



PATTERN CERTIFICATION

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PATTERN CERTIFICATION

Method of Measurement

The azimuth pattern for “**WRUN**”, Dielectric Document Sketch #18 rev D, was measured in the following manner.

A single 4.4 to 1 scale model “**DCR2E5RD**” 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 #**18 rev D**. 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: _____

Date: _____



MSO NO: C-01995

DATE: September 19, 2008

PATTERN NO: 18 rev D

FM AZIMUTH PATTERN APPROVAL

The azimuth pattern of the horizontal polarization and vertical polarization as supplied by Dielectric in the document labeled “ Pattern 18 rev D ”, 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)

Proposal Number **C-01995**
Date **Sep 19, 2008**
Call Letters **WRUN**
Location **Remsen, NY**

Revision

Channel

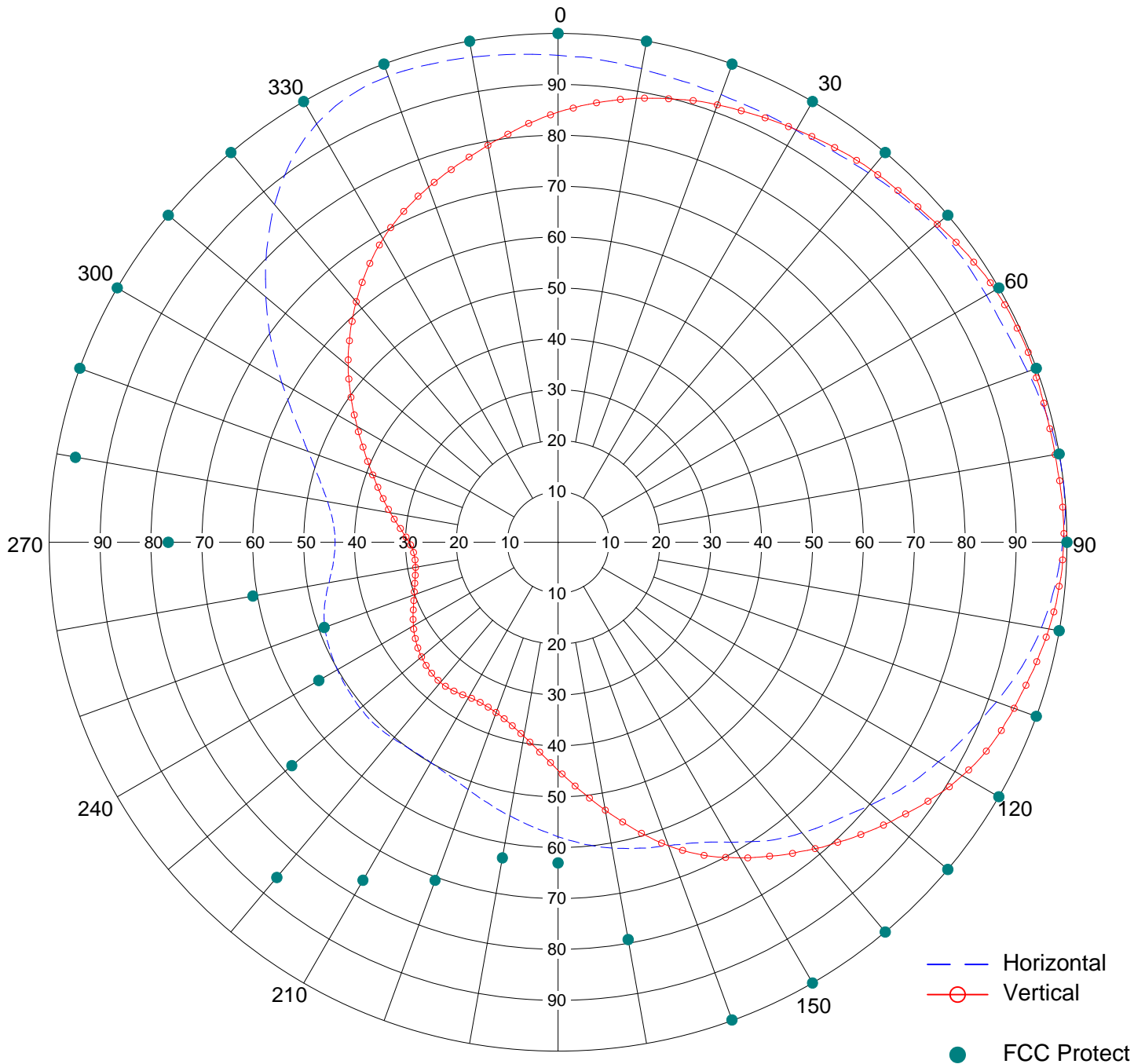
Antenna Type **DCRC**

AZIMUTH PATTERN

86.0% Ccov- 52.2% Hrms - 47.8% Vrms

Gain **1.65 (2.17) HPOL 1.95 (2.9) VPOL**
Calculated / Measured **Measured**

Frequency **90.3 MHz**
Drawing # **18 rev D**



Remarks: adjusted protect and rotated pattern



Proposal Number	C-01995
Date	19-Sep-08
Call Letters	WRUN
Location	Remsen, NY
Customer	Harris
Antenna Type	DCRH2E5RD
Frequency	90.30 MHz
Drawing #:	18 rev D

TABULATION OF HORIZONTAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
0	0.957	0.410	1.099
10	0.945	0.300	1.072
20	0.936	0.217	1.051
30	0.935	0.208	1.049
40	0.948	0.328	1.078
50	0.967	0.500	1.122
60	0.972	0.545	1.134
70	0.982	0.634	1.157
80	0.999	0.783	1.198
90	0.992	0.722	1.181
100	0.965	0.482	1.117
110	0.917	0.039	1.009
120	0.863	-0.488	0.894
130	0.803	-1.114	0.774
140	0.745	-1.765	0.666
150	0.681	-2.545	0.557
160	0.635	-3.153	0.484
170	0.610	-3.502	0.447
180	0.579	-3.955	0.402
190	0.546	-4.464	0.358
200	0.517	-4.938	0.321
210	0.500	-5.229	0.300
220	0.503	-5.177	0.304
230	0.508	-5.091	0.310
240	0.501	-5.211	0.301
250	0.488	-5.440	0.286
260	0.457	-6.010	0.251
270	0.438	-6.379	0.230
280	0.460	-5.953	0.254
290	0.523	-4.838	0.328
300	0.627	-3.263	0.472
310	0.750	-1.707	0.675
320	0.867	-0.448	0.902
330	0.949	0.337	1.081
340	0.975	0.572	1.141
350	0.968	0.509	1.124



Proposal Number	C-01995
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Antenna Type	DCRH2E5RD
Frequency	90.30 MHz
Drawing #:	18 rev D

TABULATION OF VERTICAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
0	0.845	-0.671	0.857
10	0.886	-0.260	0.942
20	0.915	0.020	1.005
30	0.936	0.217	1.051
40	0.956	0.401	1.097
50	0.973	0.554	1.136
60	0.992	0.722	1.181
70	0.995	0.748	1.188
80	0.992	0.722	1.181
90	0.994	0.740	1.186
100	0.979	0.607	1.150
110	0.954	0.383	1.092
120	0.917	0.039	1.009
130	0.854	-0.579	0.875
140	0.786	-1.300	0.741
150	0.716	-2.110	0.615
160	0.635	-3.153	0.484
170	0.535	-4.641	0.343
180	0.448	-6.183	0.241
190	0.387	-7.454	0.180
200	0.356	-8.179	0.152
210	0.352	-8.277	0.149
220	0.360	-8.082	0.156
230	0.350	-8.327	0.147
240	0.328	-8.891	0.129
250	0.301	-9.637	0.109
260	0.284	-10.142	0.097
270	0.293	-9.871	0.103
280	0.335	-8.707	0.135
290	0.388	-7.432	0.181
300	0.456	-6.029	0.250
310	0.538	-4.593	0.347
320	0.617	-3.402	0.457
330	0.688	-2.456	0.568
340	0.743	-1.788	0.662
350	0.792	-1.234	0.753



Proposal Number

C-01995

Revision:

1

Date

Sep 19, 2008

Call Letters

WRUN

Location

Remsen, NY

Customer

Harris

Antenna Type

DCRH2E5RD

COMPOSITE AZIMUTH PATTERN

Calculated / Measured

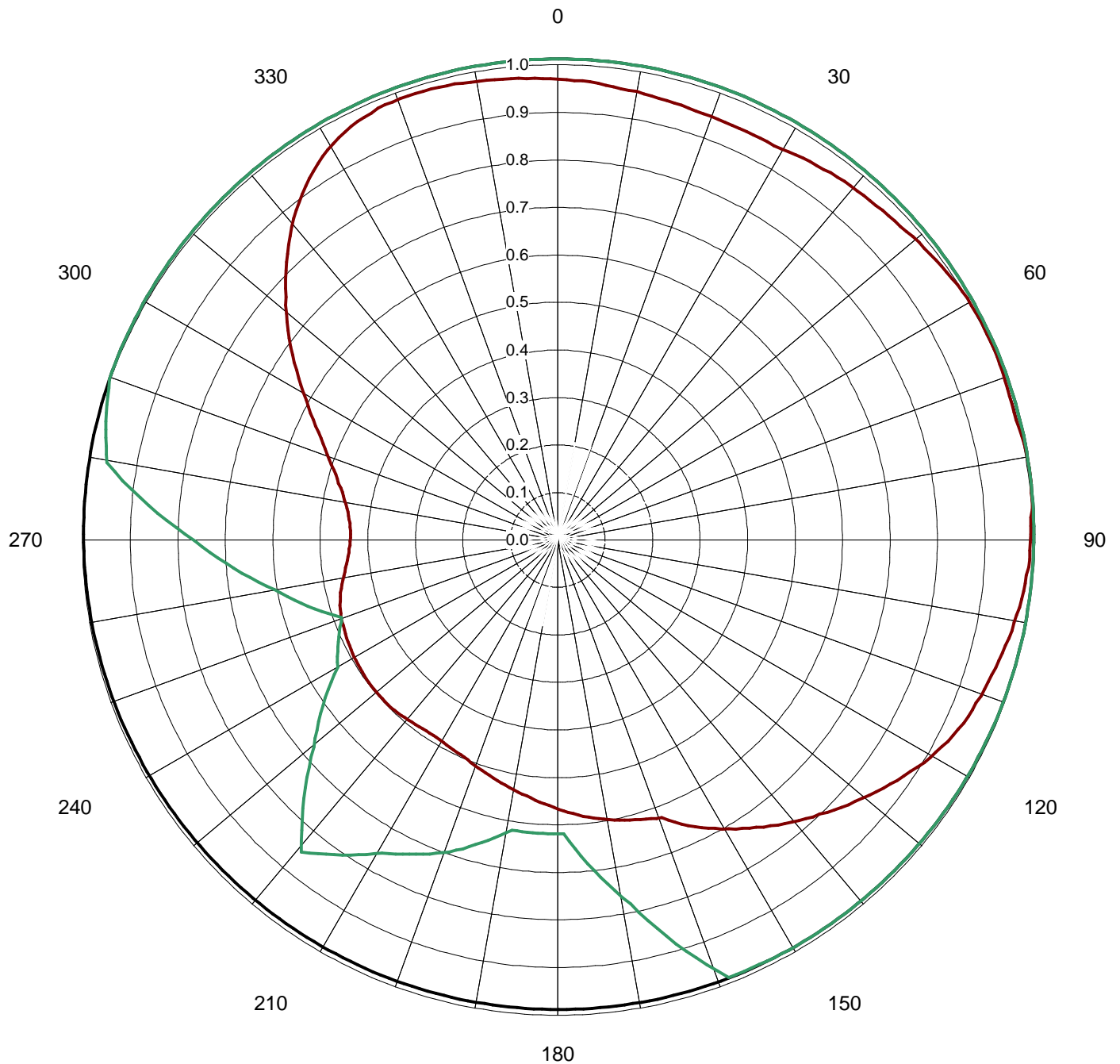
Measured

Frequency

90.30 MHz

Drawing #

18 rev D





Proposal Number	C-01995
Date	19-Sep-08
Call Letters	WRUN
Location	Remsen, NY
Customer	Harris
Antenna Type	DCRH2E5RD
Frequency	90.30 MHz
Drawing #:	18 rev D

TABULATION OF COMPOSITE AZIMUTH PATTERN

Angle	Field	dBk	Power kW	Input Power
0	0.957	0.410	1.099	1.200
10	0.945	0.300	1.072	1.200
20	0.936	0.217	1.051	1.200
30	0.936	0.217	1.051	1.200
40	0.956	0.401	1.097	1.200
50	0.973	0.554	1.136	1.200
60	0.992	0.722	1.181	1.200
70	0.995	0.748	1.188	1.200
80	0.999	0.783	1.198	1.200
90	0.994	0.740	1.186	1.200
100	0.979	0.607	1.150	1.200
110	0.954	0.383	1.092	1.200
120	0.917	0.039	1.009	1.200
130	0.854	-0.579	0.875	1.200
140	0.786	-1.300	0.741	1.200
150	0.716	-2.110	0.615	1.200
160	0.635	-3.153	0.484	1.200
170	0.610	-3.502	0.447	1.200
180	0.579	-3.955	0.402	1.200
190	0.546	-4.464	0.358	1.200
200	0.517	-4.938	0.321	1.200
210	0.500	-5.229	0.300	1.200
220	0.503	-5.177	0.304	1.200
230	0.508	-5.091	0.310	1.200
240	0.501	-5.211	0.301	1.200
250	0.488	-5.440	0.286	1.200
260	0.457	-6.010	0.251	1.200
270	0.438	-6.379	0.230	1.200
280	0.460	-5.953	0.254	1.200
290	0.523	-4.838	0.328	1.200
300	0.627	-3.263	0.472	1.200
310	0.750	-1.707	0.675	1.200
320	0.867	-0.448	0.902	1.200
330	0.949	0.337	1.081	1.200
340	0.975	0.572	1.141	1.200
350	0.968	0.509	1.124	1.200



Proposal Number	C-01995
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Frequency	90.30 MHz
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CUSTOMER GAIN SUMMARY

Azimuth Pattern Gain of Horizontal Polarization	1.65	(2.17 dB)
Elevation Pattern Gain Per Polarization	0.65	(-1.87 dB)
Peak Gain at Horizontal Polarization	1.07	(0.30 dB)

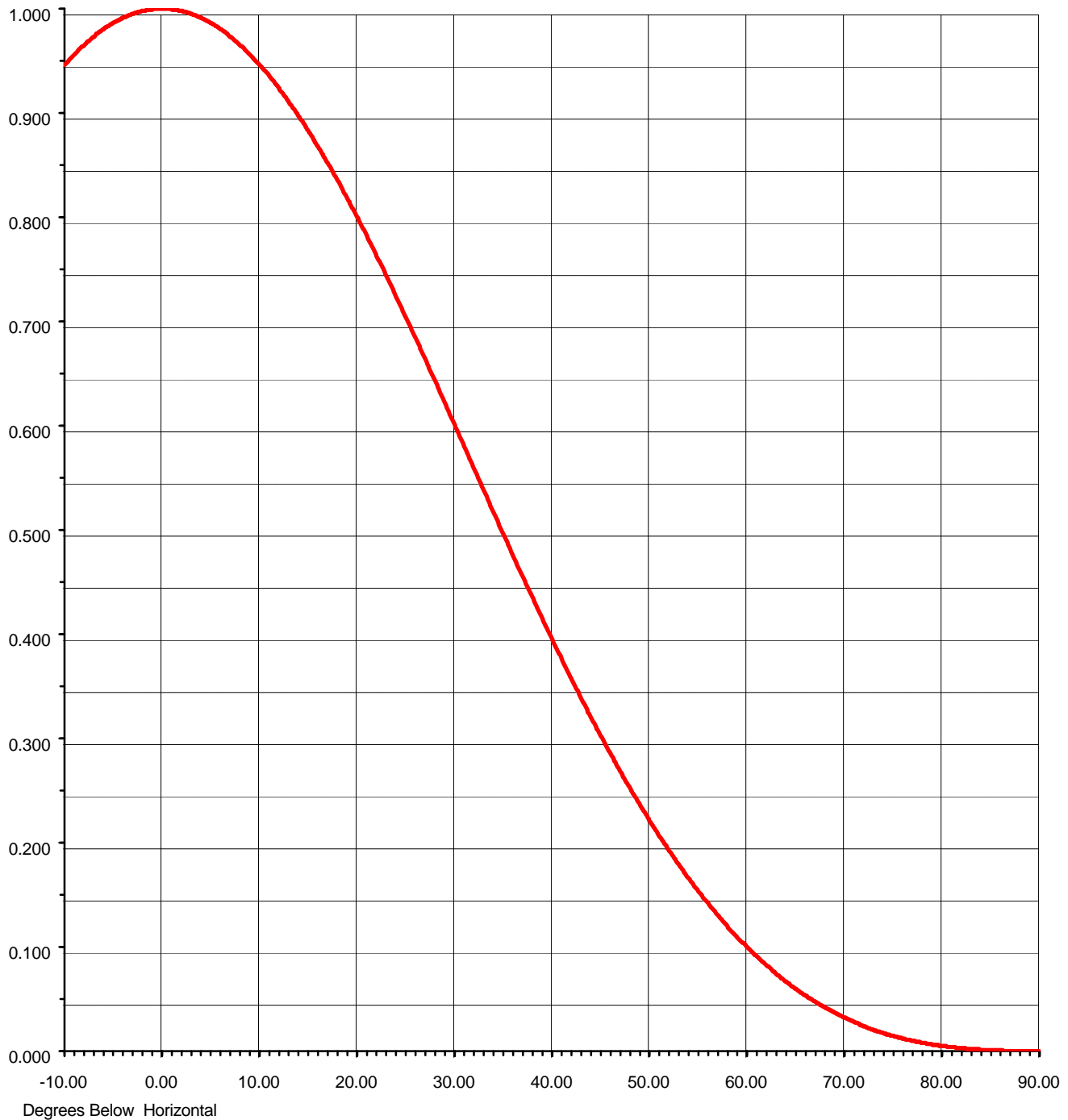


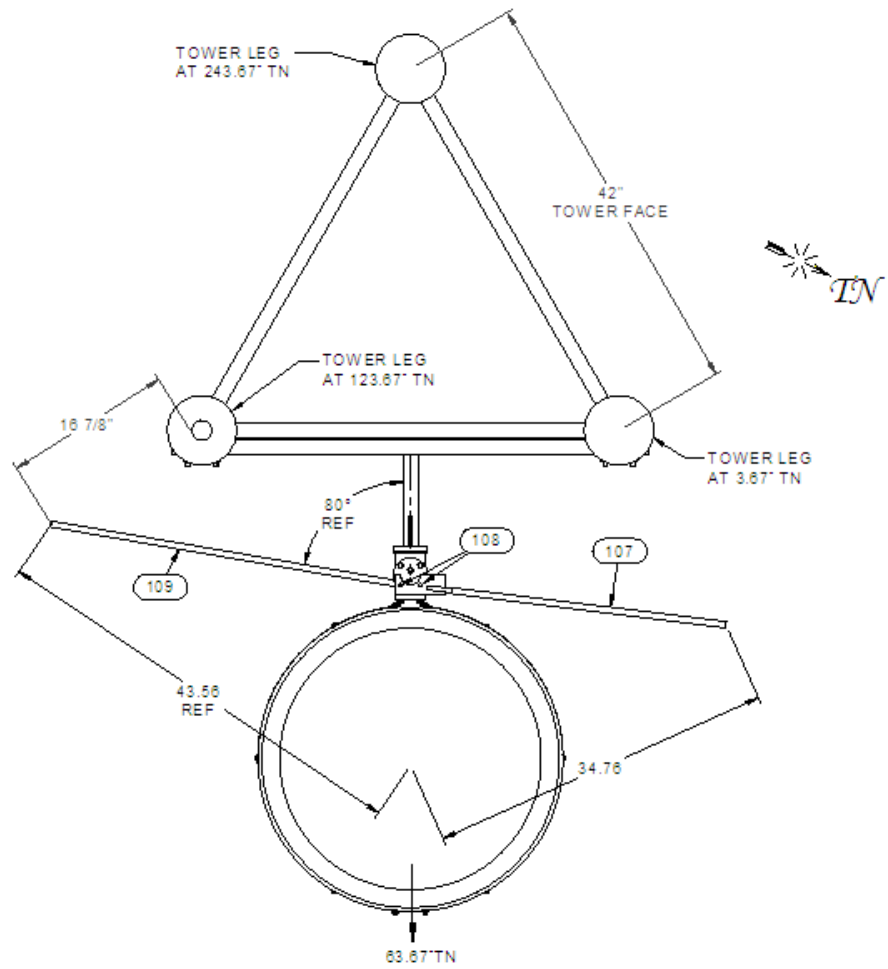
Proposal Number	C-01995
Date	19-Sep-08
Call Letters	WRUN
Location	Remsen, NY
Customer	Harris
Antenna Type	DCRH2E5RD
Drawing #	

ELEVATION PATTERN

RMS Gain at Main Lobe **0.65 -(1.87 dB)**
Per Polarization
Calculated / Measured **Calculated**

Beam Tilt **0.00 deg**
Frequency **90.30 MHz**





WRUN Pattern #18 revD
 9/19/2008
 Technician: KM