



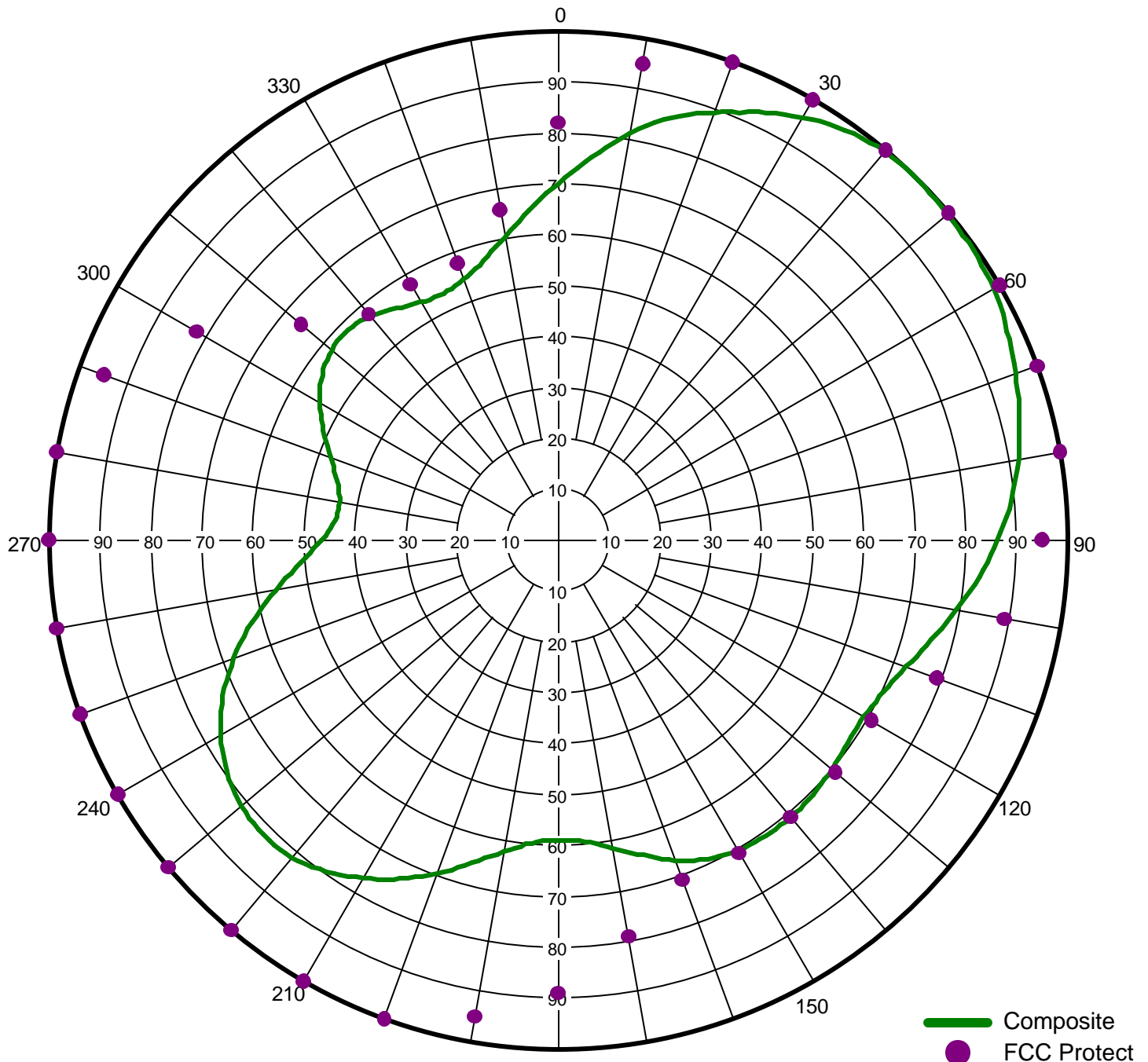
Proposal Number **77180**
Date **Nov 13, 2003**
Call Letters **WWOC**
Location **Hatteras, NC**
Customer **Max Radio**
Antenna Type **DCRM8CD**

AZIMUTH PATTERN

82.8 % Ccov - 56.5% Hrms - 43.5% Vrms

Gain **1.86 (2.7 dB) / 2.98 (4.74 dB)**
Calculated / Measured **Measured**

Frequency **94.5**
Drawing # **34**



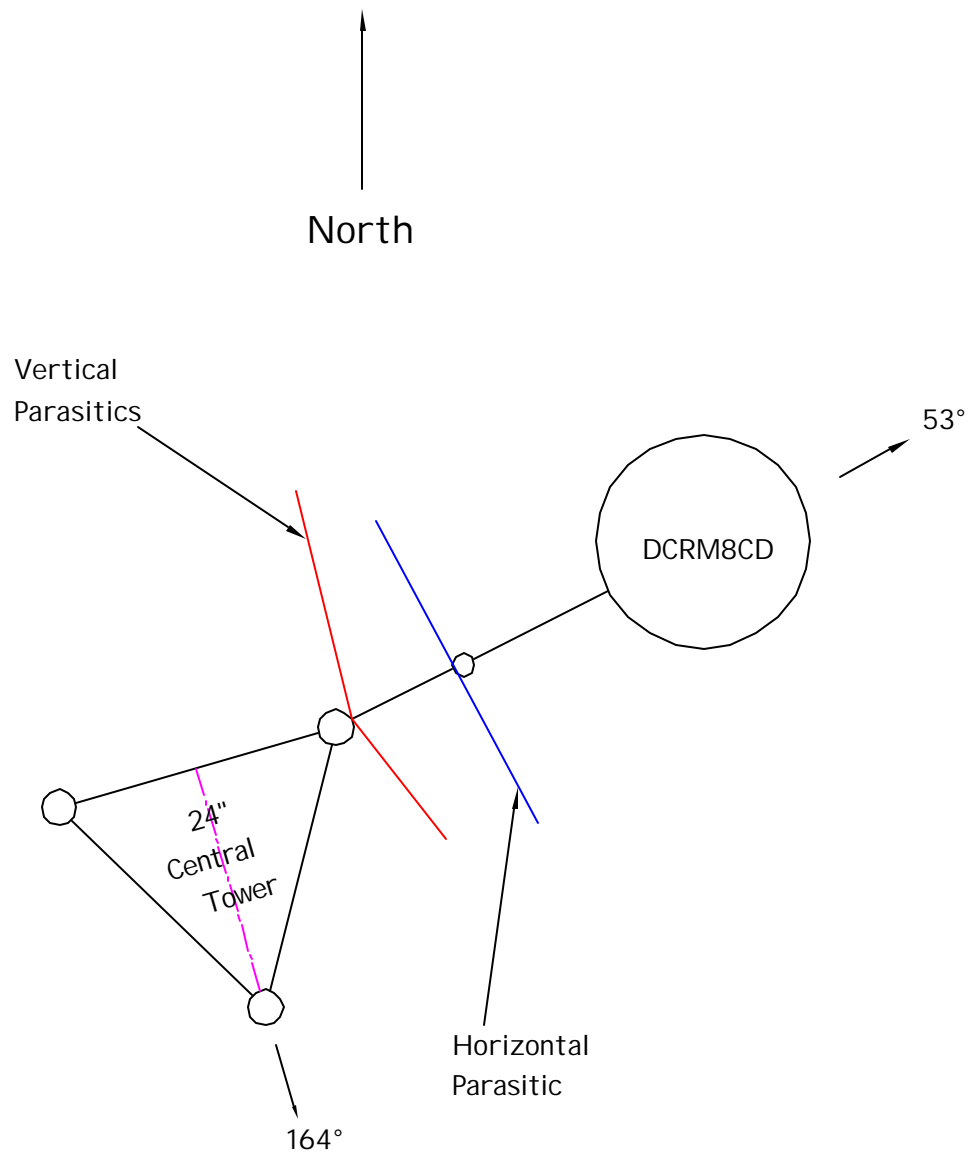
Remarks: 2 vertical parasitics - 1 horizontal parasitic - leg mount



Proposal Number	77180
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Drawing #	34

CUSTOMER GAIN SUMMARY

Azimuth Pattern Gain of Horizontal Polarization	1.86
Elevation Pattern Gain Per Polarization	4.30
Peak Gain at Horizontal Polarization	8.00



WWOC - 94.5
Document Sketch # 34

Dielectric

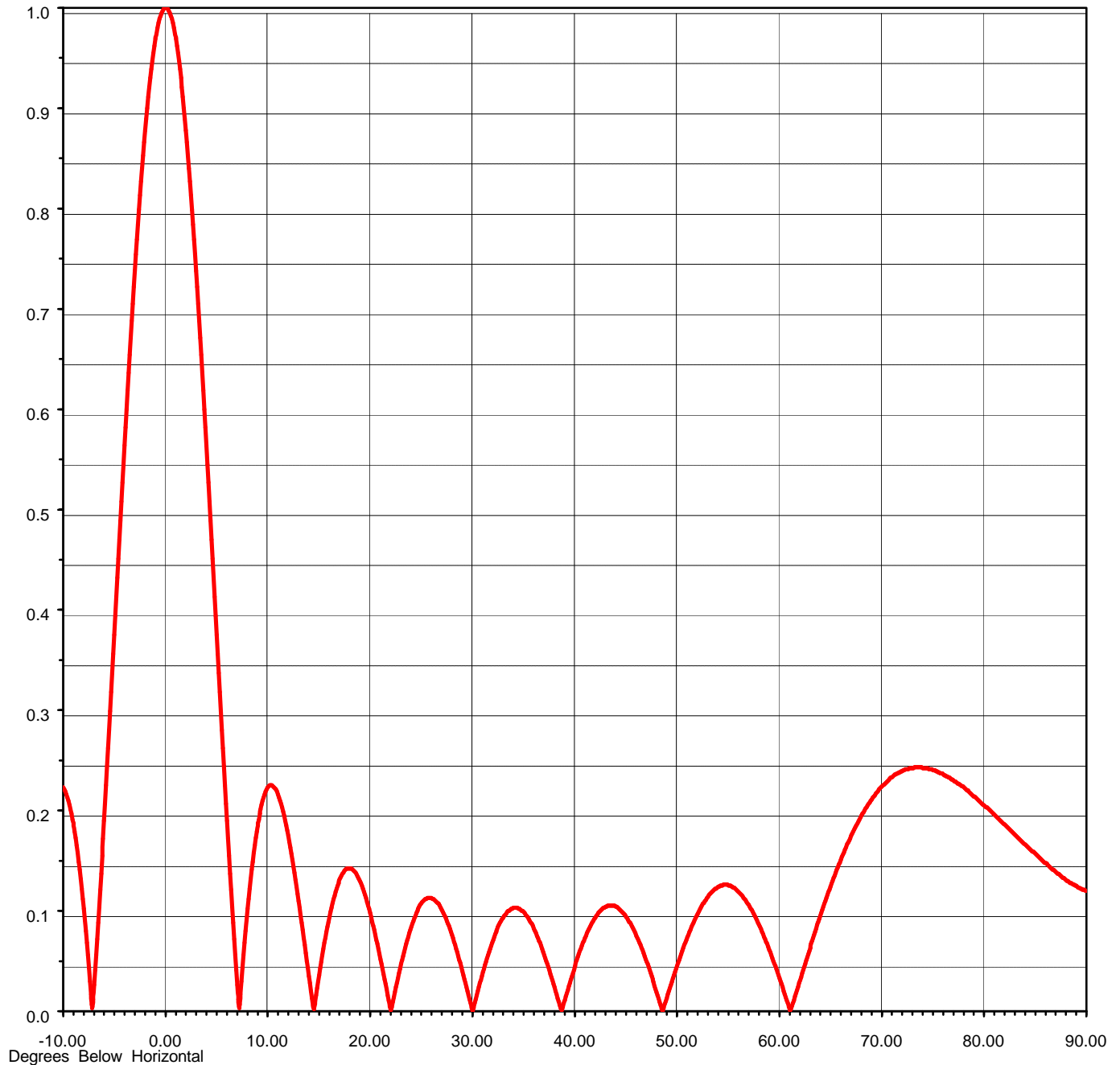


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ELEVATION PATTERN

RMS Gain at Main Lobe **4.30 (6.33 dB)**
Per Polarization

Beam Tilt **0.00 deg**
Frequency **94.50 MHz**
Plane **Typical**





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 Frequency **94.50 MHz**
 Drawing #: **34**

TABULATION OF HORIZONTAL AZIMUTH PATTERN

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.701	45	1.000	90	0.863	135	0.707	180	0.589	225	0.818	270	0.464	315	0.583
1	0.712	46	1.000	91	0.856	136	0.708	181	0.589	226	0.818	271	0.458	316	0.583
2	0.723	47	0.999	92	0.850	137	0.709	182	0.590	227	0.817	272	0.452	317	0.581
3	0.733	48	0.999	93	0.843	138	0.709	183	0.592	228	0.816	273	0.448	318	0.579
4	0.744	49	0.998	94	0.836	139	0.709	184	0.595	229	0.814	274	0.444	319	0.577
5	0.755	50	0.998	95	0.830	140	0.710	185	0.598	230	0.812	275	0.440	320	0.573
6	0.766	51	0.996	96	0.822	141	0.710	186	0.601	231	0.809	276	0.438	321	0.570
7	0.777	52	0.996	97	0.816	142	0.710	187	0.606	232	0.806	277	0.436	322	0.567
8	0.788	53	0.995	98	0.808	143	0.710	188	0.610	233	0.802	278	0.435	323	0.563
9	0.799	54	0.995	99	0.802	144	0.710	189	0.616	234	0.799	279	0.435	324	0.559
10	0.809	55	0.994	100	0.794	145	0.710	190	0.622	235	0.794	280	0.436	325	0.555
11	0.818	56	0.993	101	0.787	146	0.709	191	0.628	236	0.789	281	0.437	326	0.551
12	0.828	57	0.992	102	0.780	147	0.709	192	0.635	237	0.784	282	0.440	327	0.548
13	0.836	58	0.991	103	0.773	148	0.708	193	0.641	238	0.778	283	0.443	328	0.544
14	0.845	59	0.990	104	0.765	149	0.706	194	0.649	239	0.772	284	0.446	329	0.541
15	0.853	60	0.987	105	0.758	150	0.705	195	0.657	240	0.765	285	0.450	330	0.539
16	0.861	61	0.985	106	0.752	151	0.702	196	0.664	241	0.758	286	0.454	331	0.537
17	0.869	62	0.983	107	0.745	152	0.701	197	0.672	242	0.752	287	0.460	332	0.536
18	0.877	63	0.979	108	0.740	153	0.697	198	0.681	243	0.743	288	0.465	333	0.535
19	0.884	64	0.976	109	0.734	154	0.695	199	0.689	244	0.735	289	0.470	334	0.534
20	0.891	65	0.973	110	0.728	155	0.692	200	0.697	245	0.727	290	0.476	335	0.535
21	0.898	66	0.969	111	0.723	156	0.688	201	0.705	246	0.718	291	0.482	336	0.536
22	0.906	67	0.966	112	0.718	157	0.684	202	0.712	247	0.708	292	0.489	337	0.537
23	0.913	68	0.963	113	0.713	158	0.679	203	0.719	248	0.698	293	0.495	338	0.539
24	0.920	69	0.959	114	0.709	159	0.675	204	0.727	249	0.689	294	0.502	339	0.541
25	0.928	70	0.955	115	0.705	160	0.670	205	0.734	250	0.678	295	0.509	340	0.544
26	0.934	71	0.952	116	0.701	161	0.664	206	0.741	251	0.667	296	0.515	341	0.548
27	0.941	72	0.948	117	0.699	162	0.659	207	0.747	252	0.657	297	0.522	342	0.553
28	0.947	73	0.945	118	0.697	163	0.653	208	0.754	253	0.646	298	0.528	343	0.557
29	0.953	74	0.942	119	0.694	164	0.647	209	0.760	254	0.634	299	0.534	344	0.562
30	0.959	75	0.937	120	0.693	165	0.641	210	0.767	255	0.622	300	0.540	345	0.569
31	0.965	76	0.934	121	0.693	166	0.635	211	0.773	256	0.611	301	0.546	346	0.575
32	0.969	77	0.930	122	0.693	167	0.629	212	0.779	257	0.599	302	0.551	347	0.582
33	0.975	78	0.927	123	0.693	168	0.624	213	0.784	258	0.587	303	0.557	348	0.589
34	0.978	79	0.922	124	0.693	169	0.619	214	0.790	259	0.575	304	0.562	349	0.597
35	0.983	80	0.918	125	0.694	170	0.614	215	0.795	260	0.564	305	0.566	350	0.605
36	0.986	81	0.913	126	0.696	171	0.609	216	0.800	261	0.552	306	0.570	351	0.614
37	0.990	82	0.909	127	0.697	172	0.605	217	0.803	262	0.541	307	0.574	352	0.622
38	0.992	83	0.904	128	0.698	173	0.601	218	0.807	263	0.529	308	0.577	353	0.632
39	0.994	84	0.898	129	0.700	174	0.598	219	0.811	264	0.518	309	0.579	354	0.641
40	0.996	85	0.893	130	0.701	175	0.595	220	0.814	265	0.508	310	0.581	355	0.651
41	0.998	86	0.887	131	0.702	176	0.592	221	0.816	266	0.498	311	0.583	356	0.661
42	0.999	87	0.881	132	0.704	177	0.590	222	0.817	267	0.488	312	0.584	357	0.671
43	1.000	88	0.875	133	0.705	178	0.589	223	0.818	268	0.480	313	0.585	358	0.681
44	1.000	89	0.869	134	0.706	179	0.589	224	0.818	269	0.471	314	0.584	359	0.692



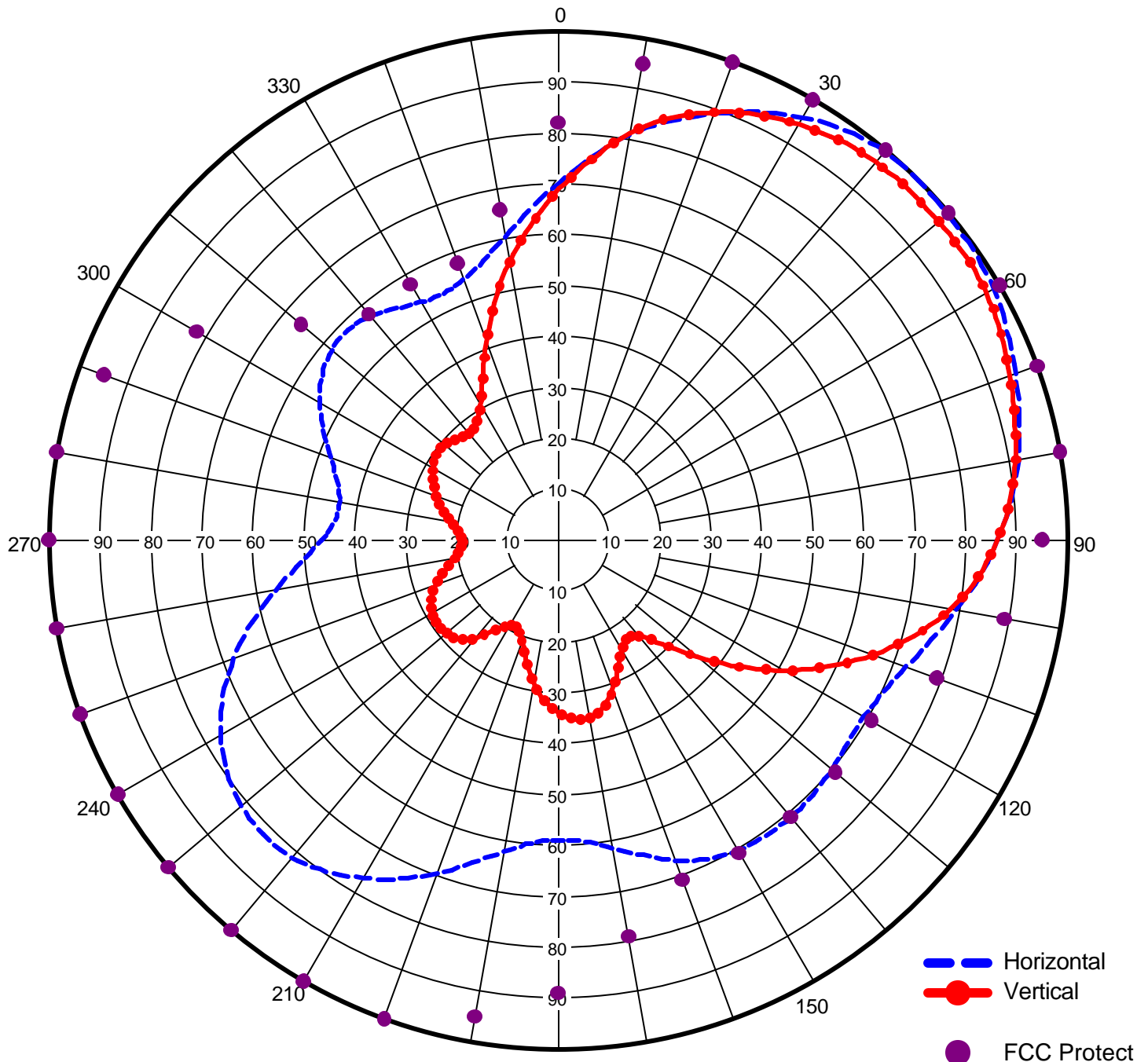
Proposal Number **77180**
Date **Nov 13, 2003**
Call Letters **WWOC**
Location **Hatteras, NC**
Customer **Max Radio**
Antenna Type **DCRM8CD**

AZIMUTH PATTERN

82.8 % Ccov - 56.5% Hrms - 43.5% Vrms

Gain **1.86 (2.7 dB) / 2.98 (4.74 dB)**
Calculated / Measured **Measured**

Frequency **94.5**
Drawing # **34**



Remarks: 2 vertical parasitics - 1 horizontal parasitic - leg mount



MSO NO: 77180

DATE: November 13, 2003

PATTERN NO: WWOC - 34

FM AZIMUTH PATTERN APPROVAL

The azimuth pattern of the horizontal polarization and vertical polarization as supplied by Dielectric in the document labeled “ WWOC - # 34 ”, is acknowledged as acceptable. We understand that Dielectric does not guarantee or predict signal strength in any particular location.

Please note: This pattern does not meet the 85% fill required with the FCC for a directional antenna and re-filing will be required by the customer.

(Customer's name)

By:_____
(Name typed or printed)

Title:_____

(Signature)



PATTERN CERTIFICATION

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Sketch of Scale Model Test



Proposal Number	77180
Date	13-Nov-03
Call Letters	WWOC
Location	Hatteras, NC
Customer	Max Radio
Antenna Type	DCRM8CD
Frequency	94.50 MHz
Drawing #:	34

TABULATION OF VERTICAL AZIMUTH PATTERN

Angle	Field	dBk	Power kW
0	0.689	16.764	47.472
10	0.811	18.180	65.772
20	0.894	19.027	79.924
30	0.943	19.490	88.925
40	0.969	19.726	93.896
50	0.975	19.780	95.063
60	0.972	19.753	94.478
70	0.943	19.490	88.925
80	0.912	19.200	83.174
90	0.862	18.710	74.304
100	0.782	17.864	61.152
110	0.658	16.365	43.296
120	0.512	14.185	26.214
130	0.357	11.053	12.745
140	0.246	7.819	6.052
150	0.249	7.924	6.200
160	0.313	9.911	9.797
170	0.355	11.005	12.603
180	0.339	10.604	11.492
190	0.284	9.066	8.066
200	0.210	6.444	4.410
210	0.192	5.666	3.686
220	0.251	7.993	6.300
230	0.286	9.127	8.180
240	0.286	9.127	8.180
250	0.256	8.165	6.554
260	0.207	6.319	4.285
270	0.189	5.529	3.572
280	0.217	6.729	4.709
290	0.254	8.097	6.452
300	0.285	9.097	8.123
310	0.291	9.278	8.468
320	0.273	8.723	7.453
330	0.306	9.714	9.364
340	0.413	12.319	17.057
350	0.554	14.870	30.692



PATTERN CERTIFICATION

Method of Measurement

The azimuth pattern for "WWOC", Dielectric Document Sketch # 34, was measured in the following manner.

A single 4.4 to 1 scale model "DCRM" 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 # 34. 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

Paul S. Jones Jr. is a Senior Electrical Engineer here at Dielectric. He received a BS in Electrical Engineering from the University of New Hampshire in 1990. He has over 12 years of experience in RF antenna engineering and has been employed by Dielectric Communications since 1995.

Signed By:

Paul S Jones Jr

Date:

11/13/03



Proposal Number **77180**
 Date **13-Nov-03**
 Call Letters **WWOC**
 Location **Hatteras, NC**
 Customer **Max Radio**
 Antenna Type **DCRM8CD**
 Frequency **94.50 MHz**
 Drawing #: **34**

TABULATION OF COMPOSITE AZIMUTH PATTERN

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.701	45	1.000	90	0.863	135	0.707	180	0.589	225	0.818	270	0.464	315	0.583
1	0.712	46	1.000	91	0.856	136	0.708	181	0.589	226	0.818	271	0.458	316	0.583
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6	0.766	51	0.996	96	0.822	141	0.710	186	0.601	231	0.809	276	0.438	321	0.570
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8	0.788	53	0.995	98	0.808	143	0.710	188	0.610	233	0.802	278	0.435	323	0.563
9	0.800	54	0.995	99	0.802	144	0.710	189	0.616	234	0.799	279	0.435	324	0.559
10	0.811	55	0.994	100	0.794	145	0.710	190	0.622	235	0.794	280	0.436	325	0.555
11	0.822	56	0.993	101	0.787	146	0.709	191	0.628	236	0.789	281	0.437	326	0.551
12	0.833	57	0.992	102	0.780	147	0.709	192	0.635	237	0.784	282	0.440	327	0.548
13	0.841	58	0.991	103	0.773	148	0.708	193	0.641	238	0.778	283	0.443	328	0.544
14	0.851	59	0.990	104	0.765	149	0.706	194	0.649	239	0.772	284	0.446	329	0.541
15	0.859	60	0.987	105	0.758	150	0.705	195	0.657	240	0.765	285	0.450	330	0.539
16	0.867	61	0.985	106	0.752	151	0.702	196	0.664	241	0.758	286	0.454	331	0.537
17	0.875	62	0.983	107	0.745	152	0.701	197	0.672	242	0.752	287	0.460	332	0.536
18	0.881	63	0.979	108	0.740	153	0.697	198	0.681	243	0.743	288	0.465	333	0.535
19	0.888	64	0.976	109	0.734	154	0.695	199	0.689	244	0.735	289	0.470	334	0.534
20	0.894	65	0.973	110	0.728	155	0.692	200	0.697	245	0.727	290	0.476	335	0.535
21	0.900	66	0.969	111	0.723	156	0.688	201	0.705	246	0.718	291	0.482	336	0.536
22	0.907	67	0.966	112	0.718	157	0.684	202	0.712	247	0.708	292	0.489	337	0.537
23	0.913	68	0.963	113	0.713	158	0.679	203	0.719	248	0.698	293	0.495	338	0.539
24	0.920	69	0.959	114	0.709	159	0.675	204	0.727	249	0.689	294	0.502	339	0.541
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27	0.941	72	0.948	117	0.699	162	0.659	207	0.747	252	0.657	297	0.522	342	0.553
28	0.947	73	0.945	118	0.697	163	0.653	208	0.754	253	0.646	298	0.528	343	0.557
29	0.953	74	0.942	119	0.694	164	0.647	209	0.760	254	0.634	299	0.534	344	0.562
30	0.959	75	0.937	120	0.693	165	0.641	210	0.767	255	0.622	300	0.540	345	0.569
31	0.965	76	0.934	121	0.693	166	0.635	211	0.773	256	0.611	301	0.546	346	0.575
32	0.969	77	0.930	122	0.693	167	0.629	212	0.779	257	0.599	302	0.551	347	0.582
33	0.975	78	0.927	123	0.693	168	0.624	213	0.784	258	0.587	303	0.557	348	0.589
34	0.978	79	0.922	124	0.693	169	0.619	214	0.790	259	0.575	304	0.562	349	0.597
35	0.983	80	0.918	125	0.694	170	0.614	215	0.795	260	0.564	305	0.566	350	0.605
36	0.986	81	0.913	126	0.696	171	0.609	216	0.800	261	0.552	306	0.570	351	0.614
37	0.990	82	0.909	127	0.697	172	0.605	217	0.803	262	0.541	307	0.574	352	0.622
38	0.992	83	0.904	128	0.698	173	0.601	218	0.807	263	0.529	308	0.577	353	0.632
39	0.994	84	0.898	129	0.700	174	0.598	219	0.811	264	0.518	309	0.579	354	0.641
40	0.996	85	0.893	130	0.701	175	0.595	220	0.814	265	0.508	310	0.581	355	0.651
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42	0.999	87	0.881	132	0.704	177	0.590	222	0.817	267	0.488	312	0.584	357	0.671
43	1.000	88	0.875	133	0.705	178	0.589	223	0.818	268	0.480	313	0.585	358	0.681
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