WKMQ-FM

Loves Park, Illinois

Antenna Directional Pattern Certification

Exhibit E, Figure 1

Dielectric

PATTERN CERTIFICATION

TABLE OF CONTENTS

Dielectric

A Unit of SPX Corporation

PATTERN CERTIFICATION

Method of Measurement

The azimuth pattern for "WKMQ", Dielectric Document Sketch # 54, was measured in the following manner.

A single 4.4 to1 scale model "DCRH" 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 # 54. 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 to 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

John Schadler is the Director of Antenna Design and Development here at Dielectric. He has been working for Dielectric since 1986. He received a BS in Electrical Engineering from Penn State University, and a Masters in Electrical Engineering from Drexel University. He has multiple patents in the areas of circular polarization, centerfed antennas, broadband and multi-channel antennas, common aperture antennas, and DTV antennas.

Signed by: _____

Date: 3/8/02

Post Office Box 949, 22 Tower Road, Raymond, Maine 04071
Voice: 207-655-4555 1-800-341-9678 Email: dcsales@dielectric.spx.com

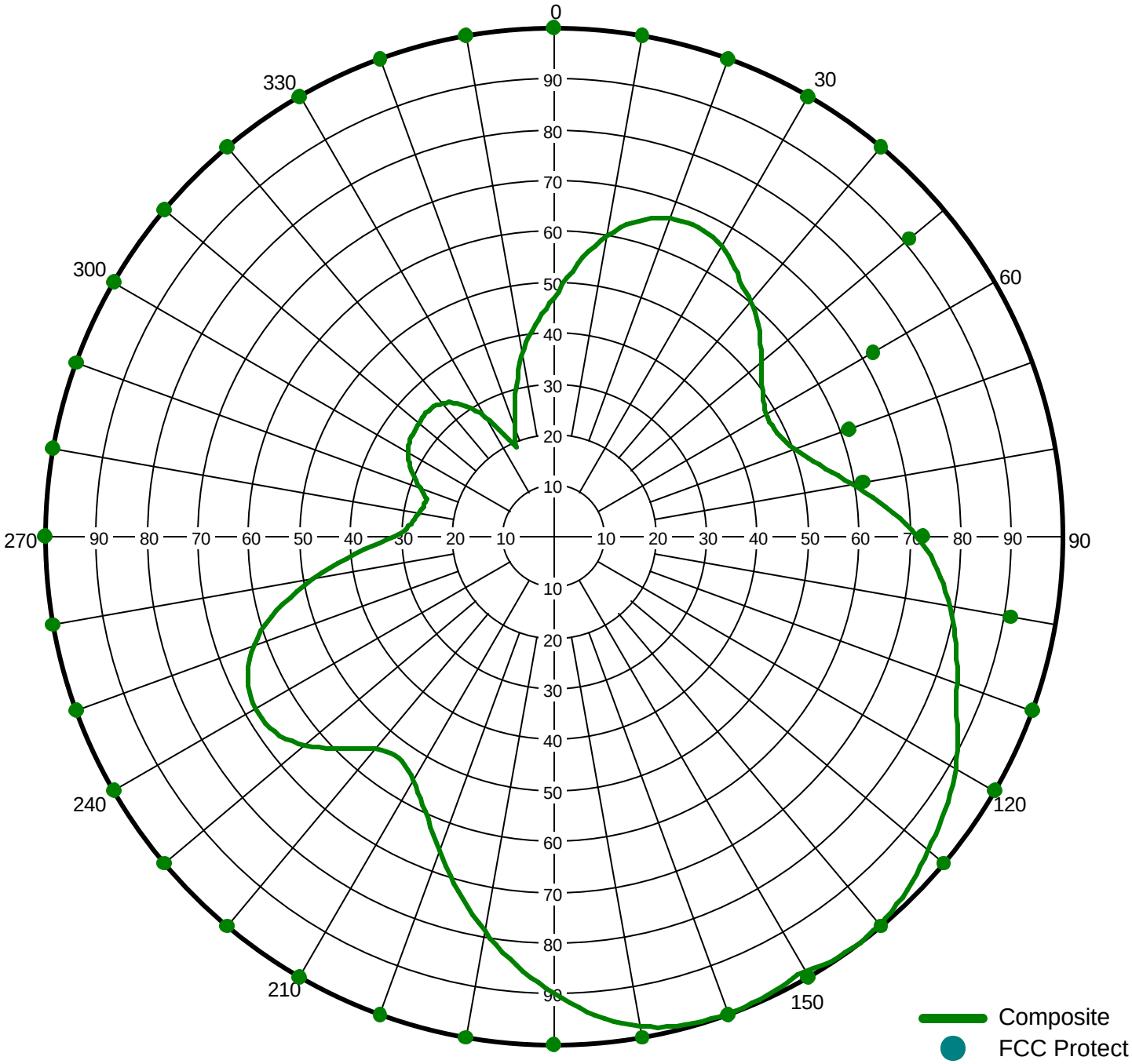
Dielectric

Proposal Number	**71440**
Date	**Feb 22, 2002**
Call Letters	**WKMQ**
Location	**Loves Park, IL.**
Customer	**Gary Kline**
Antenna Type	**DCRH2E5RD**

AZIMUTH PATTERN

67.6% Ccov- 52.2%Hrms 47.8%Vrms

Frequency	**96.7**
Drawing #	**54.**



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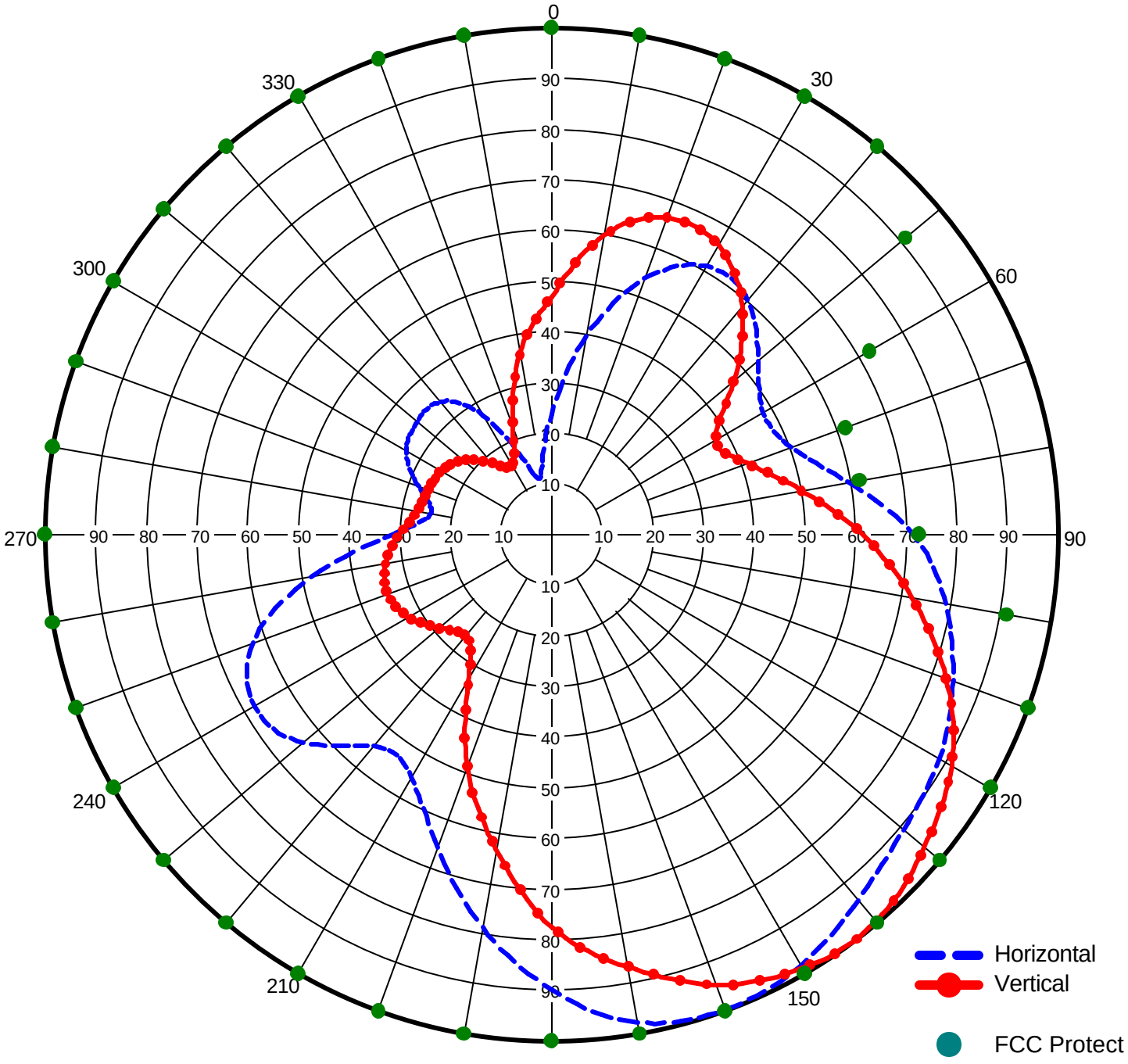

Dielectric

Proposal Number	**71440**
Date	**Mar 8 2002**
Call Letters	**WKMQ**
Location	**Loves Park, IL**
Customer	**Gary Kline**
Antenna Type	**DCRH2E5RD**
Frequency	**96.70 MHz**
Drawing #:	**54**

TABULATION OF HORIZONTAL AZIMUTH PATTERN

Angle	Field	dBk	Power kW
0	0.236	-9.118	0.123
10	0.398	-4.578	0.348
20	0.537	-1.976	0.634
30	0.611	-0.855	0.821
40	0.603	-0.969	0.800
50	0.533	-2.041	0.625
60	0.482	-2.915	0.511
70	0.503	-2.544	0.557
80	0.594	-1.100	0.776
90	0.714	0.498	1.122
100	0.790	1.377	1.373
110	0.843	1.941	1.563
120	0.885	2.363	1.723
130	0.907	2.576	1.810
140	0.942	2.905	1.952
150	0.983	3.275	2.126
160	0.999	3.416	2.196
170	0.978	3.231	2.104
180	0.899	2.499	1.778
190	0.787	1.344	1.363
200	0.658	-0.211	0.953
210	0.553	-1.721	0.673
220	0.545	-1.848	0.653
230	0.640	-0.452	0.901
240	0.678	0.049	1.011
250	0.628	-0.617	0.868
260	0.481	-2.933	0.509
270	0.314	-6.637	0.217
280	0.242	-8.899	0.129
290	0.280	-7.633	0.172
300	0.331	-6.179	0.241
310	0.346	-5.794	0.263
320	0.342	-5.895	0.257
330	0.272	-7.884	0.163
340	0.152	-12.939	0.051
350	0.120	-14.992	0.032

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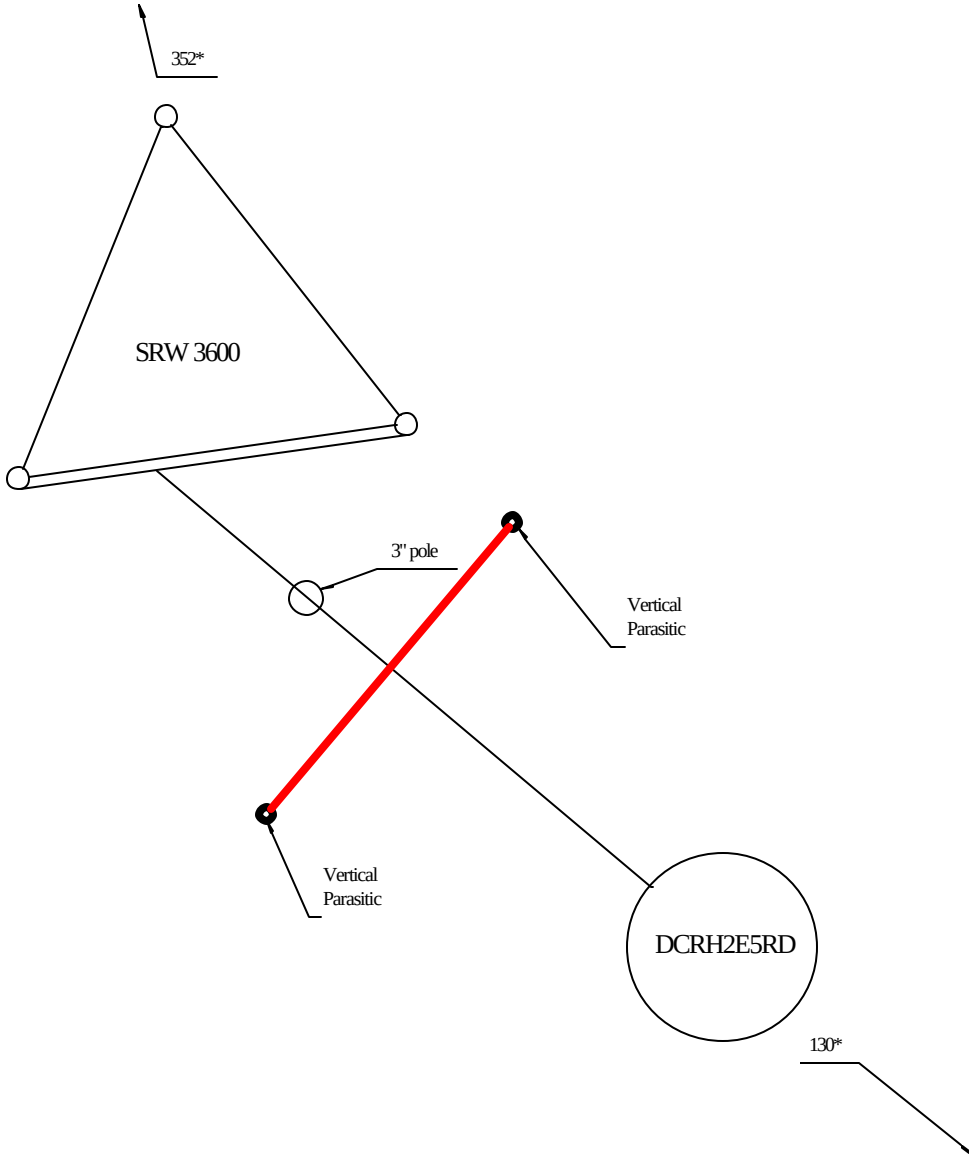
Drawing #:	**54**

TABULATION OF VERTICAL AZIMUTH PATTERN

Angle	Field	dBk	Power kW
0	0.469	-3.152	0.484
10	0.600	-1.013	0.792
20	0.665	-0.119	0.973
30	0.659	-0.198	0.955
40	0.587	-1.203	0.758
50	0.469	-3.152	0.484
60	0.374	-5.118	0.308
70	0.411	-4.299	0.372
80	0.500	-2.596	0.550
90	0.614	-0.812	0.829
100	0.723	0.607	1.150
110	0.829	1.795	1.512
120	0.912	2.624	1.830
130	0.960	3.070	2.028
140	0.997	3.398	2.187
150	0.989	3.328	2.152
160	0.946	2.942	1.969
170	0.867	2.185	1.654
180	0.774	1.199	1.318
190	0.630	-0.589	0.873
200	0.488	-2.807	0.524
210	0.326	-6.311	0.234
220	0.262	-8.210	0.151
230	0.288	-7.388	0.182
240	0.327	-6.285	0.235
250	0.344	-5.845	0.260
260	0.333	-6.127	0.244
270	0.301	-7.004	0.199
280	0.268	-8.013	0.158
290	0.259	-8.310	0.148
300	0.251	-8.582	0.139
310	0.229	-9.379	0.115
320	0.183	-11.327	0.074
330	0.157	-12.658	0.054
340	0.222	-9.649	0.108
350	0.361	-5.426	0.287

Dielectric



WKMQ - 69.7

Document Sketch # 54

Leg Azimuths @ 112, 232, 352

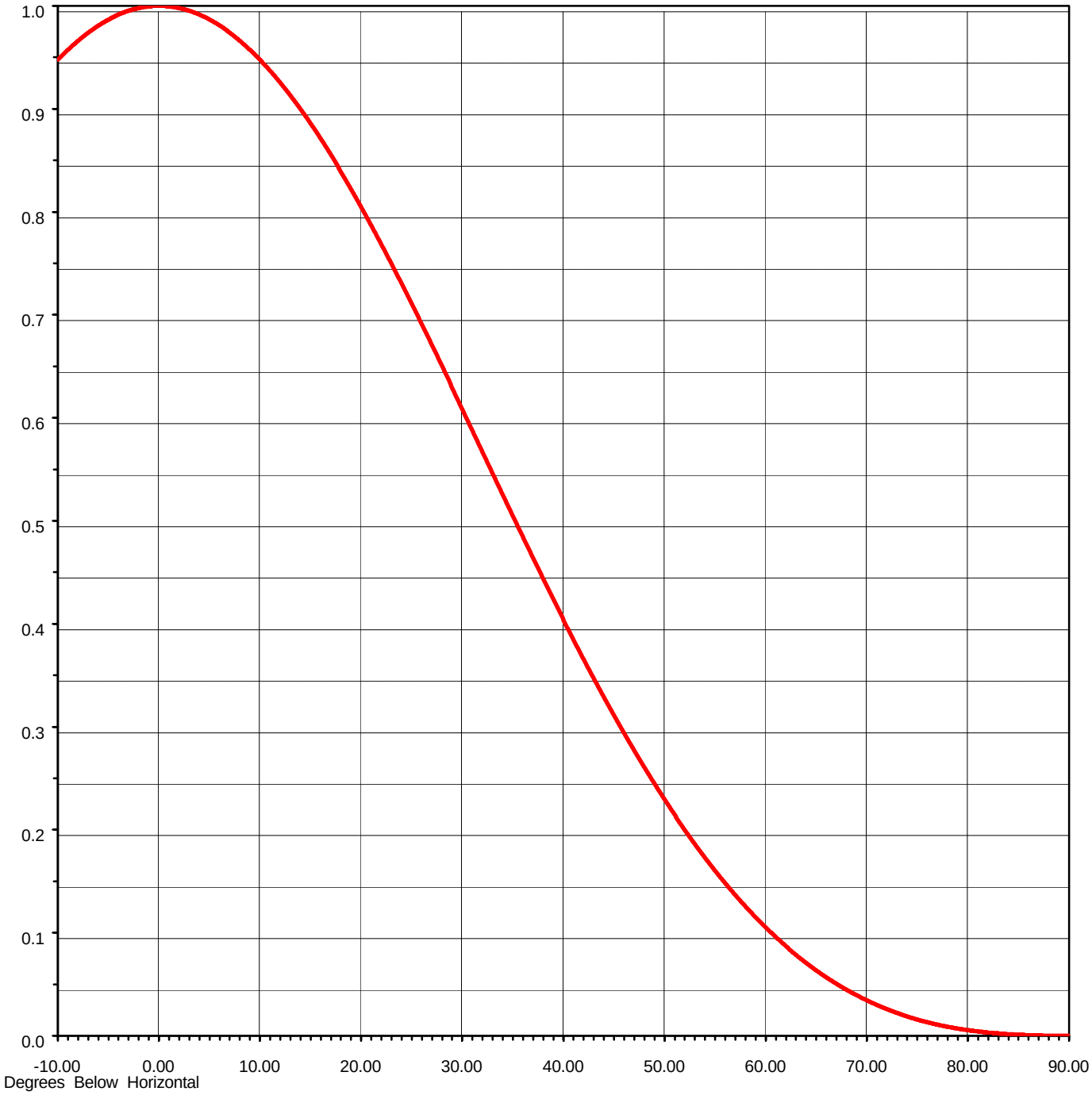
2 Vertical Parasitics

Dielectric

Date	**08-Mar-02**
Call Letters	**WKMQ**
Location	**Loves Park, IL**
Customer	**Gary Kline**
Antenna Type	**DCRH2E5RD**

MEASURED ELEVATION PATTERN

RMS Gain at Main Lobe	**0.68**	**-(1.67 dB)**	Beam Tilt	**0.00 deg**
Per Polarization			Frequency	**96.70 MHz**
			Plane	**Typical**



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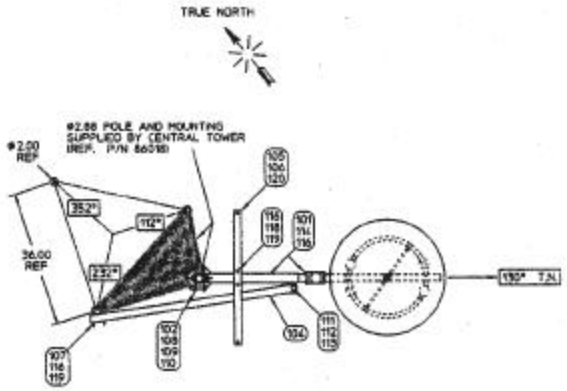
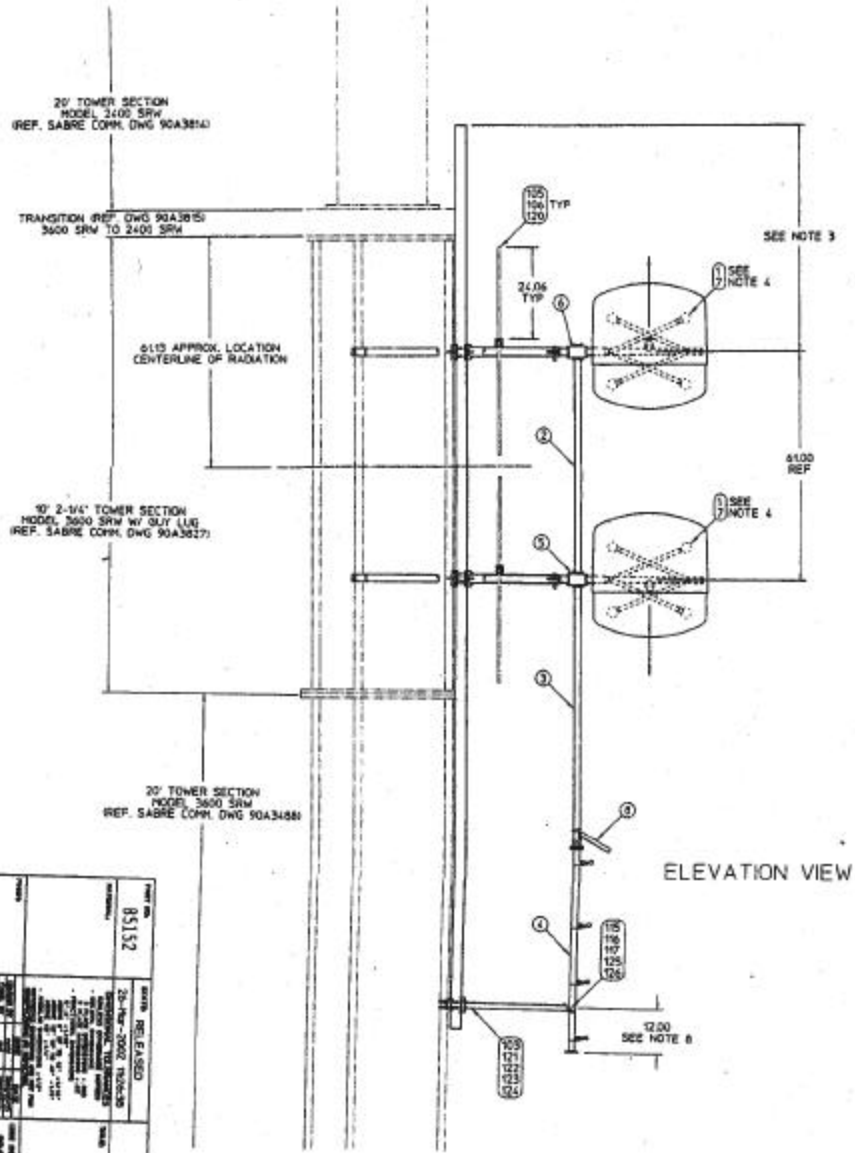
CUSTOMER GAIN SUMMARY

Azimuth Pattern Gain of Horizontal Polarization	**2.51**
Elevation Pattern Gain Per Polarization	**0.68**
Peak Gain at Horizontal Polarization	**1.71**



TYPICAL PLAN VIEW



ELEVATION VIEW

NOTES:

1.- TO ACHIEVE ANY GIVEN PATTERN STUDY PERFORMED BY DIELECTRIC, THE PROVIDED ANTENNA MUST BE INSTALLED AND ORIENTED AS DEPICTED IN THIS DRAWING. IF ANY SUCH PATTERN WAS NOT PROVIDED, THE ANTENNA ORIENTATION AND POSITION IS AT THE DISCRETION OF THE BUYER TO WHICH THE ANTENNA WAS SOLD. IF ANY QUESTIONS ARISE DURING THE INSTALLATION PROCESS, CONTACT DIELECTRIC COMMUNICATIONS AT 800-341-9678, TO ASSIST IN THIS PROCESS, BE PREPARED TO PROVIDE THE PART NUMBER SHOWN BELOW.

2.- APPLY THIN LAYER OF DC4 DOW CORNING COMPOUND TO ALL "O"-RING SEALS PRIOR TO ASSEMBLY.

3.- THE TOP BAY MUST NOT BE LOCATED ANY CLOSER THAN 5 ft. BELOW THE POLE TOP.

4.- BAY TAP POINT DIRECTION INDICATED BY ARROWS @ BAY IN ELEVATION VIEW.

5.- IT IS IMPORTANT TO MAINTAIN DOCUMENT FOR HISTORICAL PURPOSES, THE MOST CRITICAL PORTION OF INFORMATION TO BE MAINTAINED IS THE PART NUMBER AS SPECIFIED.

6.- COMPONENTS ARE MATCH MARKED FOR EASE IN ASSEMBLY.

7.- FOR HEATED ANTENNAS ONLY: HEATER HARNESS TO BE DRESSED & SECURED TO TOWER PER INSTALLERS DISCRETION. LOOSE OR DANGLING WIRE IN RF FIELD WILL SHORT & RESULT IN ANTENNA FAILURE.

8.- SUGGESTED LOCATION FOR TERMINATION MOUNT, LOCATION MAY VARY PER TOWER DESIGN.

9.- ITEM NUMBERS DEPICTED ON THIS DRAWING CORRESPOND TO ITEM NUMBERS LISTED ON ENCLOSED BILL OF MATERIAL.

10.- REFER TO DRAWING A86212 FOR ALL HARDWARE TORQUE SPECIFICATIONS.

11.- AFTER ANTENNA HAS BEEN INSTALLED & TUNED ON THE TOWER IT IS REQUESTED THAT A COPY OF THE TEST DATA BE FORWARDED TO:
DIELECTRIC COMMUNICATIONS
C/O PM ENGINEERING MANAGER
22 TOWER RD.
RAYMOND, ME.
04071

P/N 85152.	ANTENNA ASSEMBLY BILL OF MATERIAL
P/N 85153.	MOUNTING KIT BILL OF MATERIAL
P/N 86018.	CENTRAL TOWER POLE AND MOUNTING
MSO NO.	71440

PART NO.	85152
ISSUED	28-Mar-2002
STATUS	RELEASED
DRAWING NO.	88556
SHEET	1 OF 1
REV	- 1
TITLE	INSTALLATION
	WORD ONLY PM

Dielectric

REVISION	DESCRIPTION	BY	DATE	APPD

C/O MAINFRAME CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.