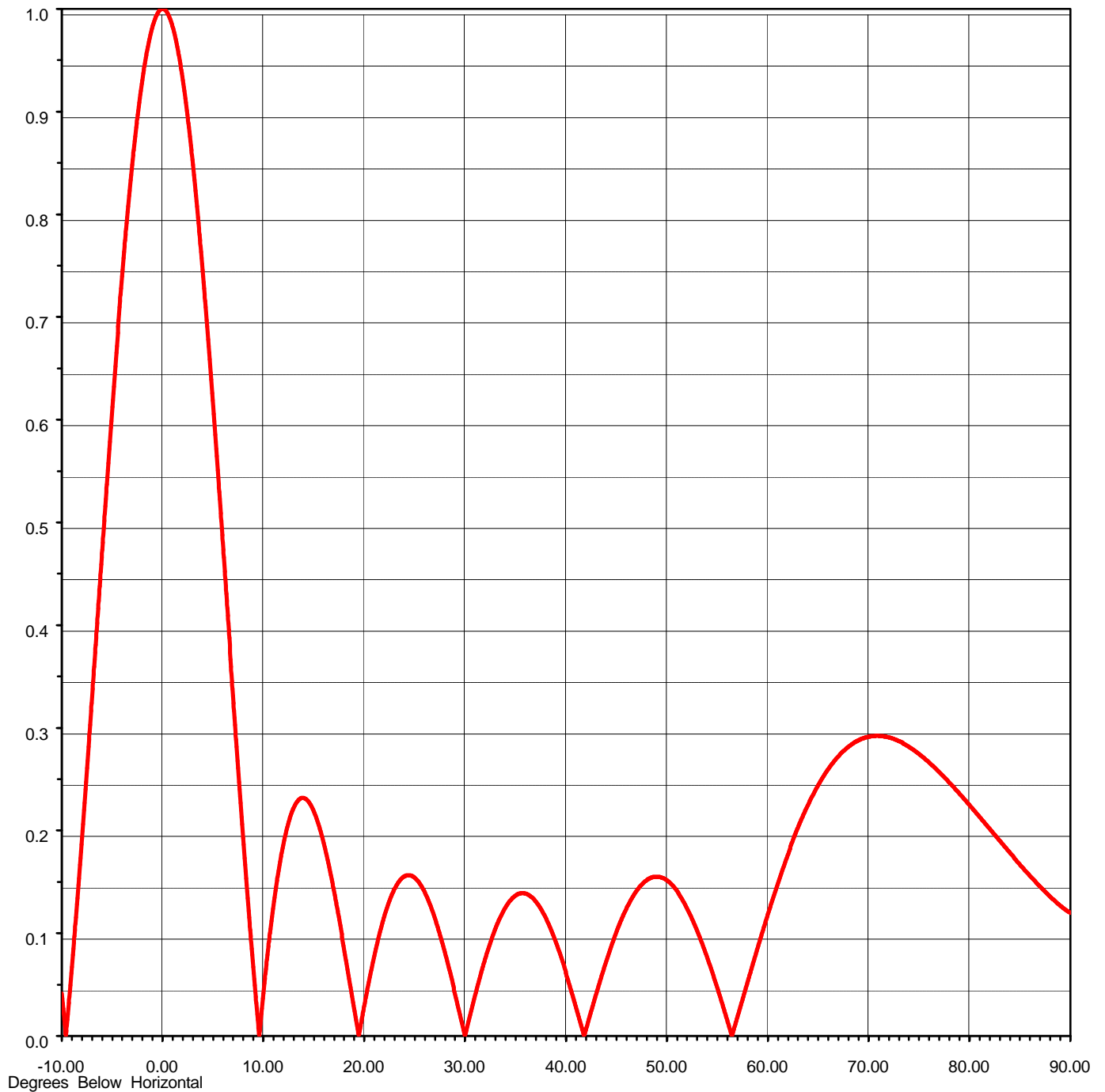
Leg Azimuths @ 48°, 168°, 288°

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MEASURED ELEVATION PATTERN

RMS Gain at Main Lobe **3.20 (5.05 dB)**
Per Polarization

Beam Tilt **0.00 deg**
Frequency **102.90 MHz**
Plane **Typical**



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CUSTOMER GAIN SUMMARY

Azimuth Pattern Gain of Horizontal Polarization	1.86
Elevation Pattern Gain Per Polarization	3.20
Peak Gain at Horizontal Polarization	5.95