Dielectric

A Unit of SPX Corporation

PATTERN CERTIFICATION

TABLE OF CONTENTS

Post Office Box 949, 22 Tower Road, Raymond, Maine 04071

Voice: 207-655-4555 1-800-341-9678 Email: dcsales@dielectric.spx.com

Dielectric

A Unit of SPX Corporation

PATTERN CERTIFICATION

Method of Measurement

The azimuth pattern for "WKKJ", Dielectric Document Sketch # 87, was measured in the following manner.

A single 4.4 to1 scale model "DCRC" 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 # 87. 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: John T. Schadler

Date: 10/24/01

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

Dielectric

A Unit of SPX Corporation

Proposal Number	**70385**
Date	**Oct 24, 2001**
Call Letters	**WKKJ**
Location	**Chillicothe, OH**
Customer	**John Crabb**
Antenna Type	**DCRC4**

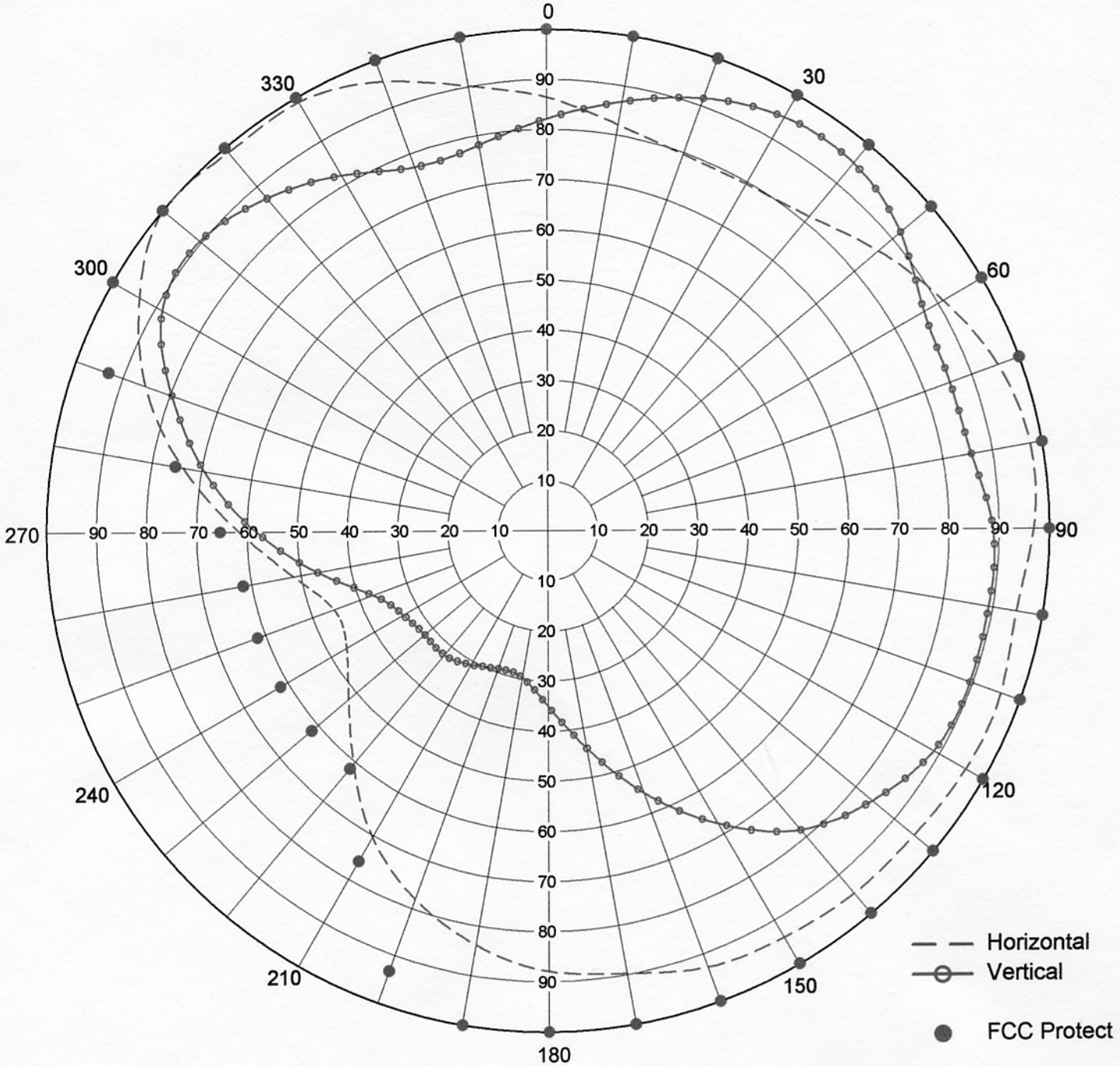
AZIMUTH PATTERN

92.7% Ccov - 53.7% Hrms - 46.3% Vrms

Calculated / Measured **Measured**

Frequency **93.3**

Drawing # **87 Circular**



Post Office Box 949, 22 Tower Road, Raymond, Maine 04071

Voice: 207-655-4555 1-800-341-9678 Email: dcsales@dielectric.spx.com

Dielectric

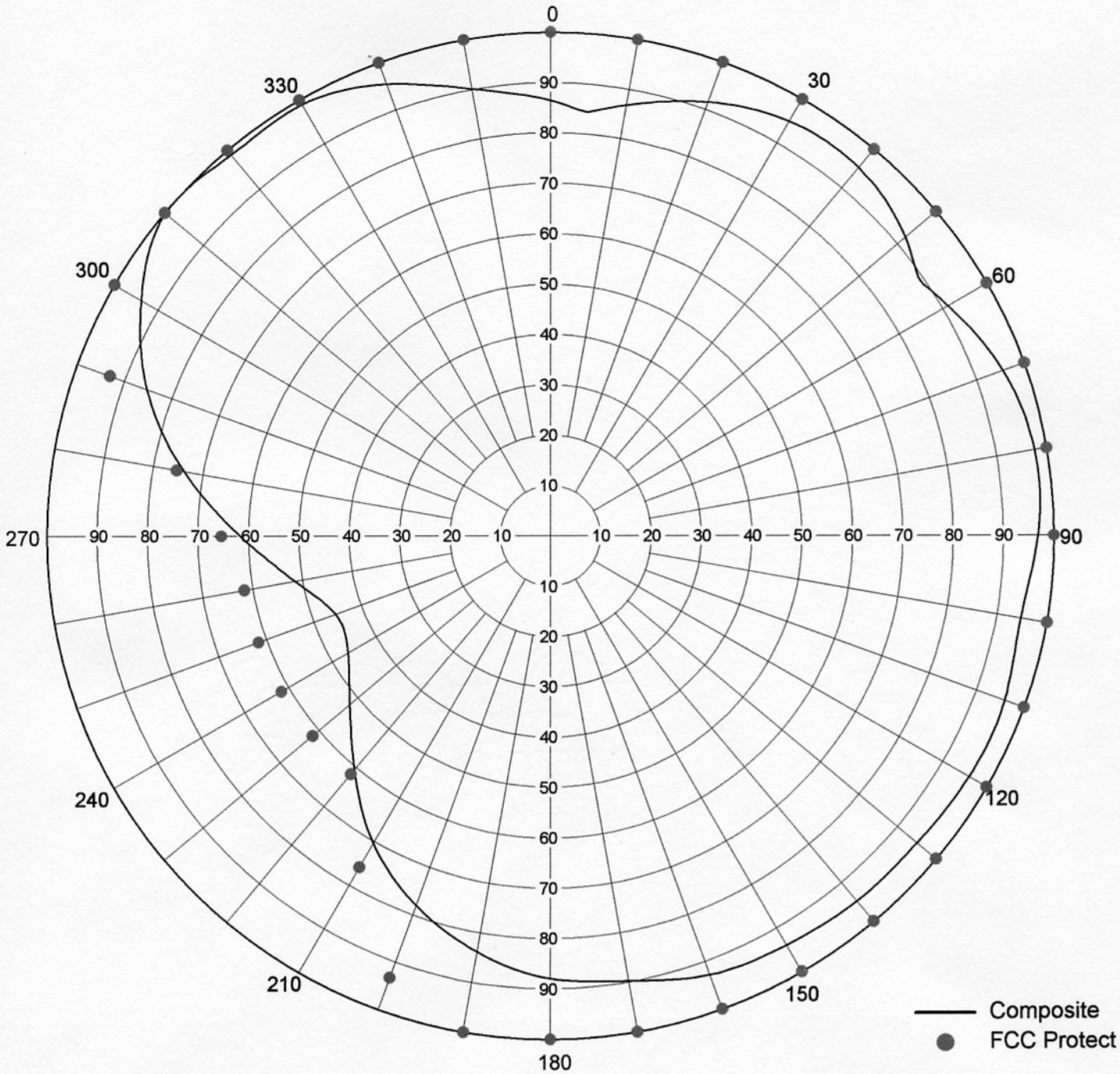
A Unit of SPX Corporation

Proposal Number	**70385**
Date	**Oct 24, 2001**
Call Letters	**WKKJ**
Location	**Chillicothe, OH**
Customer	**John Crabb**
Antenna Type	**DCRC4**

AZIMUTH PATTERN

92.7% Ccov - 53.7% Hrms - 46.3% Vrms

Calculated / Measured	**Measured**	Frequency	**93.3**
		Drawing #	**87 Circular**



Post Office Box 949, 22 Tower Road, Raymond, Maine 04071

Voice: 207-655-4555 1-800-341-9678 Email: dcsales@dielectric.spx.com

Dielectric

A Unit of SPX Corporation

Proposal Number	**70385**
Date	**24-Oct-01**
Call Letters	**WKKJ**
Location	**Chillicothe, OH**
Customer	**John Crabb**
Antenna Type	**DCRC4**
Frequency	**93.30 MHz**
Drawing #:	**87 Circular**

TABULATION OF HORIZONTAL AZIMUTH PATTERN

Angle	Field	dBk	Power kW
0	0.864	13.501	22.395
10	0.817	13.016	20.025
20	0.796	12.789	19.008
30	0.796	12.789	19.008
40	0.818	13.026	20.074
50	0.868	13.542	22.603
60	0.916	14.009	25.172
70	0.959	14.408	27.590
80	0.977	14.569	28.636
90	0.966	14.471	27.995
100	0.948	14.307	26.961
110	0.961	14.426	27.706
120	0.959	14.408	27.590
130	0.951	14.335	27.132
140	0.947	14.298	26.904
150	0.938	14.215	26.395
160	0.926	14.103	25.724
170	0.896	13.817	24.084
180	0.877	13.631	23.074
190	0.834	13.195	20.867
200	0.774	12.546	17.972
210	0.695	11.611	14.491
220	0.596	10.276	10.656
230	0.513	8.974	7.895
240	0.461	8.045	6.376
250	0.457	7.970	6.265
260	0.524	9.158	8.237
270	0.627	10.717	11.794
280	0.751	12.284	16.920
290	0.862	13.481	22.291
300	0.946	14.289	26.847
310	1.000	14.771	30.000
320	0.987	14.658	29.225
330	0.988	14.666	29.284
340	0.949	14.317	27.018
350	0.895	13.808	24.031

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

Dielectric

A Unit of SPX Corporation

Proposal Number	**70385**
Date	**24-Oct-01**
Call Letters	**WKKJ**
Location	**Chillicothe, OH**
Customer	**John Crabb**
Antenna Type	**DCRC4**
Frequency	**93.30 MHz**
Drawing #:	**87 Circular**

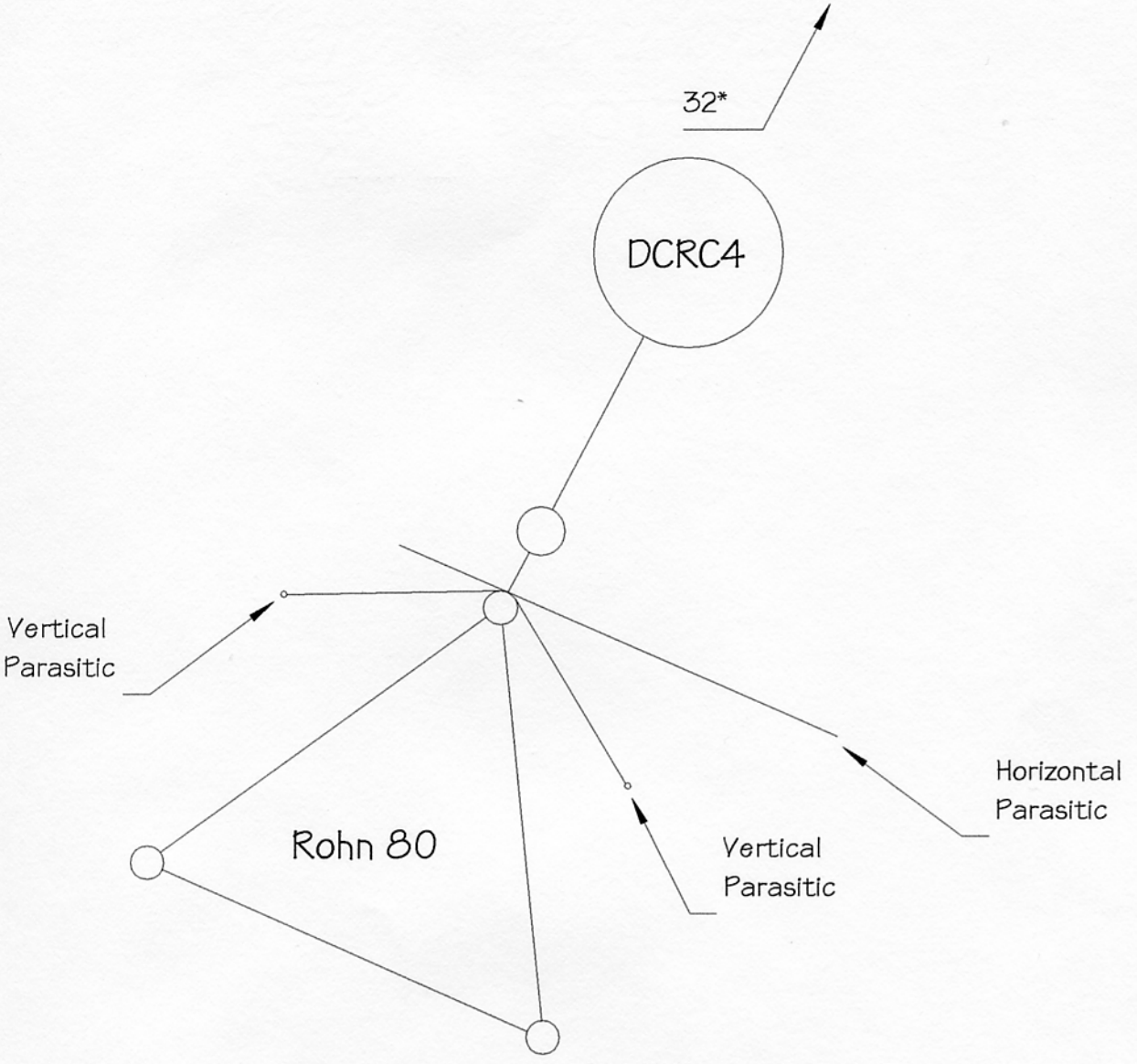
TABULATION OF VERTICAL AZIMUTH PATTERN

Angle	Field	dBk	Power kW
0	0.821	13.058	20.221
10	0.873	13.591	22.864
20	0.920	14.047	25.392
30	0.951	14.335	27.132
40	0.951	14.335	27.132
50	0.915	14.000	25.117
60	0.864	13.501	22.395
70	0.853	13.390	21.828
80	0.860	13.461	22.188
90	0.889	13.749	23.710
100	0.892	13.779	23.870
110	0.895	13.808	24.031
120	0.884	13.700	23.444
130	0.838	13.236	21.067
140	0.773	12.535	17.926
150	0.665	11.228	13.267
160	0.546	9.515	8.943
170	0.431	7.461	5.573
180	0.344	5.502	3.550
190	0.294	4.138	2.593
200	0.293	4.109	2.575
210	0.309	4.570	2.864
220	0.323	4.955	3.130
230	0.321	4.901	3.091
240	0.335	5.272	3.367
250	0.378	6.321	4.287
260	0.477	8.342	6.826
270	0.593	10.232	10.549
280	0.705	11.735	14.911
290	0.807	12.909	19.537
300	0.891	13.769	23.816
310	0.901	13.866	24.354
320	0.864	13.501	22.395
330	0.814	12.984	19.878
340	0.770	12.501	17.787
350	0.786	12.680	18.534

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

Dielectric

A Unit of SPX Corporation



Document Sketch # 87

WKKJ 93.3

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

Dielectric

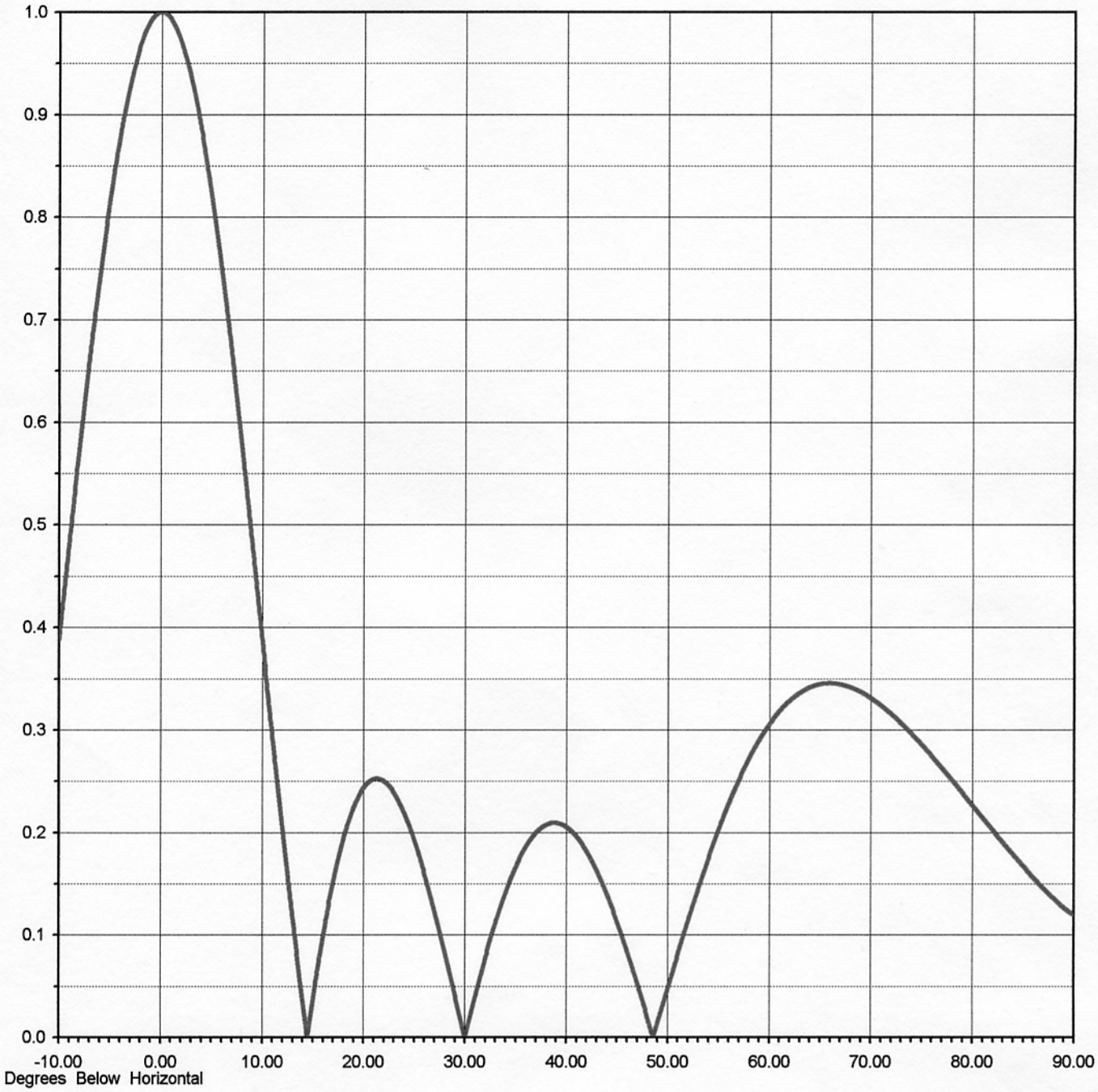
A Unit of SPX Corporation

Date	**Oct. 24, 2001**
Call Letters	**WKKJ**
Location	**Chillicothe, OH**
Customer	**John Crabb**
Antenna Type	**DCRC4**

MEASURED ELEVATION PATTERN

RMS Gain at Main Lobe **4.20** **(6.23 dB)**

Beam Tilt	**0.00 deg**
Frequency	**93.30 MHz**
Plane	**Typical**



Post Office Box 949, 22 Tower Road, Raymond, Maine 04071

Voice: 207-655-4555 1-800-341-9678 Email: dcsales@dielectric.spx.com