

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

*Prepared for
KFXX-DT Channel 31 Longview, TX
November 30, 2005*

**ANTENNA TYPE:
ATW27H3-ESC1-31H**

**SPECIFICATION NO :
LJS061699-486 RevC**

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

ELECTRICAL CHARACTERISTICS:

CHANNEL :	DTV:	31
FREQUENCY RANGE :	DTV:	572 - 584 MHz
AZIMUTH PATTERN NUMBER :	H-Pol:	CH31HAZ-C1
	V-Pol:	CH31VAZ
ELEVATION PATTERN NUMBER :	H-Pol:	ATW27H3H
	V-Pol:	ATW24H3V
AZIMUTH DIRECTIVITY :	H-Pol:	1.54 (1.88 dBd)
	V-Pol:	2.54 (4.05 dBd)
ELEVATION DIRECTIVITY :	H-Pol:	27.00 (14.31 dBd)
	V-Pol:	24.00 (13.80 dBd)
PEAK POWER GAIN :	H-Pol:	35.52 (15.51 dBd)
	V-Pol:	8.88 (9.48 dBd)
GAIN AT HORIZONTAL :	H-Pol:	22.06 (13.44 dBd)
	V-Pol:	6.00 (7.78 dBd)
V/H RATIO:		0.25
ELECTRICAL BEAM TILT :		0.75 Degrees
INPUT POWER REQUIRED :		28.15 kW (14.49 dBk)
INPUT TYPE :		6 1/8-50 Ohm
ANTENNA VSWR (MAXIMUM) :	DTV:	1.10 Over Remainder of Channel

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

MECHANICAL CHARACTERISTICS:

MOUNTING CONFIGURATION:	<i>Side Mount</i>
HEIGHT OF ANTENNA :	<i>54.84 feet</i>
HEIGHT OF CENTER OF RADIATION (B) :	<i>27.42 feet</i>
OVERALL HEIGHT (A) : <i>(Includes two 3-foot Lightning Rods)</i>	<i>57.84 feet</i>
DEICING :	<i>Pressurized Radome Enclosure</i>
RADOME DIAMETER (C):	<i>16.40 inches, OD</i>
RADOME COLOR :	<i>AVIATION ORANGE (Standard)</i>
CLIMBING DEVICE :	<i>Not Applicable</i>
CALCULATED WEIGHT :	<i>2155.00 lbs</i>
WINDLOAD DATA :	CaAc : <i>97.14 sq.ft.</i>

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 translational 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.*

2 Based on a wind speed of 70 miles per hour (MPH), and 61 MPH with ice, a height above average terrain (HAAT) of 1,184 feet, and a height above ground level (HAGL) of 1,109 feet per EIA/TIA-222-F.

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

Broadcast Antenna System
Power Analysis

KFXK-DT
Longview, TX
ATW27H3-ESC1-31H

Channel 31

ANTENNA PARAMETERS :

Azimuth Directivity :

Hor. Pol : 1.54 (0.00 dBd)

Ver. Pol : 2.54 (4.05 dBd)

ERP :

Hor. Pol : 1,000.00 kW (30.00 dBk)

Ver. Pol : 250.00 kW (23.98 dBk)

Elevation Directivity :

Hor. Pol : 27.00 (14.31 dBd)

Ver. Pol : 24.00 (13.80 dBd)

POWER GAIN :

Hor. Pol : 35.52 (15.51 dBd)

Ver. Pol : 8.88 (9.48 dBd)

V/H RATIO: 0.25

TRANSMISSION LINE :

VERTICAL RUN :

Type: MACX650

Length, ft. : 1000

Attenuation , dB/100 ft: 0.119

ANTENNA INPUT :

kW : 28.15

dBk : 14.49

HORIZONTAL RUN :

Type: MACX650

Length, ft. : 100

Attenuation , dB/100 ft: 0.119

LINE LOSS :

kW : 9.90

dB : 1.31

OTHER LINE LOSSES:

Type: N/A

Length, ft. : 0

Attenuation , dB/100 ft: 0

Line Efficiency : 73.98%

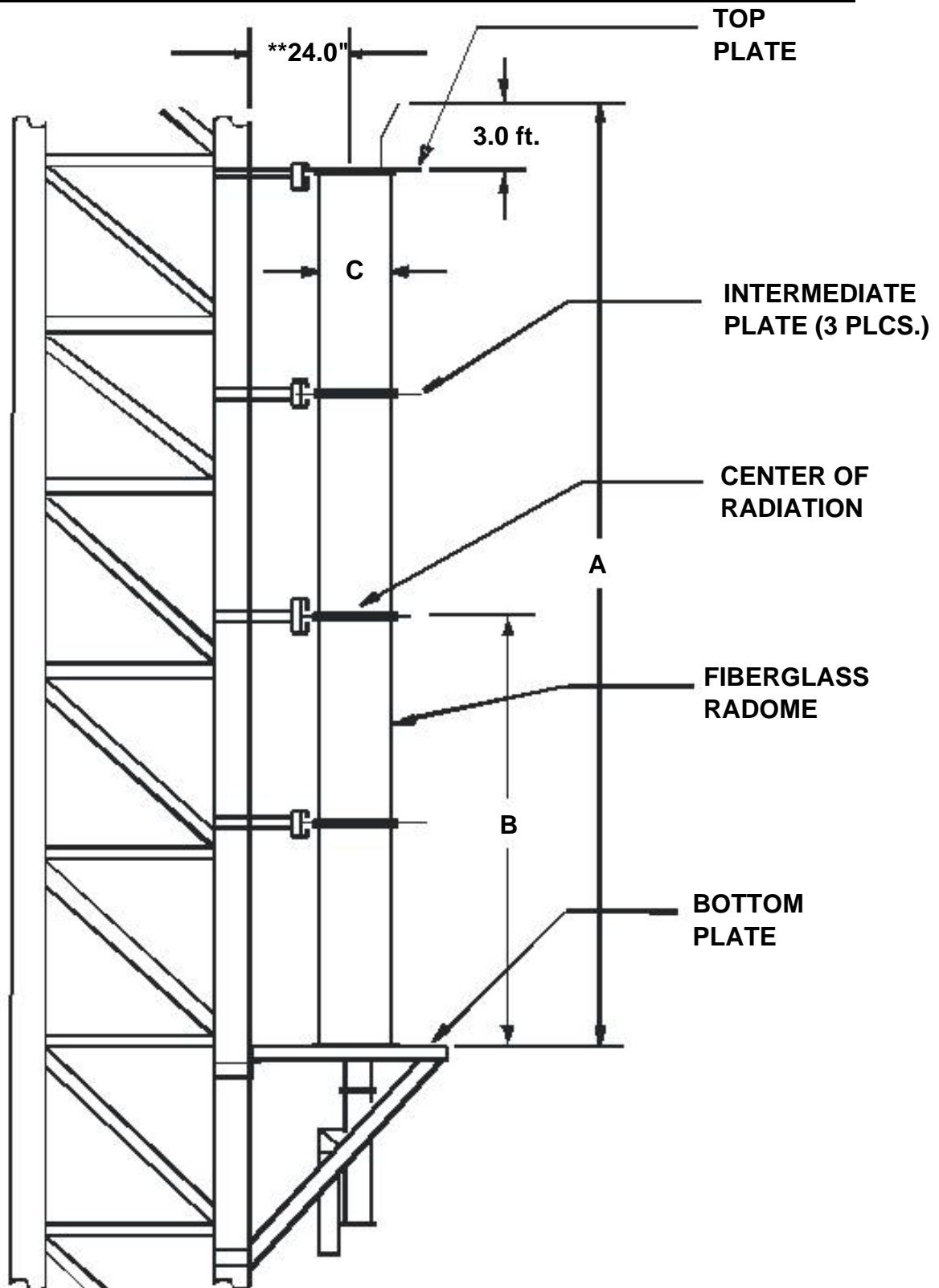
**TRANSMITTER
POWER :**

kW : 38.05

dBk : 15.80

TYPICAL MOUNTING CONFIGURATION SHOWN. ACTUAL CONFIGURATION MAY VARY.

SIDE MOUNT ANTENNA DIMENSIONS AND TOWER ATTACHMENT DETAILS



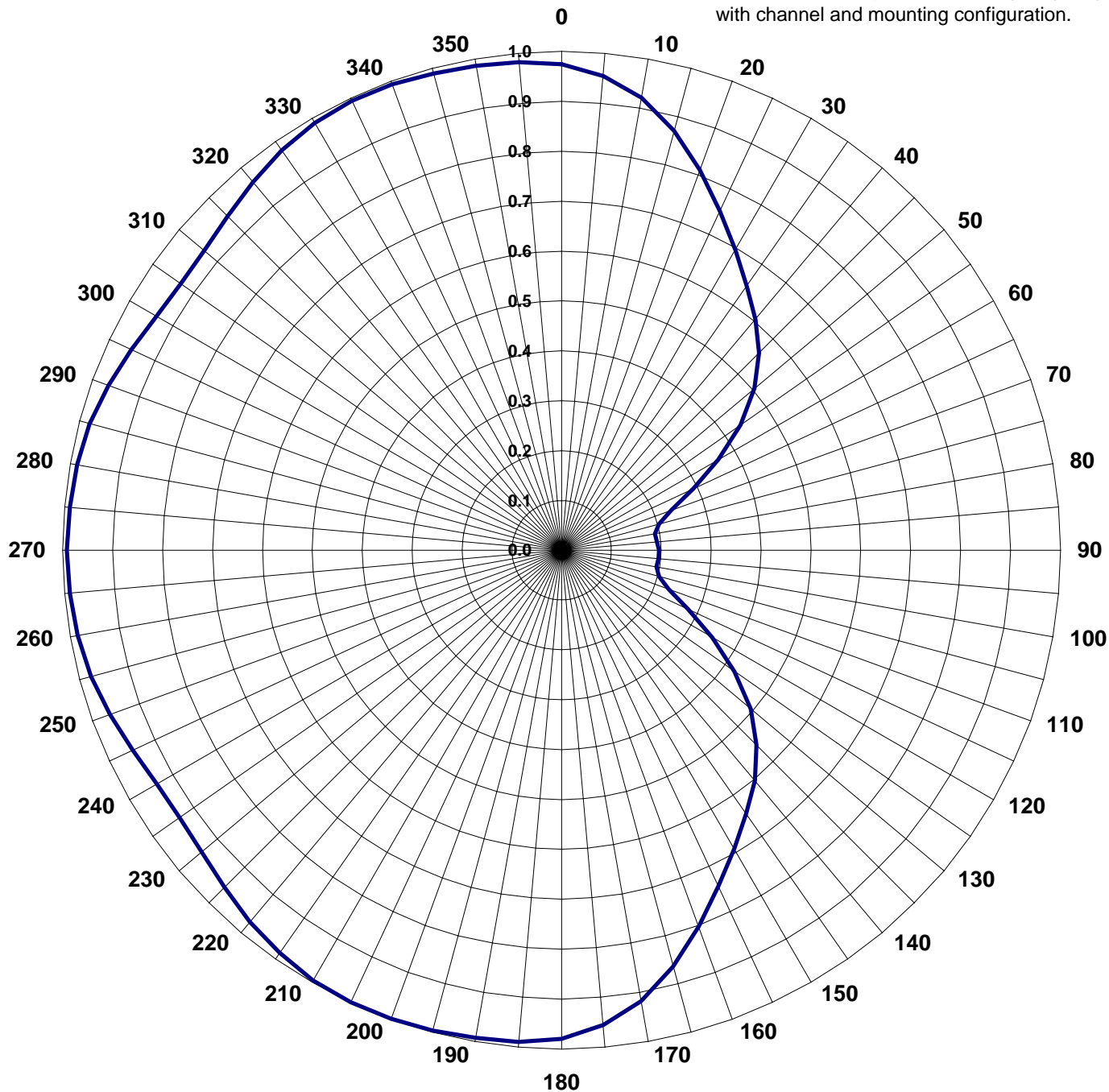
**TOWER AND MOUNT
NOT PROVIDED**

**** RECOMMENDED MINIMUM SPACING**

AZIMUTH PATTERN

TYPE:	CH31HAZ-C1	
	Numeric	dB
Directivity:	1.77	2.48
Peak(s) at:		
Polarization:	Horizontal	
Frequency:	31 (Digital)	
Location:	Longview, TX	

Note: Pattern shape and directivity may vary with channel and mounting configuration.



TABULATED DATA FOR AZIMUTH PATTERN

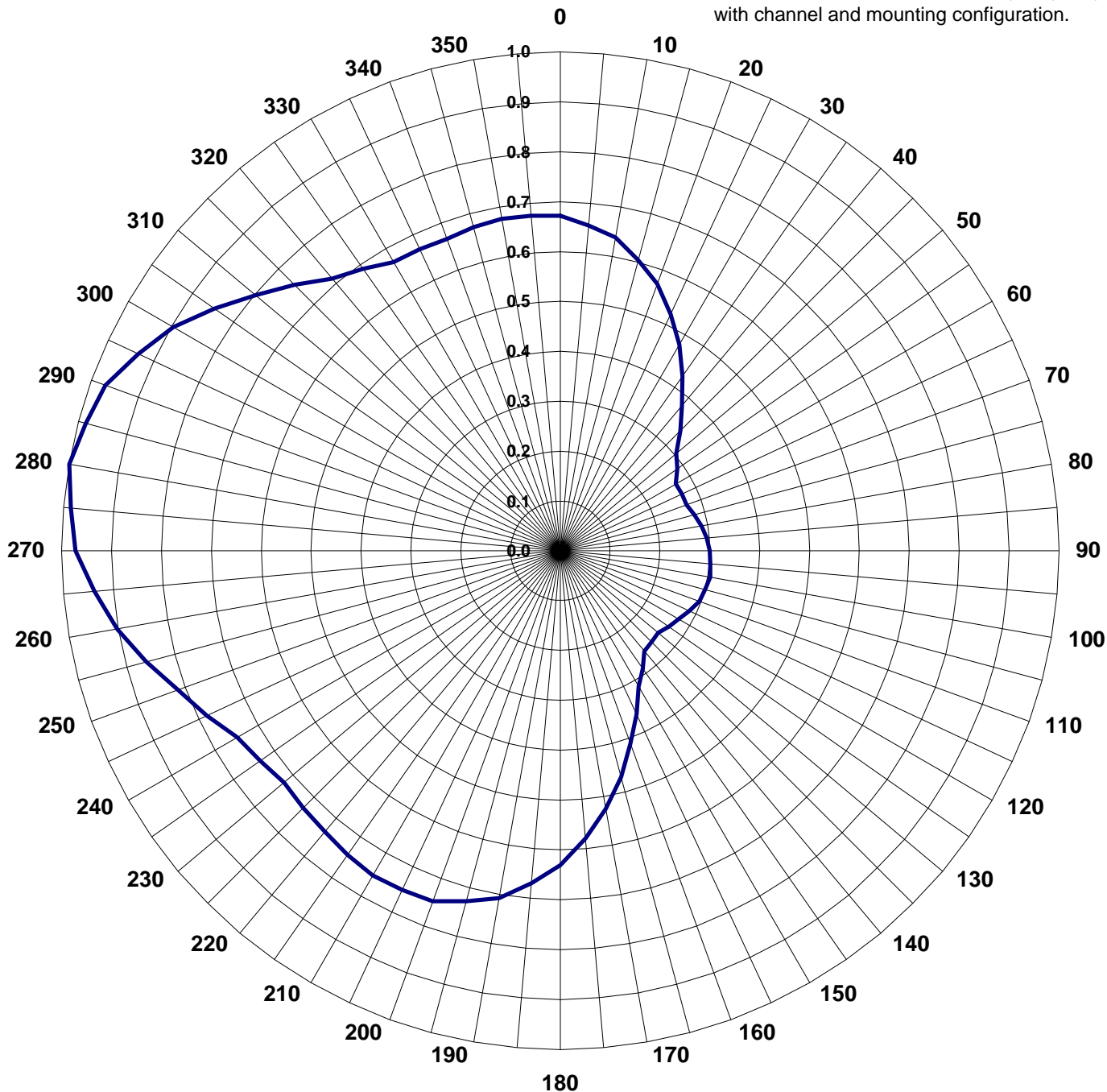
TYPE: CH31HAZ-C1

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

AZIMUTH PATTERN

TYPE:	CH31VAZ	
	Numeric	dB
Directivity:	1.77	2.48
Peak(s) at:		
Polarization:	Horizontal	
Frequency:	31 (Digital)	
Location:	Longview, TX	

Note: Pattern shape and directivity may vary with channel and mounting configuration.



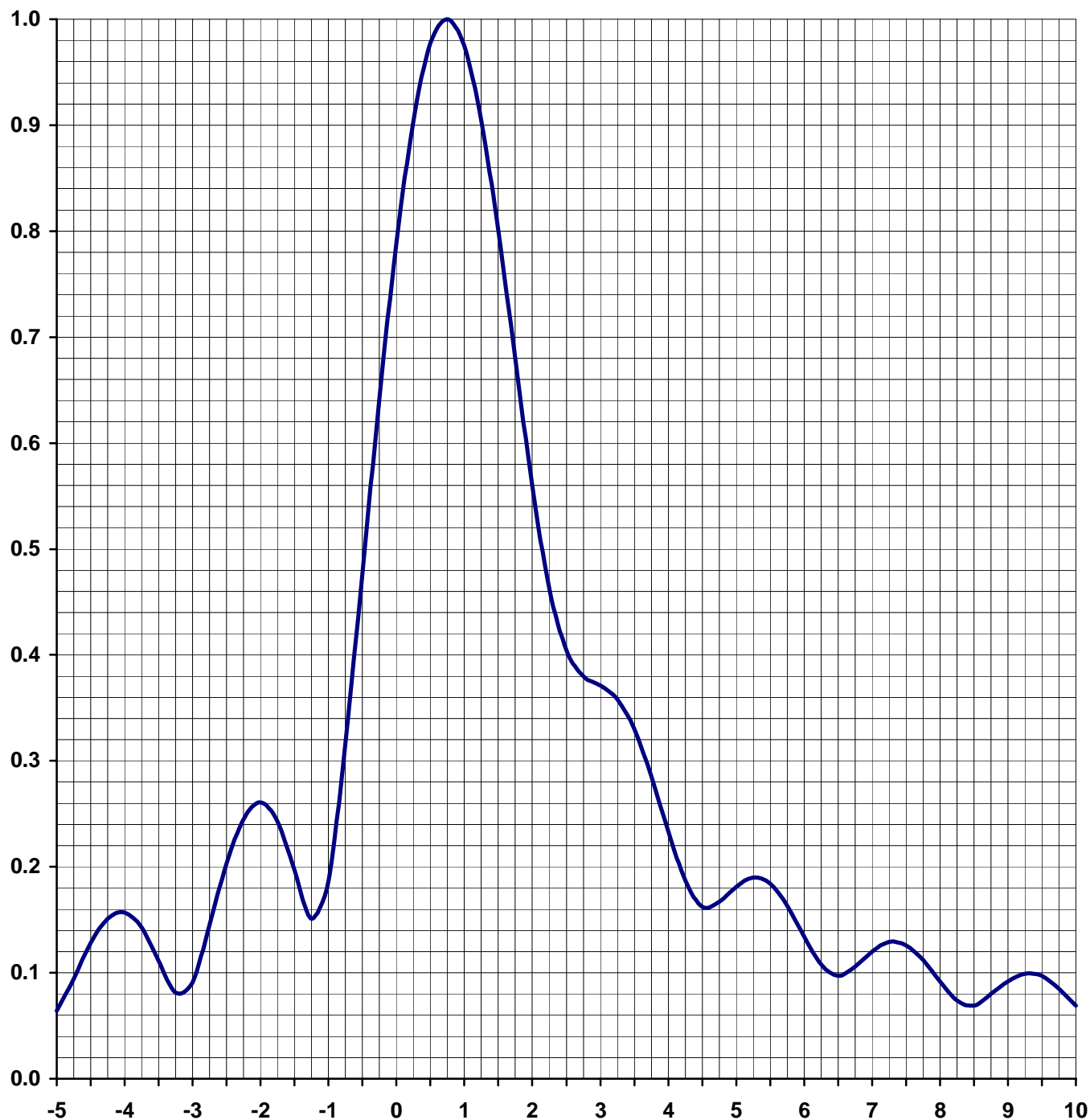
TABULATED DATA FOR AZIMUTH PATTERN

TYPE: CH31VAZ

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	0.672	-3.45	92	0.301	-10.43	184	0.661	-3.60	276	0.989	-0.10
2	0.665	-3.54	94	0.302	-10.40	186	0.676	-3.40	278	0.994	-0.05
4	0.658	-3.64	96	0.303	-10.37	188	0.692	-3.20	280	1.000	0.00
6	0.651	-3.73	98	0.304	-10.34	190	0.707	-3.01	282	0.994	-0.05
8	0.644	-3.82	100	0.305	-10.31	192	0.715	-2.91	284	0.988	-0.10
10	0.637	-3.92	102	0.303	-10.37	194	0.723	-2.82	286	0.983	-0.15
12	0.623	-4.11	104	0.302	-10.40	196	0.732	-2.71	288	0.977	-0.20
14	0.610	-4.29	106	0.300	-10.46	198	0.740	-2.62	290	0.971	-0.26
16	0.596	-4.50	108	0.299	-10.49	200	0.748	-2.52	292	0.956	-0.39
18	0.583	-4.69	110	0.297	-10.54	202	0.749	-2.51	294	0.941	-0.53
20	0.569	-4.90	112	0.292	-10.69	204	0.750	-2.50	296	0.926	-0.67
22	0.551	-5.18	114	0.288	-10.81	206	0.750	-2.50	298	0.911	-0.81
24	0.532	-5.48	116	0.283	-10.96	208	0.751	-2.49	300	0.896	-0.95
26	0.514	-5.78	118	0.279	-11.09	210	0.752	-2.48	302	0.876	-1.15
28	0.495	-6.11	120	0.274	-11.24	212	0.749	-2.51	304	0.856	-1.35
30	0.477	-6.43	122	0.270	-11.37	214	0.745	-2.56	306	0.837	-1.55
32	0.457	-6.80	124	0.267	-11.47	216	0.742	-2.59	308	0.817	-1.76
34	0.438	-7.17	126	0.263	-11.60	218	0.738	-2.64	310	0.797	-1.97
36	0.418	-7.58	128	0.260	-11.70	220	0.735	-2.67	312	0.780	-2.16
38	0.399	-7.98	130	0.256	-11.84	222	0.733	-2.70	314	0.763	-2.35
40	0.379	-8.43	132	0.257	-11.80	224	0.730	-2.73	316	0.746	-2.55
42	0.364	-8.78	134	0.258	-11.77	226	0.728	-2.76	318	0.729	-2.75
44	0.349	-9.14	136	0.260	-11.70	228	0.725	-2.79	320	0.712	-2.95
46	0.334	-9.53	138	0.261	-11.67	230	0.723	-2.82	322	0.703	-3.06
48	0.319	-9.92	140	0.262	-11.63	232	0.728	-2.76	324	0.694	-3.17
50	0.304	-10.34	142	0.272	-11.31	234	0.733	-2.70	326	0.686	-3.27
52	0.297	-10.54	144	0.283	-10.96	236	0.738	-2.64	328	0.677	-3.39
54	0.290	-10.75	146	0.293	-10.66	238	0.743	-2.58	330	0.668	-3.50
56	0.282	-11.00	148	0.304	-10.34	240	0.748	-2.52	332	0.667	-3.52
58	0.275	-11.21	150	0.314	-10.06	242	0.762	-2.36	334	0.667	-3.52
60	0.268	-11.44	152	0.333	-9.55	244	0.775	-2.21	336	0.666	-3.53
62	0.268	-11.44	154	0.353	-9.04	246	0.789	-2.06	338	0.666	-3.53
64	0.269	-11.40	156	0.372	-8.59	248	0.802	-1.92	340	0.665	-3.54
66	0.269	-11.40	158	0.392	-8.13	250	0.816	-1.77	342	0.667	-3.52
68	0.270	-11.37	160	0.411	-7.72	252	0.833	-1.59	344	0.669	-3.49
70	0.270	-11.37	162	0.434	-7.25	254	0.850	-1.41	346	0.672	-3.45
72	0.273	-11.28	164	0.457	-6.80	256	0.868	-1.23	348	0.674	-3.43
74	0.277	-11.15	166	0.480	-6.38	258	0.885	-1.06	350	0.676	-3.40
76	0.280	-11.06	168	0.503	-5.97	260	0.902	-0.90	352	0.675	-3.41
78	0.284	-10.93	170	0.526	-5.58	262	0.916	-0.76	354	0.674	-3.43
80	0.287	-10.84	172	0.547	-5.24	264	0.930	-0.63	356	0.674	-3.43
82	0.290	-10.75	174	0.568	-4.91	266	0.944	-0.50	358	0.673	-3.44
84	0.292	-10.69	176	0.588	-4.61	268	0.958	-0.37	360	0.672	-3.45
86	0.295	-10.60	178	0.609	-4.31	270	0.972	-0.25			
88	0.297	-10.54	180	0.630	-4.01	272	0.978	-0.19			
90	0.300	-10.46	182	0.645	-3.81	274	0.983	-0.15			

ELEVATION PATTERN

TYPE:	ATW27H3H	
Directivity:	Numeric	dBd
Main Lobe:	27.00	14.31
Horizontal:	16.77	12.24
Beam Tilt:	0.75	
Polarization:	Horizontal	
Frequency:	31 (Digital)	
Location:	Longview, TX	

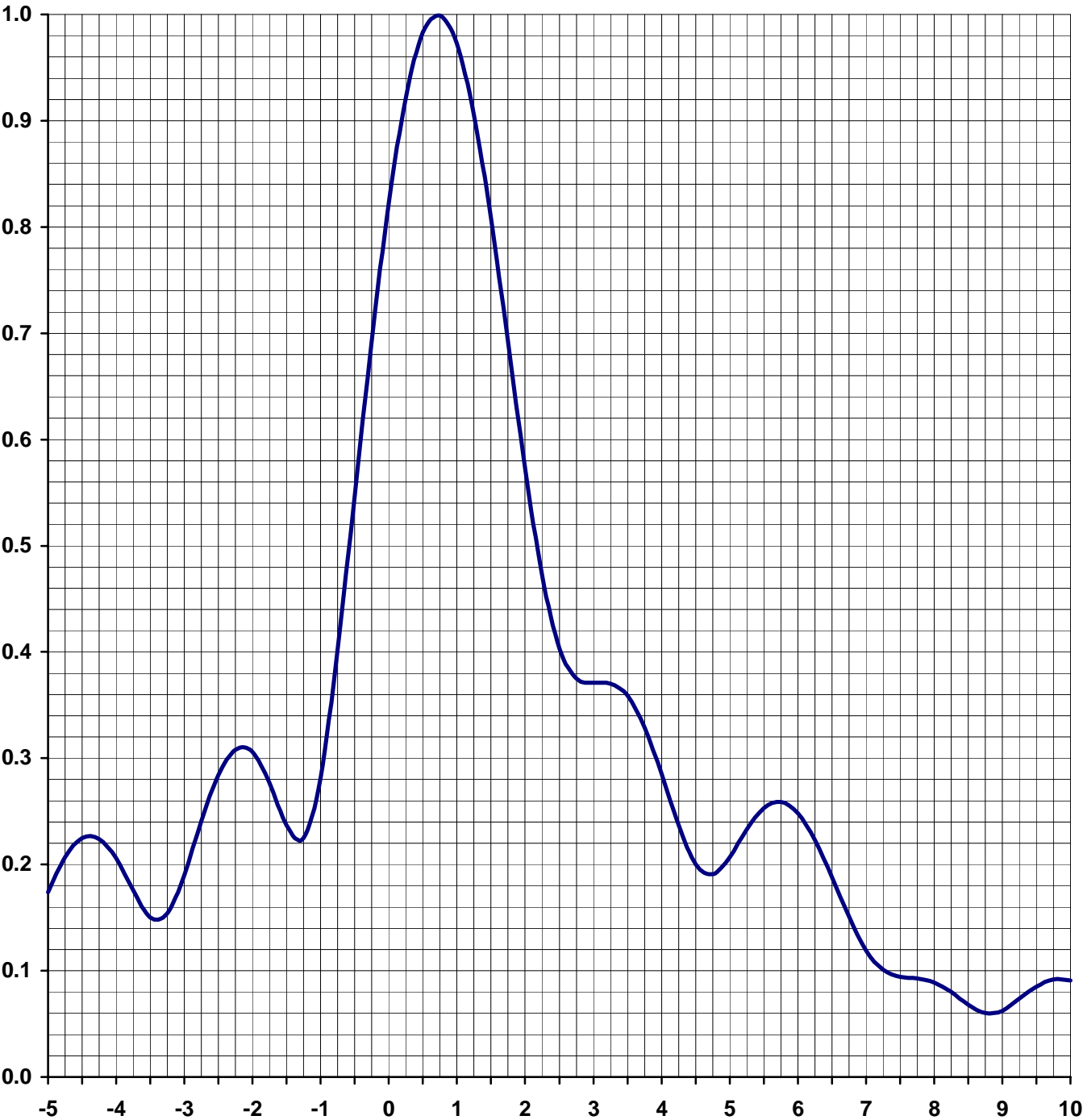


TABULATED DATA FOR ELEVATION PATTERN**TYPE: ATW27H3H****-5 to 10 degrees in 0.25 increments****10 to 90 degrees in 0.50 increments**

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-5.00	0.064	-23.88	6.75	0.106	-19.49	27.00	0.023	-32.77	50.50	0.034	-29.37	74.00	0.006	-44.44
-4.75	0.094	-20.54	7.00	0.120	-18.42	27.50	0.034	-29.37	51.00	0.031	-30.17	74.50	0.012	-38.42
-4.50	0.128	-17.86	7.25	0.129	-17.79	28.00	0.037	-28.64	51.50	0.023	-32.77	75.00	0.019	-34.42
-4.25	0.151	-16.42	7.50	0.126	-17.99	28.50	0.027	-31.37	52.00	0.014	-37.08	75.50	0.027	-31.37
-4.00	0.157	-16.08	7.75	0.112	-19.02	29.00	0.019	-34.42	52.50	0.018	-34.89	76.00	0.033	-29.63
-3.75	0.143	-16.89	8.00	0.092	-20.72	29.50	0.028	-31.06	53.00	0.028	-31.06	76.50	0.037	-28.64
-3.50	0.111	-19.09	8.25	0.074	-22.62	30.00	0.036	-28.87	53.50	0.034	-29.37	77.00	0.041	-27.74
-3.25	0.081	-21.83	8.50	0.069	-23.22	30.50	0.031	-30.17	54.00	0.034	-29.37	77.50	0.042	-27.54
-3.00	0.091	-20.82	8.75	0.080	-21.94	31.00	0.020	-33.98	54.50	0.028	-31.06	78.00	0.043	-27.33
-2.75	0.145	-16.77	9.00	0.092	-20.72	31.50	0.022	-33.15	55.00	0.018	-34.89	78.50	0.042	-27.54
-2.50	0.203	-13.85	9.25	0.099	-20.09	32.00	0.032	-29.90	55.50	0.014	-37.08	79.00	0.041	-27.74
-2.25	0.245	-12.22	9.50	0.097	-20.26	32.50	0.034	-29.37	56.00	0.022	-33.15	79.50	0.038	-28.40
-2.00	0.261	-11.67	9.75	0.085	-21.41	33.00	0.025	-32.04	56.50	0.031	-30.17	80.00	0.035	-29.12
-1.75	0.243	-12.29	10.00	0.069	-23.22	33.50	0.017	-35.39	57.00	0.036	-28.87	80.50	0.032	-29.90
-1.50	0.197	-14.11	10.50	0.054	-25.35	34.00	0.025	-32.04	57.50	0.035	-29.12	81.00	0.028	-31.06
-1.25	0.151	-16.42	11.00	0.075	-22.50	34.50	0.033	-29.63	58.00	0.029	-30.75	81.50	0.024	-32.40
-1.00	0.186	-14.61	11.50	0.078	-22.16	35.00	0.031	-30.17	58.50	0.019	-34.42	82.00	0.020	-33.98
-0.75	0.316	-10.01	12.00	0.056	-25.04	35.50	0.021	-33.56	59.00	0.013	-37.72	82.50	0.016	-35.92
-0.50	0.476	-6.45	12.50	0.046	-26.74	36.00	0.017	-35.39	59.50	0.019	-34.42	83.00	0.013	-37.72
-0.25	0.641	-3.86	13.00	0.064	-23.88	36.50	0.027	-31.37	60.00	0.028	-31.06	83.50	0.009	-40.92
0.00	0.788	-2.07	13.50	0.066	-23.61	37.00	0.033	-29.63	60.50	0.036	-28.87	84.00	0.007	-43.10
0.25	0.903	-0.89	14.00	0.046	-26.74	37.50	0.029	-30.75	61.00	0.038	-28.40	84.50	0.004	-47.96
0.50	0.977	-0.20	14.50	0.039	-28.18	38.00	0.019	-34.42	61.50	0.036	-28.87	85.00	0.002	-53.98
0.75	1.000	0.00	15.00	0.056	-25.04	38.50	0.018	-34.89	62.00	0.029	-30.75	85.50	0.001	-60.00
1.00	0.975	-0.22	15.50	0.058	-24.73	39.00	0.028	-31.06	62.50	0.019	-34.42	86.00	0.001	-60.00
1.25	0.905	-0.87	16.00	0.041	-27.74	39.50	0.033	-29.63	63.00	0.012	-38.42	86.50	0.001	-60.00
1.50	0.802	-1.92	16.50	0.034	-29.37	40.00	0.029	-30.75	63.50	0.017	-35.39	87.00	0.002	-53.98
1.75	0.681	-3.34	17.00	0.049	-26.20	40.50	0.019	-34.42	64.00	0.026	-31.70	87.50	0.002	-53.98
2.00	0.561	-5.02	17.50	0.052	-25.68	41.00	0.017	-35.39	64.50	0.035	-29.12	88.00	0.002	-53.98
2.25	0.464	-6.67	18.00	0.038	-28.40	41.50	0.027	-31.37	65.00	0.040	-27.96	88.50	0.002	-53.98
2.50	0.404	-7.87	18.50	0.029	-30.75	42.00	0.033	-29.63	65.50	0.041	-27.74	89.00	0.001	-60.00
2.75	0.380	-8.40	19.00	0.043	-27.33	42.50	0.030	-30.46	66.00	0.038	-28.40	89.50	0.001	-60.00
3.00	0.371	-8.61	19.50	0.048	-26.38	43.00	0.020	-33.98	66.50	0.031	-30.17	90.00	0.000	0.00
3.25	0.358	-8.92	20.00	0.036	-28.87	43.50	0.015	-36.48	67.00	0.022	-33.15			
3.50	0.330	-9.63	20.50	0.026	-31.70	44.00	0.023	-32.77	67.50	0.013	-37.72			
3.75	0.285	-10.90	21.00	0.038	-28.40	44.50	0.032	-29.90	68.00	0.011	-39.17			
4.00	0.233	-12.65	21.50	0.044	-27.13	45.00	0.032	-29.90	68.50	0.019	-34.42			
4.25	0.187	-14.56	22.00	0.034	-29.37	45.50	0.025	-32.04	69.00	0.029	-30.75			
4.50	0.162	-15.81	22.50	0.024	-32.40	46.00	0.015	-36.48	69.50	0.036	-28.87			
4.75	0.167	-15.55	23.00	0.033	-29.63	46.50	0.018	-34.89	70.00	0.042	-27.54			
5.00	0.181	-14.85	23.50	0.041	-27.74	47.00	0.028	-31.06	70.50	0.044	-27.13			
5.25	0.190	-14.42	24.00	0.035	-29.12	47.50	0.033	-29.63	71.00	0.044	-27.13			
5.50	0.184	-14.70	24.50	0.023	-32.77	48.00	0.031	-30.17	71.50	0.040	-27.96			
5.75	0.163	-15.76	25.00	0.029	-30.75	48.50	0.022	-33.15	72.00	0.035	-29.12			
6.00	0.134	-17.46	25.50	0.039	-28.18	49.00	0.014	-37.08	72.50	0.028	-31.06			
6.25	0.108	-19.33	26.00	0.036	-28.87	49.50	0.020	-33.98	73.00	0.019	-34.42			
6.50	0.097	-20.26	26.50	0.024	-32.40	50.00	0.029	-30.75	73.50	0.011	-39.17			

ELEVATION PATTERN

TYPE:	ATW24H3V	
Directivity:	Numeric	dBd
Main Lobe:	26.00	14.15
Horizontal:	14.82	11.71
Beam Tilt:	0.75	
Polarization:	Horizontal	
Frequency:	31 (Digital)	
Location:	Longview, TX	



TABULATED DATA FOR ELEVATION PATTERN

TYPE: ATW24H3V

-5 to 10 degrees in 0.25 increments

10 to 90 degrees in 0.50 increments

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-5.00	0.174	-15.19	6.75	0.151	-16.42	27.00	0.018	-34.89	50.50	0.026	-31.70	74.00	0.028	-31.06
-4.75	0.207	-13.68	7.00	0.119	-18.49	27.50	0.023	-32.77	51.00	0.023	-32.77	74.50	0.032	-29.90
-4.50	0.225	-12.96	7.25	0.101	-19.91	28.00	0.028	-31.06	51.50	0.028	-31.06	75.00	0.037	-28.64
-4.25	0.224	-13.00	7.50	0.094	-20.54	28.50	0.019	-34.42	52.00	0.033	-29.63	75.50	0.042	-27.54
-4.00	0.206	-13.72	7.75	0.093	-20.63	29.00	0.003	-50.46	52.50	0.034	-29.37	76.00	0.046	-26.74
-3.75	0.176	-15.09	8.00	0.089	-21.01	29.50	0.022	-33.15	53.00	0.028	-31.06	76.50	0.048	-26.38
-3.50	0.150	-16.48	8.25	0.080	-21.94	30.00	0.040	-27.96	53.50	0.017	-35.39	77.00	0.050	-26.02
-3.25	0.154	-16.25	8.50	0.068	-23.35	30.50	0.054	-25.35	54.00	0.008	-41.94	77.50	0.050	-26.02
-3.00	0.190	-14.42	8.75	0.060	-24.44	31.00	0.066	-23.61	54.50	0.020	-33.98	78.00	0.049	-26.20
-2.75	0.241	-12.36	9.00	0.062	-24.15	31.50	0.077	-22.27	55.00	0.035	-29.12	78.50	0.048	-26.38
-2.50	0.284	-10.93	9.25	0.074	-22.62	32.00	0.084	-21.51	55.50	0.046	-26.74	79.00	0.045	-26.94
-2.25	0.308	-10.23	9.50	0.085	-21.41	32.50	0.081	-21.83	56.00	0.053	-25.51	79.50	0.042	-27.54
-2.00	0.306	-10.29	9.75	0.092	-20.72	33.00	0.066	-23.61	56.50	0.055	-25.19	80.00	0.038	-28.40
-1.75	0.277	-11.15	10.00	0.091	-20.82	33.50	0.042	-27.54	57.00	0.052	-25.68	80.50	0.034	-29.37
-1.50	0.237	-12.51	10.50	0.075	-22.50	34.00	0.020	-33.98	57.50	0.048	-26.38	81.00	0.030	-30.46
-1.25	0.225	-12.96	11.00	0.084	-21.51	34.50	0.019	-34.42	58.00	0.046	-26.74	81.50	0.026	-31.70
-1.00	0.281	-11.03	11.50	0.125	-18.06	35.00	0.028	-31.06	58.50	0.046	-26.74	82.00	0.022	-33.15
-0.75	0.402	-7.92	12.00	0.151	-16.42	35.50	0.027	-31.37	59.00	0.048	-26.38	82.50	0.019	-34.42
-0.50	0.546	-5.26	12.50	0.141	-17.02	36.00	0.016	-35.92	59.50	0.049	-26.20	83.00	0.016	-35.92
-0.25	0.692	-3.20	13.00	0.101	-19.91	36.50	0.012	-38.42	60.00	0.049	-26.20	83.50	0.013	-37.72
0.00	0.822	-1.70	13.50	0.054	-25.35	37.00	0.029	-30.75	60.50	0.045	-26.94	84.00	0.011	-39.17
0.25	0.921	-0.71	14.00	0.034	-29.37	37.50	0.045	-26.94	61.00	0.039	-28.18	84.50	0.009	-40.92
0.50	0.983	-0.15	14.50	0.037	-28.64	38.00	0.056	-25.04	61.50	0.032	-29.90	85.00	0.008	-41.94
0.75	0.999	-0.01	15.00	0.029	-30.75	38.50	0.063	-24.01	62.00	0.026	-31.70	85.50	0.007	-43.10
1.00	0.973	-0.24	15.50	0.027	-31.37	39.00	0.067	-23.48	62.50	0.026	-31.70	86.00	0.006	-44.44
1.25	0.906	-0.86	16.00	0.040	-27.96	39.50	0.070	-23.10	63.00	0.030	-30.46	86.50	0.006	-44.44
1.50	0.809	-1.84	16.50	0.048	-26.38	40.00	0.069	-23.22	63.50	0.035	-29.12	87.00	0.005	-46.02
1.75	0.693	-3.19	17.00	0.055	-25.19	40.50	0.061	-24.29	64.00	0.038	-28.40	87.50	0.004	-47.96
2.00	0.574	-4.82	17.50	0.079	-22.05	41.00	0.046	-26.74	64.50	0.037	-28.64	88.00	0.004	-47.96
2.25	0.473	-6.50	18.00	0.106	-19.49	41.50	0.028	-31.06	65.00	0.033	-29.63	88.50	0.003	-50.46
2.50	0.403	-7.89	18.50	0.119	-18.49	42.00	0.020	-33.98	65.50	0.026	-31.70	89.00	0.002	-53.98
2.75	0.375	-8.52	19.00	0.108	-19.33	42.50	0.027	-31.37	66.00	0.016	-35.92	89.50	0.001	-60.00
3.00	0.371	-8.61	19.50	0.076	-22.38	43.00	0.033	-29.63	66.50	0.004	-47.96	90.00	0.000	---
3.25	0.370	-8.64	20.00	0.038	-28.40	43.50	0.031	-30.17	67.00	0.009	-40.92			
3.50	0.359	-8.90	20.50	0.019	-34.42	44.00	0.021	-33.56	67.50	0.022	-33.15			
3.75	0.329	-9.66	21.00	0.026	-31.70	44.50	0.012	-38.42	68.00	0.033	-29.63			
4.00	0.285	-10.90	21.50	0.022	-33.15	45.00	0.024	-32.40	68.50	0.043	-27.33			
4.25	0.237	-12.51	22.00	0.011	-39.17	45.50	0.039	-28.18	69.00	0.050	-26.02			
4.50	0.200	-13.98	22.50	0.021	-33.56	46.00	0.050	-26.02	69.50	0.054	-25.35			
4.75	0.191	-14.38	23.00	0.037	-28.64	46.50	0.056	-25.04	70.00	0.055	-25.19			
5.00	0.207	-13.68	23.50	0.051	-25.85	47.00	0.057	-24.88	70.50	0.054	-25.35			
5.25	0.233	-12.65	24.00	0.069	-23.22	47.50	0.057	-24.88	71.00	0.050	-26.02			
5.50	0.253	-11.94	24.50	0.088	-21.11	48.00	0.058	-24.73	71.50	0.045	-26.94			
5.75	0.259	-11.73	25.00	0.100	-20.00	48.50	0.058	-24.73	72.00	0.039	-28.18			
6.00	0.248	-12.11	25.50	0.096	-20.35	49.00	0.055	-25.19	72.50	0.032	-29.90			
6.25	0.223	-13.03	26.00	0.075	-22.50	49.50	0.048	-26.38	73.00	0.028	-31.06			
6.50	0.188	-14.52	26.50	0.044	-27.13	50.00	0.037	-28.64	73.50	0.026	-31.70			