

**Preliminary Specification for  
TRASAR® Top Mounted  
UHF Elliptically Polarized  
Coaxial Slotted Array Television Antenna**

**WJZY, RF Channel 25  
FOX TELEVISION STATIONS, Belmont, NC**

**June 19, 2018**

**Antenna Model:  
ATW25H5-ETO4-25H**

**Specification Number  
20180314-386-VPol**

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TRASAR® Top Mounted  
UHF Elliptically Polarized  
Coaxial Slotted Array Television Antenna**

**Electrical Characteristics:**

<b>Channel:</b>	25		
<b>Frequency:</b>	536 MHz to 542 MHz		
<b>Service:</b>	ATSC		
<b>Azimuth Pattern Number:</b>	Horizontal Polarization	ATW-O4	
	Vertical Polarization	ATW-O4-V	
<b>Elevation Pattern Number:</b>	Horizontal Polarization	ATW25H5H	
	Vertical Polarization	ATW22H5H	
<b>Azimuth Directivity:</b>	Horizontal Polarization	1.13	(0.54 dB)
	Vertical Polarization	1.30	(1.13 dB)
<b>Elevation Directivity:</b>	Horizontal Polarization	25.00	(13.98 dBd)
	Vertical Polarization	22.00	(13.42 dBd)
<b>Peak Power Gain:</b>	Horizontal Polarization	22.70	(13.56 dBd)
	Vertical Polarization	5.67	(7.54 dBd)
<b>Gain at Horizontal:</b>	Horizontal Polarization	6.87	(8.37 dBd)
	Vertical Polarization	1.88	(2.73 dBd)
<b>Vertical/Horizontal Ratio:</b>	0.250		
<b>Electrical Beam Tilt:</b>	1.25 Degrees		
<b>Input Power Required:</b>	44.06 kW (16.44 dBk)		
<b>RF Input:</b>	8-3/16-inch EIA, 75 $\Omega$ , flanged male		
<b>Input Power Rating (maximum):</b>	97 kW Average Power, 8VSB		
<b>Antenna VSWR (maximum):</b>	1.10 Over 6 MHz Channel		

## Preliminary Specification for TRASAR® Top Mounted

### Coaxial Slotted Array Television Antenna

#### Antenna Mechanical Characteristics:

Mounting Configuration:	Top Mounted		
Height of Antenna (D):	52.3 feet	(15.9 meters)	
"Height of Center of Radiation (B):	26.1 feet	(8.0 meters)	
Overall Height (Includes four 3.5 ft lightning spurs) (A):	55.8 feet	(17.0 meters)	
Deicing:	Fully enclosed pressurized radome		
Radome Diameter (C):	18.40 inches	(467.4 millimeters)	
Radome Color:	Aviation Orange		
Climbing Device:	Fiberglass Ladder		
Calculated Weight <sup>1</sup> :	No Ice	6445.0 lb	2923.4 kg
	1/2" (13 mm) ice	7510.0 lb	3406.5 kg
Effective Projected Area (EPA-ft <sup>2</sup> ) <sup>12</sup> :	No Ice	76.9 ft <sup>2</sup>	(7.1 m <sup>2</sup> )
	1/2" (13 mm) ice	138.5 ft <sup>2</sup>	(12.9 m <sup>2</sup> )
Effective Moment Arm <sup>12</sup> :	No Ice	28.00 feet	(8.54 meters)
	1/2" (13 mm) ice	27.60 feet	(8.41 meters)

MOUNTING FLANGE BOLT CIRCLE<sup>3</sup>: Quantity (16), 1.38 inch holes for 1.25 inch bolts, equally spaced on a 21.50 inch bolt circle.

**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) Please note, the listed weights and effective wind areas are based on the PRELIMINARY design of the antenna. Final As-Built values for the antenna are typically within +/-10% of the Preliminary design values, and will be provided in the technical manual that accompanies the antenna. Specified loads include the antenna, lightning spurs, and beacon only. Custom mounting brackets/adapters and/or antenna input section are NOT included.

2) Preliminary antenna design based on a wind speed of 90 miles per hour (MPH) with no ice and 30 MPH with 0.75-inches of design radial ice (2.1-inches of factored ice at antenna, tiz) with a height above ground level (HAGL) of 1888 feet per ANSI/TIA-222-G. Structure Class II, Exposure Category C and Topographic Category I. Weight and wind area values include four lightning spurs and a standard beacon.

3) The mounting flange specified is the standard ERI mounting flange used for this antenna configuration. In those instances where an existing top mounted antenna is being replaced, the antenna supplied will be designed with a mounting flange to match that of the existing antenna bolt pattern unless electrical and/or mechanical requirements for the new antenna preclude the matching flange. Customer shall be responsible for supplying existing flange bolt pattern details when requesting a custom matching flange on the new antenna.

**NOTE: The purchaser or their representative shall be required to contact the tower owner, state and/or local building officials for specific design requirements and suitable parameters for a particular structure. Any variation from the parameters shown above must be communicated to ERI for comprehensive assessment.**

## Broadcast Antenna System Power Analysis

**WJZY**                      **RF Channel: 25**  
**FOX TELEVISION STATIONS**  
**Belmont, NC**  
**ATW25H5-ETO4-25H**

### Antenna Parameters

#### Azimuth Directivity:

Horizontal: 1.13 (0.54 dB)  
 Vertical: 1.30 (1.13 dB)

#### Elevation Directivity:

Horizontal: 25.00 (13.98 dB)  
 Vertical: 22.00 (13.42 dB)

### Transmission Line

#### Vertical Run:

Type: 8-3/16-inch EIA, 75  $\Omega$   
 Length: 1,890 feet 576.1 meters  
 Attenuation: 0.079 dB/100 feet 0.260 dB/100 mtrs

#### Horizontal Run:

Type: 8-3/16-inch EIA, 75  $\Omega$   
 Length: 200 feet 61.0 meters  
 Attenuation: 0.079 dB/100 feet 0.260 dB/100 mtrs

**Transmission Line Efficiency:** 68.27%

**RF System/Other Efficiency:** 94.19%

#### Effective Radiated Power:

Horizontal: 1000.00 kW (30.00 dBk)  
 Vertical: 250.00 kW (23.98 dBk)

#### Power Gain:

Horizontal: 22.70 numeric (13.56 dBd)  
 Vertical: 5.67 numeric (7.54 dBd)

#### Antenna Input Power:

44.06 kW (16.44 dBk)

#### Transmission Line Losses:

-20.48 kW (1.658 dB)

#### RF System/Other Losses:

-3.98 kW (0.260 dB)

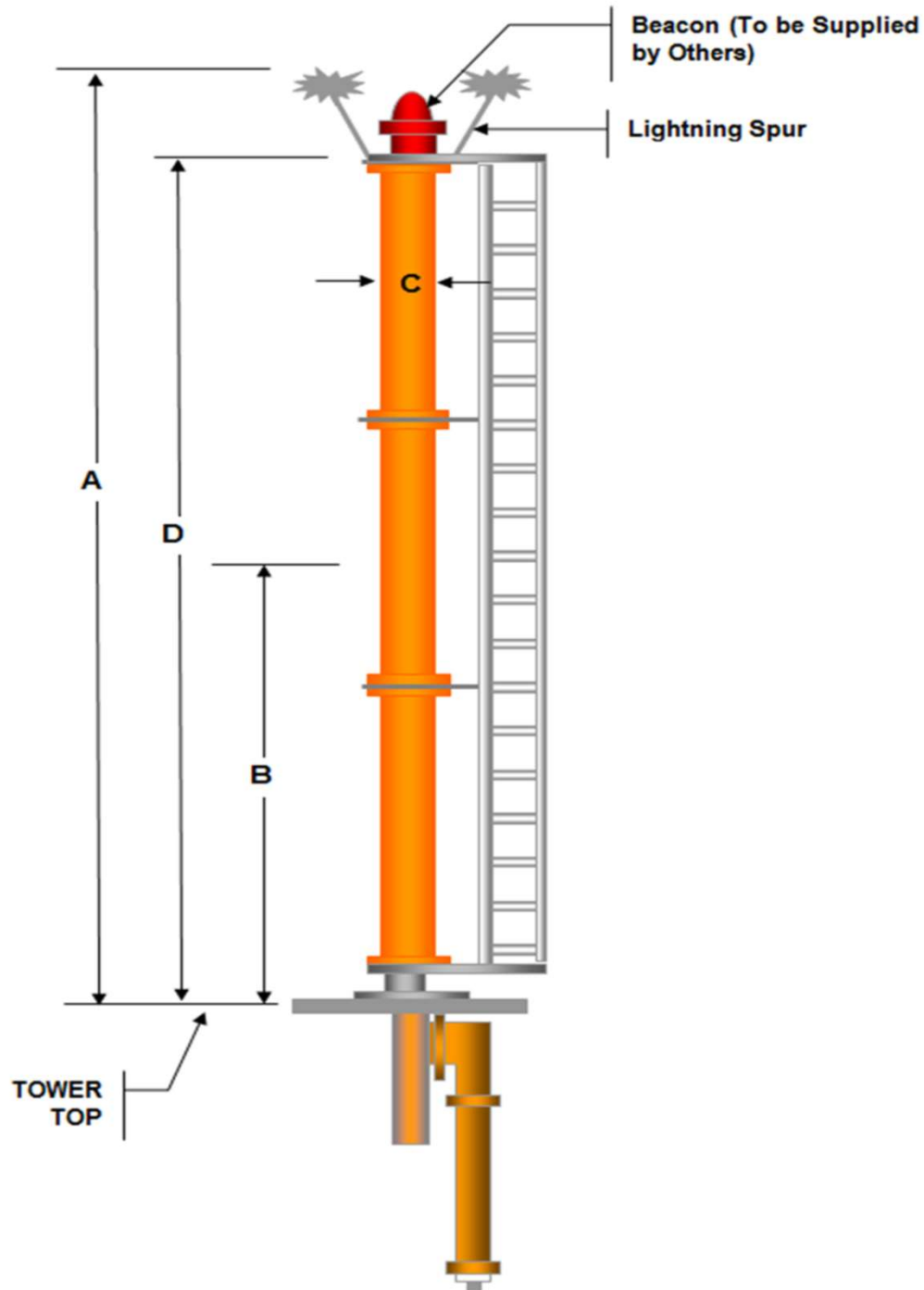
#### Total Losses:

-24.46 kW (1.918 dB)

#### Transmitter Power Output:

68.52 kW  
 (18.36 dBk)

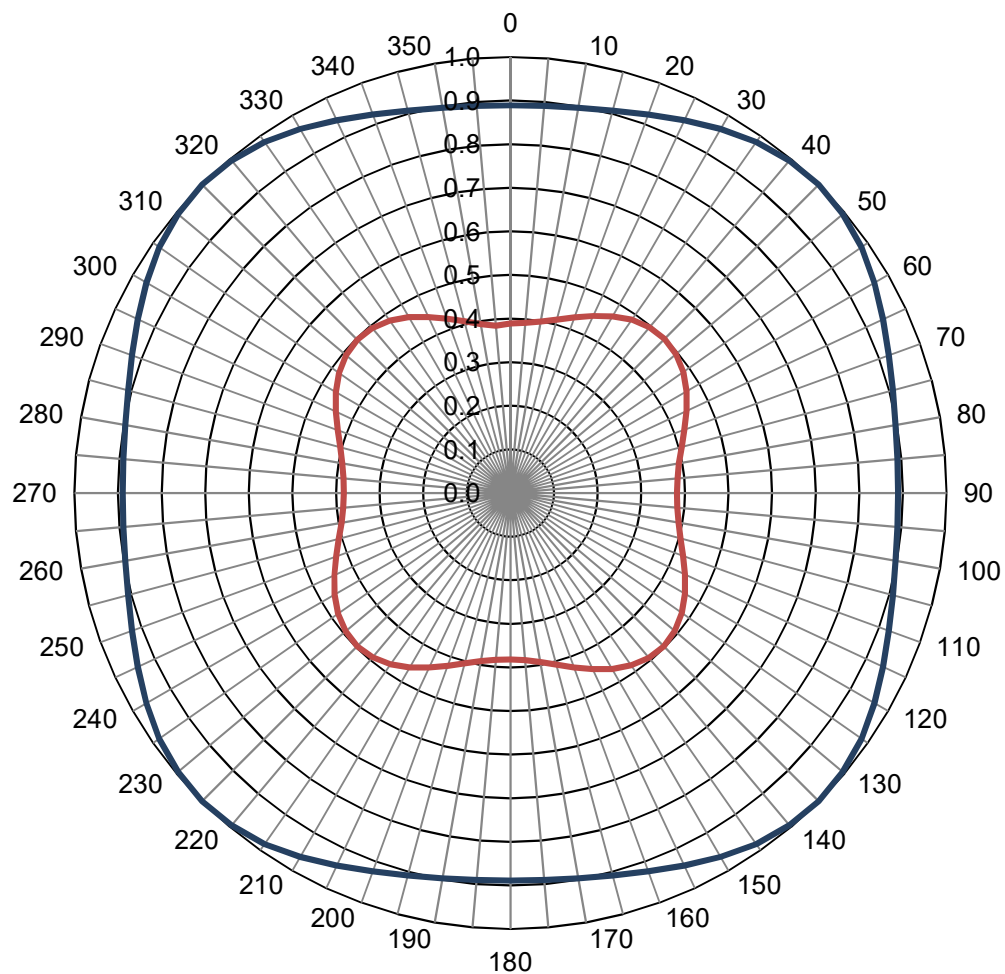
Typical Mounting Configuration Shown. Actual Configuration May Vary.



## Composite Azimuth Patterns

Type:	ATW-O4		Polarization:	Elliptical
Directivity (H-Pol):	1.13 numeric	(0.54 dB)	Frequency:	25 (ATSC)
Directivity (V-Pol):	1.30 numeric	(1.13 dB)	Location:	Belmont, NC
Percent Horizontal:	80.13%		NOTE: Pattern shape and directivity may vary with channel and mounting	
Percent Vertical:	19.87%			
Power Ratio:	24.80%			

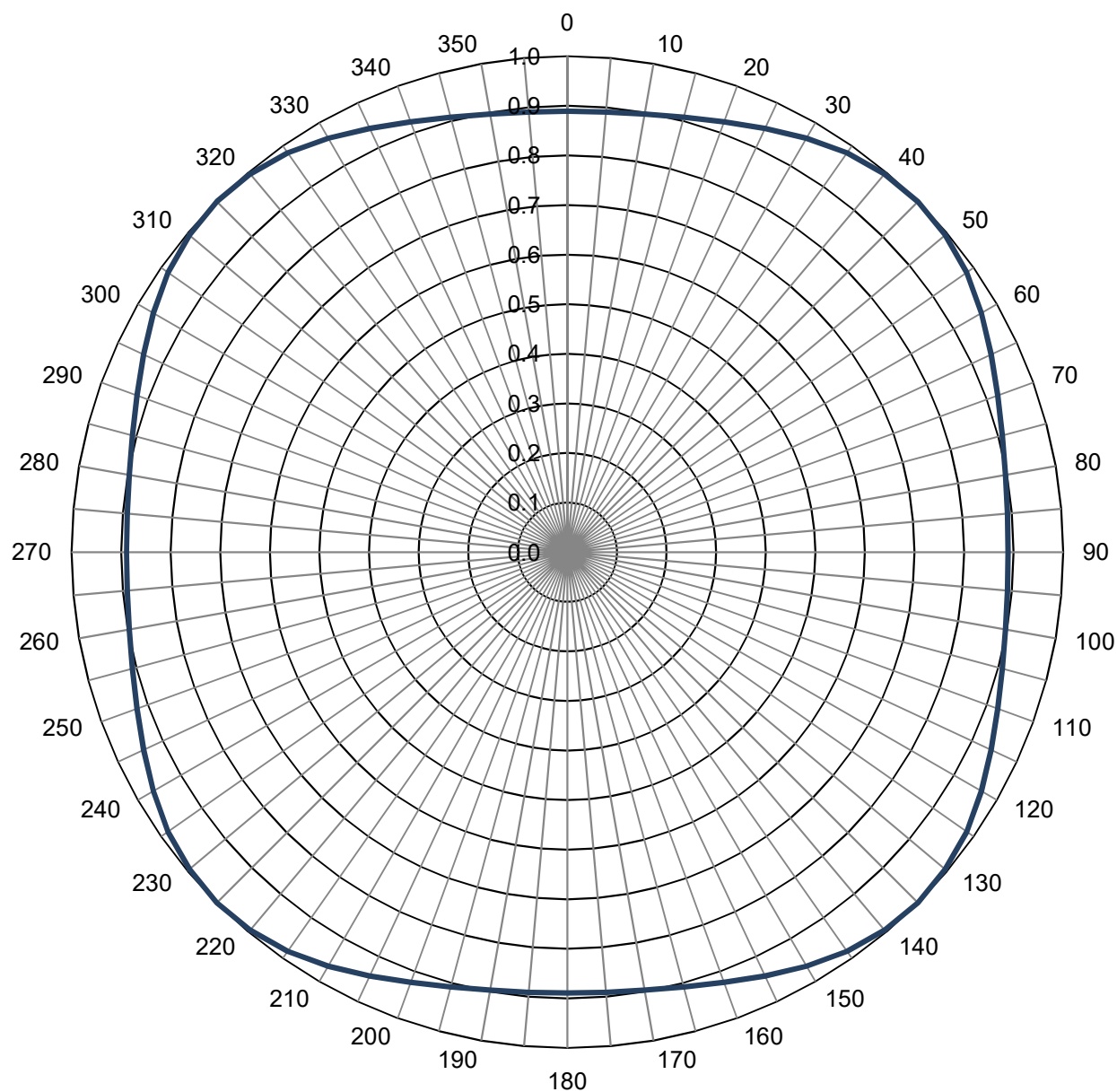
— Horizontal Relative Field      — Vertical Relative Field (scaled)



## Azimuth Pattern

Type:	ATW-O4	Polarization:	Horizontal
Directivity:	1.13 numeric (0.54 dB)	Frequency:	25 (ATSC)
Peak(s) at:		Location:	Belmont, NC
		NOTE: Pattern shape and directivity may vary with channel and mounting configuration.	

## Relative Field



**Tabulated Data for Azimuth Pattern**

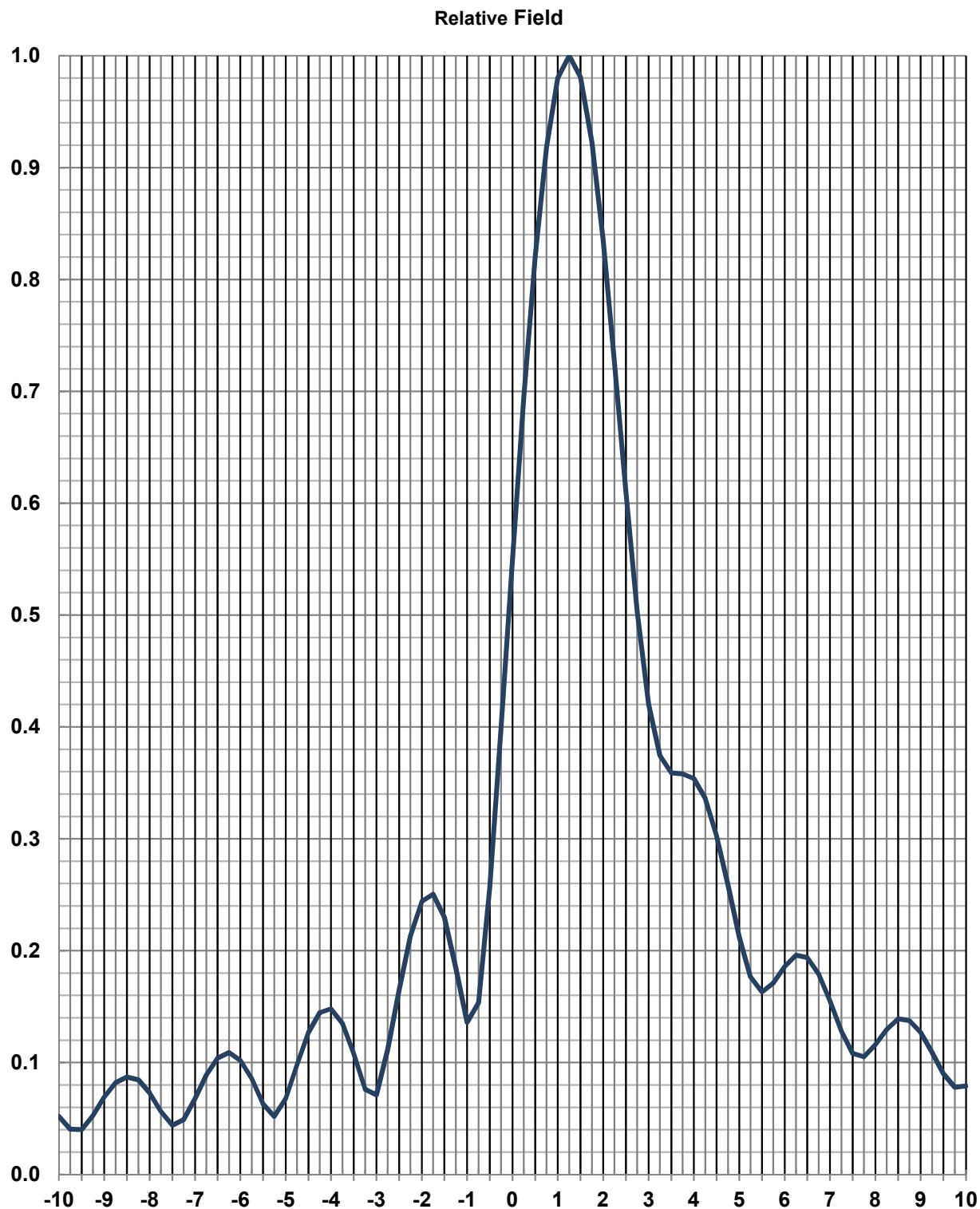
Type: ATW-O4

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.889	-1.02	100	0.897	-0.94	200	0.924	-0.69	300	0.964	-0.32
2	0.889	-1.02	102	0.901	-0.91	202	0.931	-0.62	302	0.972	-0.25
4	0.890	-1.01	104	0.906	-0.86	204	0.939	-0.55	304	0.980	-0.18
6	0.892	-0.99	106	0.911	-0.81	206	0.947	-0.47	306	0.986	-0.12
8	0.894	-0.97	108	0.917	-0.75	208	0.956	-0.40	308	0.991	-0.08
10	0.897	-0.94	110	0.924	-0.69	210	0.964	-0.32	310	0.995	-0.04
12	0.901	-0.91	112	0.931	-0.62	212	0.972	-0.25	312	0.998	-0.02
14	0.906	-0.86	114	0.939	-0.55	214	0.980	-0.18	314	1.000	0.00
16	0.911	-0.81	116	0.947	-0.47	216	0.986	-0.12	316	1.000	0.00
18	0.917	-0.75	118	0.956	-0.40	218	0.991	-0.08	318	0.998	-0.02
20	0.924	-0.69	120	0.964	-0.32	220	0.995	-0.04	320	0.995	-0.04
22	0.931	-0.62	122	0.972	-0.25	222	0.998	-0.02	322	0.991	-0.08
24	0.939	-0.55	124	0.980	-0.18	224	1.000	0.00	324	0.986	-0.12
26	0.947	-0.47	126	0.986	-0.12	226	1.000	0.00	326	0.980	-0.18
28	0.956	-0.40	128	0.991	-0.08	228	0.998	-0.02	328	0.972	-0.25
30	0.964	-0.32	130	0.995	-0.04	230	0.995	-0.04	330	0.964	-0.32
32	0.972	-0.25	132	0.998	-0.02	232	0.991	-0.08	332	0.956	-0.40
34	0.980	-0.18	134	1.000	0.00	234	0.986	-0.12	334	0.947	-0.47
36	0.986	-0.12	136	1.000	0.00	236	0.980	-0.18	336	0.939	-0.55
38	0.991	-0.08	138	0.998	-0.02	238	0.972	-0.25	338	0.931	-0.62
40	0.995	-0.04	140	0.995	-0.04	240	0.964	-0.32	340	0.924	-0.69
42	0.998	-0.02	142	0.991	-0.08	242	0.956	-0.40	342	0.917	-0.75
44	1.000	0.00	144	0.986	-0.12	244	0.947	-0.47	344	0.911	-0.81
46	1.000	0.00	146	0.980	-0.18	246	0.939	-0.55	346	0.906	-0.86
48	0.998	-0.02	148	0.972	-0.25	248	0.931	-0.62	348	0.901	-0.91
50	0.995	-0.04	150	0.964	-0.32	250	0.924	-0.69	350	0.897	-0.94
52	0.991	-0.08	152	0.956	-0.40	252	0.917	-0.75	352	0.894	-0.97
54	0.986	-0.12	154	0.947	-0.47	254	0.911	-0.81	354	0.892	-0.99
56	0.980	-0.18	156	0.939	-0.55	256	0.906	-0.86	356	0.890	-1.01
58	0.972	-0.25	158	0.931	-0.62	258	0.901	-0.91	358	0.889	-1.02
60	0.964	-0.32	160	0.924	-0.69	260	0.897	-0.94	360	0.889	-1.02
62	0.956	-0.40	162	0.917	-0.75	262	0.894	-0.97			
64	0.947	-0.47	164	0.911	-0.81	264	0.892	-0.99			
66	0.939	-0.55	166	0.906	-0.86	266	0.890	-1.01			
68	0.931	-0.62	168	0.901	-0.91	268	0.889	-1.02			
70	0.924	-0.69	170	0.897	-0.94	270	0.889	-1.02			
72	0.917	-0.75	172	0.894	-0.97	272	0.889	-1.02			
74	0.911	-0.81	174	0.892	-0.99	274	0.890	-1.01			
76	0.906	-0.86	176	0.890	-1.01	276	0.892	-0.99			
78	0.901	-0.91	178	0.889	-1.02	278	0.894	-0.97			
80	0.897	-0.94	180	0.889	-1.02	280	0.897	-0.94			
82	0.894	-0.97	182	0.889	-1.02	282	0.901	-0.91			
84	0.892	-0.99	184	0.890	-1.01	284	0.906	-0.86			
86	0.890	-1.01	186	0.892	-0.99	286	0.911	-0.81			
88	0.889	-1.02	188	0.894	-0.97	288	0.917	-0.75			
90	0.889	-1.02	190	0.897	-0.94	290	0.924	-0.69			
92	0.889	-1.02	192	0.901	-0.91	292	0.931	-0.62			
94	0.890	-1.01	194	0.906	-0.86	294	0.939	-0.55			
96	0.892	-0.99	196	0.911	-0.81	296	0.947	-0.47			
98	0.894	-0.97	198	0.917	-0.75	298	0.956	-0.40			



## Elevation Pattern

Type:	ATW25H5H		Polarization:	Horizontal
Directivity:			Frequency:	25 (ATSC)
Main Lobe:	25.00 numeric	(13.98 dB)	Location:	Belmont, NC
Horizontal:	7.56 numeric	(8.79 dB)	Beam Tilt:	1.25 degrees



**Tabulated Data for Elevation Pattern**Type: ATW25H5H

-10 to 10 degrees in 0.25 degree increments.

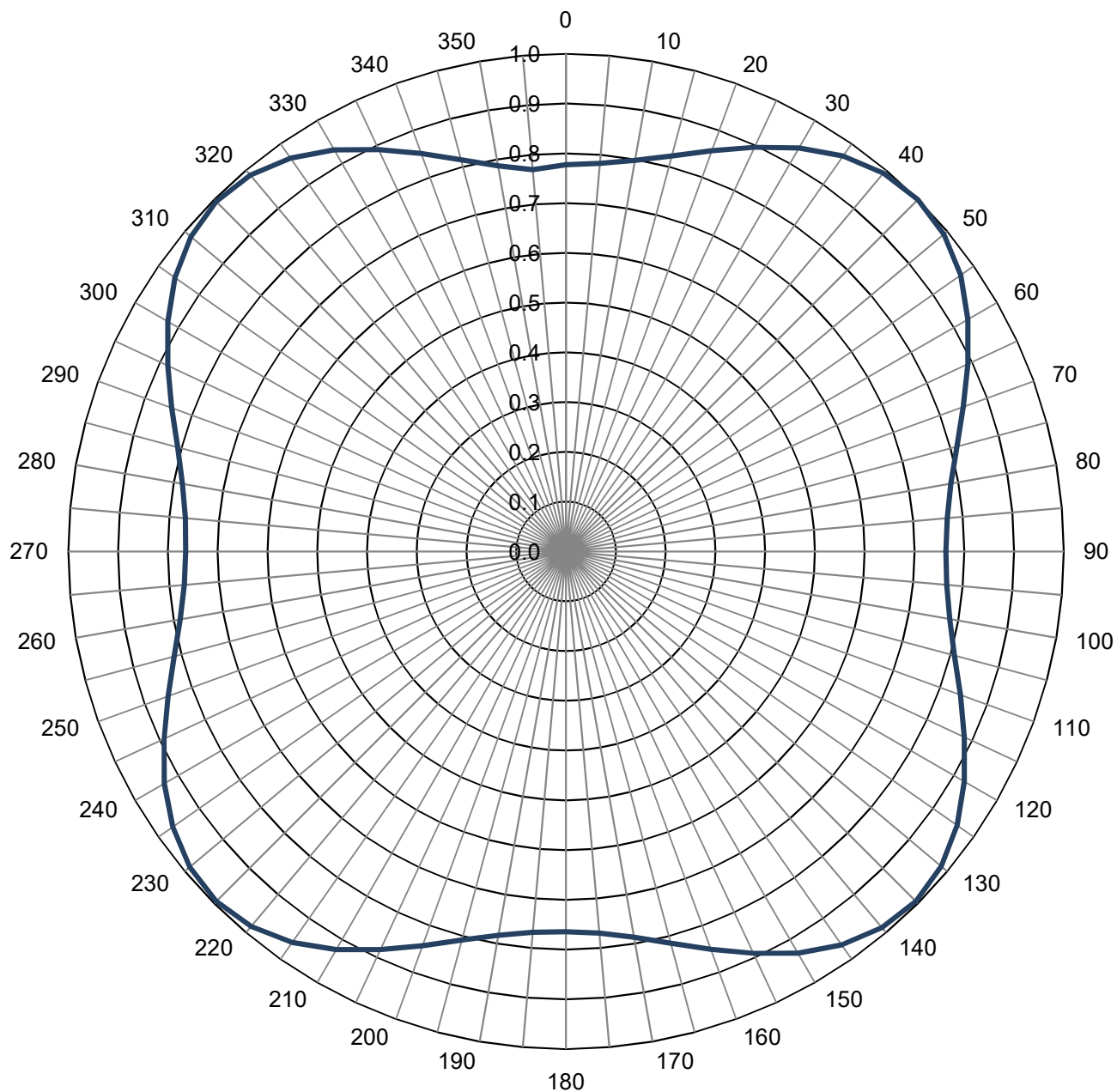
10 to 90 degrees in 0.50 degree increments.

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-10.00	0.052	-25.68	2.25	0.726	-2.78	19.00	0.037	-28.64	43.50	0.024	-32.40	68.00	0.022	-33.15
-9.75	0.041	-27.85	2.50	0.610	-4.29	19.50	0.052	-25.68	44.00	0.015	-36.48	68.50	0.030	-30.46
-9.50	0.040	-27.96	2.75	0.504	-5.96	20.00	0.055	-25.19	44.50	0.019	-34.42	69.00	0.036	-28.87
-9.25	0.053	-25.60	3.00	0.420	-7.54	20.50	0.043	-27.33	45.00	0.029	-30.75	69.50	0.039	-28.18
-9.00	0.069	-23.22	3.25	0.375	-8.53	21.00	0.030	-30.46	45.50	0.035	-29.12	70.00	0.040	-27.96
-8.75	0.082	-21.72	3.50	0.359	-8.90	21.50	0.038	-28.40	46.00	0.033	-29.63	70.50	0.039	-28.18
-8.50	0.087	-21.21	3.75	0.358	-8.92	22.00	0.049	-26.20	46.50	0.025	-32.04	71.00	0.035	-29.12
-8.25	0.085	-21.46	4.00	0.354	-9.02	22.50	0.047	-26.56	47.00	0.015	-36.48	71.50	0.029	-30.75
-8.00	0.073	-22.73	4.25	0.336	-9.47	23.00	0.033	-29.63	47.50	0.018	-34.89	72.00	0.022	-33.15
-7.75	0.057	-24.96	4.50	0.303	-10.37	23.50	0.027	-31.37	48.00	0.027	-31.37	72.50	0.013	-37.72
-7.50	0.044	-27.13	4.75	0.259	-11.75	24.00	0.039	-28.18	48.50	0.034	-29.37	73.00	0.004	-47.96
-7.25	0.049	-26.20	5.00	0.212	-13.47	24.50	0.046	-26.74	49.00	0.035	-29.12	73.50	0.005	-46.02
-7.00	0.068	-23.35	5.25	0.177	-15.07	25.00	0.039	-28.18	49.50	0.029	-30.75	74.00	0.013	-37.72
-6.75	0.089	-21.01	5.50	0.163	-15.76	25.50	0.027	-31.37	50.00	0.019	-34.42	74.50	0.021	-33.56
-6.50	0.104	-19.66	5.75	0.171	-15.34	26.00	0.028	-31.06	50.50	0.014	-37.08	75.00	0.028	-31.06
-6.25	0.109	-19.25	6.00	0.186	-14.61	26.50	0.039	-28.18	51.00	0.021	-33.56	75.50	0.033	-29.63
-6.00	0.102	-19.83	6.25	0.196	-14.15	27.00	0.043	-27.33	51.50	0.031	-30.17	76.00	0.037	-28.64
-5.75	0.086	-21.36	6.50	0.194	-14.24	27.50	0.035	-29.12	52.00	0.036	-28.87	76.50	0.040	-27.96
-5.50	0.063	-24.01	6.75	0.179	-14.94	28.00	0.023	-32.77	52.50	0.035	-29.12	77.00	0.042	-27.54
-5.25	0.052	-25.68	7.00	0.155	-16.19	28.50	0.028	-31.06	53.00	0.028	-31.06	77.50	0.042	-27.54
-5.00	0.068	-23.35	7.25	0.128	-17.86	29.00	0.038	-28.40	53.50	0.018	-34.89	78.00	0.041	-27.74
-4.75	0.098	-20.18	7.50	0.108	-19.33	29.50	0.040	-27.96	54.00	0.012	-38.42	78.50	0.040	-27.96
-4.50	0.127	-17.92	7.75	0.105	-19.58	30.00	0.031	-30.17	54.50	0.020	-33.98	79.00	0.037	-28.64
-4.25	0.145	-16.80	8.00	0.116	-18.71	30.50	0.021	-33.56	55.00	0.029	-30.75	79.50	0.034	-29.37
-4.00	0.148	-16.59	8.25	0.130	-17.75	31.00	0.027	-31.37	55.50	0.035	-29.12	80.00	0.030	-30.46
-3.75	0.135	-17.39	8.50	0.139	-17.14	31.50	0.037	-28.64	56.00	0.036	-28.87	80.50	0.027	-31.37
-3.50	0.108	-19.33	8.75	0.138	-17.23	32.00	0.038	-28.40	56.50	0.032	-29.90	81.00	0.023	-32.77
-3.25	0.076	-22.38	9.00	0.127	-17.92	32.50	0.030	-30.46	57.00	0.023	-32.77	81.50	0.018	-34.89
-3.00	0.071	-22.97	9.25	0.109	-19.25	33.00	0.020	-33.98	57.50	0.013	-37.72	82.00	0.015	-36.48
-2.75	0.112	-19.05	9.50	0.090	-20.92	33.50	0.024	-32.40	58.00	0.012	-38.42	82.50	0.011	-39.17
-2.50	0.165	-15.65	9.75	0.078	-22.16	34.00	0.034	-29.37	58.50	0.021	-33.56	83.00	0.008	-41.94
-2.25	0.213	-13.43	10.00	0.079	-22.05	34.50	0.037	-28.64	59.00	0.030	-30.46	83.50	0.005	-46.02
-2.00	0.244	-12.25	10.50	0.101	-19.91	35.00	0.030	-30.46	59.50	0.036	-28.87	84.00	0.003	-50.46
-1.75	0.251	-12.02	11.00	0.106	-19.49	35.50	0.020	-33.98	60.00	0.037	-28.64	84.50	0.002	-53.98
-1.50	0.230	-12.77	11.50	0.083	-21.62	36.00	0.021	-33.56	60.50	0.033	-29.63	85.00	0.003	-50.46
-1.25	0.185	-14.68	12.00	0.060	-24.44	36.50	0.031	-30.17	61.00	0.026	-31.70	85.50	0.004	-47.96
-1.00	0.136	-17.33	12.50	0.073	-22.73	37.00	0.036	-28.87	61.50	0.016	-35.92	86.00	0.005	-46.02
-0.75	0.154	-16.28	13.00	0.088	-21.11	37.50	0.032	-29.90	62.00	0.008	-41.94	86.50	0.005	-46.02
-0.50	0.257	-11.80	13.50	0.078	-22.16	38.00	0.022	-33.15	62.50	0.014	-37.08	87.00	0.006	-44.44
-0.25	0.399	-7.98	14.00	0.055	-25.19	38.50	0.017	-35.39	63.00	0.024	-32.40	87.50	0.005	-46.02
0.00	0.550	-5.19	14.50	0.052	-25.68	39.00	0.026	-31.70	63.50	0.032	-29.90	88.00	0.005	-46.02
0.25	0.695	-3.17	15.00	0.069	-23.22	39.50	0.034	-29.37	64.00	0.037	-28.64	88.50	0.004	-47.96
0.50	0.821	-1.71	15.50	0.072	-22.85	40.00	0.034	-29.37	64.50	0.038	-28.40	89.00	0.003	-50.46
0.75	0.918	-0.74	16.00	0.056	-25.04	40.50	0.027	-31.37	65.00	0.036	-28.87	89.50	0.002	-53.98
1.00	0.980	-0.18	16.50	0.041	-27.74	41.00	0.017	-35.39	65.50	0.030	-30.46	90.00	0.001	-60.00
1.25	1.000	0.00	17.00	0.052	-25.68	41.50	0.019	-34.42	66.00	0.022	-33.15			
1.50	0.981	-0.17	17.50	0.062	-24.15	42.00	0.029	-30.75	66.50	0.012	-38.42			
1.75	0.923	-0.70	18.00	0.056	-25.04	42.50	0.035	-29.12	67.00	0.005	-46.02			
2.00	0.835	-1.57	18.50	0.038	-28.40	43.00	0.033	-29.63	67.50	0.012	-38.42			

## Azimuth Pattern

Type:	ATW-O4-V		Polarization:	Vertical
Directivity:	1.30 numeric	(1.13 dB)	Frequency:	25 (ATSC)
Peak(s) at:			Location:	Belmont, NC
			NOTE: Pattern shape and directivity may vary with channel and mounting configuration.	

## Relative Field



**Tabulated Data for Azimuth Pattern**Type: ATW-O4-V

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.777	-2.19	100	0.783	-2.12	200	0.843	-1.48	300	0.924	-0.69
2	0.778	-2.18	102	0.792	-2.03	202	0.859	-1.32	302	0.939	-0.55
4	0.781	-2.15	104	0.802	-1.92	204	0.875	-1.16	304	0.953	-0.42
6	0.785	-2.10	106	0.815	-1.78	206	0.891	-1.00	306	0.965	-0.31
8	0.790	-2.05	108	0.828	-1.64	208	0.908	-0.84	308	0.976	-0.21
10	0.798	-1.96	110	0.843	-1.48	210	0.924	-0.69	310	0.984	-0.14
12	0.807	-1.86	112	0.859	-1.32	212	0.939	-0.55	312	0.990	-0.09
14	0.817	-1.76	114	0.875	-1.16	214	0.953	-0.42	314	0.993	-0.06
16	0.829	-1.63	116	0.891	-1.00	216	0.965	-0.31	316	0.994	-0.05
18	0.842	-1.49	118	0.908	-0.84	218	0.976	-0.21	318	0.992	-0.07
20	0.857	-1.34	120	0.924	-0.69	220	0.984	-0.14	320	0.987	-0.11
22	0.872	-1.19	122	0.939	-0.55	222	0.990	-0.09	322	0.980	-0.18
24	0.888	-1.03	124	0.953	-0.42	224	0.993	-0.06	324	0.971	-0.26
26	0.904	-0.88	126	0.965	-0.31	226	0.994	-0.05	326	0.959	-0.36
28	0.920	-0.72	128	0.976	-0.21	228	0.992	-0.07	328	0.946	-0.48
30	0.936	-0.57	130	0.984	-0.14	230	0.987	-0.11	330	0.932	-0.61
32	0.950	-0.45	132	0.990	-0.09	232	0.980	-0.18	332	0.916	-0.76
34	0.963	-0.33	134	0.993	-0.06	234	0.971	-0.26	334	0.900	-0.92
36	0.975	-0.22	136	0.994	-0.05	236	0.959	-0.36	336	0.883	-1.08
38	0.985	-0.13	138	0.992	-0.07	238	0.946	-0.48	338	0.867	-1.24
40	0.992	-0.07	140	0.987	-0.11	240	0.932	-0.61	340	0.851	-1.40
42	0.997	-0.03	142	0.980	-0.18	242	0.916	-0.76	342	0.835	-1.57
44	1.000	0.00	144	0.971	-0.26	244	0.900	-0.92	344	0.821	-1.71
46	1.000	0.00	146	0.959	-0.36	246	0.883	-1.08	346	0.808	-1.85
48	0.997	-0.03	148	0.946	-0.48	248	0.867	-1.24	348	0.797	-1.97
50	0.991	-0.08	150	0.932	-0.61	250	0.851	-1.40	350	0.787	-2.08
52	0.983	-0.15	152	0.916	-0.76	252	0.835	-1.57	352	0.779	-2.17
54	0.973	-0.24	154	0.900	-0.92	254	0.821	-1.71	354	0.773	-2.24
56	0.961	-0.35	156	0.883	-1.08	256	0.808	-1.85	356	0.768	-2.29
58	0.947	-0.47	158	0.867	-1.24	258	0.797	-1.97	358	0.765	-2.33
60	0.932	-0.61	160	0.851	-1.40	260	0.787	-2.08	360	0.777	-2.19
62	0.916	-0.76	162	0.835	-1.57	262	0.779	-2.17			
64	0.899	-0.92	164	0.821	-1.71	264	0.773	-2.24			
66	0.882	-1.09	166	0.808	-1.85	266	0.768	-2.29			
68	0.865	-1.26	168	0.797	-1.97	268	0.765	-2.33			
70	0.849	-1.42	170	0.787	-2.08	270	0.764	-2.34			
72	0.834	-1.58	172	0.779	-2.17	272	0.764	-2.34			
74	0.819	-1.73	174	0.773	-2.24	274	0.766	-2.32			
76	0.806	-1.87	176	0.768	-2.29	276	0.770	-2.27			
78	0.795	-1.99	178	0.765	-2.33	278	0.776	-2.20			
80	0.785	-2.10	180	0.764	-2.34	280	0.783	-2.12			
82	0.778	-2.18	182	0.764	-2.34	282	0.792	-2.03			
84	0.771	-2.26	184	0.766	-2.32	284	0.802	-1.92			
86	0.767	-2.30	186	0.770	-2.27	286	0.815	-1.78			
88	0.764	-2.34	188	0.776	-2.20	288	0.828	-1.64			
90	0.763	-2.35	190	0.783	-2.12	290	0.843	-1.48			
92	0.764	-2.34	192	0.792	-2.03	292	0.859	-1.32			
94	0.766	-2.32	194	0.802	-1.92	294	0.875	-1.16			
96	0.770	-2.27	196	0.815	-1.78	296	0.891	-1.00			
98	0.776	-2.20	198	0.828	-1.64	298	0.908	-0.84			

## Elevation Pattern

Type: ATW22H5H

Polarization: Vertical

Directivity:

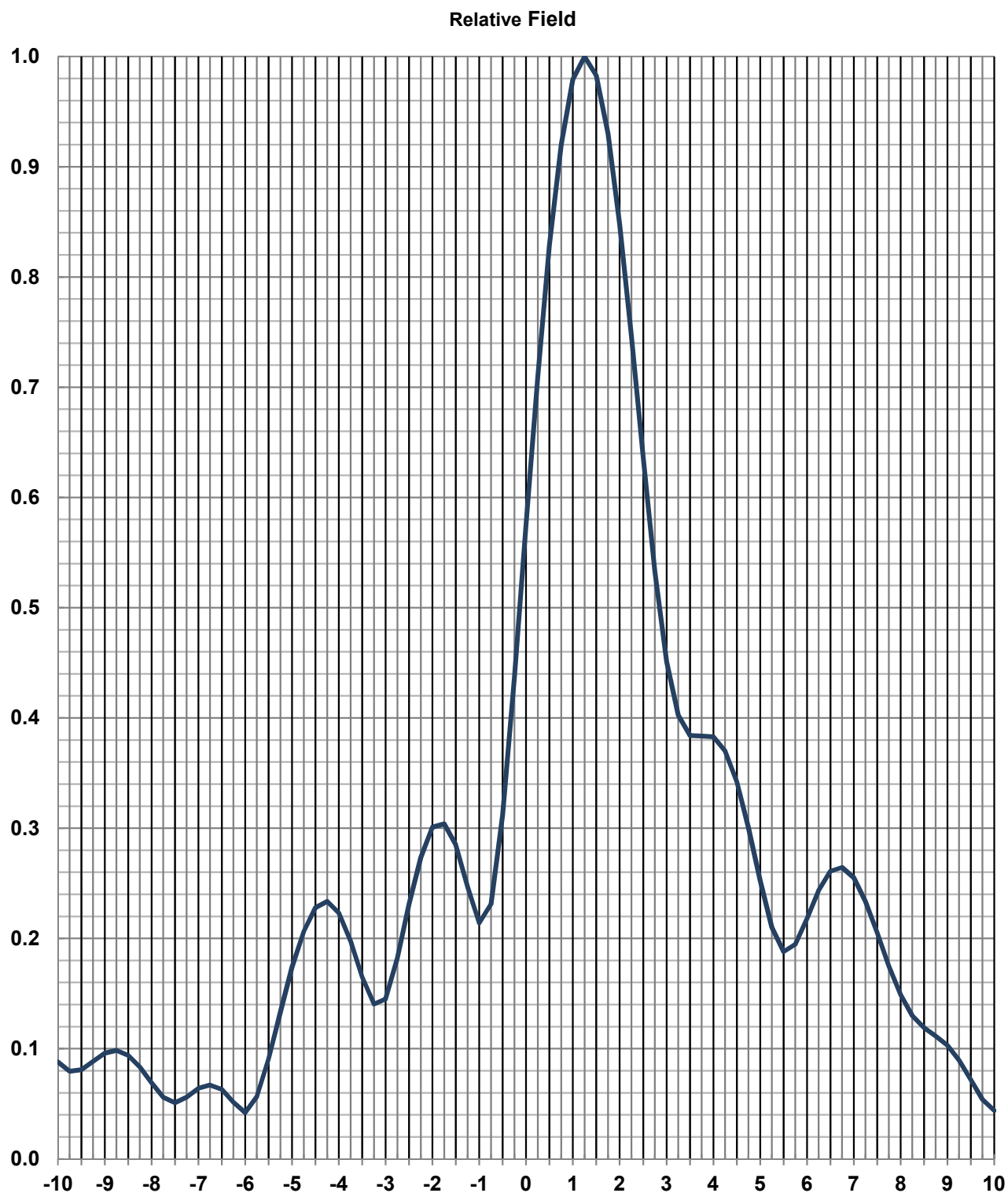
Frequency: 25 (ATSC)

Main Lobe: 22.00 numeric (13.42 dB)

Location: Belmont, NC

Horizontal: 7.27 numeric (8.62 dB)

Beam Tilt: 1.25 degrees



**Tabulated Data for Elevation Pattern**Type: ATW22H5H

-10 to 10 degrees in 0.25 degree increments.

10 to 90 degrees in 0.50 degree increments.

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-10.00	0.088	-21.11	2.25	0.746	-2.55	19.00	0.024	-32.40	43.50	0.049	-26.20	68.00	0.047	-26.56
-9.75	0.080	-21.99	2.50	0.636	-3.93	19.50	0.055	-25.19	44.00	0.066	-23.61	68.50	0.054	-25.35
-9.50	0.081	-21.83	2.75	0.533	-5.47	20.00	0.093	-20.63	44.50	0.076	-22.38	69.00	0.058	-24.73
-9.25	0.089	-21.06	3.00	0.451	-6.92	20.50	0.118	-18.56	45.00	0.079	-22.05	69.50	0.060	-24.44
-9.00	0.096	-20.35	3.25	0.403	-7.90	21.00	0.122	-18.27	45.50	0.074	-22.62	70.00	0.059	-24.58
-8.75	0.099	-20.13	3.50	0.384	-8.31	21.50	0.109	-19.25	46.00	0.064	-23.88	70.50	0.055	-25.19
-8.50	0.094	-20.54	3.75	0.384	-8.32	22.00	0.088	-21.11	46.50	0.055	-25.19	71.00	0.050	-26.02
-8.25	0.084	-21.57	4.00	0.383	-8.34	22.50	0.068	-23.35	47.00	0.049	-26.20	71.50	0.043	-27.33
-8.00	0.069	-23.22	4.25	0.370	-8.64	23.00	0.053	-25.51	47.50	0.047	-26.56	72.00	0.036	-28.87
-7.75	0.056	-25.04	4.50	0.342	-9.32	23.50	0.037	-28.64	48.00	0.045	-26.94	72.50	0.029	-30.75
-7.50	0.051	-25.85	4.75	0.301	-10.44	24.00	0.019	-34.42	48.50	0.041	-27.74	73.00	0.025	-32.04
-7.25	0.056	-25.04	5.00	0.252	-11.97	24.50	0.011	-39.17	49.00	0.034	-29.37	73.50	0.025	-32.04
-7.00	0.064	-23.88	5.25	0.210	-13.56	25.00	0.020	-33.98	49.50	0.027	-31.37	74.00	0.029	-30.75
-6.75	0.067	-23.48	5.50	0.188	-14.52	25.50	0.018	-34.89	50.00	0.024	-32.40	74.50	0.034	-29.37
-6.50	0.063	-24.01	5.75	0.195	-14.22	26.00	0.005	-46.02	50.50	0.025	-32.04	75.00	0.039	-28.18
-6.25	0.052	-25.76	6.00	0.218	-13.23	26.50	0.029	-30.75	51.00	0.026	-31.70	75.50	0.044	-27.13
-6.00	0.042	-27.54	6.25	0.244	-12.27	27.00	0.062	-24.15	51.50	0.023	-32.77	76.00	0.048	-26.38
-5.75	0.057	-24.96	6.50	0.261	-11.67	27.50	0.088	-21.11	52.00	0.015	-36.48	76.50	0.050	-26.02
-5.50	0.091	-20.82	6.75	0.265	-11.55	28.00	0.102	-19.83	52.50	0.008	-41.94	77.00	0.052	-25.68
-5.25	0.134	-17.49	7.00	0.255	-11.87	28.50	0.102	-19.83	53.00	0.019	-34.42	77.50	0.052	-25.68
-5.00	0.174	-15.19	7.25	0.234	-12.63	29.00	0.089	-21.01	53.50	0.035	-29.12	78.00	0.051	-25.85
-4.75	0.207	-13.70	7.50	0.205	-13.76	29.50	0.073	-22.73	54.00	0.049	-26.20	78.50	0.049	-26.20
-4.50	0.228	-12.84	7.75	0.175	-15.14	30.00	0.060	-24.44	54.50	0.060	-24.44	79.00	0.046	-26.74
-4.25	0.234	-12.63	8.00	0.149	-16.54	30.50	0.050	-26.02	55.00	0.066	-23.61	79.50	0.043	-27.33
-4.00	0.223	-13.03	8.25	0.130	-17.72	31.00	0.039	-28.18	55.50	0.066	-23.61	80.00	0.039	-28.18
-3.75	0.198	-14.09	8.50	0.119	-18.49	31.50	0.025	-32.04	56.00	0.061	-24.29	80.50	0.035	-29.12
-3.50	0.165	-15.65	8.75	0.112	-19.05	32.00	0.014	-37.08	56.50	0.054	-25.35	81.00	0.031	-30.17
-3.25	0.141	-17.05	9.00	0.103	-19.74	32.50	0.015	-36.48	57.00	0.047	-26.56	81.50	0.027	-31.37
-3.00	0.145	-16.77	9.25	0.090	-20.96	33.00	0.016	-35.92	57.50	0.043	-27.33	82.00	0.023	-32.77
-2.75	0.182	-14.80	9.50	0.072	-22.85	33.50	0.007	-43.10	58.00	0.044	-27.13	82.50	0.019	-34.42
-2.50	0.231	-12.73	9.75	0.054	-25.35	34.00	0.012	-38.42	58.50	0.047	-26.56	83.00	0.016	-35.92
-2.25	0.274	-11.26	10.00	0.044	-27.13	34.50	0.037	-28.64	59.00	0.049	-26.20	83.50	0.012	-38.42
-2.00	0.301	-10.43	10.50	0.067	-23.48	35.00	0.062	-24.15	59.50	0.048	-26.38	84.00	0.010	-40.00
-1.75	0.304	-10.34	11.00	0.090	-20.92	35.50	0.081	-21.83	60.00	0.045	-26.94	84.50	0.008	-41.94
-1.50	0.285	-10.90	11.50	0.082	-21.72	36.00	0.090	-20.92	60.50	0.039	-28.18	85.00	0.006	-44.44
-1.25	0.247	-12.15	12.00	0.057	-24.88	36.50	0.088	-21.11	61.00	0.032	-29.90	85.50	0.006	-44.44
-1.00	0.214	-13.39	12.50	0.074	-22.62	37.00	0.078	-22.16	61.50	0.026	-31.70	86.00	0.005	-46.02
-0.75	0.231	-12.73	13.00	0.120	-18.42	37.50	0.065	-23.74	62.00	0.025	-32.04	86.50	0.005	-46.02
-0.50	0.312	-10.12	13.50	0.150	-16.48	38.00	0.055	-25.19	62.50	0.028	-31.06	87.00	0.005	-46.02
-0.25	0.437	-7.19	14.00	0.150	-16.48	38.50	0.048	-26.38	63.00	0.032	-29.90	87.50	0.004	-47.96
0.00	0.575	-4.81	14.50	0.127	-17.92	39.00	0.042	-27.54	63.50	0.034	-29.37	88.00	0.004	-47.96
0.25	0.710	-2.97	15.00	0.096	-20.35	39.50	0.033	-29.63	64.00	0.032	-29.90	88.50	0.003	-50.46
0.50	0.829	-1.63	15.50	0.073	-22.73	40.00	0.023	-32.77	64.50	0.028	-31.06	89.00	0.003	-50.46
0.75	0.920	-0.72	16.00	0.056	-25.04	40.50	0.018	-34.89	65.00	0.021	-33.56	89.50	0.002	-53.98
1.00	0.979	-0.18	16.50	0.033	-29.63	41.00	0.019	-34.42	65.50	0.011	-39.17	90.00	0.001	-60.00
1.25	1.000	0.00	17.00	0.013	-37.72	41.50	0.018	-34.89	66.00	0.002	-53.98			
1.50	0.983	-0.15	17.50	0.031	-30.17	42.00	0.012	-38.42	66.50	0.014	-37.08			
1.75	0.930	-0.63	18.00	0.042	-27.54	42.50	0.011	-39.17	67.00	0.026	-31.70			
2.00	0.848	-1.43	18.50	0.033	-29.63	43.00	0.029	-30.75	67.50	0.037	-28.64			