

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

*Prepared for
KLNE-DT Channel 26 Lincoln, NE
February 16, 2006*

**ANTENNA TYPE:
ATW22H3-HTS-26S**

**SPECIFICATION NO :
KO021606-1589**



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

ELECTRICAL CHARACTERISTICS:

CHANNEL :	DTV:	26
FREQUENCY RANGE :	DTV:	542 - 548 MHz
AZIMUTH PATTERN NUMBER :		ATW-S
ELEVATION PATTERN NUMBER :		ATW28H3H
AZIMUTH DIRECTIVITY :		1.83 (2.62 dBd)
ELEVATION DIRECTIVITY :		22.00 (13.42 dBd)
PEAK POWER GAIN :		40.26 (16.05 dBd)
GAIN AT HORIZONTAL :		29.57 (14.71 dBd)
ELECTRICAL BEAM TILT :		0.75 Degrees
INPUT POWER REQUIRED :		9.31 kW (9.69 dBk)
INPUT TYPE :		6 1/8-50 OHM
INPUT POWER (MAXIMUM) :		60 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:

Top Mount

*(Tower Interface supplied and installed by others)

HEIGHT OF ANTENNA : 46.14 feet

HEIGHT OF CENTER OF RADIATION (B) : 23.07 feet

OVERALL HEIGHT (A) : 49.14 feet
(Includes two 3-foot Lightning Rods)

DEICING : Pressurized Radome Enclosure

RADOME DIAMETER (C): 16.40 inches, OD

RADOME COLOR : AVIATION ORANGE (Standard)

CLIMBING DEVICE : Galvanized Climbing Pole

CALCULATED WEIGHT : 8410.0 lbs

WINDLOAD DATA² : CaAc : 53.0 sqft

EFFECTIVE MOMENT ARM: 24.4 feet

BASE FLANGE DIMENSIONS

BOLT CIRCLE 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 $\pm 10\%$ 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 85 miles per hour (MPH), a height above average terrain (HAAT) of 741 feet, and a height above ground level (HAGL) of 827 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

KLNE-DT
Lincoln, NE
ATW22H3-HTS-26S

Channel 26

ANTENNA PARAMETERS :

Azimuth Directivity :

Hor. Pol : 1.83

dBd : 2.62

Elevation Directivity :

Hor. Pol : 22.00

dBd : 13.42

TRANSMISSION LINE :

VERTICAL RUN :

Type: MACX450

Length, ft. : 900

Attenuation , dB/100 ft: 0.175

HORIZONTAL RUN :

Type: MACX450

Length, ft. : 100

Attenuation , dB/100 ft: 0.175

OTHER LINE LOSSES:

Type: N/A

Length, ft. : 0

Attenuation , dB/100 ft: 0

Line Efficiency : 66.83%

ERP :

kW : 375.00

dBk : 25.74

POWER GAIN :

Ratio : 40.26

dBd : 16.05

ANTENNA INPUT :

kW : 9.31

dBk : 9.69

LINE LOSS :

kW : 4.62

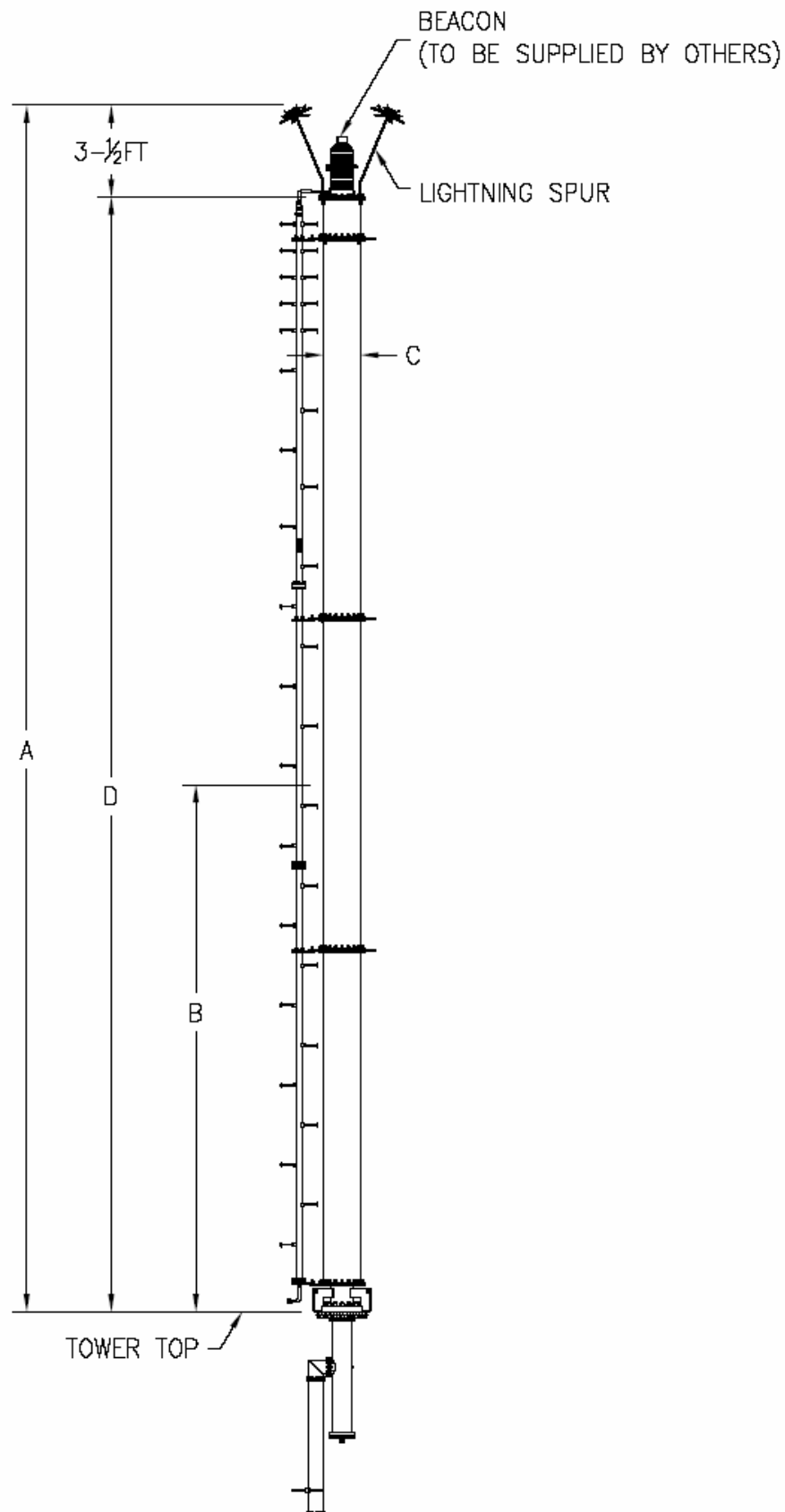
dB : 1.75

TRANSMITTER POWER :

kW : 13.94

dBk : 11.44

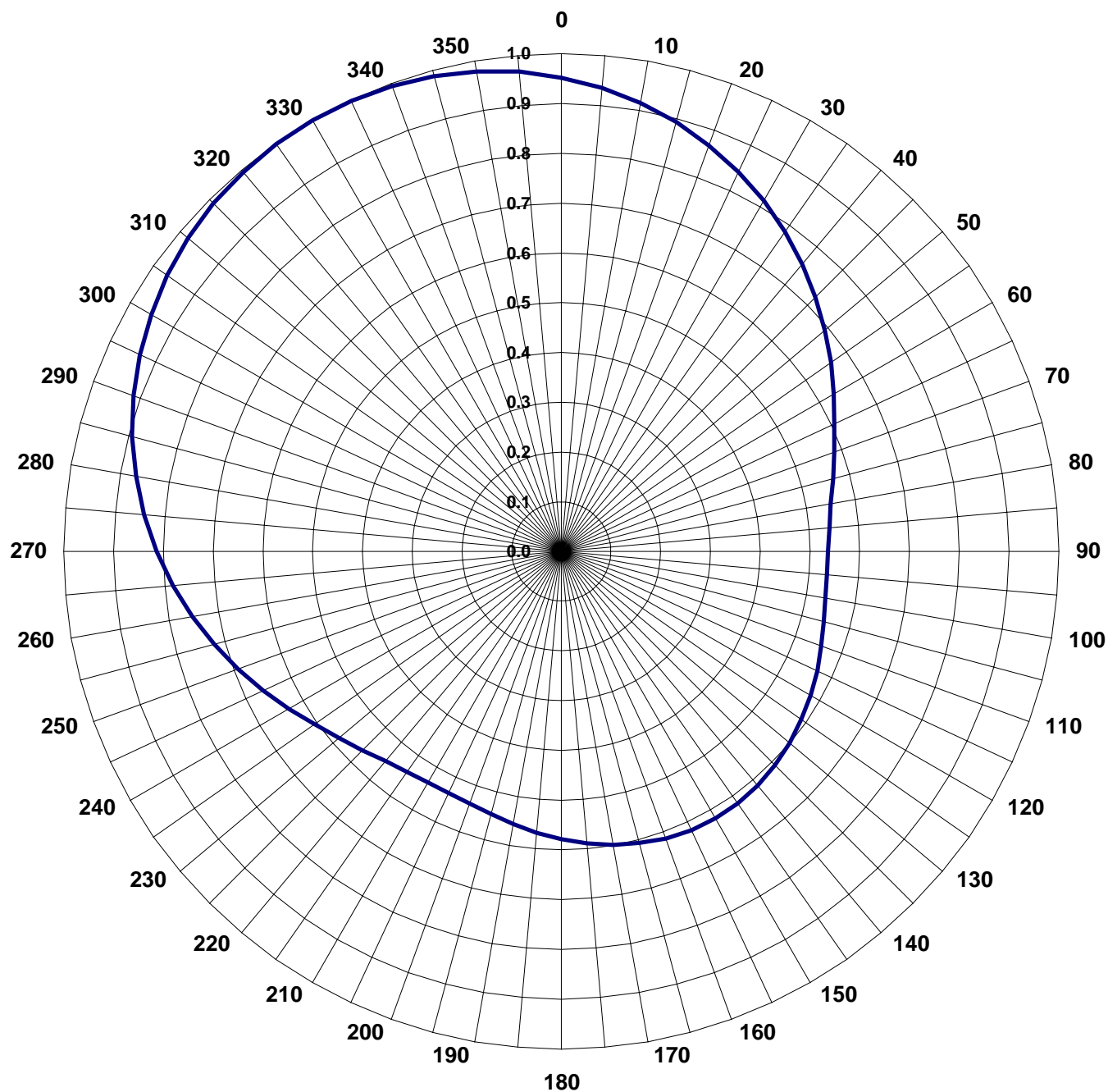
TYPICAL MOUNTING CONFIGURATION SHOWN. ACTUAL CONFIGURATION MAY VARY.



AZIMUTH PATTERN

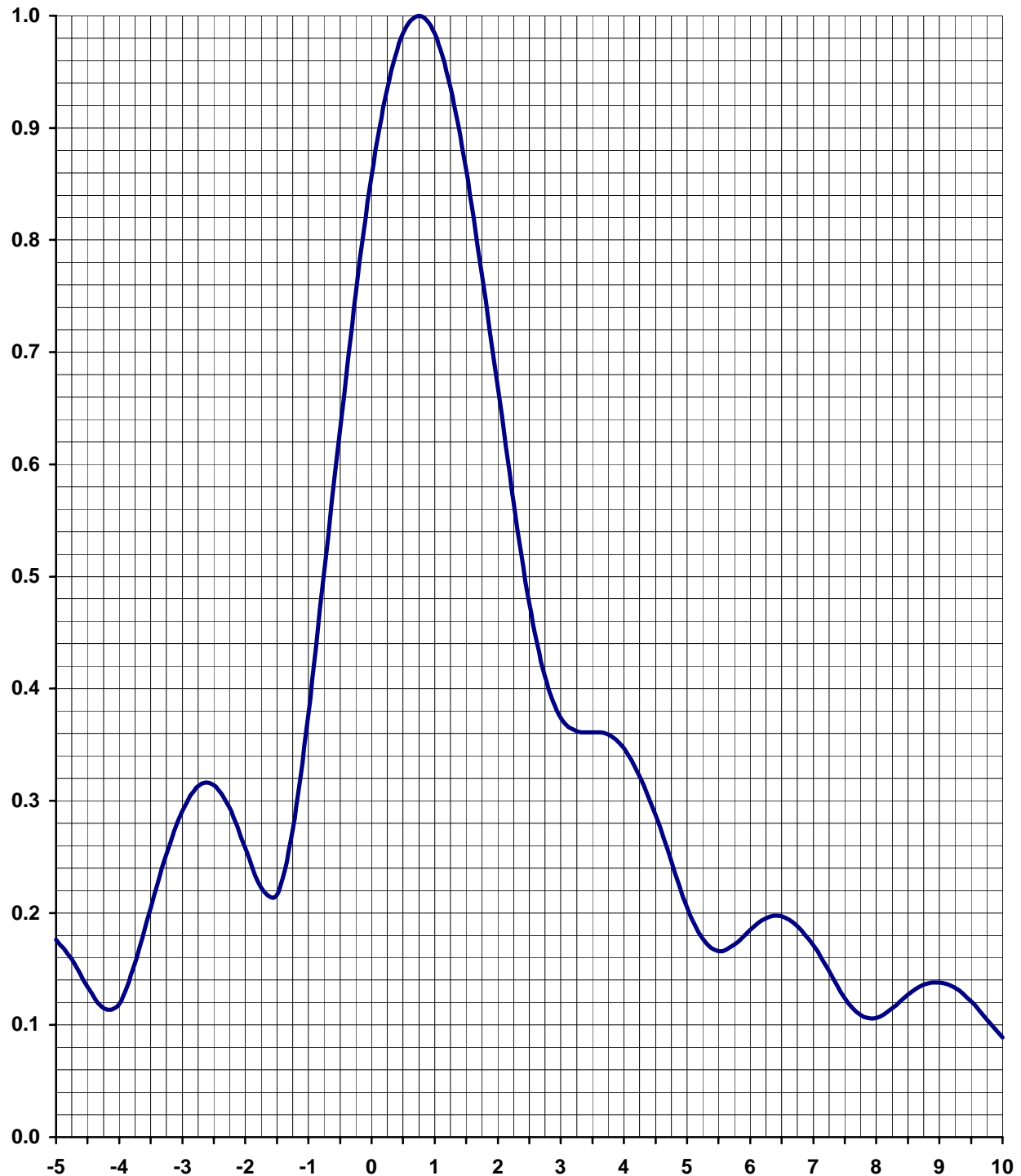
TYPE:**ATW-S****Frequency:****26 (DTV)****Numeric****dB****Location:****Lincoln, NE****Directivity:****1.83****2.62****Polarization:****Horizontal****Peak(s) at:**

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



TABULATED DATA FOR AZIMUTH PATTERN**TYPE: ATW-S**

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	0.952	-0.43	92	0.535	-5.43	184	0.569	-4.90	276	0.847	-1.44
2	0.945	-0.49	94	0.535	-5.43	186	0.564	-4.97	278	0.858	-1.33
4	0.938	-0.56	96	0.536	-5.42	188	0.560	-5.04	280	0.868	-1.23
6	0.931	-0.62	98	0.538	-5.38	190	0.556	-5.10	282	0.878	-1.13
8	0.923	-0.70	100	0.539	-5.37	192	0.552	-5.16	284	0.888	-1.03
10	0.915	-0.77	102	0.542	-5.32	194	0.548	-5.22	286	0.897	-0.94
12	0.906	-0.86	104	0.545	-5.27	196	0.545	-5.27	288	0.906	-0.86
14	0.897	-0.94	106	0.548	-5.22	198	0.542	-5.32	290	0.915	-0.77
16	0.888	-1.03	108	0.552	-5.16	200	0.539	-5.37	292	0.923	-0.70
18	0.878	-1.13	110	0.556	-5.10	202	0.538	-5.38	294	0.931	-0.62
20	0.868	-1.23	112	0.560	-5.04	204	0.536	-5.42	296	0.938	-0.56
22	0.858	-1.33	114	0.564	-4.97	206	0.535	-5.43	298	0.945	-0.49
24	0.847	-1.44	116	0.569	-4.90	208	0.535	-5.43	300	0.952	-0.43
26	0.836	-1.56	118	0.573	-4.84	210	0.536	-5.42	302	0.958	-0.37
28	0.825	-1.67	120	0.578	-4.76	212	0.537	-5.40	304	0.964	-0.32
30	0.813	-1.80	122	0.582	-4.70	214	0.539	-5.37	306	0.969	-0.27
32	0.802	-1.92	124	0.587	-4.63	216	0.542	-5.32	308	0.974	-0.23
34	0.790	-2.05	126	0.591	-4.57	218	0.546	-5.26	310	0.979	-0.18
36	0.778	-2.18	128	0.595	-4.51	220	0.550	-5.19	312	0.983	-0.15
38	0.765	-2.33	130	0.599	-4.45	222	0.555	-5.11	314	0.986	-0.12
40	0.753	-2.46	132	0.602	-4.41	224	0.561	-5.02	316	0.990	-0.09
42	0.740	-2.62	134	0.606	-4.35	226	0.568	-4.91	318	0.992	-0.07
44	0.728	-2.76	136	0.609	-4.31	228	0.575	-4.81	320	0.995	-0.04
46	0.715	-2.91	138	0.611	-4.28	230	0.583	-4.69	322	0.997	-0.03
48	0.703	-3.06	140	0.614	-4.24	232	0.592	-4.55	324	0.998	-0.02
50	0.691	-3.21	142	0.615	-4.22	234	0.601	-4.42	326	0.999	-0.01
52	0.679	-3.36	144	0.617	-4.19	236	0.611	-4.28	328	1.000	0.00
54	0.667	-3.52	146	0.618	-4.18	238	0.621	-4.14	330	1.000	0.00
56	0.655	-3.68	148	0.619	-4.17	240	0.632	-3.99	332	1.000	0.00
58	0.643	-3.84	150	0.619	-4.17	242	0.643	-3.84	334	0.999	-0.01
60	0.632	-3.99	152	0.619	-4.17	244	0.655	-3.68	336	0.998	-0.02
62	0.621	-4.14	154	0.618	-4.18	246	0.667	-3.52	338	0.997	-0.03
64	0.611	-4.28	156	0.617	-4.19	248	0.679	-3.36	340	0.995	-0.04
66	0.601	-4.42	158	0.615	-4.22	250	0.691	-3.21	342	0.992	-0.07
68	0.592	-4.55	160	0.614	-4.24	252	0.703	-3.06	344	0.990	-0.09
70	0.583	-4.69	162	0.611	-4.28	254	0.715	-2.91	346	0.986	-0.12
72	0.575	-4.81	164	0.609	-4.31	256	0.728	-2.76	348	0.983	-0.15
74	0.568	-4.91	166	0.606	-4.35	258	0.740	-2.62	350	0.979	-0.18
76	0.561	-5.02	168	0.602	-4.41	260	0.753	-2.46	352	0.974	-0.23
78	0.555	-5.11	170	0.599	-4.45	262	0.765	-2.33	354	0.969	-0.27
80	0.550	-5.19	172	0.595	-4.51	264	0.778	-2.18	356	0.964	-0.32
82	0.546	-5.26	174	0.591	-4.57	266	0.790	-2.05	358	0.958	-0.37
84	0.542	-5.32	176	0.587	-4.63	268	0.802	-1.92	360	0.952	-0.43
86	0.539	-5.37	178	0.582	-4.70	270	0.813	-1.80			
88	0.537	-5.40	180	0.578	-4.76	272	0.825	-1.67			
90	0.536	-5.42	182	0.573	-4.84	274	0.836	-1.56			

ELEVATION PATTERN**TYPE:****ATW28H3H****Frequency:****26 (DTV)****Directivity:****Numeric****dBd****Location:****Lincoln, NE****Main Lobe:****22.00****13.42****Beam Tilt:****0.75****Horizontal:****16.16****12.08****Polarization:****Horizontal**

TABULATED DATA FOR ELEVATION PATTERN

ATW28H3H

-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	0.176	-15.09	6.75	0.188	-14.52	27.00	0.052	-25.68	50.50	0.023	-32.77	74.00	0.063	-24.01
-4.750	0.159	-15.97	7.00	0.171	-15.34	27.50	0.045	-26.94	51.00	0.030	-30.46	74.50	0.064	-23.88
-4.500	0.134	-17.46	7.25	0.148	-16.59	28.00	0.033	-29.63	51.50	0.040	-27.96	75.00	0.064	-23.88
-4.250	0.115	-18.79	7.50	0.124	-18.13	28.50	0.031	-30.17	52.00	0.046	-26.74	75.50	0.062	-24.15
-4.000	0.119	-18.49	7.75	0.109	-19.25	29.00	0.041	-27.74	52.50	0.048	-26.38	76.00	0.060	-24.44
-3.750	0.155	-16.19	8.00	0.106	-19.49	29.50	0.049	-26.20	53.00	0.043	-27.33	76.50	0.056	-25.04
-3.500	0.204	-13.81	8.25	0.115	-18.79	30.00	0.047	-26.56	53.50	0.035	-29.12	77.00	0.051	-25.85
-3.250	0.252	-11.97	8.50	0.127	-17.92	30.50	0.037	-28.64	54.00	0.025	-32.04	77.50	0.046	-26.74
-3.000	0.291	-10.72	8.75	0.136	-17.33	31.00	0.028	-31.06	54.50	0.023	-32.77	78.00	0.040	-27.96
-2.750	0.313	-10.09	9.00	0.138	-17.20	31.50	0.033	-29.63	55.00	0.030	-30.46	78.50	0.034	-29.37
-2.500	0.314	-10.06	9.25	0.133	-17.52	32.00	0.043	-27.33	55.50	0.040	-27.96	79.00	0.029	-30.75
-2.250	0.294	-10.63	9.50	0.121	-18.34	32.50	0.047	-26.56	56.00	0.047	-26.56	79.50	0.023	-32.77
-2.000	0.258	-11.77	9.75	0.105	-19.58	33.00	0.042	-27.54	56.50	0.050	-26.02	80.00	0.019	-34.42
-1.750	0.222	-13.07	10.00	0.089	-21.01	33.50	0.032	-29.90	57.00	0.049	-26.20	80.50	0.015	-36.48
-1.500	0.216	-13.31	10.50	0.079	-22.05	34.00	0.026	-31.70	57.50	0.042	-27.54	81.00	0.013	-37.72
-1.250	0.274	-11.24	11.00	0.098	-20.18	34.50	0.034	-29.37	58.00	0.033	-29.63	81.50	0.013	-37.72
-1.000	0.377	-8.47	11.50	0.107	-19.41	35.00	0.043	-27.33	58.50	0.024	-32.40	82.00	0.013	-37.72
-0.750	0.503	-5.97	12.00	0.093	-20.63	35.50	0.046	-26.74	59.00	0.023	-32.77	82.50	0.015	-36.48
-0.500	0.632	-3.99	12.50	0.069	-23.22	36.00	0.040	-27.96	59.50	0.031	-30.17	83.00	0.016	-35.92
-0.250	0.753	-2.46	13.00	0.064	-23.88	36.50	0.030	-30.46	60.00	0.041	-27.74	83.50	0.017	-35.39
0.000	0.857	-1.34	13.50	0.080	-21.94	37.00	0.025	-32.04	60.50	0.049	-26.20	84.00	0.018	-34.89
0.250	0.935	-0.58	14.00	0.088	-21.11	37.50	0.033	-29.63	61.00	0.053	-25.51	84.50	0.018	-34.89
0.500	0.984	-0.14	14.50	0.077	-22.27	38.00	0.042	-27.54	61.50	0.054	-25.35	85.00	0.018	-34.89
0.750	1.000	0.00	15.00	0.057	-24.88	38.50	0.045	-26.94	62.00	0.050	-26.02	85.50	0.018	-34.89
1.000	0.984	-0.14	15.50	0.053	-25.51	39.00	0.041	-27.74	62.50	0.043	-27.33	86.00	0.017	-35.39
1.250	0.936	-0.57	16.00	0.068	-23.35	39.50	0.031	-30.17	63.00	0.034	-29.37	86.50	0.016	-35.92
1.500	0.863	-1.28	16.50	0.075	-22.50	40.00	0.024	-32.40	63.50	0.025	-32.04	87.00	0.014	-37.08
1.750	0.770	-2.27	17.00	0.066	-23.61	40.50	0.030	-30.46	64.00	0.021	-33.56	87.50	0.012	-38.42
2.000	0.668	-3.50	17.50	0.049	-26.20	41.00	0.040	-27.96	64.50	0.026	-31.70	88.00	0.010	-40.00
2.250	0.566	-4.94	18.00	0.046	-26.74	41.50	0.045	-26.94	65.00	0.036	-28.87	88.50	0.008	-41.94
2.500	0.476	-6.45	18.50	0.059	-24.58	42.00	0.043	-27.33	65.50	0.045	-26.94	89.00	0.005	-46.02
2.750	0.411	-7.72	19.00	0.067	-23.48	42.50	0.035	-29.12	66.00	0.053	-25.51	89.50	0.003	-50.46
3.000	0.374	-8.54	19.50	0.060	-24.44	43.00	0.025	-32.04	66.50	0.057	-24.88	90.00	0.000	---
3.250	0.362	-8.83	20.00	0.045	-26.94	43.50	0.025	-32.04	67.00	0.059	-24.58			
3.500	0.361	-8.85	20.50	0.040	-27.96	44.00	0.034	-29.37	67.50	0.058	-24.73			
3.750	0.359	-8.90	21.00	0.051	-25.85	44.50	0.043	-27.33	68.00	0.053	-25.51			
4.000	0.347	-9.19	21.50	0.060	-24.44	45.00	0.046	-26.74	68.50	0.046	-26.74			
4.250	0.322	-9.84	22.00	0.056	-25.04	45.50	0.042	-27.54	69.00	0.038	-28.40			
4.500	0.287	-10.84	22.50	0.043	-27.33	46.00	0.033	-29.63	69.50	0.029	-30.75			
4.750	0.246	-12.18	23.00	0.035	-29.12	46.50	0.024	-32.40	70.00	0.021	-33.56			
5.000	0.205	-13.76	23.50	0.044	-27.13	47.00	0.025	-32.04	70.50	0.019	-34.42			
5.250	0.177	-15.04	24.00	0.054	-25.35	47.50	0.035	-29.12	71.00	0.023	-32.77			
5.500	0.166	-15.60	24.50	0.053	-25.51	48.00	0.043	-27.33	71.50	0.031	-30.17			
5.750	0.172	-15.29	25.00	0.043	-27.33	48.50	0.047	-26.56	72.00	0.040	-27.96			
6.000	0.185	-14.66	25.50	0.033	-29.63	49.00	0.044	-27.13	72.50	0.048	-26.38			
6.250	0.195	-14.20	26.00	0.037	-28.64	49.50	0.036	-28.87	73.00	0.054	-25.35			
6.500	0.197	-14.11	26.50	0.048	-26.38	50.00	0.026	-31.70	73.50	0.059	-24.58			