

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

*Prepared For
WPXS, Inc
3901 Highway 121 South
Bedford, TX 73021-3009
June 19, 2008*

ANTENNA TYPE:
ATW25H3-HSC1-21H

SPECIFICATION NO:
WPXS-DT



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

WPXS-DT -1-

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

ELECTRICAL CHARACTERISTICS:

CHANNEL:	21
FREQUENCY RANGE:	512.00 - 518.00 MHz
AZIMUTH PATTERN NUMBER:	Hor Pol: ATW-C1
ELEVATION PATTERN NUMBER:	Hor Pol: ATW25H3H
AZIMUTH DIRECTIVITY:	Hor Pol: 1.52 (1.82 dB)
ELEVATION DIRECTIVITY:	Hor Pol: 25.00 (13.98 dBd)
PEAK POWER GAIN:	Hor Pol: 38.00 (15.80 dBd)
GAIN AT HORIZONTAL:	Hor Pol: 25.61 (14.08 dBd)
ELECTRICAL BEAM TILT:	-0.75 Degrees
INPUT POWER REQUIRED:	26.316 kW Peak Visual plus 10% Aural
MAXIMUM INPUT POWER:	CONTACT ERI
INPUT TYPE:	CONTACT ERI
ANTENNA VSWR (MAXIMUM):	NTSC: 1.05 Visual + 0.5 MHz 1.08 Chroma 1.10 Over remainder of Channel



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WPXS-DT -2-

6.19.08

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:	53.7 feet
HEIGHT OF CENTER OF RADIATION:	26.8 feet
OVERALL HEIGHT (A):	56.7 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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WPXS-DT -3-

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Broadcast Antenna System

Power Analysis

Type: ATW25H3-HSC1-21H



Transmission Line:

Type:

MACX650

6-1/8" 50 ohm MACXLine® Rigid Line

Vert. Length: 300 ft.

Horz. Length: 100 ft.

Attenuation:

0.112 dB/100 ft.

Efficiency: 90.16 %

ERP: Hor Pol:

kW: 1000.03

dBk: 30.00

Power Gain:

Ratio: 38.00

dBd: 15.80

Antenna Input:

kW: 26.32

dBk: 14.20

Line Loss:

kW: 2.87

dB: 0.45

Transmitter Power

kW: 29.19

dBk: 14.65

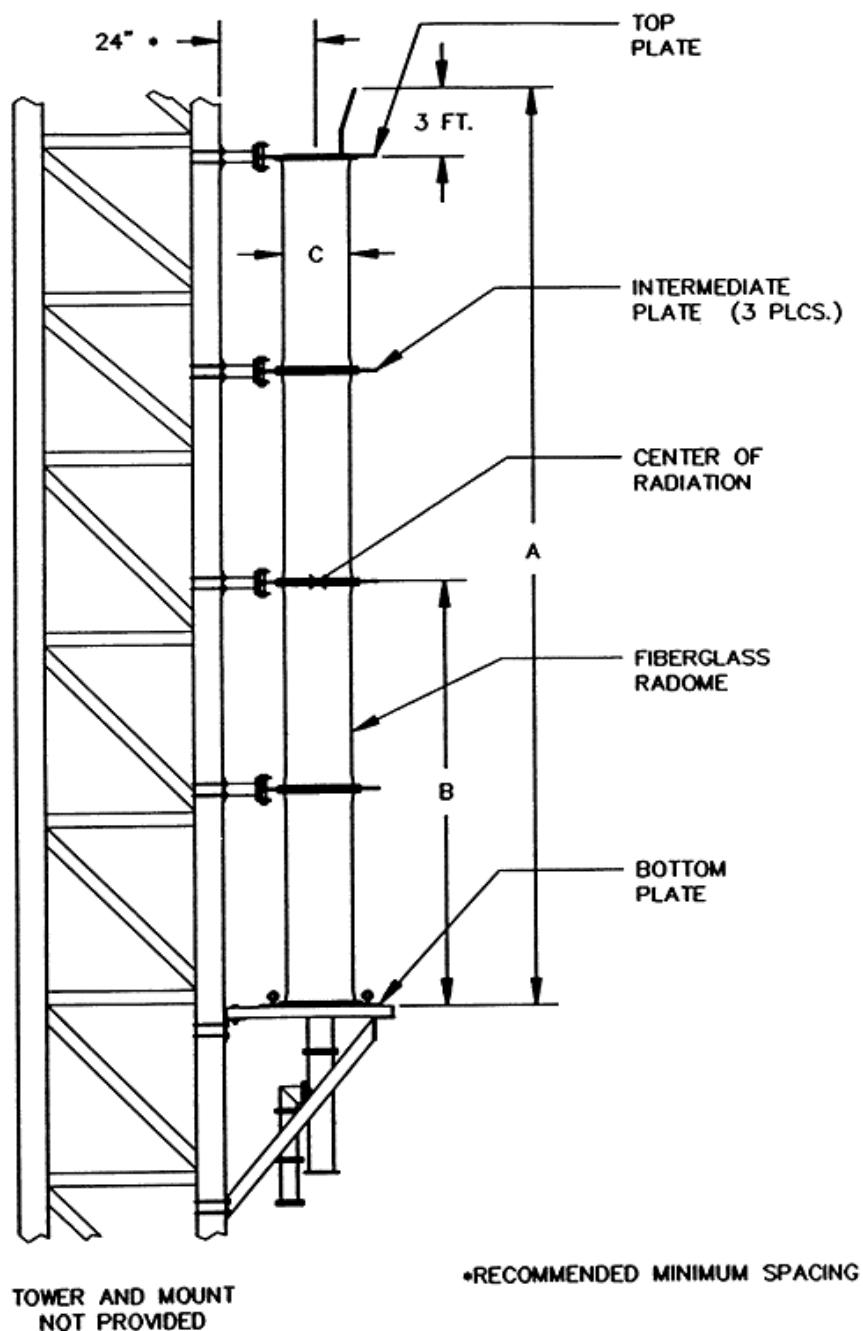


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SIDE MOUNT ANTENNA DIMENSIONS AND TOWER ATTACHMENT DETAILS

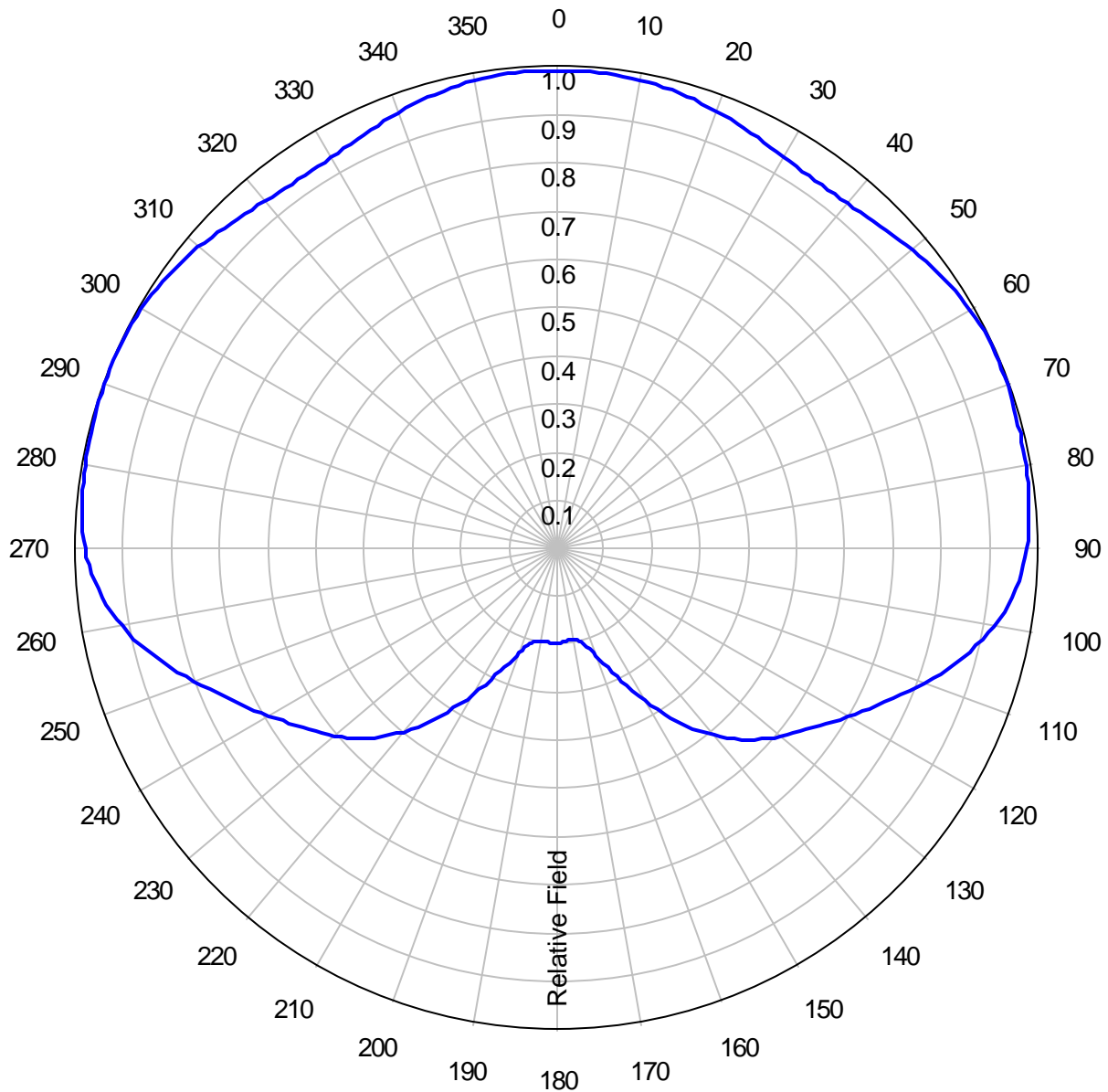




AZIMUTH PATTERN

Type: ATW-C1

	Numeric	dBd
Directivity:	<u>1.52</u>	<u>1.82</u>
Peak(s) at:	<u></u>	
Polarization:	<u>Horizontal</u>	
Channel:	<u>21</u>	
Location:	<u>Bedford, TX 73021-3009</u>	
Note:	<u></u>	



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WPXS-DT -6-



AZIMUTH TABULATED DATA

Type: ATW-C1

Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.992	-0.07	92	0.968	-0.28	184	0.195	-14.20	276	0.991	-0.08
2	0.992	-0.07	94	0.960	-0.35	186	0.194	-14.24	278	0.992	-0.07
4	0.991	-0.08	96	0.950	-0.45	188	0.193	-14.29	280	0.993	-0.06
6	0.990	-0.09	98	0.937	-0.57	190	0.193	-14.29	282	0.995	-0.04
8	0.989	-0.10	100	0.921	-0.71	192	0.195	-14.20	284	0.996	-0.03
10	0.987	-0.11	102	0.903	-0.89	194	0.198	-14.07	286	0.997	-0.03
12	0.984	-0.14	104	0.882	-1.09	196	0.205	-13.76	288	0.998	-0.02
14	0.981	-0.17	106	0.860	-1.31	198	0.215	-13.35	290	0.999	-0.01
16	0.976	-0.21	108	0.836	-1.56	200	0.228	-12.84	292	1.000	0.00
18	0.971	-0.26	110	0.811	-1.82	202	0.246	-12.18	294	1.000	0.00
20	0.966	-0.30	112	0.787	-2.08	204	0.267	-11.47	296	1.000	0.00
22	0.960	-0.35	114	0.762	-2.36	206	0.291	-10.72	298	0.998	-0.02
24	0.954	-0.41	116	0.738	-2.64	208	0.318	-9.95	300	0.996	-0.03
26	0.948	-0.46	118	0.716	-2.90	210	0.348	-9.17	302	0.993	-0.06
28	0.943	-0.51	120	0.695	-3.16	212	0.378	-8.45	304	0.989	-0.10
30	0.938	-0.56	122	0.675	-3.41	214	0.408	-7.79	306	0.984	-0.14
32	0.935	-0.58	124	0.656	-3.66	216	0.438	-7.17	308	0.978	-0.19
34	0.933	-0.60	126	0.638	-3.90	218	0.467	-6.61	310	0.972	-0.25
36	0.932	-0.61	128	0.621	-4.14	220	0.495	-6.11	312	0.965	-0.31
38	0.933	-0.60	130	0.604	-4.38	222	0.520	-5.68	314	0.959	-0.36
40	0.935	-0.58	132	0.587	-4.63	224	0.543	-5.30	316	0.952	-0.43
42	0.939	-0.55	134	0.568	-4.91	226	0.564	-4.97	318	0.946	-0.48
44	0.944	-0.50	136	0.549	-5.21	228	0.584	-4.67	320	0.941	-0.53
46	0.950	-0.45	138	0.527	-5.56	230	0.602	-4.41	322	0.938	-0.56
48	0.956	-0.39	140	0.504	-5.95	232	0.620	-4.15	324	0.935	-0.58
50	0.963	-0.33	142	0.479	-6.39	234	0.637	-3.92	326	0.934	-0.59
52	0.969	-0.27	144	0.452	-6.90	236	0.654	-3.69	328	0.935	-0.58
54	0.975	-0.22	146	0.423	-7.47	238	0.672	-3.45	330	0.937	-0.57
56	0.981	-0.17	148	0.393	-8.11	240	0.691	-3.21	332	0.941	-0.53
58	0.985	-0.13	150	0.363	-8.80	242	0.711	-2.96	334	0.945	-0.49
60	0.989	-0.10	152	0.333	-9.55	244	0.732	-2.71	336	0.951	-0.44
62	0.992	-0.07	154	0.305	-10.31	246	0.755	-2.44	338	0.957	-0.38
64	0.994	-0.05	156	0.279	-11.09	248	0.778	-2.18	340	0.963	-0.33
66	0.994	-0.05	158	0.255	-11.87	250	0.803	-1.91	342	0.968	-0.28
68	0.994	-0.05	160	0.235	-12.58	252	0.827	-1.65	344	0.974	-0.23
70	0.994	-0.05	162	0.219	-13.19	254	0.852	-1.39	346	0.978	-0.19
72	0.993	-0.06	164	0.206	-13.72	256	0.875	-1.16	348	0.982	-0.16
74	0.991	-0.08	166	0.198	-14.07	258	0.897	-0.94	350	0.985	-0.13
76	0.990	-0.09	168	0.192	-14.33	260	0.917	-0.75	352	0.988	-0.10
78	0.988	-0.10	170	0.190	-14.42	262	0.935	-0.58	354	0.990	-0.09
80	0.987	-0.11	172	0.190	-14.42	264	0.950	-0.45	356	0.991	-0.08
82	0.985	-0.13	174	0.191	-14.38	266	0.962	-0.34	358	0.991	-0.08
84	0.983	-0.15	176	0.192	-14.33	268	0.972	-0.25	360	0.992	-0.07
86	0.981	-0.17	178	0.194	-14.24	270	0.979	-0.18			
88	0.978	-0.19	180	0.195	-14.20	272	0.985	-0.13			
90	0.974	-0.23	182	0.195	-14.20	274	0.988	-0.10			



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WPXS-DT -7-



**AZIMUTH PATTERN
FCC FILING FORMAT**

Type: ATW-C1

Polarization: Horizontal

<i>Angle</i>	<i>Field</i>	<i>ERP (kW)</i>	<i>ERP (dBk)</i>
0	0.992	984.089	29.930
10	0.987	974.194	29.886
20	0.966	933.180	29.700
30	0.938	879.866	29.444
40	0.935	874.247	29.416
50	0.963	927.393	29.673
60	0.989	978.146	29.904
70	0.994	988.061	29.948
80	0.987	974.194	29.886
90	0.974	948.700	29.771
100	0.921	848.263	29.285
110	0.811	657.738	28.181
120	0.695	483.037	26.840
130	0.604	364.825	25.621
140	0.504	254.022	24.049
150	0.363	131.772	21.198
160	0.235	55.226	17.421
170	0.190	36.101	15.575
180	0.195	38.026	15.801
190	0.193	37.250	15.711
200	0.228	51.985	17.159
210	0.348	121.107	20.832
220	0.495	245.031	23.892
230	0.602	362.413	25.592
240	0.691	477.493	26.790
250	0.803	644.825	28.094
260	0.917	840.910	29.247
270	0.979	958.465	29.816
280	0.993	986.074	29.939
290	0.999	998.026	29.991
300	0.996	992.041	29.965
310	0.972	944.808	29.753
320	0.941	885.503	29.472
330	0.937	877.991	29.435
340	0.963	927.393	29.673
350	0.985	970.250	29.869



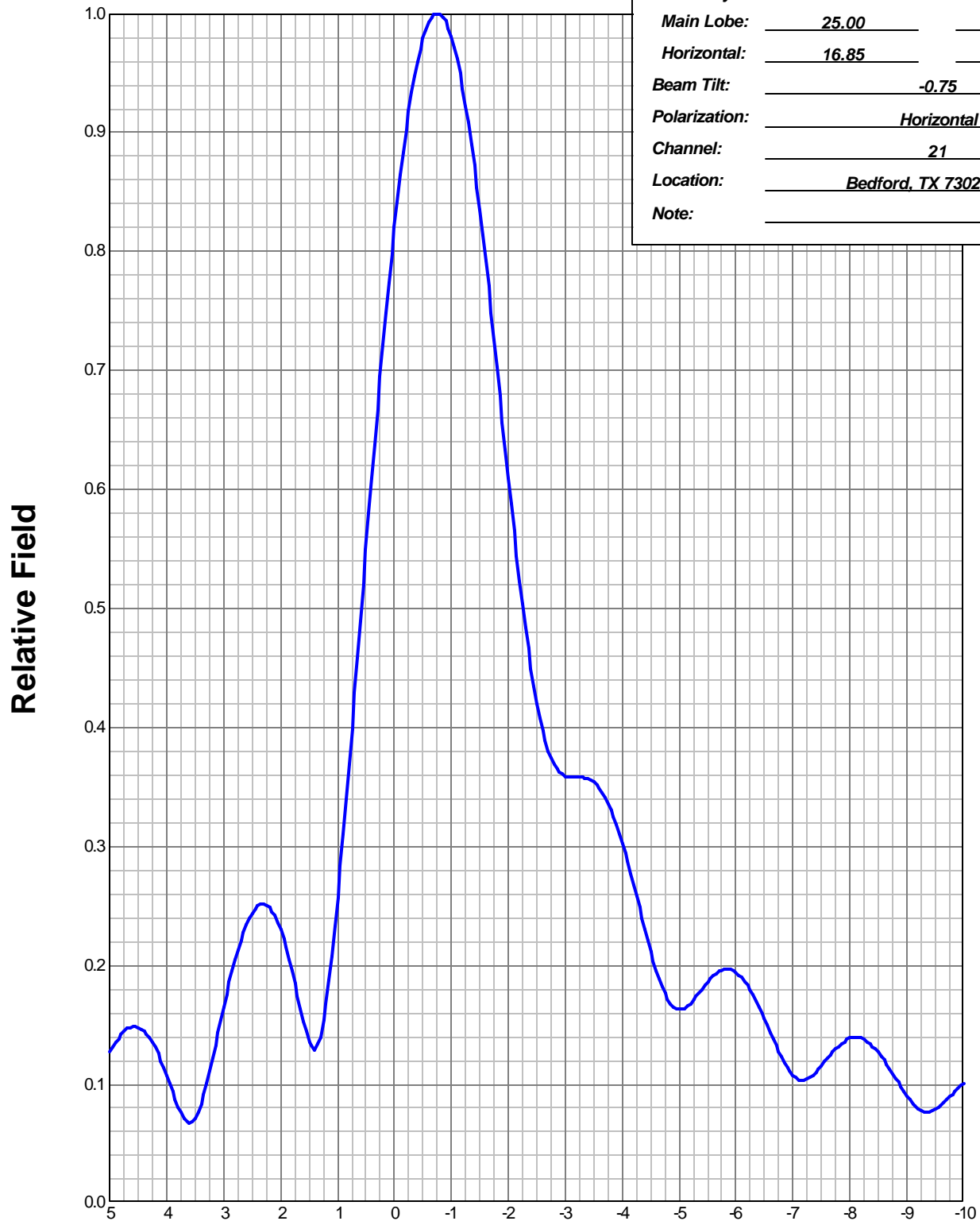
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WPXS-DT -8-



ELEVATION PATTERN

Type:	ATW25H3H	
Directivity:	Numeric	dBd
Main Lobe:	25.00	13.98
Horizontal:	16.85	12.27
Beam Tilt:	-0.75	
Polarization:	Horizontal	
Channel:	21	
Location:	Bedford, TX 73021-3009	
Note:		



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WPXS-DT -9-



ELEVATION TABULATED DATA

Type: ATW25H3H

Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
5.00	0.127	-17.92	-6.50	0.155	-16.19	-42.00	0.035	-29.12	-88.00	0.004	-47.96
4.75	0.144	-16.80	-6.75	0.128	-17.86	-43.00	0.024	-32.40	-89.00	0.002	-53.98
4.50	0.148	-16.59	-7.00	0.108	-19.33	-44.00	0.019	-34.42	-90.00	0.000	-40.00
4.25	0.135	-17.39	-7.25	0.105	-19.58	-45.00	0.035	-29.12			
4.00	0.108	-19.33	-7.50	0.116	-18.71	-46.00	0.025	-32.04			
3.75	0.076	-22.38	-7.75	0.130	-17.75	-47.00	0.018	-34.89			
3.50	0.071	-22.97	-8.00	0.139	-17.14	-48.00	0.034	-29.37			
3.25	0.112	-19.05	-8.25	0.138	-17.23	-49.00	0.029	-30.75			
3.00	0.165	-15.65	-8.50	0.127	-17.92	-50.00	0.014	-37.08			
2.75	0.213	-13.43	-8.75	0.109	-19.25	-51.00	0.031	-30.17			
2.50	0.244	-12.25	-9.00	0.090	-20.92	-52.00	0.035	-29.12			
2.25	0.251	-12.02	-9.25	0.078	-22.16	-53.00	0.018	-34.89			
2.00	0.230	-12.77	-9.50	0.079	-22.05	-54.00	0.020	-33.98			
1.75	0.184	-14.68	-9.75	0.089	-20.96	-55.00	0.035	-29.12			
1.50	0.136	-17.33	-10.00	0.101	-19.91	-56.00	0.032	-29.90			
1.25	0.154	-16.28	-11.00	0.083	-21.62	-57.00	0.013	-37.72			
1.00	0.257	-11.80	-12.00	0.073	-22.73	-58.00	0.021	-33.56			
0.75	0.399	-7.98	-13.00	0.078	-22.16	-59.00	0.036	-28.87			
0.50	0.550	-5.19	-14.00	0.052	-25.68	-60.00	0.033	-29.63			
0.25	0.695	-3.17	-15.00	0.072	-22.85	-61.00	0.016	-35.92			
0.00	0.821	-1.71	-16.00	0.041	-27.74	-62.00	0.014	-37.08			
-0.25	0.918	-0.74	-17.00	0.062	-24.15	-63.00	0.032	-29.90			
-0.50	0.980	-0.18	-18.00	0.038	-28.40	-64.00	0.038	-28.40			
-0.75	1.000	0.00	-19.00	0.052	-25.68	-65.00	0.030	-30.46			
-1.00	0.981	-0.17	-20.00	0.043	-27.33	-66.00	0.012	-38.42			
-1.25	0.923	-0.70	-21.00	0.038	-28.40	-67.00	0.012	-38.42			
-1.50	0.835	-1.57	-22.00	0.047	-26.56	-68.00	0.030	-30.46			
-1.75	0.726	-2.78	-23.00	0.027	-31.37	-69.00	0.039	-28.18			
-2.00	0.610	-4.29	-24.00	0.046	-26.74	-70.00	0.039	-28.18			
-2.25	0.504	-5.96	-25.00	0.027	-31.37	-71.00	0.029	-30.75			
-2.50	0.420	-7.54	-26.00	0.039	-28.18	-72.00	0.013	-37.72			
-2.75	0.375	-8.53	-27.00	0.035	-29.12	-73.00	0.005	-46.02			
-3.00	0.359	-8.90	-28.00	0.028	-31.06	-74.00	0.021	-33.56			
-3.25	0.358	-8.92	-29.00	0.040	-27.96	-75.00	0.033	-29.63			
-3.50	0.354	-9.02	-30.00	0.021	-33.56	-76.00	0.040	-27.96			
-3.75	0.336	-9.47	-31.00	0.037	-28.64	-77.00	0.042	-27.54			
-4.00	0.303	-10.37	-32.00	0.030	-30.46	-78.00	0.040	-27.96			
-4.25	0.259	-11.75	-33.00	0.024	-32.40	-79.00	0.034	-29.37			
-4.50	0.212	-13.47	-34.00	0.037	-28.64	-80.00	0.027	-31.37			
-4.75	0.176	-15.07	-35.00	0.020	-33.98	-81.00	0.018	-34.89			
-5.00	0.163	-15.76	-36.00	0.031	-30.17	-82.00	0.011	-39.17			
-5.25	0.171	-15.34	-37.00	0.032	-29.90	-83.00	0.005	-46.02			
-5.50	0.186	-14.61	-38.00	0.017	-35.39	-84.00	0.002	-53.98			
-5.75	0.196	-14.15	-39.00	0.034	-29.37	-85.00	0.004	-47.96			
-6.00	0.194	-14.24	-40.00	0.027	-31.37	-86.00	0.005	-46.02			
-6.25	0.179	-14.94	-41.00	0.019	-34.42	-87.00	0.005	-46.02			



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