PATTERN CERTIFICATION

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PATTERN CERTIFICATION

Method of Measurement

The azimuth pattern for "WSMJ", Dielectric Document Sketch #09, was measured in the following manner.

A single 4.4 to1 scale model "DCBR" bay radiators were mounted on a similarly scaled model of the tower according to information provided to Dielectric by the customer; refer to Dielectric Document Sketch #09. 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 9 years experience in RF antenna engineering and has been employed by Dielectric Communications since 1997.

Signed By: Keith L Pelletier Digitally signed by Keith L Pelletier DN: cn=Keith L Pelletier, o=SPX, ou=Dielectric Communications, c=US Date: 2008.05.08 07:44:28 -04'00' Signature Not Verified

Date: _____

MSO NO:C-00880

DATE: May 8, 2008

PATTERN NO: 09

FM AZIMUTH PATTERN APPROVAL

The azimuth pattern of the horizontal polarization and vertical polarization as supplied by Dielectric in the document labeled " Pattern 09 ", 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: _____

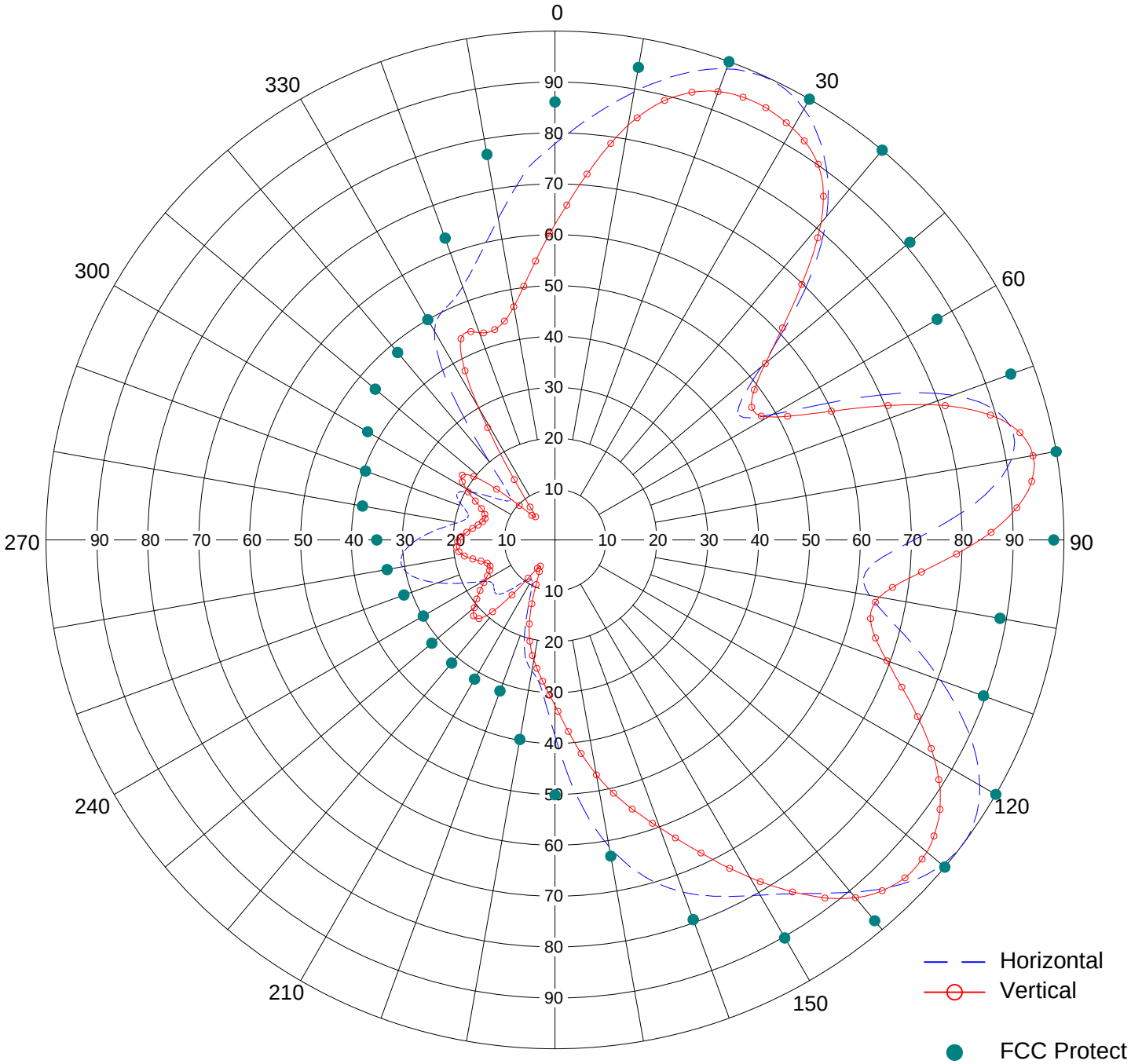
_____
(Signature)

Proposal Number	**C-00880**	Revision	**2**
Date	**May 8, 2008**		
Call Letters	**WSMJ**		
Location	**Baltimore, MD**		
Customer	**Clear Channel**		
Antenna Type	**DCBR**		

AZIMUTH PATTERN

86.0% Ccov - 51.7% Hrms - 48.3% Vrms

Gain	**2.66 (4.25) HPOL 2.8 (4.47) VPOL**	Frequency	**104.3 MHz**
Calculated / Measured	**Measured**	Drawing #	**09**



Remarks: DCBR Antenna Mounted on Large Tower

Proposal Number	**C-00880**
Date	**8-May-08**
Call Letters	**WSMJ**
Location	**Baltimore, MD**
Customer	**Clear Channel**
Antenna Type	**DCBR**
Frequency	**104.30 MHz**
Drawing #:	**9**

TABULATION OF HORIZONTAL AZIMUTH PATTERN

Angle	Field	dBk	ERP kW
0	0.779	8.970	7.889
10	0.894	10.166	10.390
20	0.985	11.008	12.613
30	0.978	10.946	12.434
40	0.831	9.531	8.977
50	0.528	5.592	3.624
60	0.493	4.996	3.160
70	0.832	9.542	8.999
80	0.911	10.330	10.789
90	0.705	8.103	6.461
100	0.628	7.099	5.127
110	0.806	9.266	8.445
120	0.964	10.821	12.081
130	0.993	11.078	12.819
140	0.903	10.253	10.600
150	0.806	9.266	8.445
160	0.737	8.489	7.061
170	0.612	6.874	4.869
180	0.385	2.849	1.927
190	0.261	-0.528	0.886
200	0.165	-4.511	0.354
210	0.091	-9.680	0.108
220	0.119	-7.350	0.184
230	0.156	-4.998	0.316
240	0.163	-4.617	0.345
250	0.246	-1.042	0.787
260	0.305	0.825	1.209
270	0.272	-0.169	0.962
280	0.194	-3.105	0.489
290	0.192	-3.195	0.479
300	0.187	-3.424	0.455
310	0.119	-7.350	0.184
320	0.203	-2.711	0.536
330	0.473	4.637	2.908
340	0.530	5.625	3.652
350	0.642	7.290	5.358

Dielectric

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Drawing #:	**9**

TABULATION OF VERTICAL AZIMUTH PATTERN

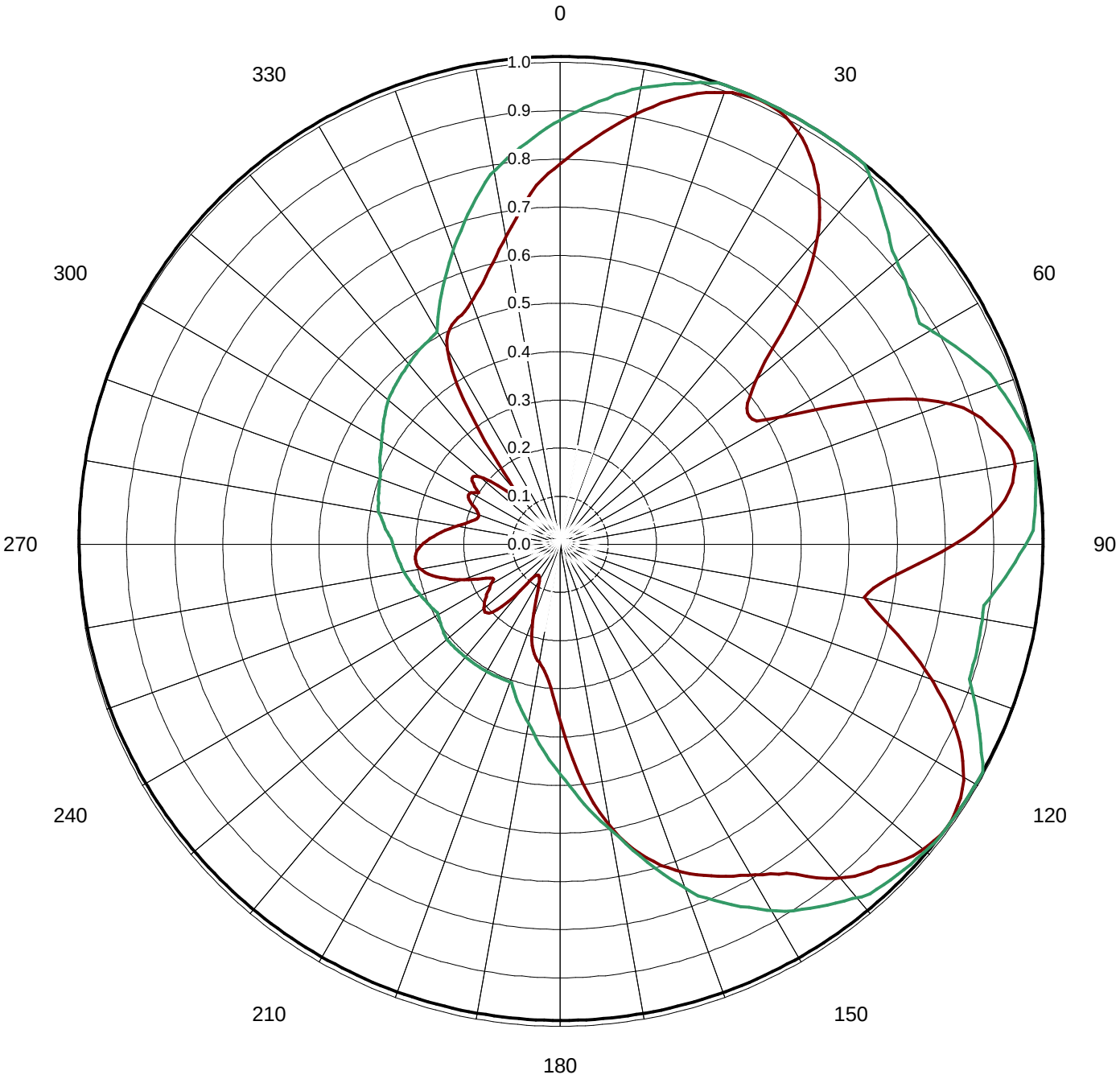
Angle	Field	dBk	ERP kW
0	0.620	6.987	4.997
10	0.828	9.500	8.913
20	0.937	10.574	11.414
30	0.934	10.546	11.341
40	0.814	9.352	8.614
50	0.539	5.771	3.777
60	0.484	4.836	3.045
70	0.778	8.959	7.869
80	0.954	10.730	11.832
90	0.836	9.584	9.086
100	0.647	7.358	5.442
110	0.694	7.967	6.261
120	0.861	9.839	9.637
130	0.954	10.730	11.832
140	0.918	10.396	10.955
150	0.766	8.824	7.628
160	0.602	6.731	4.711
170	0.469	4.563	2.859
180	0.325	1.377	1.373
190	0.240	-1.256	0.749
200	0.134	-6.318	0.233
210	0.059	-13.444	0.045
220	0.172	-4.150	0.385
230	0.207	-2.541	0.557
240	0.159	-4.833	0.329
250	0.138	-6.063	0.248
260	0.181	-3.707	0.426
270	0.189	-3.331	0.464
280	0.157	-4.943	0.320
290	0.147	-5.514	0.281
300	0.202	-2.754	0.530
310	0.171	-4.201	0.380
320	0.059	-13.444	0.045
330	0.301	0.711	1.178
340	0.433	3.869	2.437
350	0.466	4.507	2.823

Dielectric

Proposal Number	**C-00880**	Revision:	**2**
Date	**May 08, 2008**		
Call Letters	**WSMJ**		
Location	**Baltimore, MD**		
Customer	**Clear Channel**		
Antenna Type	**DCBR**		

COMPOSITE AZIMUTH PATTERN

Calculated / Measured	**Measured**	Frequency	**104.30 MHz**
		Drawing #	**9**



Proposal Number	**C-00880**
Date	**8-May-08**
Call Letters	**WSMJ**
Location	**Baltimore, MD**
Customer	**Clear Channel**
Antenna Type	**DCBR**
Frequency	**104.30 MHz**
Drawing #:	**9**

TABULATION OF COMPOSITE AZIMUTH PATTERN

Angle	Field	dBk	Power kW	Input Power
0	0.779	8.970	7.889	13.000
10	0.894	10.166	10.390	13.000
20	0.985	11.008	12.613	13.000
30	0.978	10.946	12.434	13.000
40	0.831	9.531	8.977	13.000
50	0.539	5.771	3.777	13.000
60	0.493	4.996	3.160	13.000
70	0.832	9.542	8.999	13.000
80	0.954	10.730	11.832	13.000
90	0.836	9.584	9.086	13.000
100	0.647	7.358	5.442	13.000
110	0.806	9.266	8.445	13.000
120	0.964	10.821	12.081	13.000
130	0.993	11.078	12.819	13.000
140	0.918	10.396	10.955	13.000
150	0.806	9.266	8.445	13.000
160	0.737	8.489	7.061	13.000
170	0.612	6.874	4.869	13.000
180	0.385	2.849	1.927	13.000
190	0.261	-0.528	0.886	13.000
200	0.165	-4.511	0.354	13.000
210	0.091	-9.680	0.108	13.000
220	0.172	-4.150	0.385	13.000
230	0.207	-2.541	0.557	13.000
240	0.163	-4.617	0.345	13.000
250	0.246	-1.042	0.787	13.000
260	0.305	0.825	1.209	13.000
270	0.272	-0.169	0.962	13.000
280	0.194	-3.105	0.489	13.000
290	0.192	-3.195	0.479	13.000
300	0.202	-2.754	0.530	13.000
310	0.171	-4.201	0.380	13.000
320	0.203	-2.711	0.536	13.000
330	0.473	4.637	2.908	13.000
340	0.530	5.625	3.652	13.000
350	0.642	7.290	5.358	13.000

Proposal Number	**C-00880**
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Drawing #	**9**

CUSTOMER GAIN SUMMARY

Azimuth Pattern Gain of Horizontal Polarization	**2.65**	**(4.23 dB)**
Elevation Pattern Gain Per Polarization	**0.40**	**(-3.98 dB)**
Peak Gain at Horizontal Polarization	**1.06**	**(0.25 dB)**

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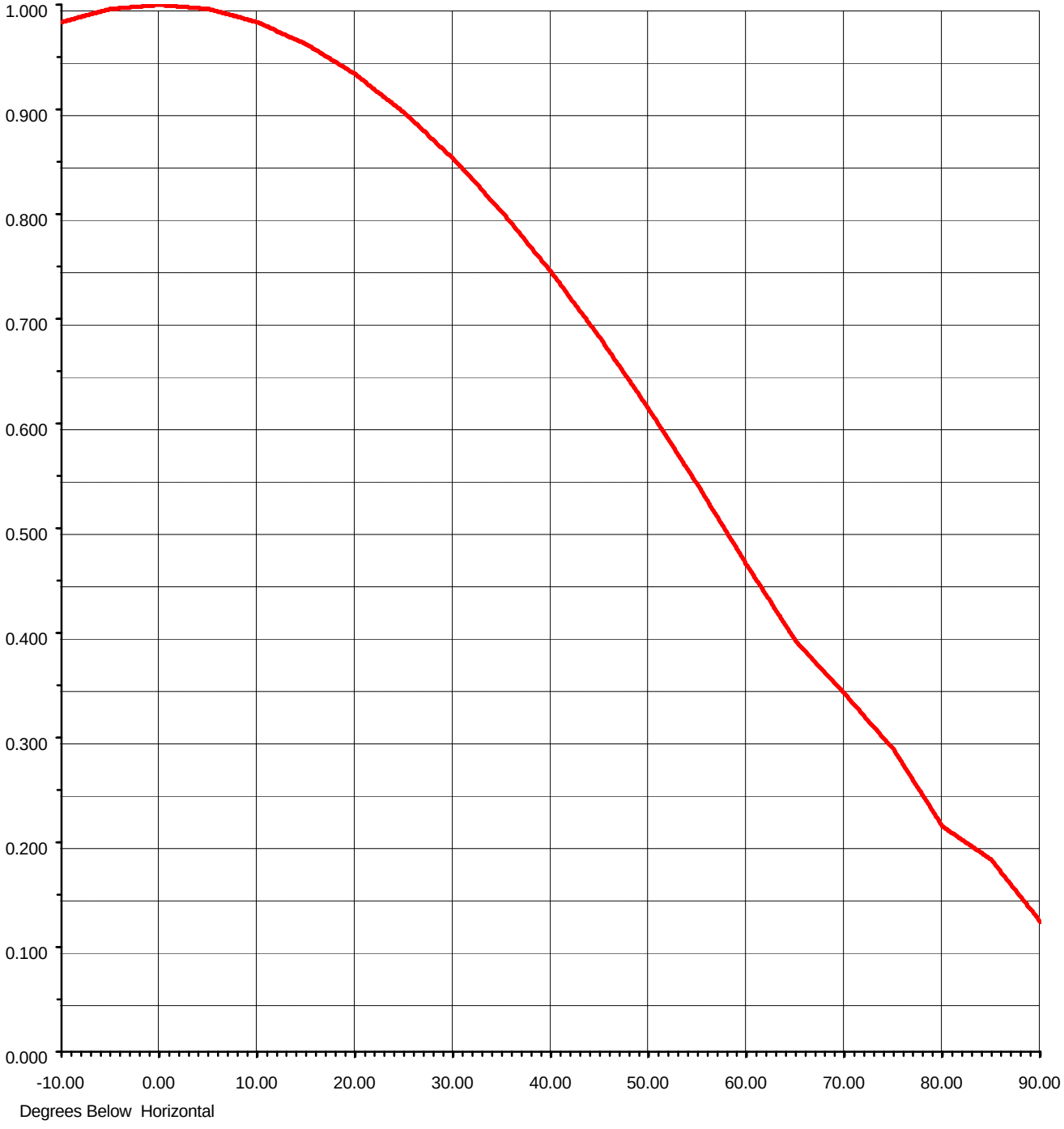
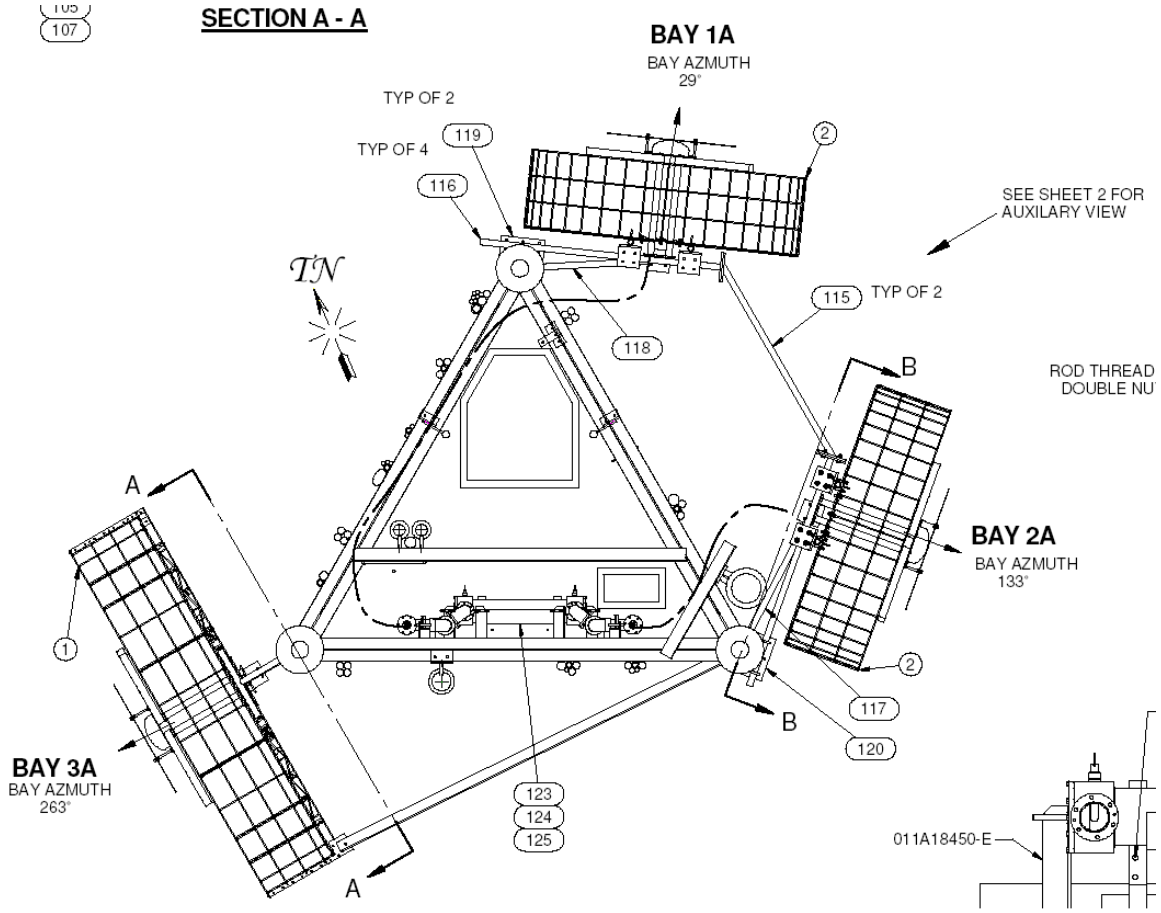
Drawing #	

ELEVATION PATTERN

RMS Gain at Main Lobe	**0.40** **-(3.98 dB)**	Beam Tilt	**0.00 deg**
Per Polarization		Frequency	**104.30 MHz**
Calculated / Measured	**Calculated**		





WSMJ Pattern Study
Pattern 09
Technician: DR
Date:5/8/2008
Antenna Elements: DCBR