

***PRELIMINARY SPECIFICATION FOR
ERI TRASAR[®] HORIZONTALLY POLARIZED
COAXIAL SLOTTED ARRAY ANTENNA***

*Prepared For
Educational Broadcasting Corp
#1 Shackleford Dr STE 400
Little Rock, AR 72211
June 18, 2008*

ANTENNA TYPE:
ATW24H3-HSP1-36H

SPECIFICATION NO:



Electronics Research, Inc.
7777 Gardner Road
Chandler, Indiana U.S.A 47610

PRELIMINARY SPECIFICATION FOR ERI TRASAR[®] HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

ELECTRICAL CHARACTERISTICS:

<i>CHANNEL:</i>	<i>36</i>
<i>FREQUENCY RANGE:</i>	<i>602.00 - 608.00 MHz</i>
<i>AZIMUTH PATTERN NUMBER:</i>	<i>Hor Pol: ATW-P1</i>
<i>ELEVATION PATTERN NUMBER:</i>	<i>Hor Pol: ATW24H3H</i>
<i>AZIMUTH DIRECTIVITY:</i>	<i>Hor Pol: 1.82 (2.60 dB)</i>
<i>ELEVATION DIRECTIVITY:</i>	<i>Hor Pol: 24.00 (13.80 dBd)</i>
<i>PEAK POWER GAIN:</i>	<i>Hor Pol: 43.68 (16.40 dBd)</i>
<i>GAIN AT HORIZONTAL:</i>	<i>Hor Pol: 30.16 (14.79 dBd)</i>
<i>ELECTRICAL BEAM TILT:</i>	<i>-0.75 Degrees</i>
<i>INPUT POWER REQUIRED:</i>	<i>22.894 kW Average Power, 8VSB Digital</i>
<i>MAXIMUM INPUT POWER:</i>	<i>CONTACT ERI</i>
<i>INPUT TYPE:</i>	<i>CONTACT ERI</i>
<i>ANTENNA VSWR (MAXIMUM):</i>	<i>DTV: 1.10 Over 6 MHz of Channel</i>



PRELIMINARY SPECIFICATION FOR ERI TRASAR[®] HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

MECHANICAL CHARACTERISTICS:

MOUNTING CONFIGURATION: <i>*(Tower Interface supplied and installed by others.)</i>	Side Mount
HEIGHT OF ANTENNA:	44.2 feet
HEIGHT OF CENTER OF RADIATION:	22.1 feet
OVERALL HEIGHT (A):	47.2 feet
DEICING:	Pressurized Radome Enclosure
RADOME DIAMETER (C):	CONTACT ERI
RADOME COLOR:	AVIATION ORANGE (standard)
CLIMBING DEVICE:	NOT APPLICABLE
CALCULATED WEIGHT ¹ :	CONTACT ERI
ANTENNA AREA:	CONTACT ERI

This antenna is designed to be supported by a structure that can resist the antenna base reactions and which provides a support that is rigid in the three transitional and three rotational degrees of freedom.

¹ Calculated weight is based on the PRELIMINARY design of the antenna. The actual weight of the antenna will be within $\pm 10\%$ of the calculated weight. The actual weight will be given in the technical manual that accompanies the antenna. This figure is for the antenna only and does not include the antenna input section.

Note: Localized conditions may require higher wind speed specifications than TIA/EIA specifications. Check with local authorities to verify wind speed requirements.



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Broadcast Antenna System

Power Analysis

Type: ATW24H3-HSP1-36H



Transmission Line:

Type:

STD650B

6-1/8" 50 ohm Standard Rigid Line

Vert. Length: 660 ft.

Horz. Length: 100 ft.

Attenuation:

0.123 dB/100 ft.

Efficiency: 80.63 %

ERP: Hor Pol:

kW: 1000.01

dBk: 30.00

Power Gain:

Ratio: 43.68

dBd: 16.40

Antenna Input:

kW: 22.89

dBk: 13.60

Line Loss:

kW: 5.50

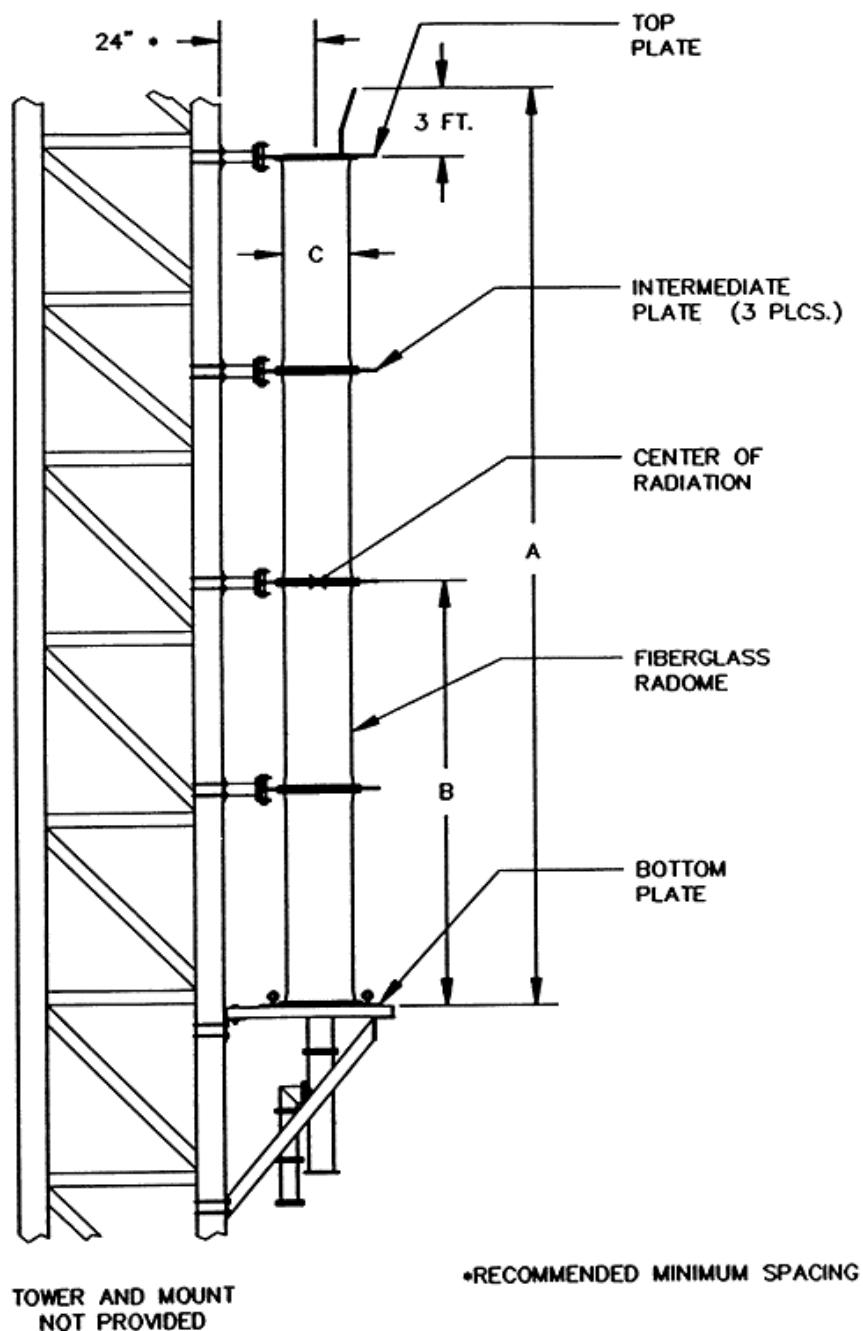
dB: 0.94

Transmitter Power

kW: 28.39

dBk: 14.53

SIDE MOUNT ANTENNA DIMENSIONS AND TOWER ATTACHMENT DETAILS

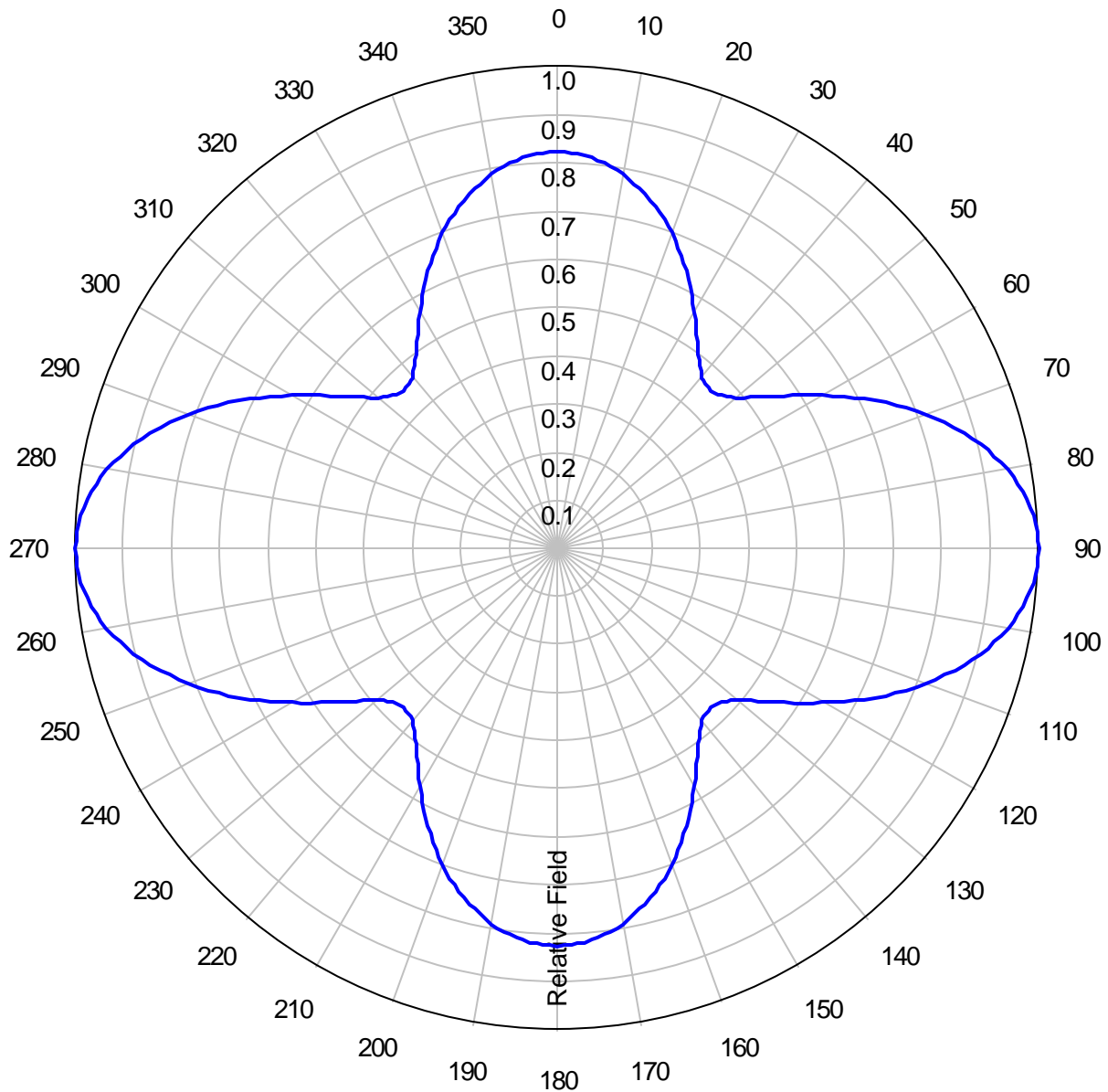




AZIMUTH PATTERN

Type: ATW-P1

	Numeric	dBd
Directivity:	<u>1.82</u>	<u>2.60</u>
Peak(s) at:	<u></u>	
Polarization:	<u>Horizontal</u>	
Channel:	<u>36</u>	
Location:	<u>Little Rock, AR 72211</u>	
Note:	<u></u>	



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AZIMUTH TABULATED DATA

Type: ATW-P1

Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.823	-1.69	92	0.995	-0.04	184	0.817	-1.76	276	0.980	-0.18
2	0.820	-1.72	94	0.990	-0.09	186	0.810	-1.83	278	0.965	-0.31
4	0.817	-1.76	96	0.980	-0.18	188	0.800	-1.94	280	0.951	-0.44
6	0.810	-1.83	98	0.965	-0.31	190	0.790	-2.05	282	0.927	-0.66
8	0.800	-1.94	100	0.951	-0.44	192	0.774	-2.23	284	0.904	-0.88
10	0.790	-2.05	102	0.927	-0.66	194	0.758	-2.41	286	0.877	-1.14
12	0.774	-2.23	104	0.904	-0.88	196	0.739	-2.63	288	0.846	-1.45
14	0.758	-2.41	106	0.877	-1.14	198	0.718	-2.88	290	0.816	-1.77
16	0.739	-2.63	108	0.846	-1.45	200	0.697	-3.14	292	0.781	-2.15
18	0.718	-2.88	110	0.816	-1.77	202	0.672	-3.45	294	0.746	-2.55
20	0.697	-3.14	112	0.781	-2.15	204	0.647	-3.78	296	0.710	-2.97
22	0.672	-3.45	114	0.746	-2.55	206	0.622	-4.12	298	0.673	-3.44
24	0.647	-3.78	116	0.710	-2.97	208	0.595	-4.51	300	0.636	-3.93
26	0.622	-4.12	118	0.673	-3.44	210	0.568	-4.91	302	0.602	-4.41
28	0.595	-4.51	120	0.636	-3.93	212	0.544	-5.29	304	0.567	-4.93
30	0.568	-4.91	122	0.602	-4.41	214	0.519	-5.70	306	0.537	-5.40
32	0.544	-5.29	124	0.567	-4.93	216	0.498	-6.06	308	0.511	-5.83
34	0.519	-5.70	126	0.537	-5.40	218	0.481	-6.36	310	0.485	-6.29
36	0.498	-6.06	128	0.511	-5.83	220	0.464	-6.67	312	0.473	-6.50
38	0.481	-6.36	130	0.485	-6.29	222	0.460	-6.74	314	0.461	-6.73
40	0.464	-6.67	132	0.473	-6.50	224	0.457	-6.80	316	0.457	-6.80
42	0.460	-6.74	134	0.461	-6.73	226	0.461	-6.73	318	0.460	-6.74
44	0.457	-6.80	136	0.457	-6.80	228	0.473	-6.50	320	0.464	-6.67
46	0.461	-6.73	138	0.460	-6.74	230	0.485	-6.29	322	0.481	-6.36
48	0.473	-6.50	140	0.464	-6.67	232	0.511	-5.83	324	0.498	-6.06
50	0.485	-6.29	142	0.481	-6.36	234	0.537	-5.40	326	0.519	-5.70
52	0.511	-5.83	144	0.498	-6.06	236	0.567	-4.93	328	0.544	-5.29
54	0.537	-5.40	146	0.519	-5.70	238	0.602	-4.41	330	0.568	-4.91
56	0.567	-4.93	148	0.544	-5.29	240	0.636	-3.93	332	0.595	-4.51
58	0.602	-4.41	150	0.568	-4.91	242	0.673	-3.44	334	0.622	-4.12
60	0.636	-3.93	152	0.595	-4.51	244	0.710	-2.97	336	0.647	-3.78
62	0.673	-3.44	154	0.622	-4.12	246	0.746	-2.55	338	0.672	-3.45
64	0.710	-2.97	156	0.647	-3.78	248	0.781	-2.15	340	0.697	-3.14
66	0.746	-2.55	158	0.672	-3.45	250	0.816	-1.77	342	0.718	-2.88
68	0.781	-2.15	160	0.697	-3.14	252	0.846	-1.45	344	0.739	-2.63
70	0.816	-1.77	162	0.718	-2.88	254	0.877	-1.14	346	0.758	-2.41
72	0.846	-1.45	164	0.739	-2.63	256	0.904	-0.88	348	0.774	-2.23
74	0.877	-1.14	166	0.758	-2.41	258	0.927	-0.66	350	0.790	-2.05
76	0.904	-0.88	168	0.774	-2.23	260	0.951	-0.44	352	0.800	-1.94
78	0.927	-0.66	170	0.790	-2.05	262	0.965	-0.31	354	0.810	-1.83
80	0.951	-0.44	172	0.800	-1.94	264	0.980	-0.18	356	0.817	-1.76
82	0.965	-0.31	174	0.810	-1.83	266	0.990	-0.09	358	0.820	-1.72
84	0.980	-0.18	176	0.817	-1.76	268	0.995	-0.04	360	0.823	-1.69
86	0.990	-0.09	178	0.820	-1.72	270	1.000	0.00			
88	0.995	-0.04	180	0.823	-1.69	272	0.995	-0.04			
90	1.000	0.00	182	0.820	-1.72	274	0.990	-0.09			



Electronics Research, Inc.
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**AZIMUTH PATTERN
FCC FILING FORMAT**

Type: ATW-P1

Polarization: Horizontal

<i>Angle</i>	<i>Field</i>	<i>ERP (kW)</i>	<i>ERP (dBk)</i>
0	0.823	677.335	28.308
10	0.790	624.106	27.953
20	0.697	485.814	26.865
30	0.568	322.627	25.087
40	0.464	215.298	23.330
50	0.485	235.227	23.715
60	0.636	404.500	26.069
70	0.816	665.862	28.234
80	0.951	904.410	29.564
90	1.000	1000.009	30.000
100	0.951	904.410	29.564
110	0.816	665.862	28.234
120	0.636	404.500	26.069
130	0.485	235.227	23.715
140	0.464	215.298	23.330
150	0.568	322.627	25.087
160	0.697	485.814	26.865
170	0.790	624.106	27.953
180	0.823	677.335	28.308
190	0.790	624.106	27.953
200	0.697	485.814	26.865
210	0.568	322.627	25.087
220	0.464	215.298	23.330
230	0.485	235.227	23.715
240	0.636	404.500	26.069
250	0.816	665.862	28.234
260	0.951	904.410	29.564
270	1.000	1000.009	30.000
280	0.951	904.410	29.564
290	0.816	665.862	28.234
300	0.636	404.500	26.069
310	0.485	235.227	23.715
320	0.464	215.298	23.330
330	0.568	322.627	25.087
340	0.697	485.814	26.865
350	0.790	624.106	27.953

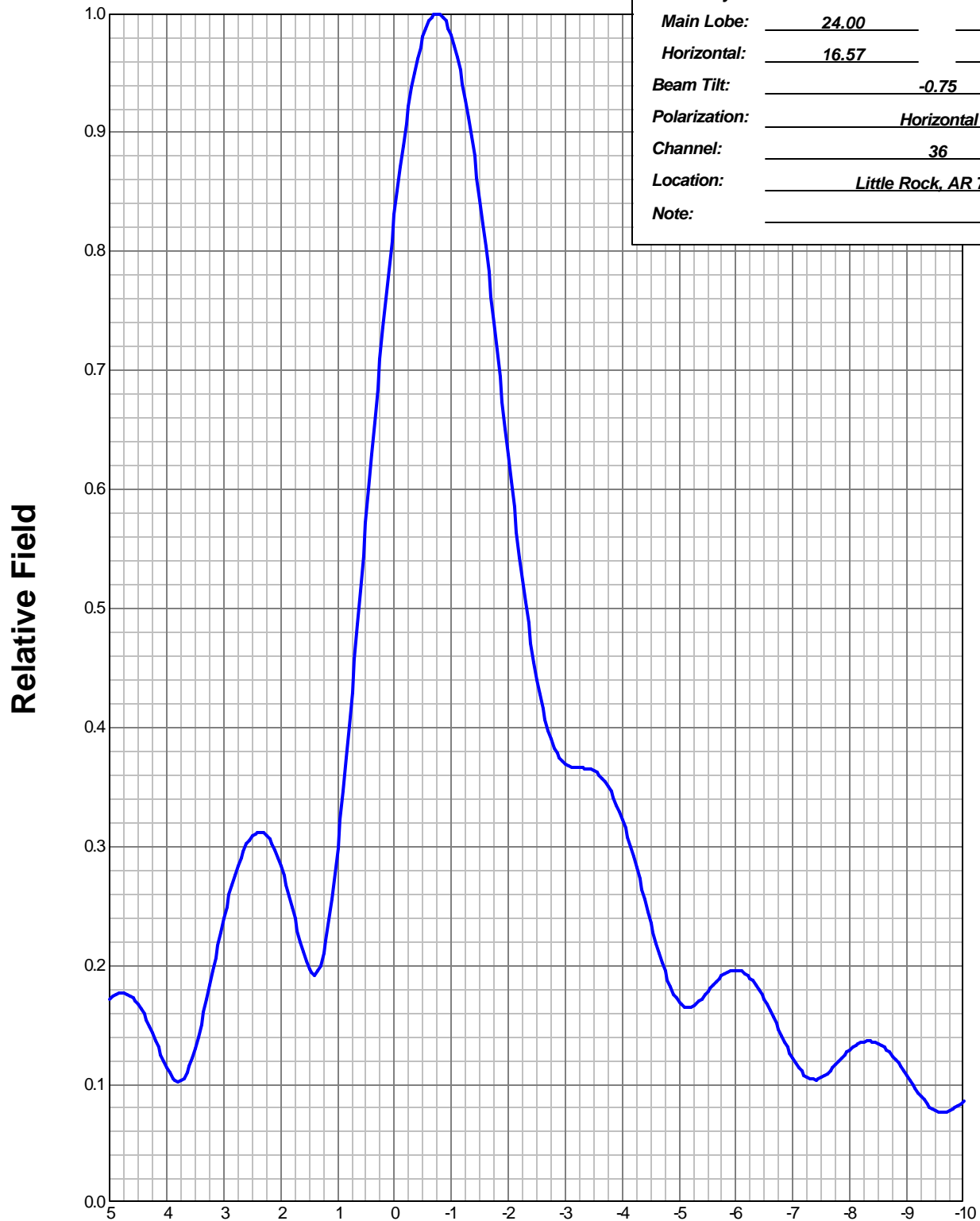


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ELEVATION PATTERN

Type:	ATW24H3H	
Directivity:	Numeric	dBd
Main Lobe:	24.00	13.80
Horizontal:	16.57	12.19
Beam Tilt:	-0.75	
Polarization:	Horizontal	
Channel:	36	
Location:	Little Rock, AR 72211	
Note:		



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ELEVATION TABULATED DATA

Type: ATW24H3H

Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
5.00	0.171	-15.34	-6.50	0.172	-15.29	-42.00	0.023	-32.77	-88.00	0.007	-43.10
4.75	0.176	-15.07	-6.75	0.146	-16.68	-43.00	0.033	-29.63	-89.00	0.004	-47.96
4.50	0.167	-15.55	-7.00	0.122	-18.27	-44.00	0.040	-27.96	-90.00	0.000	-40.00
4.25	0.143	-16.89	-7.25	0.106	-19.45	-45.00	0.023	-32.77			
4.00	0.114	-18.86	-7.50	0.106	-19.49	-46.00	0.030	-30.46			
3.75	0.103	-19.70	-7.75	0.116	-18.67	-47.00	0.042	-27.54			
3.50	0.130	-17.72	-8.00	0.129	-17.79	-48.00	0.029	-30.75			
3.25	0.183	-14.73	-8.25	0.136	-17.33	-49.00	0.023	-32.77			
3.00	0.239	-12.43	-8.50	0.134	-17.46	-50.00	0.041	-27.74			
2.75	0.283	-10.96	-8.75	0.124	-18.13	-51.00	0.038	-28.40			
2.50	0.309	-10.20	-9.00	0.107	-19.41	-52.00	0.020	-33.98			
2.25	0.309	-10.19	-9.25	0.090	-20.92	-53.00	0.032	-29.90			
2.00	0.284	-10.93	-9.50	0.078	-22.16	-54.00	0.045	-26.94			
1.75	0.239	-12.43	-9.75	0.078	-22.16	-55.00	0.035	-29.12			
1.50	0.197	-14.11	-10.00	0.086	-21.31	-56.00	0.019	-34.42			
1.25	0.211	-13.53	-11.00	0.097	-20.26	-57.00	0.035	-29.12			
1.00	0.298	-10.52	-12.00	0.061	-24.29	-58.00	0.047	-26.56			
0.75	0.429	-7.35	-13.00	0.085	-21.41	-59.00	0.039	-28.18			
0.50	0.572	-4.85	-14.00	0.052	-25.68	-60.00	0.020	-33.98			
0.25	0.710	-2.97	-15.00	0.071	-22.97	-61.00	0.028	-31.06			
0.00	0.831	-1.61	-16.00	0.054	-25.35	-62.00	0.047	-26.56			
-0.25	0.922	-0.70	-17.00	0.054	-25.35	-63.00	0.050	-26.02			
-0.50	0.981	-0.17	-18.00	0.058	-24.73	-64.00	0.037	-28.64			
-0.75	1.000	0.00	-19.00	0.040	-27.96	-65.00	0.019	-34.42			
-1.00	0.982	-0.16	-20.00	0.057	-24.88	-66.00	0.027	-31.37			
-1.25	0.927	-0.66	-21.00	0.036	-28.87	-67.00	0.046	-26.74			
-1.50	0.843	-1.48	-22.00	0.050	-26.02	-68.00	0.055	-25.19			
-1.75	0.740	-2.62	-23.00	0.042	-27.54	-69.00	0.052	-25.68			
-2.00	0.629	-4.03	-24.00	0.038	-28.40	-70.00	0.038	-28.40			
-2.25	0.524	-5.61	-25.00	0.047	-26.56	-71.00	0.019	-34.42			
-2.50	0.440	-7.13	-26.00	0.029	-30.75	-72.00	0.016	-35.92			
-2.75	0.390	-8.18	-27.00	0.045	-26.94	-73.00	0.034	-29.37			
-3.00	0.369	-8.66	-28.00	0.035	-29.12	-74.00	0.049	-26.20			
-3.25	0.366	-8.73	-29.00	0.034	-29.37	-75.00	0.058	-24.73			
-3.50	0.364	-8.78	-30.00	0.043	-27.33	-76.00	0.060	-24.44			
-3.75	0.350	-9.12	-31.00	0.025	-32.04	-77.00	0.056	-25.04			
-4.00	0.323	-9.82	-32.00	0.040	-27.96	-78.00	0.048	-26.38			
-4.25	0.282	-11.00	-33.00	0.036	-28.87	-79.00	0.037	-28.64			
-4.50	0.236	-12.54	-34.00	0.026	-31.70	-80.00	0.026	-31.70			
-4.75	0.195	-14.20	-35.00	0.041	-27.74	-81.00	0.016	-35.92			
-5.00	0.169	-15.44	-36.00	0.028	-31.06	-82.00	0.009	-40.92			
-5.25	0.167	-15.57	-37.00	0.030	-30.46	-83.00	0.007	-43.10			
-5.50	0.178	-14.99	-38.00	0.041	-27.74	-84.00	0.009	-40.92			
-5.75	0.191	-14.38	-39.00	0.024	-32.40	-85.00	0.011	-39.17			
-6.00	0.196	-14.15	-40.00	0.033	-29.63	-86.00	0.011	-39.17			
-6.25	0.190	-14.45	-41.00	0.040	-27.96	-87.00	0.010	-40.00			



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