ATLANTIC COAST SURVEYS

SURVEYORS • PLANNERS • ENGINEERS
400 W. MAIN STREET • CRISFIELD, MARYLAND 21817 • ~~410-968-0255~~ 443-880-0972

MONROE G. CHEW 4th
President
LICENSE NO.
MD. PPLS 21
VA. RLS 1027

MARCH 25, 2005

I, MONROE G CHEW, 4th, DO HEREBY CERTIFY THAT A CERTAIN DIRECTIONAL RADIO ANTENNA HAS BEEN SET SO AS TO POINT IN THE DIRECTION OF 130° 00' 00" AZIMUTH, REFERENCED TO TRUE NORTH AS OF MARCH 25, 2005.

SAID ANTENNA IS ATTACHED TO A TOWER LOCATED AT 38° 01' 45" NORTH AND 75°45' 05" WEST, IN SOMERSET COUNTY, MARYLAND.

CERTIFIED CORRECT,

MONROE G CHEW, 4th
REGISTERED PROPERTY LINE SURVEYOR
MARYLAND NO. PPLS-21

Dielectric

PATTERN CERTIFICATION

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Dielectric

PATTERN CERTIFICATION

Method of Measurement

The azimuth pattern for "WBEY", Dielectric Document Sketch #21, was measured in the following manner.

A single 4.4 to1 scale model "DCRH4E5" 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 #21. 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: 2/7/05

Dielectric

MSO NO: 81216

DATE: Feb 7, 2005

PATTERN NO: 21

FM AZIMUTH PATTERN APPROVAL

The azimuth pattern of the horizontal polarization and vertical polarization as supplied by Dielectric in the document labeled " Pattern 21 ", 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)

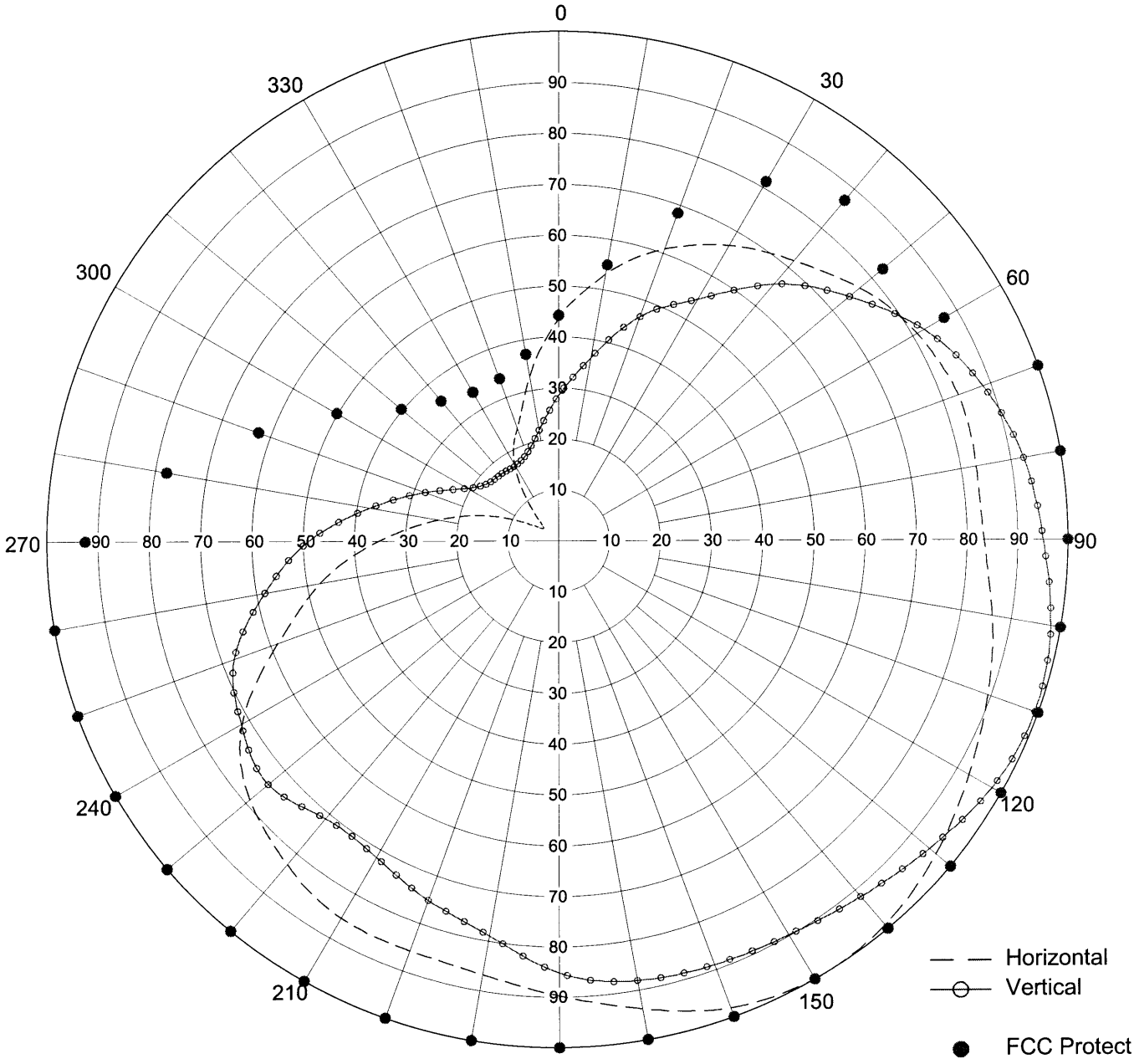
Dielectric

Proposal Number	**81216**
Date	**Feb 7, 2005**
Call Letters	**WBEY**
Location	**Crisfield, MD**
Antenna Type	**DCRH4E5**

AZIMUTH PATTERN

86.0%Ccov-50.5%Hrms-49.5%Vrms

Gain	**1.99 (2.99) HPOL 2.04 (3.1) VPOL**	Frequency	**97.9 MHz**
Calculated / Measured	**Measured**	Drawing #	**21**



Remarks: 1 Horizontal parasitic below center line of bay

Proposal Number	**81216**
Date	**7-Feb-05**
Call Letters	**WBEY**
Location	**Crisfield, MD**
Customer	**Bay Broadcasting**
Antenna Type	**DCRH4E5**
Frequency	**97.90 MHz**
Drawing #:	**21**

TABULATION OF HORIZONTAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
0	0.435	-0.896	0.814
10	0.531	0.837	1.212
20	0.609	2.027	1.595
30	0.669	2.843	1.925
40	0.717	3.445	2.211
50	0.769	4.053	2.543
60	0.810	4.504	2.821
70	0.833	4.748	2.984
80	0.830	4.716	2.962
90	0.834	4.758	2.991
100	0.862	5.045	3.195
110	0.894	5.361	3.437
120	0.927	5.676	3.695
130	0.963	6.007	3.988
140	0.991	6.256	4.223
150	1.000	6.335	4.300
160	0.982	6.177	4.147
170	0.937	5.769	3.775
180	0.897	5.391	3.460
190	0.868	5.105	3.240
200	0.858	5.004	3.166
210	0.855	4.974	3.143
220	0.828	4.695	2.948
230	0.790	4.287	2.684
240	0.715	3.421	2.198
250	0.585	1.678	1.472
260	0.475	-0.131	0.970
270	0.353	-2.710	0.536
280	0.239	-6.097	0.246
290	0.145	-10.438	0.090
300	0.065	-17.407	0.018
310	0.038	-22.070	0.006
320	0.079	-15.713	0.027
330	0.174	-8.854	0.130
340	0.237	-6.170	0.242
350	0.328	-3.348	0.463

Proposal Number	**81216**
Date	**7-Feb-05**
Call Letters	**WBEY**
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Customer	**Bay Broadcasting**
Antenna Type	**DCRH4E5**
Frequency	**97.90 MHz**
Drawing #:	**21**

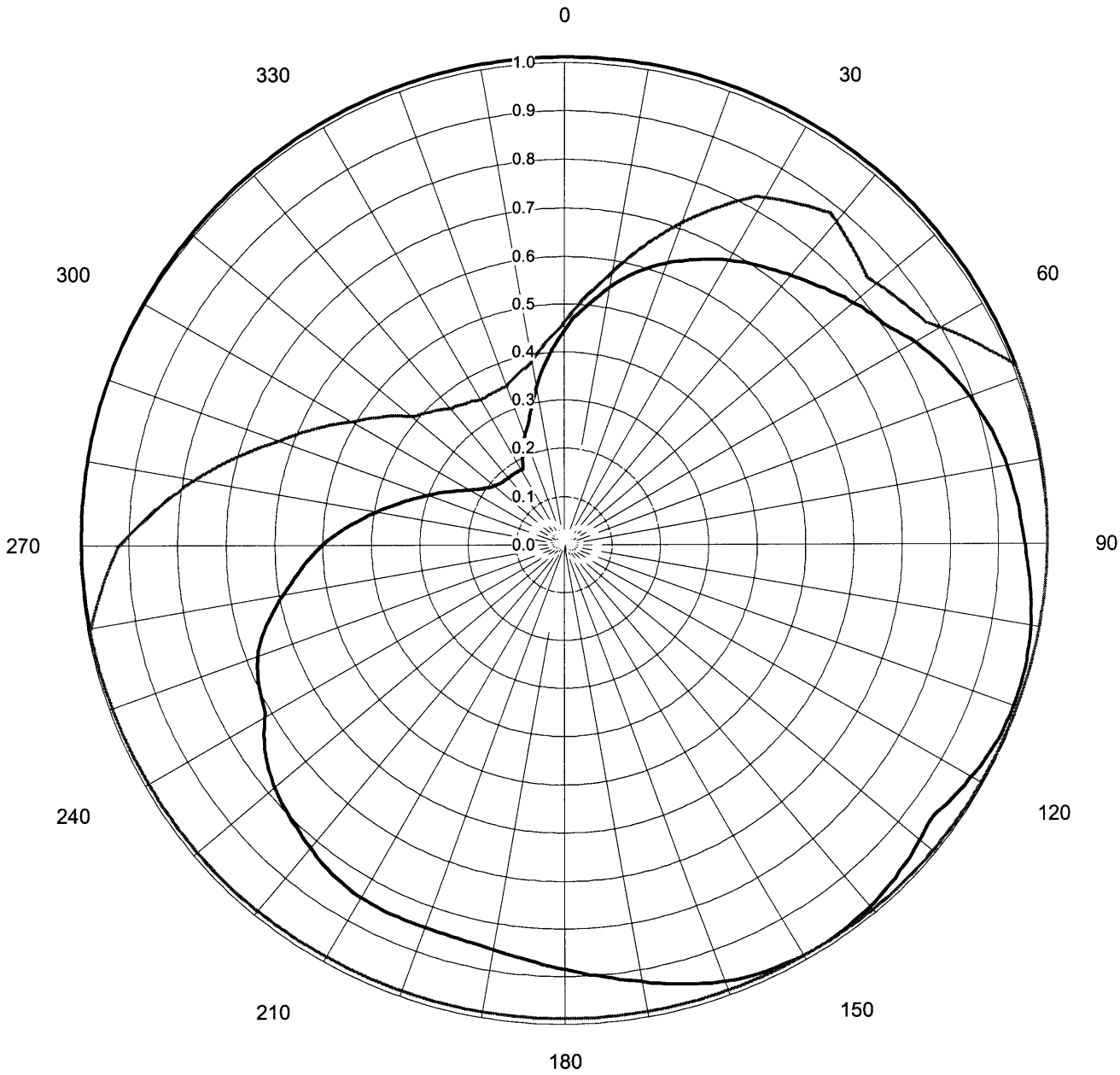
TABULATION OF VERTICAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
0	0.286	-4.538	0.352
10	0.365	-2.419	0.573
20	0.467	-0.279	0.938
30	0.546	1.079	1.282
40	0.656	2.673	1.850
50	0.743	3.754	2.374
60	0.826	4.674	2.934
70	0.884	5.264	3.360
80	0.926	5.667	3.687
90	0.951	5.898	3.889
100	0.981	6.168	4.138
110	0.993	6.274	4.240
120	0.979	6.150	4.121
130	0.946	5.853	3.848
140	0.917	5.582	3.616
150	0.898	5.400	3.468
160	0.890	5.322	3.406
170	0.881	5.234	3.337
180	0.852	4.943	3.121
190	0.790	4.287	2.684
200	0.752	3.859	2.432
210	0.717	3.445	2.211
220	0.712	3.384	2.180
230	0.743	3.754	2.374
240	0.717	3.445	2.211
250	0.676	2.934	1.965
260	0.584	1.663	1.467
270	0.490	0.139	1.032
280	0.376	-2.162	0.608
290	0.279	-4.753	0.335
300	0.207	-7.346	0.184
310	0.178	-8.657	0.136
320	0.173	-8.904	0.129
330	0.170	-9.056	0.124
340	0.183	-8.416	0.144
350	0.221	-6.777	0.210

Proposal Number	**81216**	Revision:
Date	**Feb 07, 2005**	
Call Letters	**WBEY**	
Location	**Crisfield, MD**	
Customer	**Bay Broadcasting**	
Antenna Type	**DCRH4E5**	

COMPOSITE AZIMUTH PATTERN

Calculated / Measured	**Measured**	Frequency	**97.90 MHz**
		Drawing #	**21**



Proposal Number	**81216**
Date	**7-Feb-05**
Call Letters	**WBEY**
Location	**Crisfield, MD**
Customer	**Bay Broadcasting**
Antenna Type	**DCRH4E5**
Frequency	**97.90 MHz**
Drawing #:	**21**

TABULATION OF COMPOSITE AZIMUTH PATTERN

Angle	Field	dBk	Power kW	Input Power
0	0.435	-0.896	0.814	4.300
10	0.531	0.837	1.212	4.300
20	0.609	2.027	1.595	4.300
30	0.669	2.843	1.925	4.300
40	0.717	3.445	2.211	4.300
50	0.769	4.053	2.543	4.300
60	0.826	4.674	2.934	4.300
70	0.884	5.264	3.360	4.300
80	0.926	5.667	3.687	4.300
90	0.951	5.898	3.889	4.300
100	0.981	6.168	4.138	4.300
110	0.993	6.274	4.240	4.300
120	0.979	6.150	4.121	4.300
130	0.963	6.007	3.988	4.300
140	0.991	6.256	4.223	4.300
150	1.000	6.335	4.300	4.300
160	0.982	6.177	4.147	4.300
170	0.937	5.769	3.775	4.300
180	0.897	5.391	3.460	4.300
190	0.868	5.105	3.240	4.300
200	0.858	5.004	3.166	4.300
210	0.855	4.974	3.143	4.300
220	0.828	4.695	2.948	4.300
230	0.790	4.287	2.684	4.300
240	0.717	3.445	2.211	4.300
250	0.676	2.934	1.965	4.300
260	0.584	1.663	1.467	4.300
270	0.490	0.139	1.032	4.300
280	0.376	-2.162	0.608	4.300
290	0.279	-4.753	0.335	4.300
300	0.207	-7.346	0.184	4.300
310	0.178	-8.657	0.136	4.300
320	0.173	-8.904	0.129	4.300
330	0.174	-8.854	0.130	4.300
340	0.237	-6.170	0.242	4.300
350	0.328	-3.348	0.463	4.300

Proposal Number	**81216**
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Antenna Type	**DCRH4E5**
Frequency	**97.90 MHz**
Drawing #	**21**

CUSTOMER GAIN SUMMARY

Azimuth Pattern Gain of Horizontal Polarization	**1.98**	**(2.97 dB)**
Elevation Pattern Gain Per Polarization	**1.30**	**(1.14 dB)**
Peak Gain at Horizontal Polarization	**2.57**	**(4.11 dB)**

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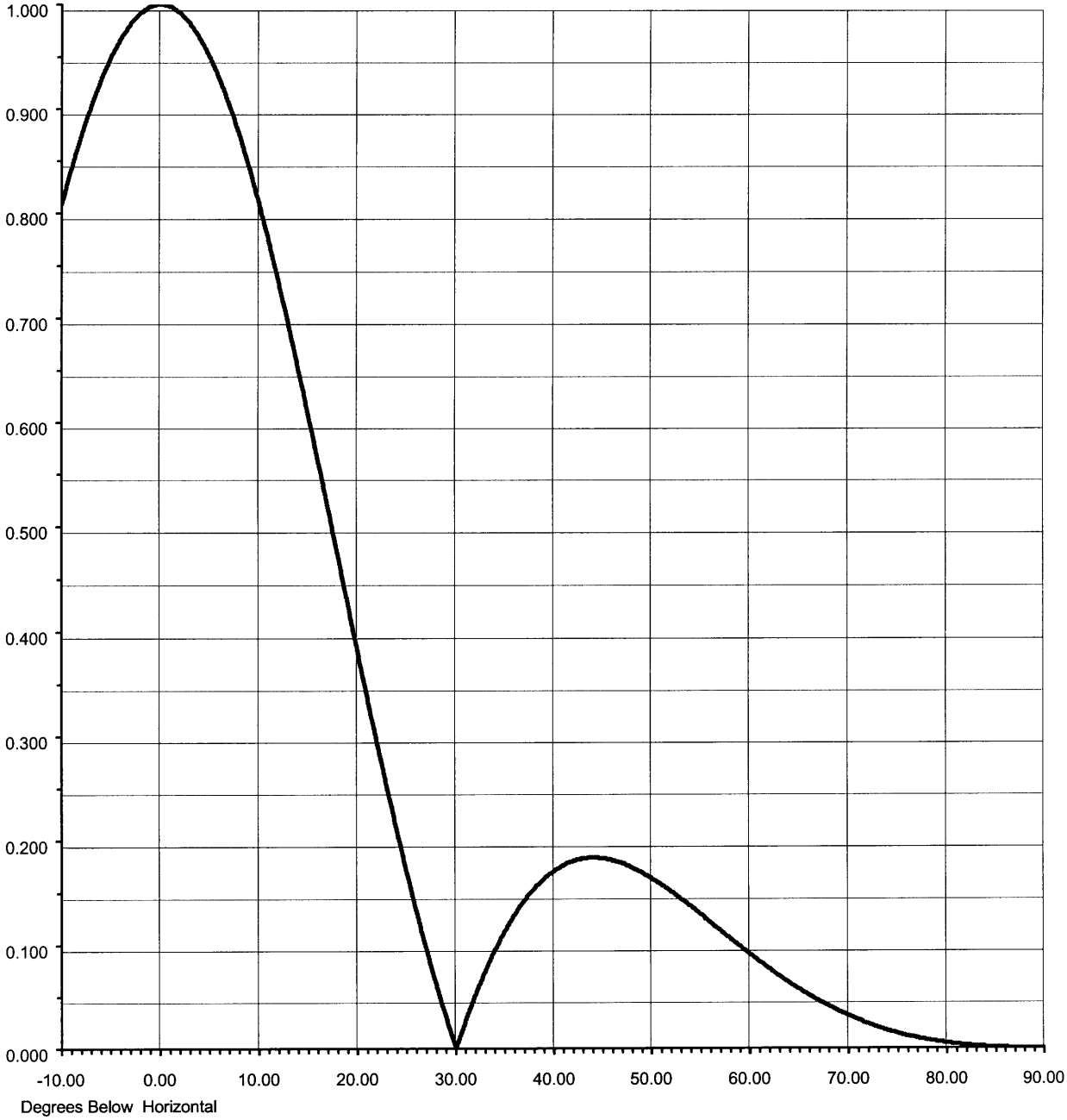
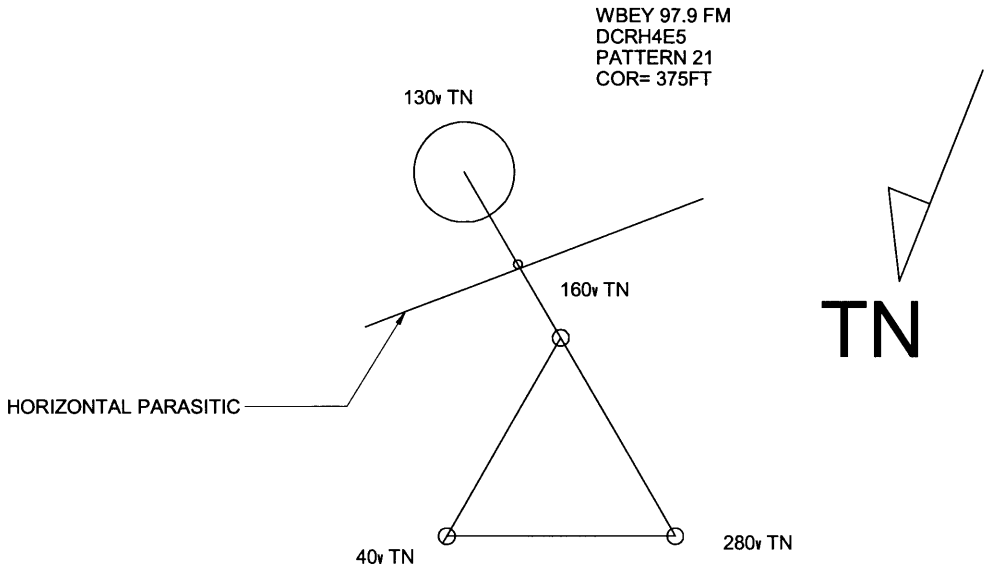
Drawing #	

ELEVATION PATTERN

RMS Gain at Main Lobe	**1.30 (1.14 dB)**	Beam Tilt	**0.00 deg**
Per Polarization		Frequency	**97.90 MHz**
Calculated / Measured	**Calculated**		




WBEY 97.9 FM
DCRH4E5
PATTERN 21
COR= 375FT
130v TN
160v TN
HORIZONTAL PARASITIC
40v TN
280v TN
TN

STELLAR
Communication Systems, LLC.
•RF Transmission System Planning, Installation and Maintenance •
• Communication Tower Installation and Maintenance •

CERTIFICATION

The undersigned certifies that the referenced directional fm antenna was assembled and affixed to the specified tower in a manner consistent with the manufacturer's instructions.

Similar directional antenna installations and certifications have been affected by the undersigned on numerous occasions in support of various engineering reports and are a matter of record with the FCC.

Terry J. Dalton
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