

COHEN, DIPPELL AND EVERIST, P. C.

EXHIBIT E-1

DIRECTIONAL TV ANTENNA INFORMATION

KAZH-DT, BAYTOWN, TEXAS

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

*Prepared For*  
KAZH-DT Channel 41 Houston, TX.  
*January 27, 2000*  
*September 27, 2000*  
*October 30, 2000*  
**REVISED March 1, 2001**

**ANTENNA TYPE:**  
ATW30H4-HTCX-41H

**SPECIFICATION NO.:**  
LJS121699-598 Rev. C



**Andrew Corporation**  
10500 W. 153rd Street  
Orland Park, Illinois U.S.A. 60462

LJS121699-598 Rev. C -1-

# **PRELIMINARY SPECIFICATION FOR ANDREW TRASAR® HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA**

## **ELECTRICAL CHARACTERISTICS:**

CHANNEL:	41
FREQUENCY RANGE:	632 to 638 MHz
AZIMUTH PATTERN NUMBER:	CH41AZ-H-BID-CX
ELEVATION PATTERN NUMBER:	ATW30H4H
AZIMUTH DIRECTIVITY:	1.54 ( 1.88 dB)
ELEVATION DIRECTIVITY:	30.00 (14.77 dBd)
PEAK POWER GAIN:	46.20 (16.65 dBd)
GAIN AT HORIZONTAL:	14.83 (11.71 dBd)
ELECTRICAL BEAM TILT:	1.00 Degrees
REQUIRED INPUT POWER:	21.65 kW Average Power, Digital
MAXIMUM INPUT POWER:	99.2 kW Average Power
INPUT TYPE:	8-3/16 inch EIA, 75 ohm
VSWR (MAXIMUM):	1.10 Over 6 MHz of Channel



**Andrew Corporation**  
10500 W. 153rd Street  
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LJS121699-598 Rev. C -2-

# **PRELIMINARY SPECIFICATION FOR ANDREW TRASAR® HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA**

## **MECHANICAL CHARACTERISTICS:**

**MOUNTING CONFIGURATION:** Top Mount\*

**\*(Tower Interface supplied and  
installed by others.)**

**HEIGHT OF ANTENNA (D):** 54.0 feet

**HEIGHT OF CENTER OF  
RADIATION (B):** 27.0 feet

**OVERALL HEIGHT (A):** 57.0 feet  
(Includes four 3 foot Lightning  
Rods)

**DEICING:** Pressurized Radome Enclosure

**RADOME DIAMETER (C):** 14.4 inches, O.D.

**RADOME COLOR:** AVIATION ORANGE (standard)

**CLIMBING DEVICE:** Galvanized Steel Pole

**CALCULATED WEIGHT<sup>1</sup>:** 10,450 lbs.

**WINDLOAD DATA<sup>2</sup>:** **SHEAR:** 2,695 lbs.  
**OVERTURNING MOMENT:** 74,450 lbs.-ft.

**ANTENNA AREA:** **C<sub>A</sub>A<sub>C</sub>:** 50.9 square feet  
**A<sub>C</sub>:** 86.3 square feet

**MOUNTING FLANGE:** **BOLT CIRCLE:** 24 inches  
**BOLT DIAMETER:** 1.25 inches  
**NUMBER OF BOLTS:** 20

***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 which 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 **90 miles per hour (MPH)**, height above average terrain (**HAAT**) of **1,945 feet**, and height above ground level (**HAGL**) of **1,932 feet** per **EIA/TIA-222-F**. Windloads include 300 mm beacon, not supplied.

**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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LJS121699-598 Rev. C -3-

# Broadcast Antenna System

## Power Analysis

**KAZH-DT Channel 41**  
**Houston, TX.**  
**Type: ATW30H4-HTCX-41H**



### ERP:

kW: 1000

dBk: 30.00

### TRANSMISSION LINE:

#### TOWER TOP HORIZONTAL RUN:

Type: 8 3/16 inch MACXLine®

Length: 110 ft.

Attenuation: 0.0860 dB/100 ft.

#### VERTICAL RUN:

Type: 8 3/16 inch MACXLine®

Length: 1814 ft.

Attenuation: 0.0860 dB/100 ft.

#### HORIZONTAL RUN:

Type: 8 3/16 inch MACXLine®

Length: 150 ft.

Attenuation: 0.0860 dB/100 ft.

Efficiency: 66.32%

### POWER GAIN:

Ratio: 46.20

dBd: 16.65

### ANTENNA INPUT:

kW: 21.65

dBk: 13.35

### LINE LOSS:

kW: 10.99

dB: 1.784

### TRANSMITTER POWER:

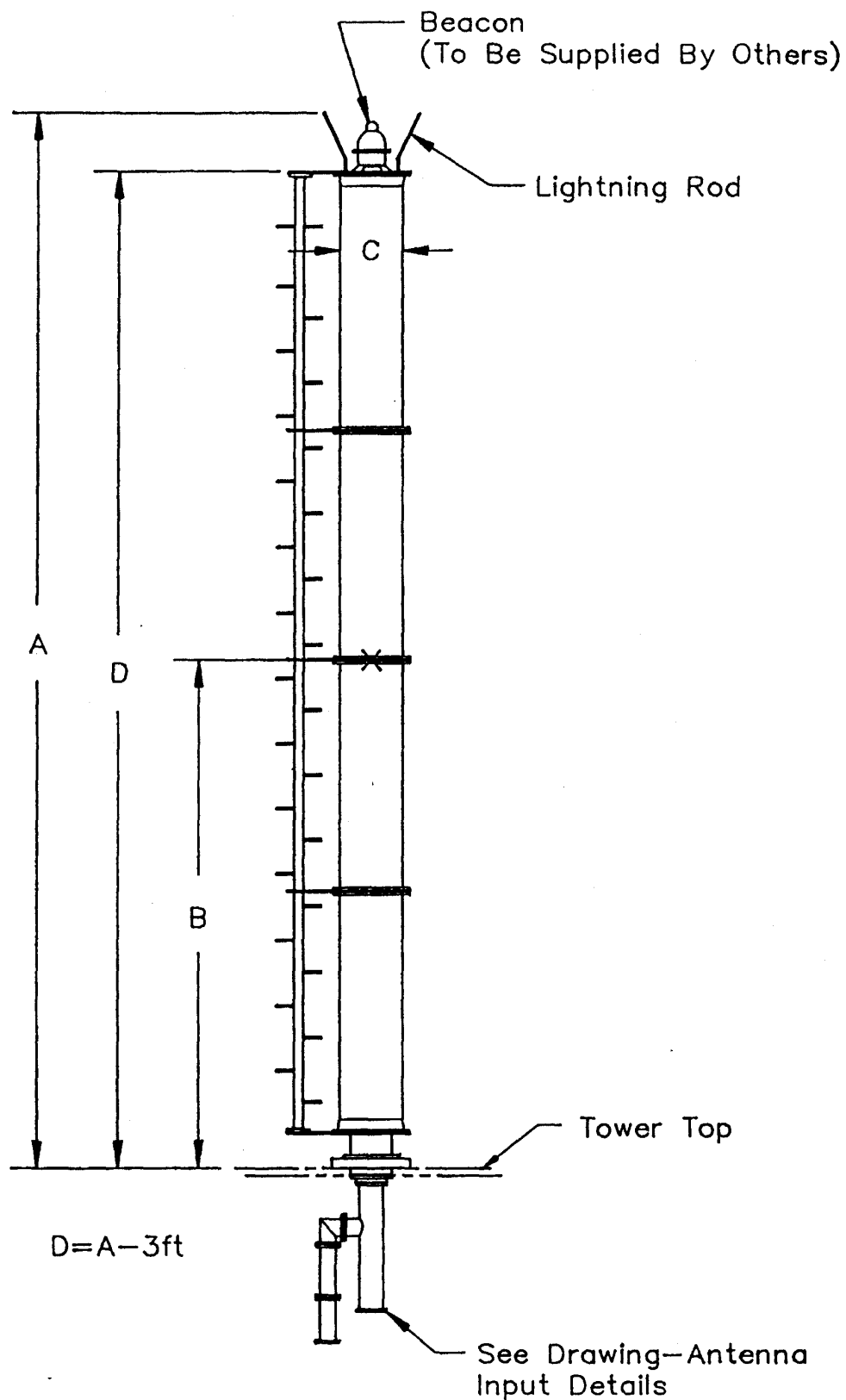
kW: 32.64

dBk: 15.14



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LJS121699-598 Rev. C -4-



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LJS121699-598 Rev. C -5-

**ANDREW**  
**AZIMUTH PATTERN**

Type: CH41AZ-H-BID-CX

Numeric dBd

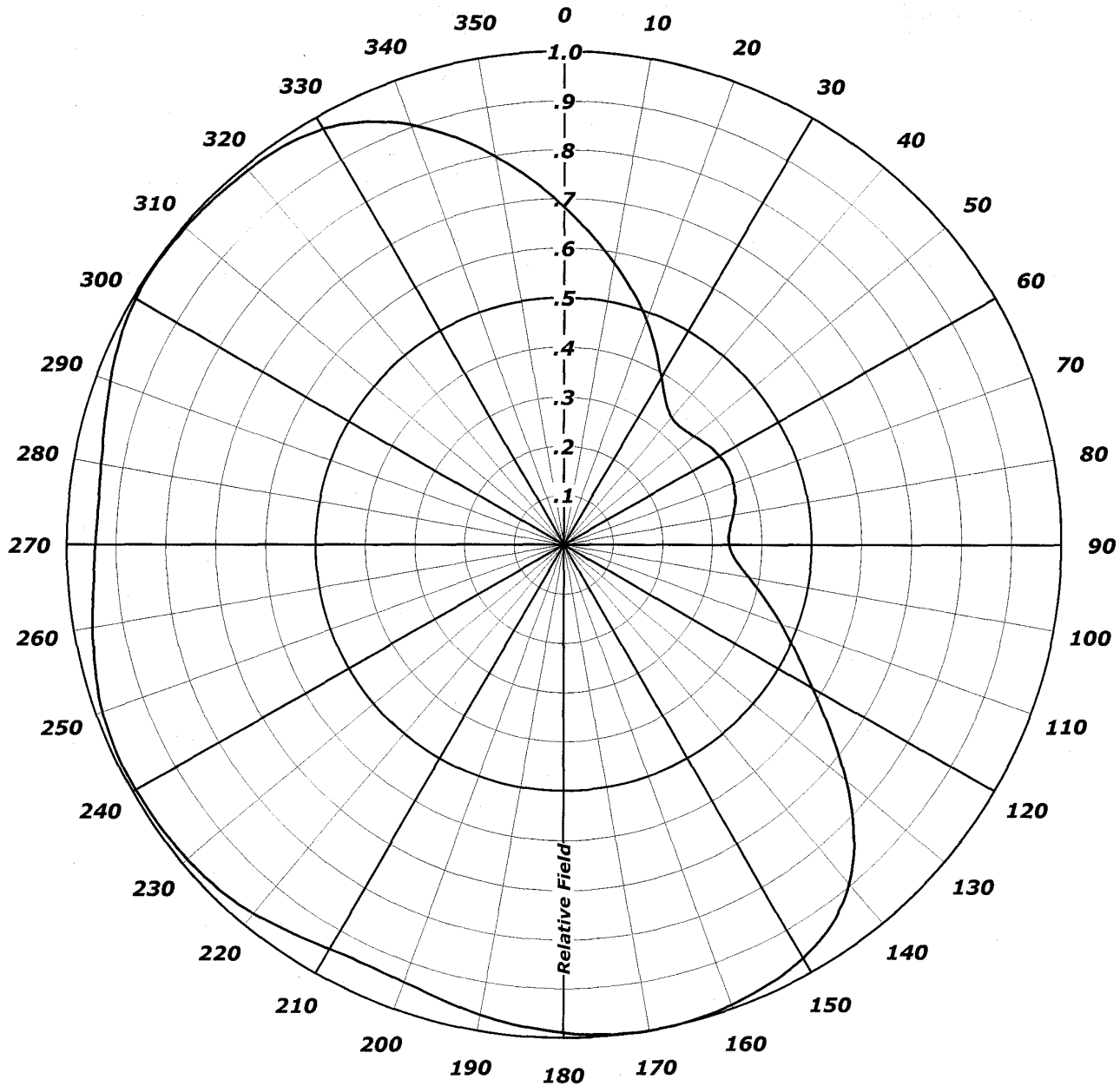
Directivity: 1.54 (1.87)

Peak(s) At:

Polarization: Horizontal

Channel: 41

Location: Houston, TX





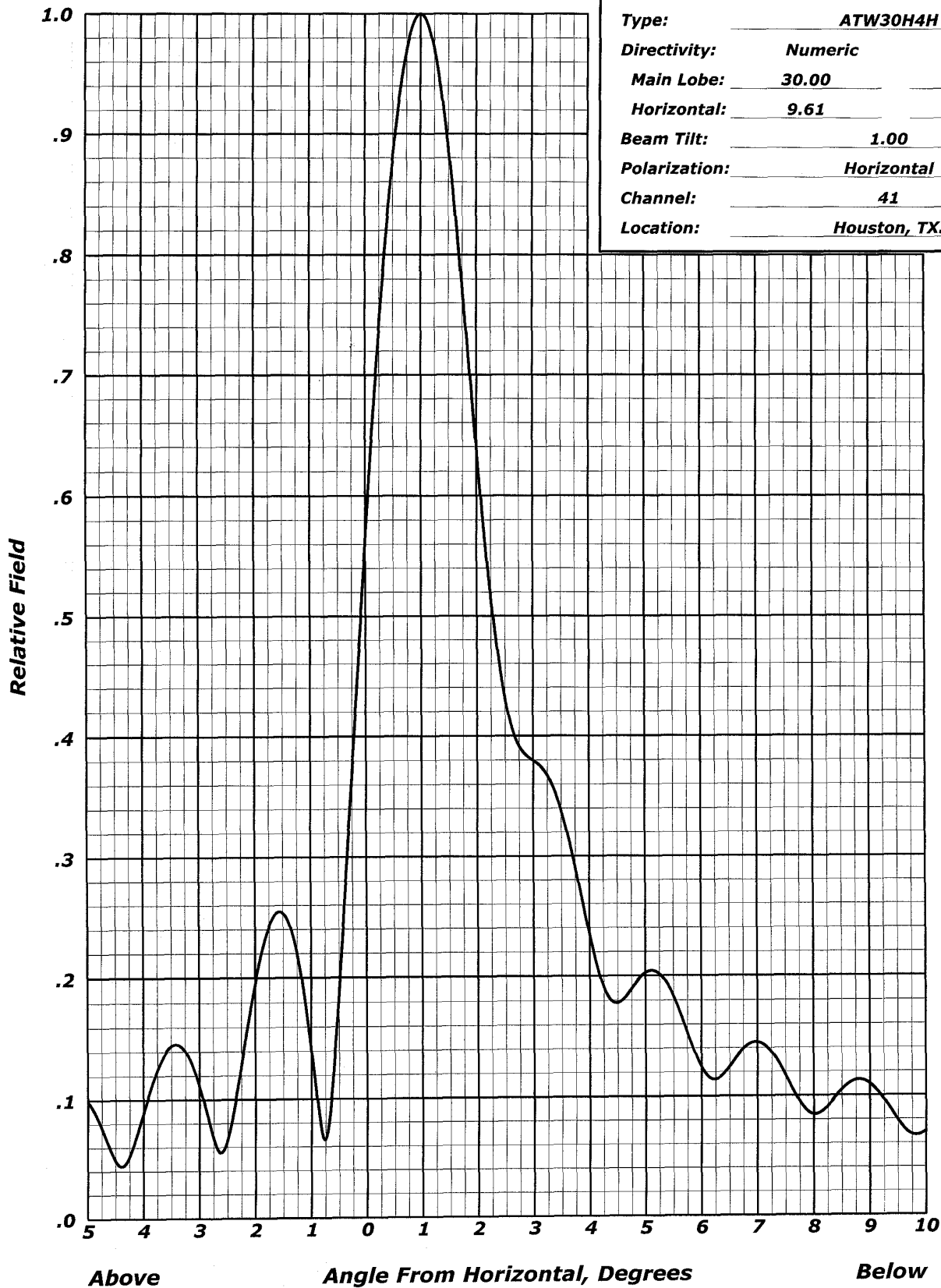
**TABULATED DATA FOR AZIMUTH PATTERN**  
**TYPE : CH41AZ-H-BID-CX**

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.683	-3.31	110	0.467	-6.61	220	0.970	-0.26	330	0.973	-0.24
2	0.661	-3.60	112	0.486	-6.27	222	0.975	-0.22	332	0.964	-0.32
4	0.639	-3.89	114	0.507	-5.90	224	0.979	-0.18	334	0.952	-0.43
6	0.618	-4.18	116	0.529	-5.53	226	0.982	-0.16	336	0.939	-0.55
8	0.598	-4.47	118	0.553	-5.15	228	0.985	-0.13	338	0.923	-0.70
10	0.578	-4.76	120	0.580	-4.73	230	0.987	-0.11	340	0.906	-0.86
12	0.559	-5.05	122	0.609	-4.31	232	0.989	-0.10	342	0.886	-1.05
14	0.540	-5.35	124	0.640	-3.88	234	0.990	-0.09	344	0.866	-1.25
16	0.522	-5.65	126	0.673	-3.44	236	0.991	-0.08	346	0.844	-1.47
18	0.503	-5.97	128	0.708	-3.00	238	0.992	-0.07	348	0.822	-1.70
20	0.484	-6.30	130	0.743	-2.58	240	0.993	-0.06	350	0.799	-1.95
22	0.465	-6.65	132	0.778	-2.18	242	0.993	-0.06	352	0.776	-2.20
24	0.446	-7.01	134	0.811	-1.82	244	0.992	-0.07	354	0.752	-2.48
26	0.428	-7.37	136	0.843	-1.48	246	0.991	-0.08	356	0.729	-2.75
28	0.409	-7.77	138	0.870	-1.21	248	0.989	-0.10	358	0.706	-3.02
30	0.392	-8.13	140	0.895	-0.96	250	0.986	-0.12	360	0.683	-3.31
32	0.376	-8.50	142	0.916	-0.76	252	0.983	-0.15			
34	0.363	-8.80	144	0.933	-0.60	254	0.978	-0.19			
36	0.352	-9.07	146	0.946	-0.48	256	0.973	-0.24			
38	0.344	-9.27	148	0.957	-0.38	258	0.967	-0.29			
40	0.338	-9.42	150	0.966	-0.30	260	0.962	-0.34			
42	0.335	-9.50	152	0.973	-0.24	262	0.956	-0.39			
44	0.335	-9.50	154	0.979	-0.18	264	0.952	-0.43			
46	0.337	-9.45	156	0.983	-0.15	266	0.947	-0.47			
48	0.340	-9.37	158	0.988	-0.10	268	0.944	-0.50			
50	0.343	-9.29	160	0.992	-0.07	270	0.942	-0.52			
52	0.348	-9.17	162	0.995	-0.04	272	0.940	-0.54			
54	0.352	-9.07	164	0.997	-0.03	274	0.940	-0.54			
56	0.356	-8.97	166	0.999	-0.01	276	0.940	-0.54			
58	0.359	-8.90	168	1.000	0.00	278	0.942	-0.52			
60	0.362	-8.83	170	1.000	0.00	280	0.945	-0.49			
62	0.364	-8.78	172	0.999	-0.01	282	0.948	-0.46			
64	0.365	-8.75	174	0.998	-0.02	284	0.953	-0.42			
66	0.366	-8.73	176	0.995	-0.04	286	0.958	-0.37			
68	0.366	-8.73	178	0.993	-0.06	288	0.964	-0.32			
70	0.364	-8.78	180	0.989	-0.10	290	0.971	-0.26			
72	0.362	-8.83	182	0.985	-0.13	292	0.977	-0.20			
74	0.360	-8.87	184	0.981	-0.17	294	0.982	-0.16			
76	0.356	-8.97	186	0.977	-0.20	296	0.988	-0.10			
78	0.351	-9.09	188	0.972	-0.25	298	0.992	-0.07			
80	0.347	-9.19	190	0.967	-0.29	300	0.995	-0.04			
82	0.342	-9.32	192	0.961	-0.35	302	0.997	-0.03			
84	0.337	-9.45	194	0.956	-0.39	304	0.998	-0.02			
86	0.334	-9.53	196	0.950	-0.45	306	0.997	-0.03			
88	0.333	-9.55	198	0.945	-0.49	308	0.997	-0.03			
90	0.334	-9.53	200	0.942	-0.52	310	0.996	-0.03			
92	0.337	-9.45	202	0.939	-0.55	312	0.994	-0.05			
94	0.344	-9.27	204	0.937	-0.57	314	0.993	-0.06			
96	0.353	-9.04	206	0.938	-0.56	316	0.992	-0.07			
98	0.365	-8.75	208	0.939	-0.55	318	0.991	-0.08			
100	0.379	-8.43	210	0.943	-0.51	320	0.991	-0.08			
102	0.394	-8.09	212	0.947	-0.47	322	0.989	-0.10			
104	0.411	-7.72	214	0.953	-0.42	324	0.987	-0.11			
106	0.429	-7.35	216	0.958	-0.37	326	0.984	-0.14			
108	0.448	-6.97	218	0.964	-0.32	328	0.979	-0.18			



# **ANDREW** **ELEVATION PATTERN**

Type:	ATW30H4H	
Directivity:	Numeric	dBd
Main Lobe:	30.00	(14.77)
Horizontal:	9.61	(9.83)
Beam Tilt:	1.00	
Polarization:	Horizontal	
Channel:	41	
Location:	Houston, TX.	





**TABULATED DATA FOR ELEVATION PATTERN**  
**TYPE : ATW30H4H**

Angle Field dB -5 To 10 In 0.25 Increments			Angle Field dB 10 To 90 In 0.5 Increments			Angle Field dB			Angle Field dB		
-5.00	0.098	-20.13	8.75	0.113	-18.96	35.00	0.015	-36.37	62.50	0.012	-38.46
-4.75	0.076	-22.34	9.00	0.110	-19.20	35.50	0.024	-32.48	63.00	0.021	-33.70
-4.50	0.049	-26.21	9.25	0.096	-20.31	36.00	0.030	-30.48	63.50	0.027	-31.50
-4.25	0.052	-25.64	9.50	0.079	-22.07	36.50	0.025	-31.93	64.00	0.029	-30.87
-4.00	0.089	-20.98	9.75	0.067	-23.45	37.00	0.015	-36.42	64.50	0.026	-31.56
-3.75	0.125	-18.06	10.00	0.070	-23.07	37.50	0.018	-34.81	65.00	0.021	-33.72
-3.50	0.144	-16.80	10.50	0.091	-20.82	38.00	0.027	-31.29	65.50	0.012	-38.28
-3.25	0.140	-17.06	11.00	0.083	-21.60	38.50	0.028	-31.16	66.00	0.004	-48.65
-3.00	0.111	-19.07	11.50	0.057	-24.87	39.00	0.019	-34.44	66.50	0.009	-40.85
-2.75	0.068	-23.38	12.00	0.065	-23.69	39.50	0.013	-37.47	67.00	0.018	-35.03
-2.50	0.066	-23.62	12.50	0.078	-22.17	40.00	0.022	-33.07	67.50	0.024	-32.26
-2.25	0.129	-17.80	13.00	0.062	-24.16	40.50	0.028	-31.04	68.00	0.028	-30.98
-2.00	0.196	-14.15	13.50	0.046	-26.76	41.00	0.024	-32.25	68.50	0.029	-30.76
-1.75	0.243	-12.30	14.00	0.061	-24.29	41.50	0.015	-36.60	69.00	0.027	-31.48
-1.50	0.254	-11.92	14.50	0.064	-23.86	42.00	0.015	-36.33	69.50	0.022	-33.27
-1.25	0.220	-13.16	15.00	0.045	-26.90	42.50	0.025	-32.12	70.00	0.015	-36.64
-1.00	0.141	-17.02	15.50	0.042	-27.60	43.00	0.028	-31.01	70.50	0.006	-43.76
-0.75	0.066	-23.62	16.00	0.057	-24.95	43.50	0.023	-32.92	71.00	0.002	-53.12
-0.50	0.188	-14.50	16.50	0.052	-25.64	44.00	0.013	-37.60	71.50	0.011	-39.51
-0.25	0.373	-8.55	17.00	0.035	-29.22	44.50	0.016	-35.85	72.00	0.018	-34.90
0.00	0.566	-4.95	17.50	0.040	-27.90	45.00	0.025	-31.90	72.50	0.024	-32.41
0.25	0.741	-2.60	18.00	0.051	-25.87	45.50	0.028	-30.98	73.00	0.028	-31.02
0.50	0.881	-1.10	18.50	0.042	-27.60	46.00	0.023	-32.88	73.50	0.030	-30.36
0.75	0.970	-0.26	19.00	0.029	-30.81	46.50	0.013	-37.57	74.00	0.031	-30.28
1.00	1.000	0.00	19.50	0.040	-28.04	47.00	0.015	-36.50	74.50	0.029	-30.72
1.25	0.970	-0.26	20.00	0.045	-26.89	47.50	0.024	-32.24	75.00	0.026	-31.67
1.50	0.889	-1.03	20.50	0.033	-29.56	48.00	0.029	-30.86	75.50	0.022	-33.22
1.75	0.770	-2.27	21.00	0.026	-31.61	48.50	0.025	-32.06	76.00	0.017	-35.54
2.00	0.637	-3.92	21.50	0.039	-28.24	49.00	0.016	-36.03	76.50	0.011	-39.05
2.25	0.515	-5.76	22.00	0.040	-27.86	49.50	0.012	-38.22	77.00	0.006	-44.71
2.50	0.431	-7.32	22.50	0.028	-31.20	50.00	0.021	-33.60	77.50	0.004	-48.79
2.75	0.392	-8.14	23.00	0.026	-31.81	50.50	0.028	-31.14	78.00	0.007	-42.51
3.00	0.380	-8.41	23.50	0.038	-28.51	51.00	0.028	-31.14	78.50	0.012	-38.34
3.25	0.367	-8.70	24.00	0.037	-28.73	51.50	0.021	-33.58	79.00	0.016	-35.78
3.50	0.338	-9.43	24.50	0.024	-32.45	52.00	0.012	-38.49	79.50	0.020	-34.11
3.75	0.290	-10.76	25.00	0.025	-32.01	52.50	0.014	-37.12	80.00	0.022	-33.00
4.00	0.234	-12.60	25.50	0.036	-28.89	53.00	0.023	-32.72	80.50	0.024	-32.28
4.25	0.191	-14.38	26.00	0.034	-29.45	53.50	0.028	-30.93	81.00	0.025	-31.87
4.50	0.178	-14.99	26.50	0.021	-33.35	54.00	0.027	-31.32	81.50	0.026	-31.70
4.75	0.190	-14.44	27.00	0.024	-32.35	54.50	0.020	-33.99	82.00	0.026	-31.73
5.00	0.203	-13.87	27.50	0.034	-29.31	55.00	0.011	-39.26	82.50	0.025	-31.94
5.25	0.202	-13.91	28.00	0.032	-29.94	55.50	0.013	-38.03	83.00	0.024	-32.30
5.50	0.183	-14.74	28.50	0.021	-33.75	56.00	0.022	-33.26	83.50	0.023	-32.80
5.75	0.153	-16.31	29.00	0.023	-32.68	56.50	0.028	-31.12	84.00	0.021	-33.43
6.00	0.124	-18.12	29.50	0.033	-29.63	57.00	0.028	-31.00	84.50	0.020	-34.18
6.25	0.114	-18.86	30.00	0.031	-30.12	57.50	0.023	-32.82	85.00	0.018	-35.06
6.50	0.124	-18.11	30.50	0.020	-34.01	58.00	0.014	-37.25	85.50	0.016	-36.06
6.75	0.139	-17.13	31.00	0.021	-33.75	58.50	0.008	-42.05	86.00	0.014	-37.19
7.00	0.145	-16.79	31.50	0.031	-30.21	59.00	0.015	-36.25	86.50	0.012	-38.48
7.25	0.136	-17.30	32.00	0.031	-30.11	59.50	0.024	-32.45	87.00	0.010	-39.95
7.50	0.117	-18.64	32.50	0.021	-33.44	60.00	0.028	-30.95	87.50	0.008	-41.67
7.75	0.095	-20.44	33.00	0.018	-34.80	60.50	0.028	-31.13	88.00	0.007	-43.72
8.00	0.084	-21.48	33.50	0.028	-31.07	61.00	0.022	-32.99	88.50	0.005	-46.32
8.25	0.091	-20.80	34.00	0.031	-30.24	61.50	0.014	-37.28	89.00	0.003	-49.92
8.50	0.105	-19.60	34.50	0.023	-32.93	62.00	0.006	-44.32	89.50	0.002	-55.99

