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S.O. 25595

Report of Test 6810-10-DA

for

JMD, INC.

WZNF 95.3 MHz Lumberton, MS

OBJECTIVE:

The objective of this test was to demonstrate the directional characteristics of a 6810-10-DA to meet the needs of WZNF and to comply with the requirements of the FCC construction permit, file number BPH-20061204AIA.

RESULTS:

The measured azimuth pattern for the 6810-10-DA is shown in Figure 1. Figure 1A shows the Tabulation of the Horizontal Polarization. Figure 1B shows the Tabulation of the Vertical Polarization. Figure 1C shows the Tabulation of the FCC Composite Pattern. The calculated elevation pattern of the antenna is shown in Figure 3. Construction permit file number BPH-20061204AIA indicates that the Horizontal radiation component shall not exceed 100 kW at any azimuth and is restricted to the following values at the azimuths specified:

310 - 320 Degrees T: 40 kW

From Figure 1, the maximum radiation of the Horizontal component occurs at 142 Degrees T to 246 Degrees T. At the restricted azimuth of 310 - 320 Degrees T the Horizontal component is 4.15 dB down from the maximum of 100 kW, or 38 kW.

EXHIBIT B

The R.M.S. of the Horizontal component is 0.793. The total Horizontal power gain is 9.837. The R.M.S. of the Vertical component is 0.739. The total Vertical power gain is 9.642. See Figure 4 for calculations. The R.M.S. of the FCC composite pattern is 0.959. The R.M.S. of the measured composite pattern is 0.819. Eighty-five percent (85%) of the original authorized FCC composite pattern is 0.815. Therefore this pattern complies with the FCC requirement of 73.316(c)(2)(ix)(A).

METHOD OF DIRECTIONALIZATION:

One bay of the 6810-10-DA was mounted on a tower of precise scale to the Bell tower at the WZNF site. The spacing of the antenna to the tower was varied to achieve the vertical pattern shown in Figure 1. A horizontal parasitic element was placed directly under the bay. The position of this horizontal parasitic element was changed until the horizontal pattern shown in Figure 1 was achieved. See Figure 2 for mechanical details.

METHOD OF MEASUREMENT:

As allowed by the construction permit, file number BPH-20061204AIA, a single level of the 6810-10-DA was set up on the Howell Laboratories scale model antenna pattern measuring range. A scale of 4.5:1 was used.

SUPERVISION:

Mr. Surette was graduated from Lowell Technological Institute, Lowell, Massachusetts in 1973 with the degree of Bachelor of Science in Electrical Engineering. He has been directly involved with design and development of broadcast antennas, filter systems and RF transmission components since 1974, as an RF Engineer for six years with the original Shively Labs in Raymond, ME and for a short period of time with Dielectric Communications. He is currently an Associate Member of the AFCCE and a Senior Member of IEEE. He has authored a chapter on filters and combining systems for the latest edition of the CRC Electronics Handbook and for the 9th and 10th Editions of the NAB Handbook.

EQUIPMENT:

The scale model pattern range consists of a wooden rotating pedestal equipped with a position indicator. The scale model bay is placed on the top of this pedestal and is used in the transmission mode at approximately 20 feet above ground level. The receiving corner reflector is spaced 50 feet away from the rotating pedestal at the same level above ground as the transmitting model. The transmitting and receiving signals are carried to a control building by means of RG-9/U double shielded coax cable.

The control building is equipped with:

Hewlett Packard Model 8753 Network Analyzer
PC Based Controller
Hewlett Packard 7550A Graphics Plotter

The test equipment is calibrated to ANSI/NCSL Z540-1-1994.

TEST PROCEDURES:

The corner reflector is mounted so that the horizontal and vertical azimuth patterns are measured independently by rotating the corner reflector by 90 degrees. The network analyzer was set to 428.85 MHz. Calibrated pads are used to check the linearity of the measuring system. For example, 6 dB padding yields a scale reading of 50 from an unpadded reading of 100 in voltage. From the recorded patterns, the R.M.S. values are calculated and recorded as shown in Figure 1.

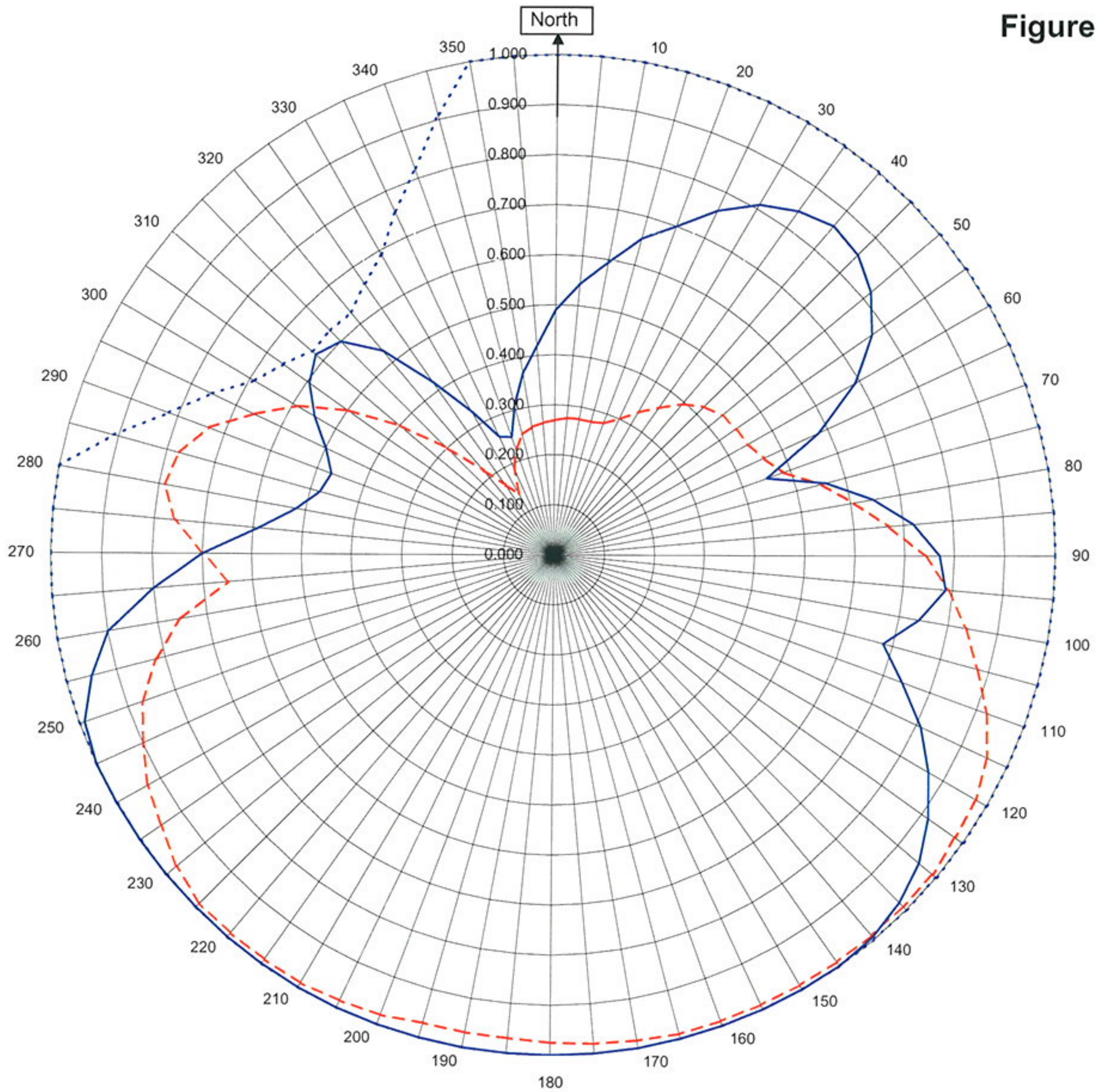
Respectfully submitted by:

Robert A. Surette
Director of Sales Engineering
S/O 25595
July 23, 2007

Shively Labs

Shively Labs, a division of Howell Laboratories, Inc. Bridgton, ME (207)647-3327

Figure 1



WZNF Lumberton, MS

25595

July 23, 2007

____________Horizontal RMS	0.793
_ _ _ _ _ _ _ _ Vertical RMS	0.739
H/V Composite RMS	0.819
...............FCC Composite RMS	0.959

Frequency	95.3 / 428.85 mHz
Plot	Relative Field
Scale	4.5 : 1
	See Figure 2 for Mechanical Details

Antenna Model	6810-10-DA
Pattern Type	Directional Azimuth

Figure 1a

Tabulation of Horizontal Azimuth Pattern
WZNF Lumberton, MS

Azimuth	Rel Field	Azimuth	Rel Field
0	0.490	180	1.000
10	0.595	190	1.000
20	0.700	200	1.000
30	0.810	210	1.000
40	0.860	220	1.000
45	0.850	225	1.000
50	0.820	230	1.000
60	0.690	240	1.000
70	0.450	250	0.990
80	0.645	260	0.900
90	0.770	270	0.700
100	0.740	280	0.520
110	0.740	290	0.470
120	0.865	300	0.550
130	0.955	310	0.620
135	0.980	315	0.600
140	0.995	320	0.530
150	1.000	330	0.330
160	1.000	340	0.250
170	1.000	350	0.370

Figure 1b

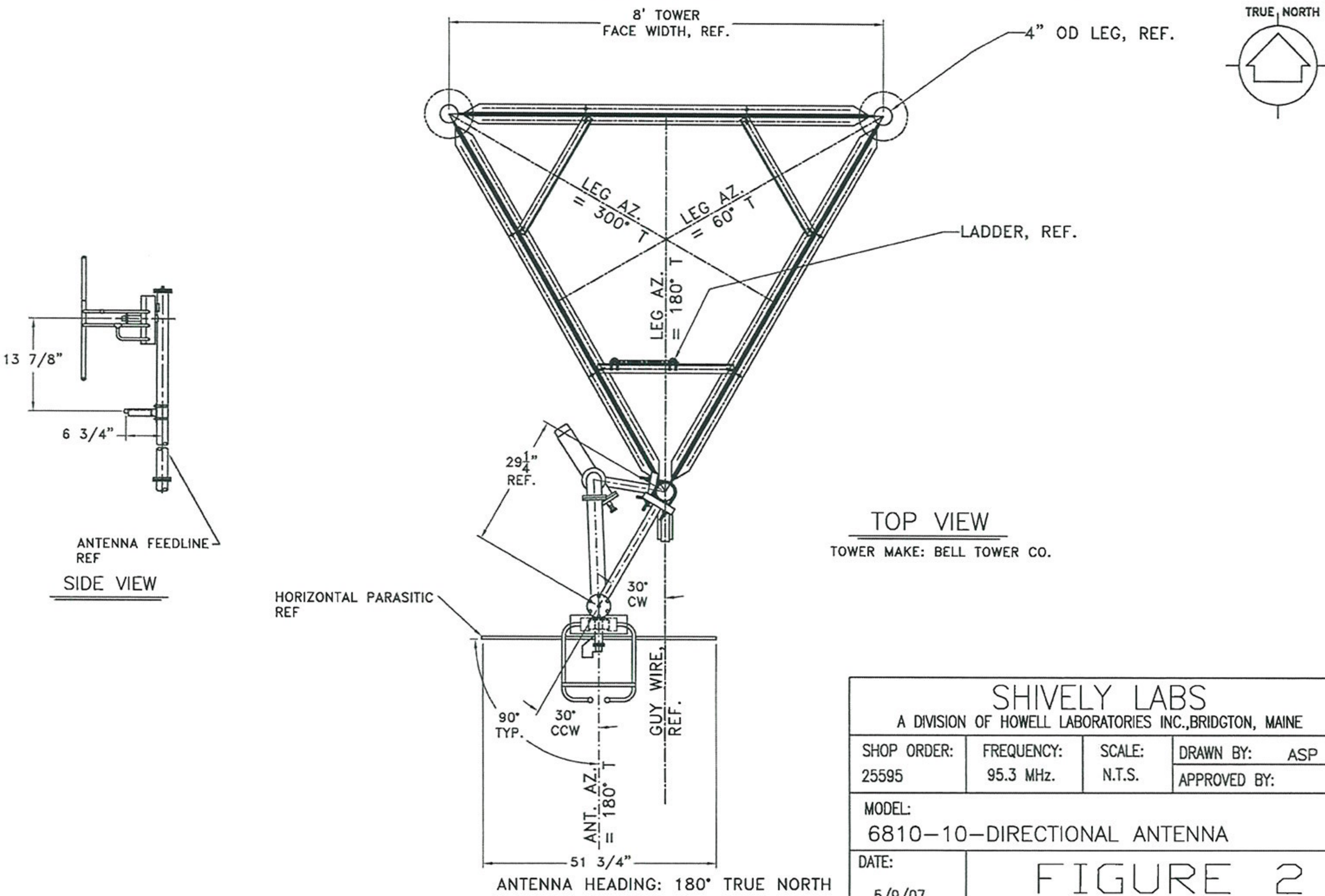
Tabulation of Vertical Azimuth Pattern
WZNF Lumberton, MS

Azimuth	Rel Field	Azimuth	Rel Field
0	0.270	180	0.975
10	0.275	190	0.970
20	0.280	200	0.980
30	0.330	210	0.990
40	0.395	220	0.990
45	0.420	225	0.990
50	0.435	230	0.975
60	0.445	240	0.930
70	0.485	250	0.870
80	0.605	260	0.755
90	0.740	270	0.700
100	0.835	280	0.790
110	0.920	290	0.735
120	0.975	300	0.590
130	0.990	310	0.400
135	0.990	315	0.300
140	0.990	320	0.220
150	0.990	330	0.140
160	0.990	340	0.225
170	0.985	350	0.260

Figure 1c

Tabulation of FCC Directional Composite
WZNF Lumberton, MS

Azimuth	Rel Field	Azimuth	Rel Field
0	1.000	180	1.000
10	1.000	190	1.000
20	1.000	200	1.000
30	1.000	210	1.000
40	1.000	220	1.000
50	1.000	230	1.000
60	1.000	240	1.000
70	1.000	250	1.000
80	1.000	260	1.000
90	1.000	270	1.000
100	1.000	280	1.000
110	1.000	290	0.820
120	1.000	300	0.690
130	1.000	310	0.630
140	1.000	320	0.630
150	1.000	330	0.690
160	1.000	340	0.820
170	1.000	350	1.000

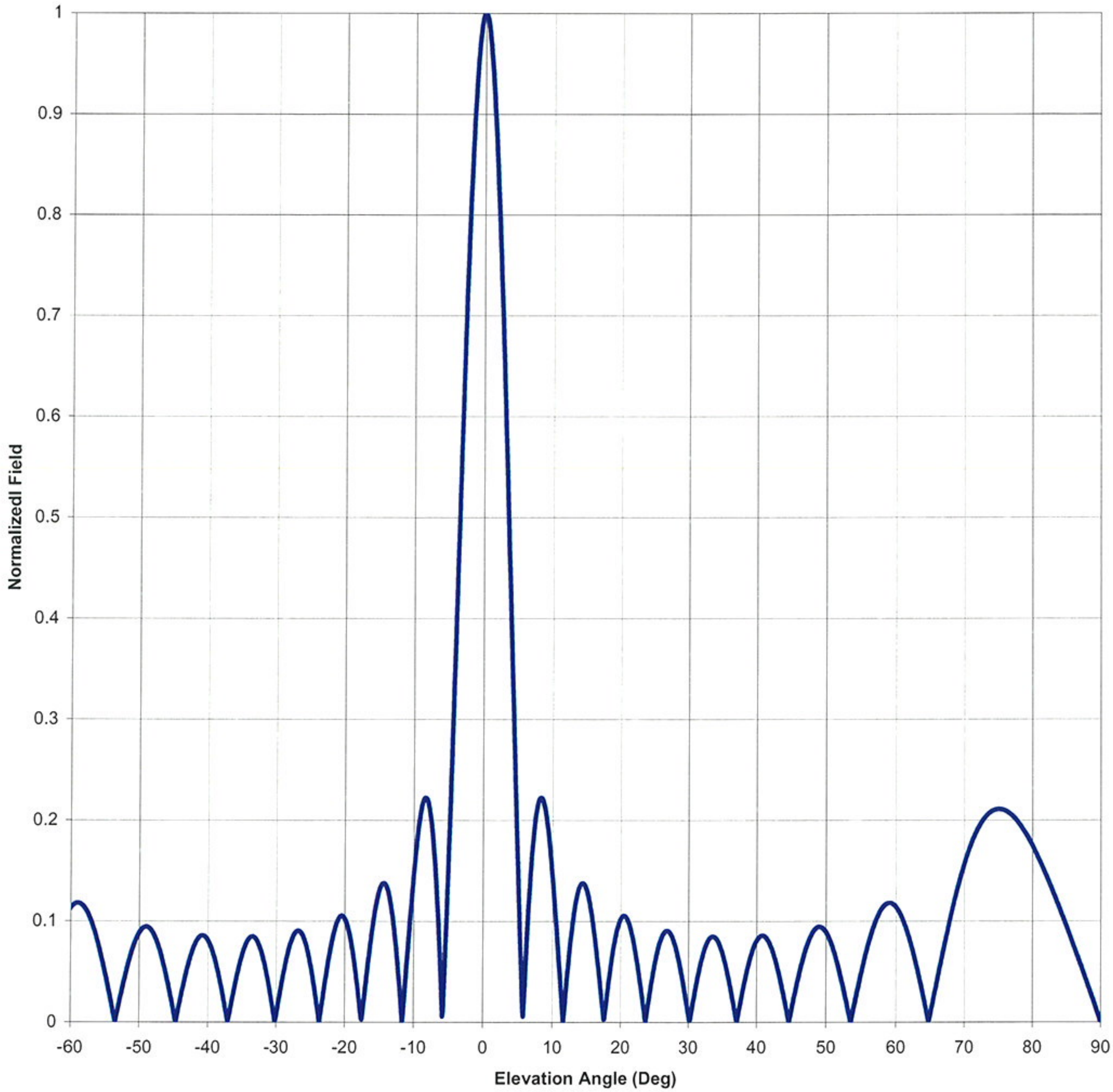


SHIVELY LABS A DIVISION OF HOWELL LABORATORIES INC.,BRIDGTON, MAINE			
SHOP ORDER: 25595	FREQUENCY: 95.3 MHz.	SCALE: N.T.S.	DRAWN BY: ASP APPROVED BY:
MODEL: 6810-10-DIRECTIONAL ANTENNA			
DATE: 5/9/07	FIGURE 2		

Antenna Mfg.: Shively Labs
Antenna Type: 6810-10-DA
Station: WZNF
Frequency: 95.3
Channel #: 237
Figure: 3

Date: 7/23/2007

Beam Tilt	0	
Gain (Max)	9.837	9.929 dB
Gain (Horizon)	9.837	9.929 dB



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Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field
-90	0.000	-44	0.024	0	1.000	46	0.043
-89	0.020	-43	0.054	1	0.951	47	0.070
-88	0.040	-42	0.076	2	0.814	48	0.088
-87	0.059	-41	0.086	3	0.612	49	0.095
-86	0.077	-40	0.081	4	0.378	50	0.089
-85	0.095	-39	0.063	5	0.150	51	0.073
-84	0.112	-38	0.033	6	0.039	52	0.048
-83	0.129	-37	0.003	7	0.165	53	0.017
-82	0.145	-36	0.039	8	0.220	54	0.017
-81	0.161	-35	0.067	9	0.207	55	0.049
-80	0.174	-34	0.083	10	0.144	56	0.078
-79	0.187	-33	0.083	11	0.055	57	0.100
-78	0.197	-32	0.065	12	0.035	58	0.113
-77	0.205	-31	0.033	13	0.103	59	0.118
-76	0.209	-30	0.007	14	0.136	60	0.114
-75	0.211	-29	0.046	15	0.130	61	0.101
-74	0.209	-28	0.076	16	0.092	62	0.081
-73	0.203	-27	0.090	17	0.034	63	0.055
-72	0.192	-26	0.084	18	0.027	64	0.024
-71	0.177	-25	0.057	19	0.076	65	0.009
-70	0.158	-24	0.014	20	0.103	66	0.042
-69	0.134	-23	0.034	21	0.102	67	0.075
-68	0.106	-22	0.076	22	0.076	68	0.106
-67	0.075	-21	0.102	23	0.034	69	0.134
-66	0.042	-20	0.103	24	0.014	70	0.158
-65	0.009	-19	0.076	25	0.057	71	0.177
-64	0.024	-18	0.027	26	0.084	72	0.192
-63	0.055	-17	0.034	27	0.090	73	0.203
-62	0.081	-16	0.092	28	0.076	74	0.209
-61	0.101	-15	0.130	29	0.046	75	0.211
-60	0.114	-14	0.136	30	0.007	76	0.209
-59	0.118	-13	0.103	31	0.033	77	0.205
-58	0.113	-12	0.035	32	0.065	78	0.197
-57	0.100	-11	0.055	33	0.083	79	0.187
-56	0.078	-10	0.144	34	0.083	80	0.174
-55	0.049	-9	0.207	35	0.067	81	0.161
-54	0.017	-8	0.220	36	0.039	82	0.145
-53	0.017	-7	0.165	37	0.003	83	0.129
-52	0.048	-6	0.039	38	0.033	84	0.112
-51	0.073	-5	0.150	39	0.063	85	0.095
-50	0.089	-4	0.378	40	0.081	86	0.077
-49	0.095	-3	0.612	41	0.086	87	0.059
-48	0.088	-2	0.814	42	0.076	88	0.040
-47	0.070	-1	0.951	43	0.054	89	0.020
-46	0.043	0	1.000	44	0.024	90	0.000
-45	0.010			45	0.010		

S.O. 25595 Figure 4

VALIDATION OF TOTAL POWER GAIN CALCULATION

WZNF 95.3 MHz LUMBERTON, MS

MODEL 6810-10-DA

Elevation Gain of Antenna 5.765

Horizontal RMS value divided by the Vertical RMS value equals the Horiz. - Vert. Ratio

H RMS 0.793 V RMS 0.739 H/V Ratio 1.073

Elevation Gain of Horizontal Component 6.186

Elevation Gain of Vertical Component 5.372

Horizontal Azimuth Gain equals 1/(RMS)SQ. 1.590

Vertical Azimuth Gain equals 1/(RMS/Max Vert)SQ. 1.795
Max. Vertical 0.99

***Total Horizontal Power Gain is the Elevation Gain Times the Azimuth Gain**

Total Horizontal Power Gain = **9.837**

***Total Vertical Power Gain is the Elevation Gain Times the Azimuth Gain**

Total Vertical Power Gain = **9.642**

==

ERP divided by Horizontal Power Gain equals Antenna Input Power

100 KW ERP Equals 10.165 KW Antenna Input Power

Antenna Input Power times Vertical Power Gain equals Vertical ERP

10.165 KW Times 9.642 KW Equals 98.010 KW ERP

Maximum Value of the Vertical Component squared times the Maximum ERP equals the Vertical ERP

0.99 Equals 98.010 KW Vertical ERP

NOTE: Calculating the ERP of the Vertical Component by two methods validates the total power gain calculations