ELECTRONICS RESEARCH, INC. ERI®

PRELIMINARY SPECIFICATION FOR TRASAR ® HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

Prepared for
KVYE-DT Channel 22 El Centro, CA
April 11, 2006

ANTENNA TYPE:
ATW25H3-HTC2-22H

SPECIFICATION NO :
LJS101800-756 RevC

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PRELIMINARY SPECIFICATION FOR TRASAR ® HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

ELECTRICAL CHARACTERISTICS:

CHANNEL :	DTV:	22
FREQUENCY RANGE :	DTV:	518 - 524 MHz
AZIMUTH PATTERN NUMBER :		ATW-C2
ELEVATION PATTERN NUMBER :		ATW25H3H
AZIMUTH DIRECTIVITY :		1.80 (2.55 dBd)
ELEVATION DIRECTIVITY :		25.00 (13.98 dBd)
PEAK POWER GAIN :		45.00 (16.53 dBd)
GAIN AT HORIZONTAL :		30.33 (14.82 dBd)
ELECTRICAL BEAM TILT :		0.75 Degrees
INPUT POWER REQUIRED :		22.22 kW (13.47 dBk)
INPUT TYPE :		6 1/8-75 Ohm
INPUT POWER (MAXIMUM) :		90 kW Average, 8VSB Digital
ANTENNA VSWR (MAXIMUM) :	DTV:	1.10 Over 6MHz Channel

PRELIMINARY SPECIFICATION FOR TRASAR ® HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

MECHANICAL CHARACTERISTICS:

MOUNTING CONFIGURATION: ****(Tower Interface supplied and installed by others)***	*Top Mount*
HEIGHT OF ANTENNA :	*53.79 feet*
HEIGHT OF CENTER OF RADIATION (B) :	*26.90 feet*
OVERALL HEIGHT (A) : *(Includes two 3-foot Lightning Rods)*	*56.79 feet*
DEICING :	*Pressurized Radome Enclosure*
RADOME DIAMETER (C):	*14.40 inches, OD*
RADOME COLOR :	*AVIATION ORANGE (Standard)*
CLIMBING DEVICE :	*Galvanized Climbing Pole*
CALCULATED WEIGHT :	*7925.0 lbs*
With 0.5" Radial Ice:	*8680.0 lbs*
WINDLOAD DATA[2] : *CaAc :*	*75.0 sq.ft.*
With 0.5" Radial Ice:	*118.9 sq.ft.*
EFFECTIVE MOMENT ARM:	*26.9 feet*
BASE FLANGE DIMENSIONS	
BOLT CIRLE DIAMETER:	*21.50 in.*
BOLT DIAMETER:	*1.25 in.*
NO. OF BOLTS:	*16*

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 ±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.*

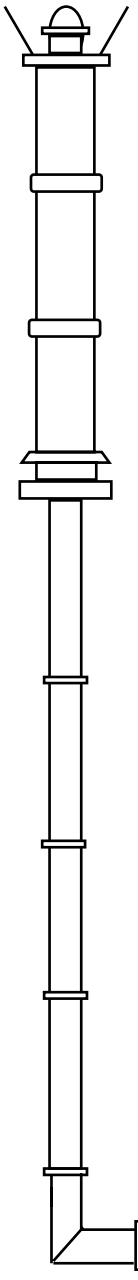
2 Based on a wind speed of 70 miles per hour (MPH) no ice and 61MPH with ice, a height above average terrain (HAAT) of 1,565 feet, and a height above ground level (HAGL) of 469 feet per EIA/TIA-222-F.

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

KVYE-DT Channel 22
El Centro, CA
ATW25H3-HTC2-22H



ANTENNA PARAMETERS :

Azimuth Directivity :
Hor. Pol : 1.80
dBd : 2.55

Elevation Directivity :
Hor. Pol : 25.00
dBd : 13.98

TRANSMISSION LINE :

VERTICAL RUN :
Type: MACX675B
Length, ft. : 450
Attenuation , dB/100 ft: 0.104

HORIZONTAL RUN :
Type: MACX675B
Length, ft. : 150
Attenuation , dB/100 ft: 0.104

OTHER LINE LOSSES:
Type: N/A
Length, ft. : 0
Attenuation , dB/100 ft: 0

Line Efficiency : 86.62%

ERP :
kW : 1000.00
dBk : 30.00

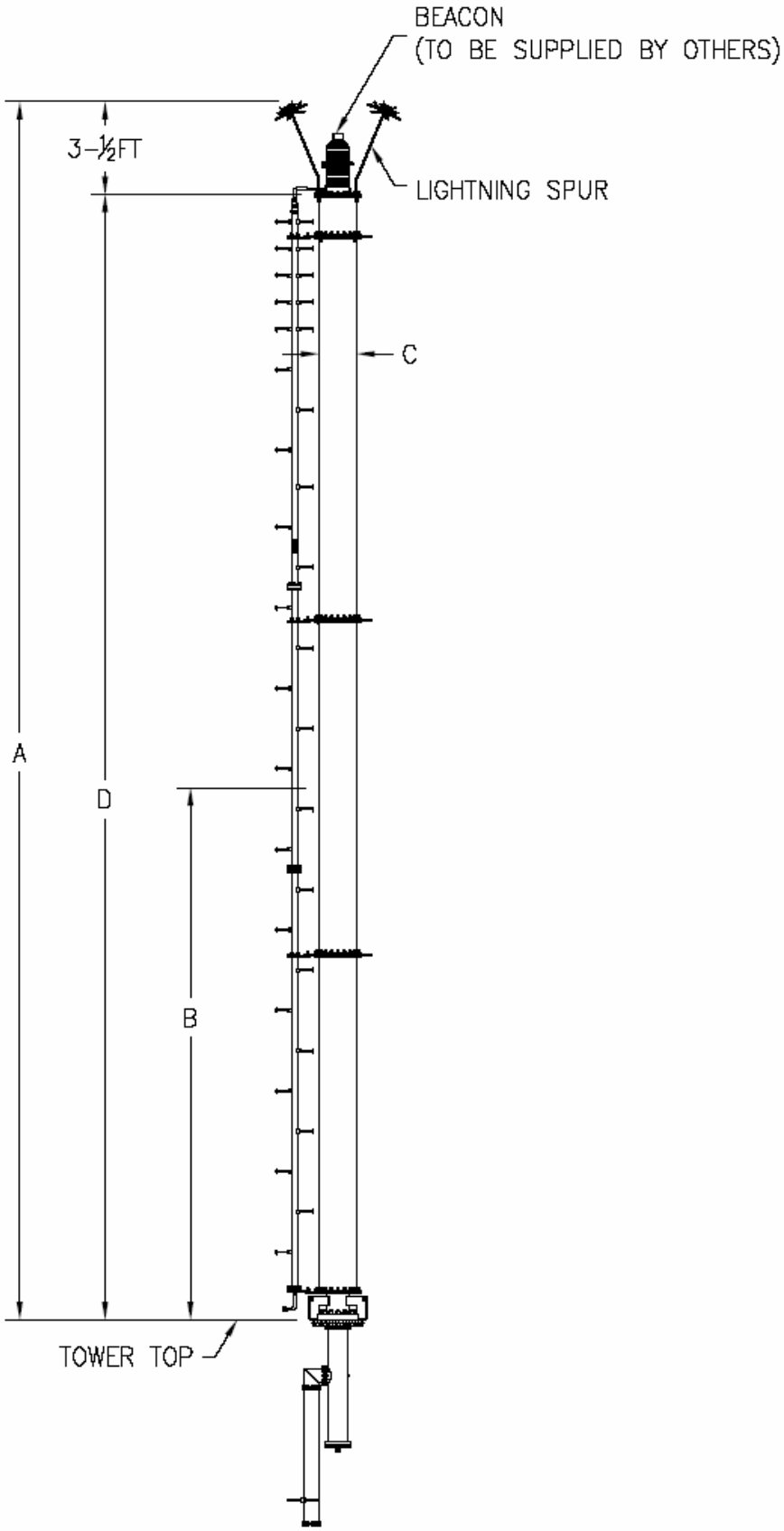
POWER GAIN :
Ratio : 45.00
dBd : 16.53

ANTENNA INPUT :
kW : 22.22
dBk : 13.47

LINE LOSS :
kW : 3.43
dB : 0.62

TRANSMITTER POWER :
kW : 25.66
dBk : 14.09

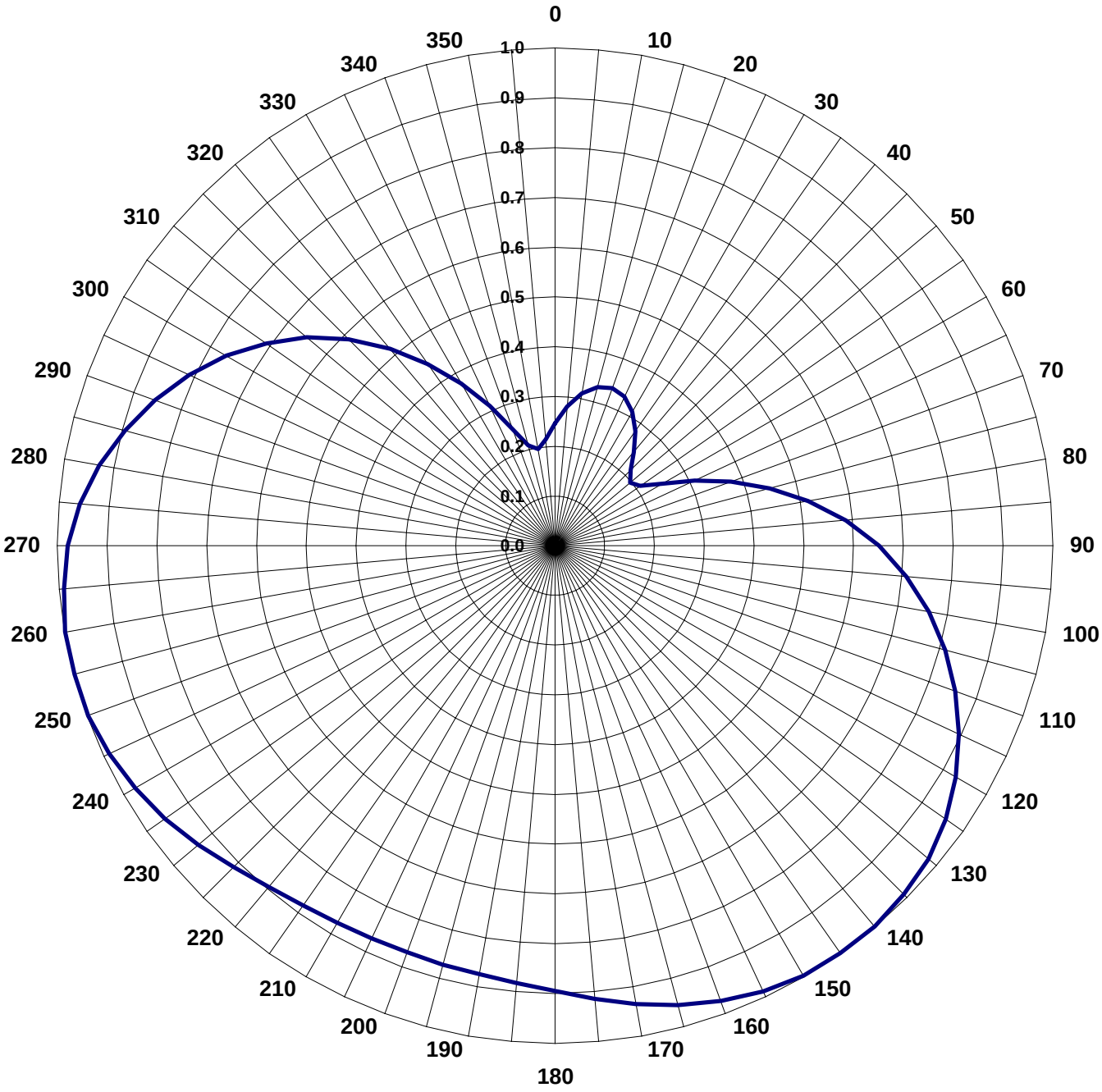
TYPICAL MOUNTING CONFIGURATION SHOWN. ACTUAL CONFIGURATION MAY VARY.



AZIMUTH PATTERN

TYPE:	**ATW-C2**		**Frequency:**	**22 (DTV)**
	Numeric	**dB**	**Location:**	**El Centro, CA**
Directivity:	**1.80**	**2.55**	**Polarization:**	**Horizontal**
Peak(s) at:				

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



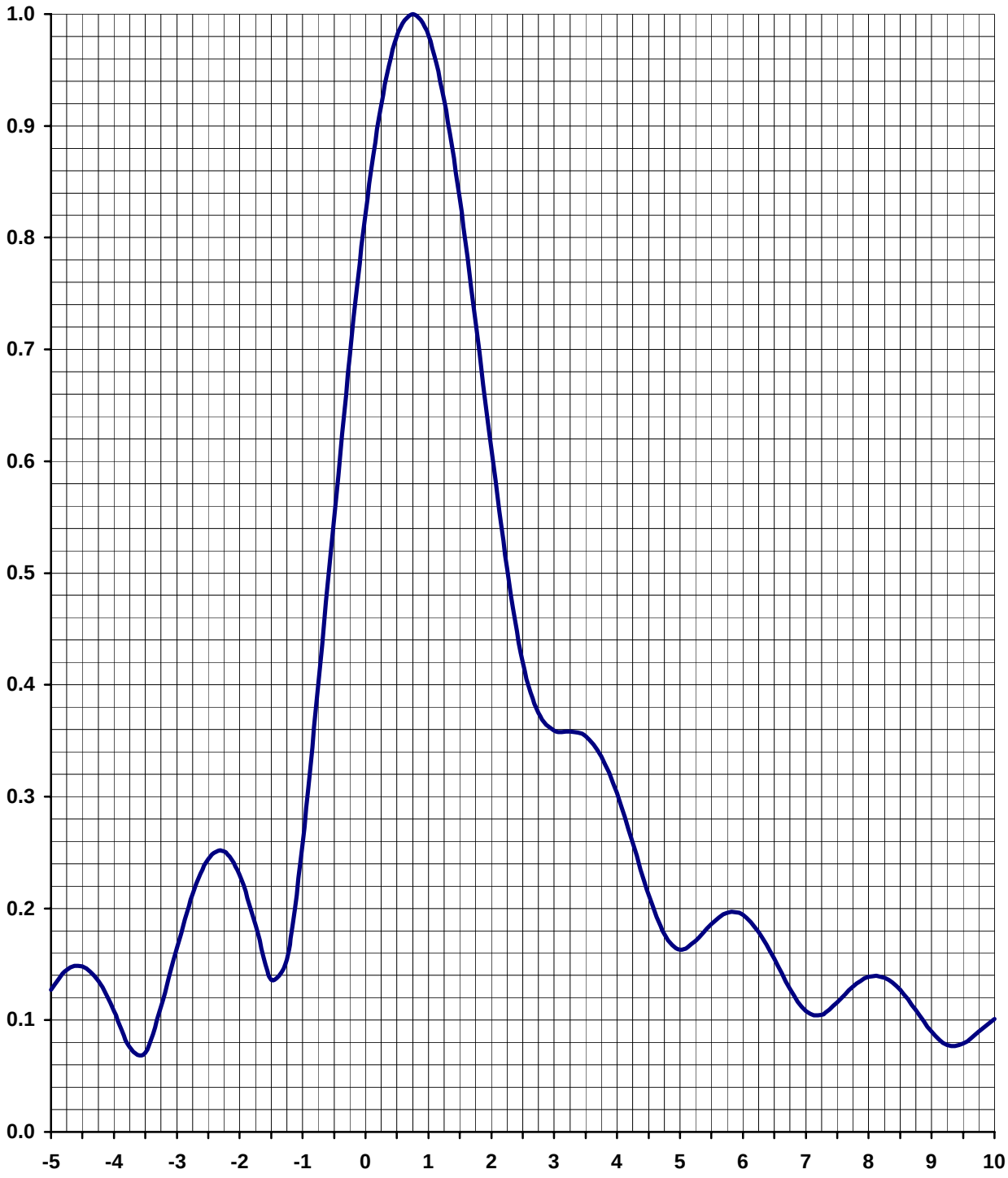
TABULATED DATA FOR AZIMUTH PATTERN

TYPE: ATW-C2

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	0.246	-12.18	92	0.675	-3.41	184	0.884	-1.07	276	0.953	-0.42
2	0.260	-11.70	94	0.698	-3.12	186	0.880	-1.11	278	0.942	-0.52
4	0.274	-11.24	96	0.720	-2.85	188	0.877	-1.14	280	0.929	-0.64
6	0.288	-10.81	98	0.741	-2.60	190	0.874	-1.17	282	0.916	-0.76
8	0.300	-10.46	100	0.763	-2.35	192	0.872	-1.19	284	0.901	-0.91
10	0.310	-10.17	102	0.784	-2.11	194	0.871	-1.20	286	0.888	-1.03
12	0.319	-9.92	104	0.802	-1.92	196	0.870	-1.21	288	0.872	-1.19
14	0.327	-9.71	106	0.821	-1.71	198	0.869	-1.22	290	0.856	-1.35
16	0.332	-9.58	108	0.838	-1.54	200	0.869	-1.22	292	0.838	-1.54
18	0.335	-9.50	110	0.856	-1.35	202	0.869	-1.22	294	0.821	-1.71
20	0.336	-9.47	112	0.872	-1.19	204	0.870	-1.21	296	0.802	-1.92
22	0.335	-9.50	114	0.888	-1.03	206	0.871	-1.20	298	0.784	-2.11
24	0.332	-9.58	116	0.901	-0.91	208	0.872	-1.19	300	0.763	-2.35
26	0.327	-9.71	118	0.916	-0.76	210	0.874	-1.17	302	0.741	-2.60
28	0.319	-9.92	120	0.929	-0.64	212	0.877	-1.14	304	0.720	-2.85
30	0.310	-10.17	122	0.942	-0.52	214	0.880	-1.11	306	0.698	-3.12
32	0.300	-10.46	124	0.953	-0.42	216	0.884	-1.07	308	0.675	-3.41
34	0.288	-10.81	126	0.962	-0.34	218	0.889	-1.02	310	0.651	-3.73
36	0.274	-11.24	128	0.972	-0.25	220	0.895	-0.96	312	0.627	-4.05
38	0.260	-11.70	130	0.979	-0.18	222	0.901	-0.91	314	0.601	-4.42
40	0.246	-12.18	132	0.986	-0.12	224	0.909	-0.83	316	0.573	-4.84
42	0.232	-12.69	134	0.989	-0.10	226	0.918	-0.74	318	0.545	-5.27
44	0.220	-13.15	136	0.992	-0.07	228	0.927	-0.66	320	0.516	-5.75
46	0.208	-13.64	138	0.995	-0.04	230	0.935	-0.58	322	0.488	-6.23
48	0.200	-13.98	140	0.999	-0.01	232	0.944	-0.50	324	0.460	-6.74
50	0.197	-14.11	142	0.999	-0.01	234	0.953	-0.42	326	0.432	-7.29
52	0.197	-14.11	144	1.000	0.00	236	0.960	-0.35	328	0.405	-7.85
54	0.203	-13.85	146	0.999	-0.01	238	0.967	-0.29	330	0.377	-8.47
56	0.215	-13.35	148	0.999	-0.01	240	0.974	-0.23	332	0.349	-9.14
58	0.231	-12.73	150	0.998	-0.02	242	0.980	-0.18	334	0.322	-9.84
60	0.249	-12.08	152	0.996	-0.03	244	0.986	-0.12	336	0.297	-10.54
62	0.272	-11.31	154	0.990	-0.09	246	0.990	-0.09	338	0.272	-11.31
64	0.297	-10.54	156	0.986	-0.12	248	0.996	-0.03	340	0.249	-12.08
66	0.322	-9.84	158	0.980	-0.18	250	0.998	-0.02	342	0.231	-12.73
68	0.349	-9.14	160	0.974	-0.23	252	0.999	-0.01	344	0.215	-13.35
70	0.377	-8.47	162	0.967	-0.29	254	0.999	-0.01	346	0.203	-13.85
72	0.405	-7.85	164	0.960	-0.35	256	1.000	0.00	348	0.197	-14.11
74	0.432	-7.29	166	0.953	-0.42	258	0.999	-0.01	350	0.197	-14.11
76	0.460	-6.74	168	0.944	-0.50	260	0.999	-0.01	352	0.200	-13.98
78	0.488	-6.23	170	0.935	-0.58	262	0.995	-0.04	354	0.208	-13.64
80	0.516	-5.75	172	0.927	-0.66	264	0.992	-0.07	356	0.220	-13.15
82	0.545	-5.27	174	0.918	-0.74	266	0.989	-0.10	358	0.232	-12.69
84	0.573	-4.84	176	0.909	-0.83	268	0.986	-0.12	360	0.246	-12.18
86	0.601	-4.42	178	0.901	-0.91	270	0.979	-0.18			
88	0.627	-4.05	180	0.895	-0.96	272	0.972	-0.25			
90	0.651	-3.73	182	0.889	-1.02	274	0.962	-0.34			

ELEVATION PATTERN

TYPE:	ATW25H3H		Frequency:	22 (DTV)
Directivity:	Numeric	dBd	Location:	El Centro, CA
Main Lobe:	25.00	13.98	Beam Tilt:	0.75
Horizontal:	16.85	12.27	Polarization:	Horizontal



TABULATED DATA FOR ELEVATION PATTERN

ATW25H3H ***-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
-5.000	0.127	-17.92	6.75	0.128	-17.86	27.00	0.035	-29.12	50.50	0.021	-33.56	74.00	0.021	-33.56
-4.750	0.145	-16.77	7.00	0.108	-19.33	27.50	0.023	-32.77	51.00	0.031	-30.17	74.50	0.028	-31.06
-4.500	0.148	-16.59	7.25	0.105	-19.58	28.00	0.028	-31.06	51.50	0.036	-28.87	75.00	0.033	-29.63
-4.250	0.135	-17.39	7.50	0.116	-18.71	28.50	0.038	-28.40	52.00	0.035	-29.12	75.50	0.037	-28.64
-4.000	0.108	-19.33	7.75	0.130	-17.72	29.00	0.040	-27.96	52.50	0.028	-31.06	76.00	0.040	-27.96
-3.750	0.076	-22.38	8.00	0.139	-17.14	29.50	0.031	-30.17	53.00	0.018	-34.89	76.50	0.042	-27.54
-3.500	0.071	-22.97	8.25	0.138	-17.20	30.00	0.021	-33.56	53.50	0.012	-38.42	77.00	0.042	-27.54
-3.250	0.112	-19.02	8.50	0.127	-17.92	30.50	0.027	-31.37	54.00	0.020	-33.98	77.50	0.041	-27.74
-3.000	0.165	-15.65	8.75	0.109	-19.25	31.00	0.037	-28.64	54.50	0.029	-30.75	78.00	0.040	-27.96
-2.750	0.213	-13.43	9.00	0.090	-20.92	31.50	0.038	-28.40	55.00	0.035	-29.12	78.50	0.037	-28.64
-2.500	0.244	-12.25	9.25	0.078	-22.16	32.00	0.030	-30.46	55.50	0.036	-28.87	79.00	0.034	-29.37
-2.250	0.251	-12.01	9.50	0.079	-22.05	32.50	0.020	-33.98	56.00	0.032	-29.90	79.50	0.030	-30.46
-2.000	0.230	-12.77	9.75	0.090	-20.92	33.00	0.024	-32.40	56.50	0.023	-32.77	80.00	0.027	-31.37
-1.750	0.185	-14.66	10.00	0.101	-19.91	33.50	0.034	-29.37	57.00	0.013	-37.72	80.50	0.023	-32.77
-1.500	0.136	-17.33	10.50	0.106	-19.49	34.00	0.037	-28.64	57.50	0.012	-38.42	81.00	0.018	-34.89
-1.250	0.154	-16.25	11.00	0.083	-21.62	34.50	0.030	-30.46	58.00	0.021	-33.56	81.50	0.015	-36.48
-1.000	0.257	-11.80	11.50	0.060	-24.44	35.00	0.020	-33.98	58.50	0.030	-30.46	82.00	0.011	-39.17
-0.750	0.399	-7.98	12.00	0.073	-22.73	35.50	0.021	-33.56	59.00	0.036	-28.87	82.50	0.008	-41.94
-0.500	0.550	-5.19	12.50	0.088	-21.11	36.00	0.031	-30.17	59.50	0.037	-28.64	83.00	0.005	-46.02
-0.250	0.695	-3.16	13.00	0.078	-22.16	36.50	0.036	-28.87	60.00	0.033	-29.63	83.50	0.003	-50.46
0.000	0.821	-1.71	13.50	0.055	-25.19	37.00	0.032	-29.90	60.50	0.026	-31.70	84.00	0.002	-53.98
0.250	0.918	-0.74	14.00	0.052	-25.68	37.50	0.022	-33.15	61.00	0.016	-35.92	84.50	0.003	-50.46
0.500	0.980	-0.18	14.50	0.069	-23.22	38.00	0.017	-35.39	61.50	0.008	-41.94	85.00	0.004	-47.96
0.750	1.000	0.00	15.00	0.072	-22.85	38.50	0.026	-31.70	62.00	0.014	-37.08	85.50	0.005	-46.02
1.000	0.981	-0.17	15.50	0.056	-25.04	39.00	0.034	-29.37	62.50	0.024	-32.40	86.00	0.005	-46.02
1.250	0.923	-0.70	16.00	0.041	-27.74	39.50	0.034	-29.37	63.00	0.032	-29.90	86.50	0.006	-44.44
1.500	0.835	-1.57	16.50	0.052	-25.68	40.00	0.027	-31.37	63.50	0.037	-28.64	87.00	0.005	-46.02
1.750	0.726	-2.78	17.00	0.062	-24.15	40.50	0.017	-35.39	64.00	0.038	-28.40	87.50	0.005	-46.02
2.000	0.610	-4.29	17.50	0.056	-25.04	41.00	0.019	-34.42	64.50	0.036	-28.87	88.00	0.004	-47.96
2.250	0.504	-5.95	18.00	0.038	-28.40	41.50	0.029	-30.75	65.00	0.030	-30.46	88.50	0.003	-50.46
2.500	0.420	-7.54	18.50	0.037	-28.64	42.00	0.035	-29.12	65.50	0.022	-33.15	89.00	0.002	-53.98
2.750	0.375	-8.52	19.00	0.052	-25.68	42.50	0.033	-29.63	66.00	0.012	-38.42	89.50	0.001	-60.00
3.000	0.359	-8.90	19.50	0.055	-25.19	43.00	0.024	-32.40	66.50	0.005	-46.02	90.00	0.000	---
3.250	0.358	-8.92	20.00	0.043	-27.33	43.50	0.015	-36.48	67.00	0.012	-38.42			
3.500	0.354	-9.02	20.50	0.030	-30.46	44.00	0.019	-34.42	67.50	0.022	-33.15			
3.750	0.336	-9.47	21.00	0.038	-28.40	44.50	0.029	-30.75	68.00	0.030	-30.46			
4.000	0.303	-10.37	21.50	0.049	-26.20	45.00	0.035	-29.12	68.50	0.036	-28.87			
4.250	0.259	-11.73	22.00	0.047	-26.56	45.50	0.033	-29.63	69.00	0.039	-28.18			
4.500	0.212	-13.47	22.50	0.033	-29.63	46.00	0.025	-32.04	69.50	0.040	-27.96			
4.750	0.177	-15.04	23.00	0.027	-31.37	46.50	0.015	-36.48	70.00	0.039	-28.18			
5.000	0.163	-15.76	23.50	0.039	-28.18	47.00	0.018	-34.89	70.50	0.035	-29.12			
5.250	0.171	-15.34	24.00	0.046	-26.74	47.50	0.027	-31.37	71.00	0.029	-30.75			
5.500	0.186	-14.61	24.50	0.039	-28.18	48.00	0.034	-29.37	71.50	0.022	-33.15			
5.750	0.196	-14.15	25.00	0.027	-31.37	48.50	0.035	-29.12	72.00	0.013	-37.72			
6.000	0.194	-14.24	25.50	0.028	-31.06	49.00	0.029	-30.75	72.50	0.004	-47.96			
6.250	0.179	-14.94	26.00	0.039	-28.18	49.50	0.019	-34.42	73.00	0.005	-46.02			
6.500	0.155	-16.19	26.50	0.043	-27.33	50.00	0.014	-37.08	73.50	0.013	-37.72			