



## **PATTERN CERTIFICATION**

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## **PATTERN CERTIFICATION**

### **Method of Measurement**

The azimuth pattern for "WSGE", Dielectric Document Sketch #10, was measured in the following manner.

A single 4.4 to 1 scale model "DCRM2EHP" 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 #10. 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.

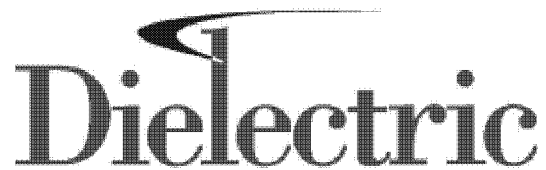
The transmit and scale model antennas are mounted at identical elevations and at opposite ends of the chamber. A Hewlett Packard model 8752C network analyzer was used to supply the RF signal to the source antenna at 4.4 times the fundamental FM frequency and to receive the signal intercepted by the antenna 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 Pelletier

Date: 6/5/06



**MSO NO:**

**DATE: June 8, 2006**

**PATTERN NO: 10 New Protect**


**FM AZIMUTH PATTERN APPROVAL**

The azimuth pattern of the horizontal polarization and vertical polarization as supplied by Dielectric in the document labeled " Pattern 10 ", is acknowledged as acceptable. We understand that Dielectric does not guarantee or predict signal strength in any particular location.

Gaston College/WSGE  
(Customer's name)

By: Timothy L. Warner  
(Name typed or printed)

Title: Technical Consultant

  
(Signature)

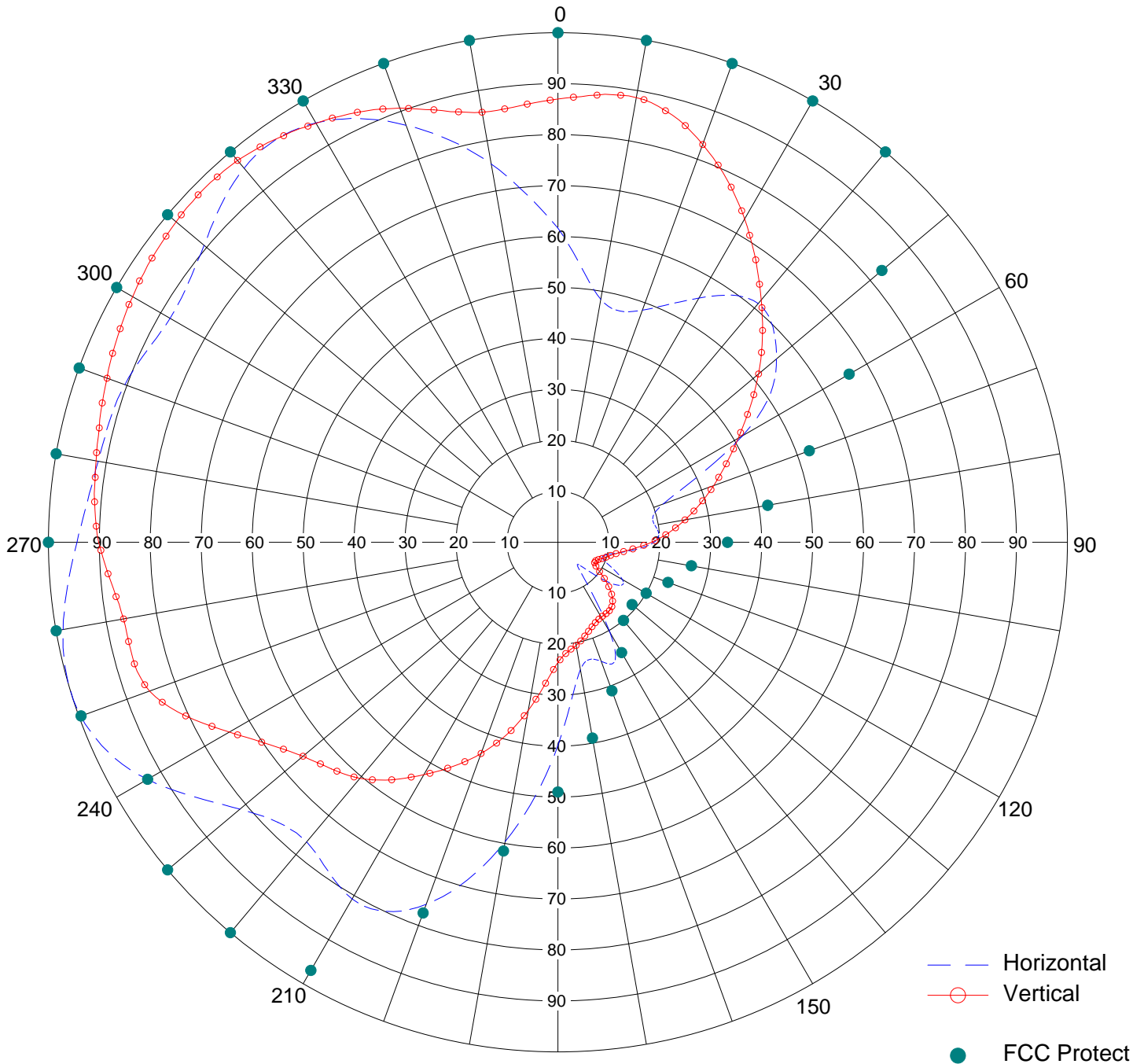
Date Jun 8, 2006  
Call Letters WSGE  
Location Dallas, NC

Antenna Type DCRM2EHP

## AZIMUTH PATTERN

Ccov - 87.7% - 50.2% Hrms - 49.8% Vrms

Gain 2.33 (3.67) HPOL 2.27 (3.56) VPOL Frequency 91.7 MHz  
Calculated / Measured Measured Drawing # 10



Remarks: Pattern 10 with new FCC protect



Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

Frequency

Drawing #:

**8-Jun-06**

**WSGE**

**Dallas, NC**

**DCRM2EHP**

**91.70 MHz**

**10**

## **TABULATION OF HORIZONTAL AZIMUTH PATTERN**

Angle	Field	dBk	ERP kW
0	0.617	4.556	2.855
10	0.484	2.448	1.757
20	0.485	2.465	1.764
30	0.553	3.605	2.294
40	0.612	4.486	2.809
50	0.560	3.714	2.352
60	0.419	1.195	1.317
70	0.220	-4.401	0.363
80	0.193	-5.538	0.279
90	0.189	-5.720	0.268
100	0.119	-9.738	0.106
110	0.093	-11.880	0.065
120	0.146	-7.962	0.160
130	0.111	-10.343	0.092
140	0.059	-15.832	0.026
150	0.204	-5.057	0.312
160	0.249	-3.325	0.465
170	0.254	-3.153	0.484
180	0.399	0.770	1.194
190	0.596	4.256	2.664
200	0.756	6.321	4.287
210	0.808	6.899	4.896
220	0.767	6.447	4.412
230	0.815	6.974	4.982
240	0.930	8.120	6.487
250	0.996	8.716	7.440
260	0.986	8.628	7.291
270	0.944	8.250	6.684
280	0.916	7.989	6.293
290	0.905	7.884	6.143
300	0.879	7.630	5.795
310	0.907	7.903	6.170
320	0.958	8.378	6.883
330	0.951	8.314	6.783
340	0.871	7.551	5.690
350	0.754	6.298	4.264



Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

Frequency

Drawing #:

**8-Jun-06**

**WSGE**

**Dallas, NC**

**DCRM2EHP**

**91.70 MHz**

**10**

## TABULATION OF VERTICAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
0	0.870	7.541	5.677
10	0.886	7.699	5.887
20	0.831	7.143	5.179
30	0.733	6.053	4.030
40	0.621	4.612	2.892
50	0.514	2.970	1.981
60	0.409	0.985	1.255
70	0.325	-1.012	0.792
80	0.253	-3.187	0.480
90	0.183	-6.000	0.251
100	0.120	-9.666	0.108
110	0.093	-11.880	0.065
120	0.083	-12.868	0.052
130	0.127	-9.173	0.121
140	0.165	-6.900	0.204
150	0.170	-6.640	0.217
160	0.182	-6.048	0.248
170	0.206	-4.972	0.318
180	0.236	-3.791	0.418
190	0.335	-0.748	0.842
200	0.441	1.639	1.459
210	0.527	3.187	2.083
220	0.605	4.386	2.745
230	0.653	5.049	3.198
240	0.745	6.194	4.163
250	0.853	7.370	5.457
260	0.866	7.501	5.625
270	0.901	7.845	6.089
280	0.920	8.026	6.348
290	0.942	8.232	6.655
300	0.964	8.432	6.970
310	0.978	8.557	7.174
320	0.978	8.557	7.174
330	0.949	8.296	6.755
340	0.907	7.903	6.170
350	0.857	7.410	5.508



Proposal Number

Revision:

2

Date

Jun 08, 2006

Call Letters

WSGE

Location

Dallas, NC

Customer

Antenna Type

DCRM2EHP

## COMPOSITE AZIMUTH PATTERN

Calculated / Measured

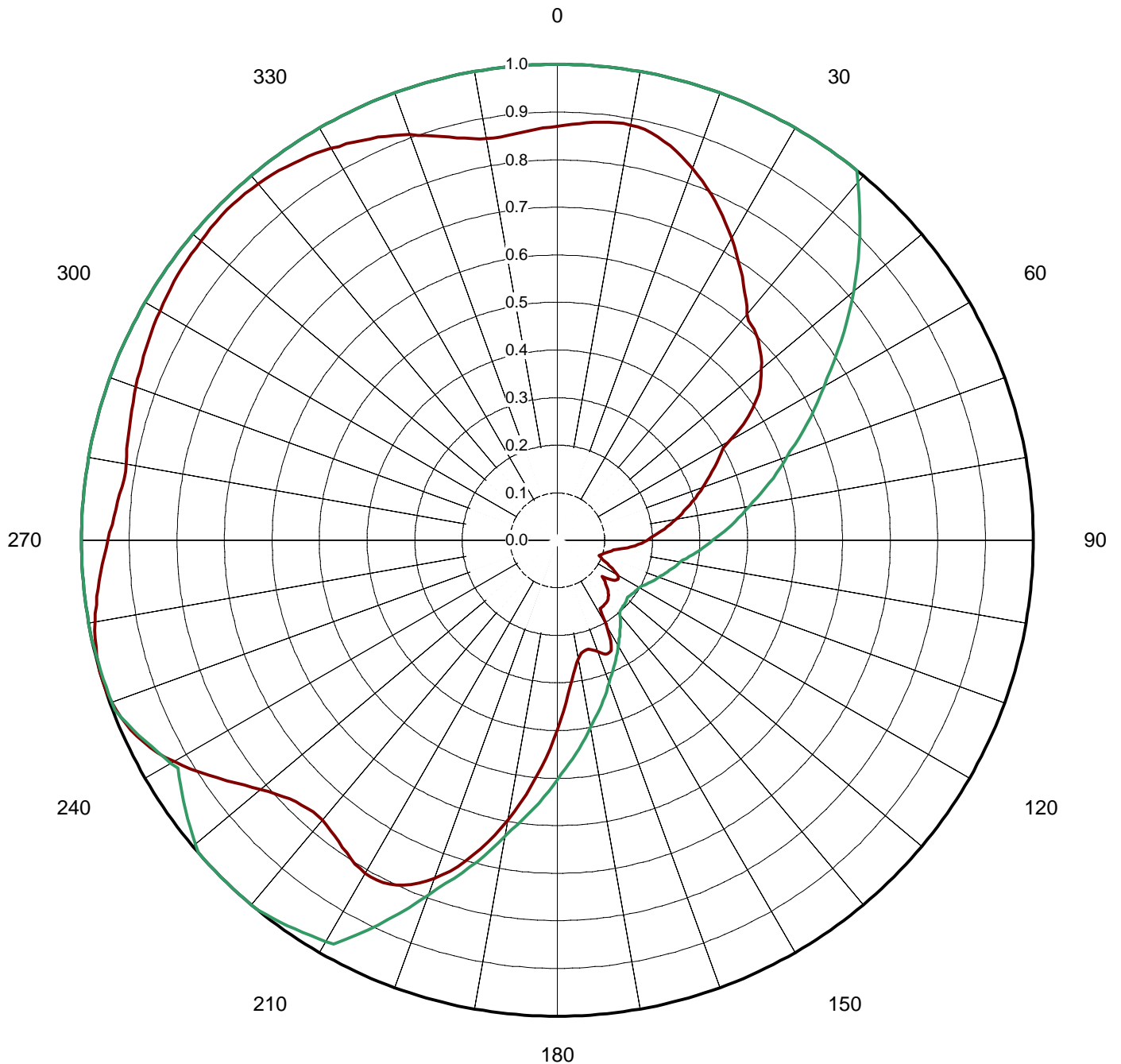
**Measured**

Frequency

**91.70 MHz**

Drawing #

**10**





Proposal Number

Date

Call Letters

Location

Customer

Antenna Type

Frequency

Drawing #:

**8-Jun-06**

**WSGE**

**Dallas, NC**

**DCRM2EHP**

**91.70 MHz**

**10**

## **TABULATION OF COMPOSITE AZIMUTH PATTERN**

Angle	Field	dBk	Power kW	Input Power
0	0.870	7.541	5.677	7.500
10	0.886	7.699	5.887	7.500
20	0.831	7.143	5.179	7.500
30	0.733	6.053	4.030	7.500
40	0.621	4.612	2.892	7.500
50	0.560	3.714	2.352	7.500
60	0.419	1.195	1.317	7.500
70	0.325	-1.012	0.792	7.500
80	0.253	-3.187	0.480	7.500
90	0.189	-5.720	0.268	7.500
100	0.120	-9.666	0.108	7.500
110	0.093	-11.880	0.065	7.500
120	0.146	-7.962	0.160	7.500
130	0.127	-9.173	0.121	7.500
140	0.165	-6.900	0.204	7.500
150	0.204	-5.057	0.312	7.500
160	0.249	-3.325	0.465	7.500
170	0.254	-3.153	0.484	7.500
180	0.399	0.770	1.194	7.500
190	0.596	4.256	2.664	7.500
200	0.756	6.321	4.287	7.500
210	0.808	6.899	4.896	7.500
220	0.767	6.447	4.412	7.500
230	0.815	6.974	4.982	7.500
240	0.930	8.120	6.487	7.500
250	0.996	8.716	7.440	7.500
260	0.986	8.628	7.291	7.500
270	0.944	8.250	6.684	7.500
280	0.920	8.026	6.348	7.500
290	0.942	8.232	6.655	7.500
300	0.964	8.432	6.970	7.500
310	0.978	8.557	7.174	7.500
320	0.978	8.557	7.174	7.500
330	0.951	8.314	6.783	7.500
340	0.907	7.903	6.170	7.500
350	0.857	7.410	5.508	7.500





Proposal Number

Date

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Antenna Type

Frequency

Drawing #

**Jun 08, 2006**

**WSGE**

**Dallas, NC**

**DCRM2EHP**

**91.70 MHz**

**10**

## **CUSTOMER GAIN SUMMARY**

<b>Azimuth Pattern Gain of Horizontal Polarization</b>	<b>2.32</b>	<b>(3.65 dB)</b>
<b>Elevation Pattern Gain Per Polarization</b>	<b>1.00</b>	<b>(0.00 dB)</b>
<b>Peak Gain at Horizontal Polarization</b>	<b>2.32</b>	<b>(3.65 dB)</b>



Proposal Number

Date

Call Letters

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Antenna Type

Drawing #

**8-Jun-06**

**WSGE**

**Dallas, NC**

**DCRM2EHP**

## ELEVATION PATTERN

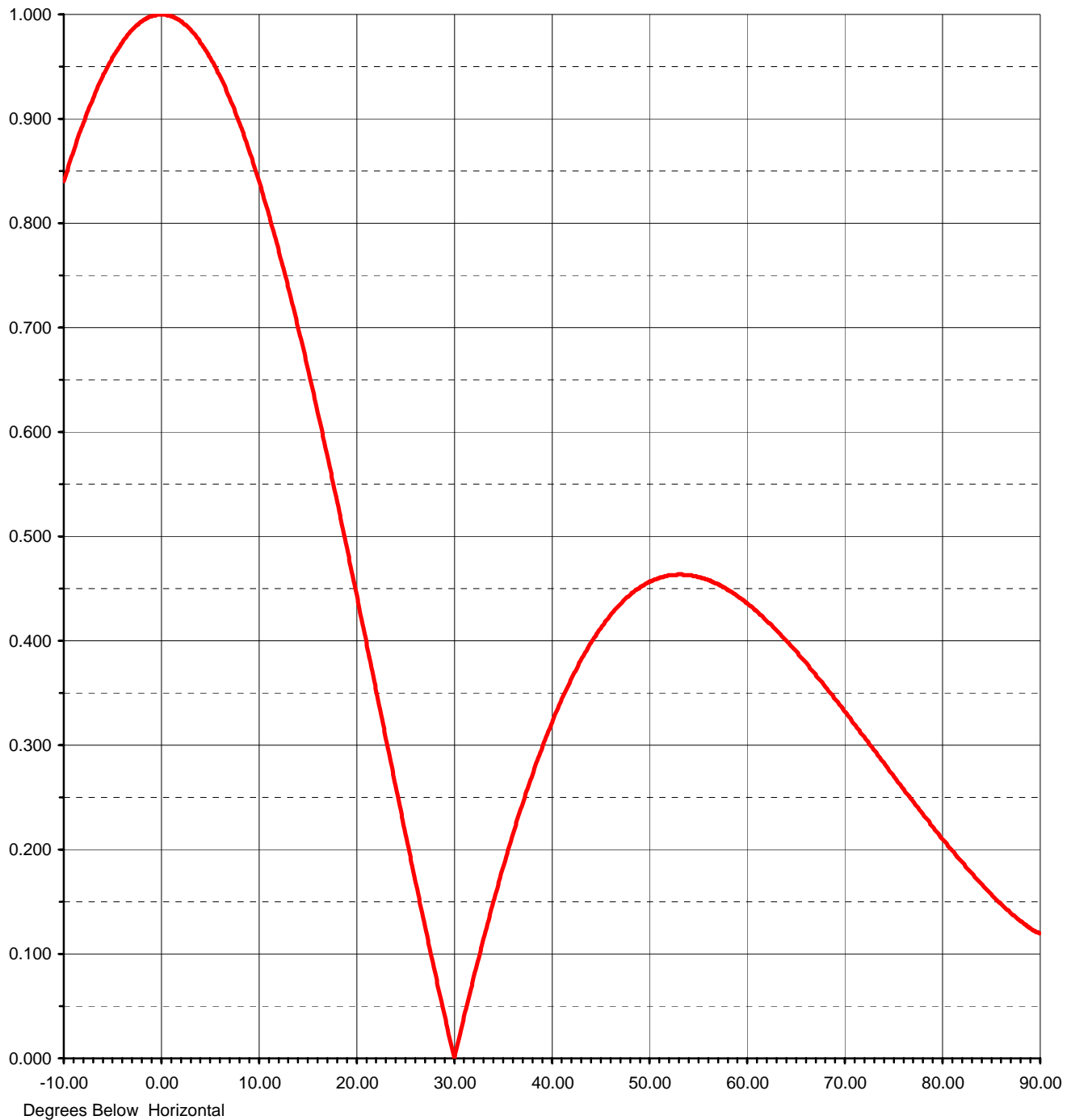
RMS Gain at Main Lobe **1.00 ( 0.00 dB )**

Per Polarization

Calculated / Measured **Calculated**

Beam Tilt **0.00 deg**

Frequency **91.70 MHz**



TN

WSGE 91.7 FM  
DCRM2EHP  
PATTERN 10

