Preliminary Specification for
ALP™ Series Side Mounted
UHF Elliptically Polarized
Coaxial Slotted Array Television Antenna

WFXQ-CD, RF Channel 21
Nexstar Broadcasting, Springfield, MA

April 13, 2020

Antenna Model:
ALP4L0-ESWR-21

Specification Number
20200413-425

Electronics Research, Inc. 7777 Gardner Road Chandler IN 47610-9219 USA
+1 812 925-6000 (tel) +1 812 925-4030 (fax)

Your Single Source for Broadcast Solutions™ Call Toll-free at 877 ERI-LINE Visit Online at www.eriinc.com

ELECTRONICS RESEARCH, INC. ERI®

Preliminary Specification for ALP™ Series Side Mounted UHF Elliptically Polarized Coaxial Slotted Array Television Antenna

Electrical Characteristics:

Channel:		21	
Frequency:		512 MHz to 518 MHz	
Service:		ATSC	
Azimuth Pattern Number:	Horizontal Polarization	ALP-WRe	
	Vertical Polarization	ALP-WRe	
Elevation Pattern Number:	Horizontal Polarization	ALP4L0	
	Vertical Polarization	ALP4L0	
Azimuth Directivity:	Horizontal Polarization	1.66	(2.20 dB)
	Vertical Polarization	2.58	(4.12 dB)
Elevation Directivity:	Horizontal Polarization	4.58	(6.61 dBd)
	Vertical Polarization	4.58	(6.61 dBd)
Peak Power Gain:	Horizontal Polarization	6.44	(8.09 dBd)
	Vertical Polarization	1.80	(2.56 dBd)
Gain at Horizontal:	Horizontal Polarization	6.44	(8.09 dBd)
	Vertical Polarization	1.80	(2.56 dBd)
ERP Vertical/Horizontal Ratio:		0.280	
Power Ratio:		0.180	
Electrical Beam Tilt:		0.00 Degrees	
Input Power Required:		0.78 kW	-(1.10 dBk)
RF Input:		7/8-inch EIA, 50 Ω, flanged male	
Input Power Rating (maximum):		2.5 kW Average Power, 8VSB	
Antenna VSWR (maximum):		1.10 Over 6 MHz Channel	

Preliminary Specification for ALP™ Series Side Mounted UHF Elliptically Polarized Coaxial Slotted Array Television Antenna

Antenna Mechanical Characteristics:

Mounting Configuration:		Side Mounted	
Height of Antenna		10.8 feet	(3.3 meters)
Height of Center of Radiation (above RF input)		5.4 feet	(1.6 meters)
Deicing:		Unpressurized radome slot covers	
Radome Height:		3.50 inches	(88.9 millimeters)
Radome Color:		Gray	
Climbing Device:		Not Applicable	
Calculated Weight[1]:	No Ice	96.0 lb	43.5 kg
	0.5inch (13 mm) ice	165.0 lb	74.8 kg
Windload Data[1,2]	EPA No Ice	9.5 ft²	(0.9 m²)
	0.5inch (13 mm) ice	11.1 ft²	(1.0 m²)

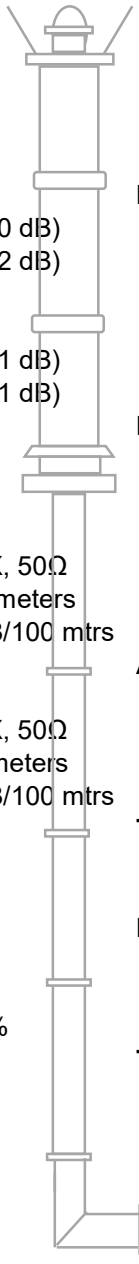
1) Please note, the listed weights and effective wind areas are based on the PRELIMINARY design of the antenna. Final As-Built values for the antenna are typically within +/-10% of the Preliminary design values, and will be provided in the technical manual that accompanies the antenna. Specified loads include the antenna, standard mounts, and power divider and jumper feed harnessing where applicable. Custom mounting brackets/adapters are NOT included.

2) Loads calculated in accordance with the ANSI/TIA-222-G standard.

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

WFXQ-CD **RF Channel: 21**
Nexstar Broadcasting
Springfield, MA
ALP4L0-ESWR-21



Antenna Parameters

Azimuth Directivity:

Horizontal:	1.66	(2.20 dB)
Vertical:	2.58	(4.12 dB)

Elevation Directivity:

Horizontal:	4.58	(6.61 dB)
Vertical:	4.58	(6.61 dB)

Transmission Line

Vertical Run:

Type:	1-5/8-Inch HJ7-50A Air HELIAX, 50Ω	
Length:	90 feet	27.4 meters
Attenuation:	0.485 dB/100 feet	1.591 dB/100 mtrs

Horizontal Run:

Type:	1-5/8-Inch HJ7-50A Air HELIAX, 50Ω	
Length:	0 feet	0.0 meters
Attenuation:	0.485 dB/100 feet	1.591 dB/100 mtrs

Transmission Line Efficiency: 90.44%

RF System/Other Efficiency: 100.00%

Effective Radiated Power:

Horizontal:	5.00 kW	(6.99 dBk)
Vertical:	1.40 kW	(1.46 dBk)

Power Gain:

Horizontal:	6.44 numeric	(8.09 dBd)
Vertical:	1.80 numeric	(2.56 dBd)

Antenna Input Power:
0.78 kW -(1.10 dBk)

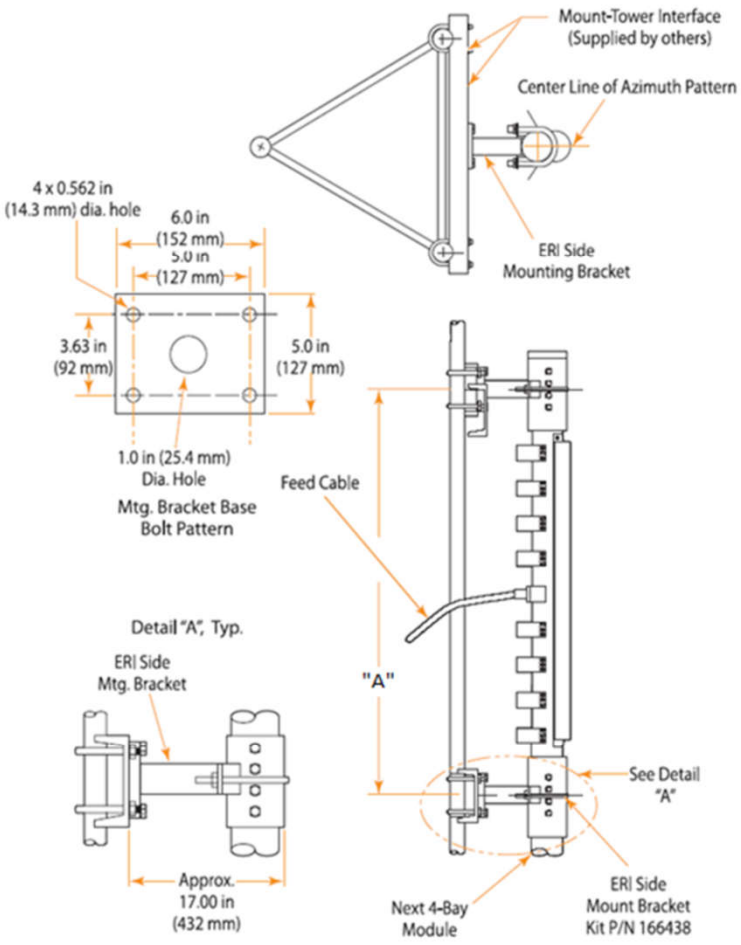
Transmission Line Losses:
-0.08 kW (0.437 dB)

RF System/Other Losses:
0.00 kW (0.000 dB)

Total Losses:
-0.08 kW (0.437 dB)

Transmitter Power Output:
0.86 kW
-(0.66 dBk)

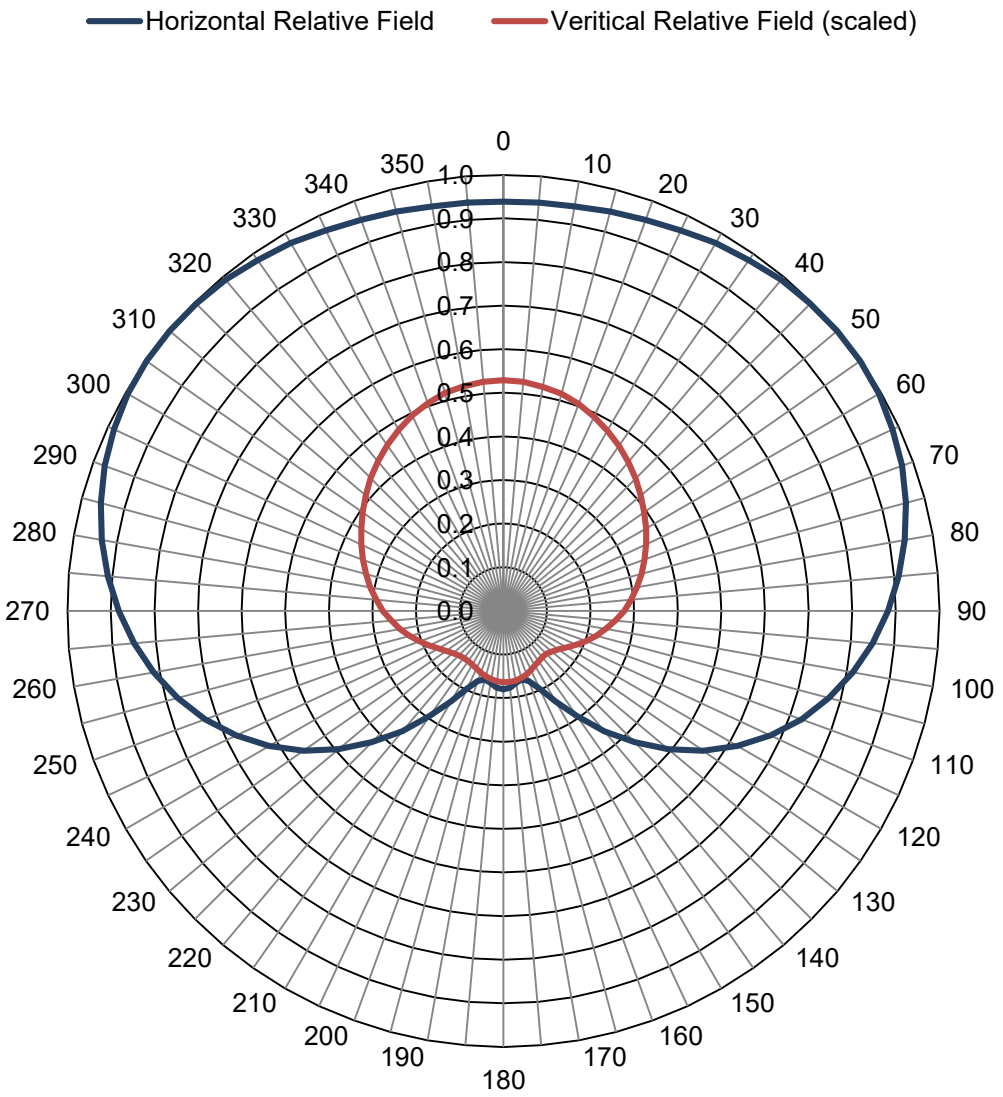
Typical Mounting Configuration Shown. Actual Configuration May Vary.



NOTE: All ALP Series UHF television antennas are shipped with 15-inch (381 mm) stand off brackets for mounting on poles or tower legs from 1.5-inches (35 mm) to 7.5-inches (191 mm) OD. Stand off support pipes, face mount brackets, and mounts for larger diameter poles are available from ERI as optional items. Please contact ERI for a proposal for these requirements.

Composite Azimuth Patterns

Type:	0.00		**Polarization:**	Elliptical
Directivity (H-Pol):	1.66 numeric	(2.20 dB)	**Channel:**	21 (ATSC)
Directivity (V-Pol):	2.58 numeric	(4.12 dB)	**Location:**	Springfield, MA
Percent Horizontal:	84.73%		NOTE: Pattern shape and directivity may vary with channel and mounting	
Percent Vertical:	15.27%			
Power Ratio:	18.02%			
V/H ERP Ratio:	28.00%			

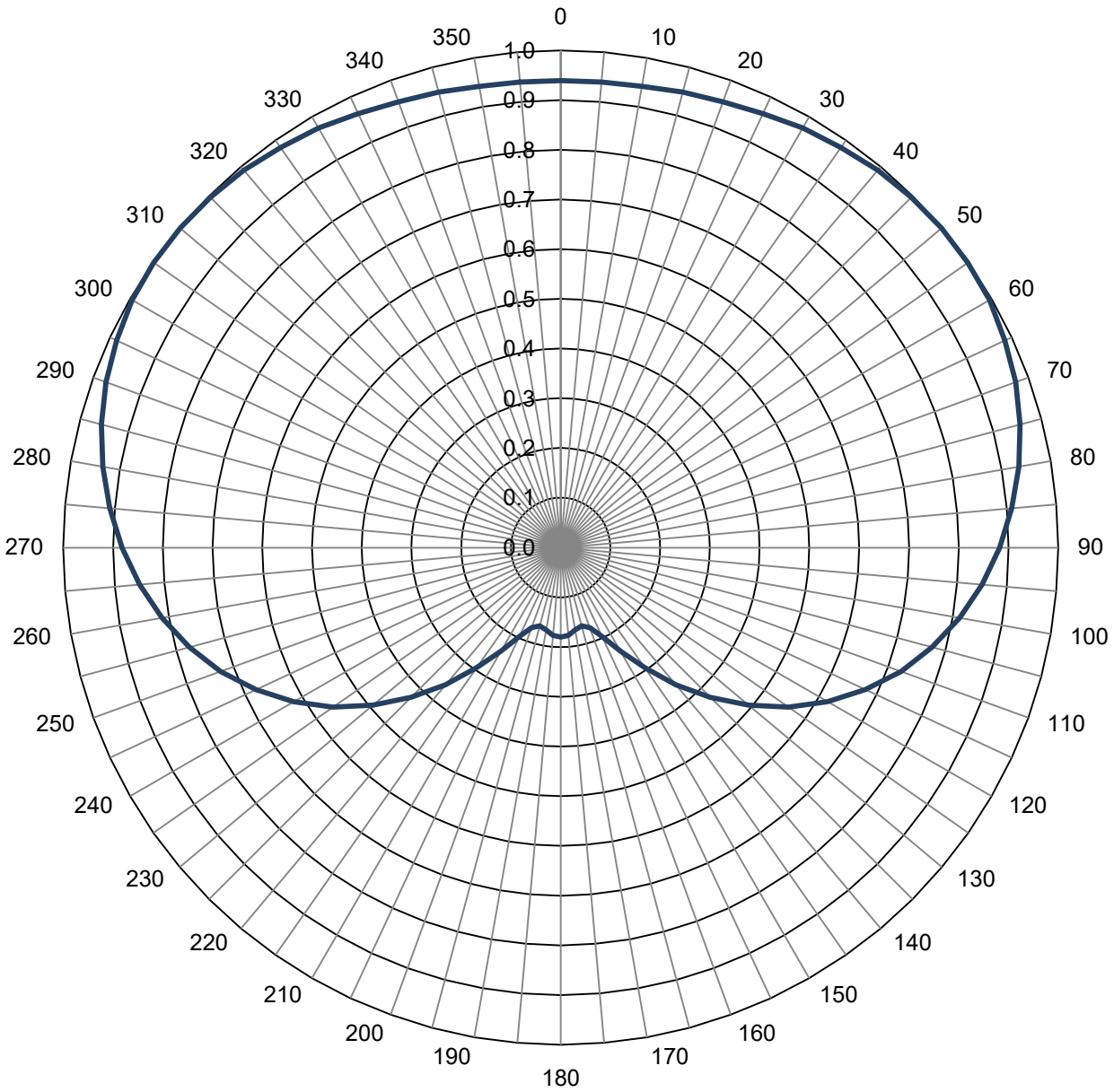


Azimuth Pattern

Type:	ALP-WRe		**Polarization:**	Horizontal
Directivity:	1.66 numeric	(2.20 dB)	**Channel:**	21 (ATSC)
Peak(s) at:			**Location:**	Springfield, MA

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

Relative Field



Tabulated Data for Azimuth Pattern

Type: ALP-WRe

Angle	Field	dB
0	0.939	-0.55
2	0.939	-0.55
4	0.937	-0.57
6	0.939	-0.55
8	0.941	-0.53
10	0.942	-0.52
12	0.945	-0.49
14	0.948	-0.46
16	0.951	-0.44
18	0.951	-0.44
20	0.954	-0.41
22	0.960	-0.35
24	0.964	-0.32
26	0.967	-0.29
28	0.971	-0.26
30	0.974	-0.23
32	0.977	-0.20
34	0.981	-0.17
36	0.984	-0.14
38	0.987	-0.11
40	0.991	-0.08
42	0.993	-0.06
44	0.995	-0.04
46	0.995	-0.04
48	0.996	-0.03
50	0.999	-0.01
52	0.996	-0.03
54	0.998	-0.02
56	0.997	-0.03
58	0.996	-0.03
60	0.995	-0.04
62	0.991	-0.08
64	0.989	-0.10
66	0.982	-0.16
68	0.977	-0.20
70	0.973	-0.24
72	0.965	-0.31
74	0.960	-0.35
76	0.950	-0.45
78	0.945	-0.49
80	0.935	-0.58
82	0.925	-0.68
84	0.915	-0.77
86	0.903	-0.89
88	0.894	-0.97
90	0.882	-1.09
92	0.868	-1.23
94	0.856	-1.35
96	0.842	-1.49
98	0.828	-1.64

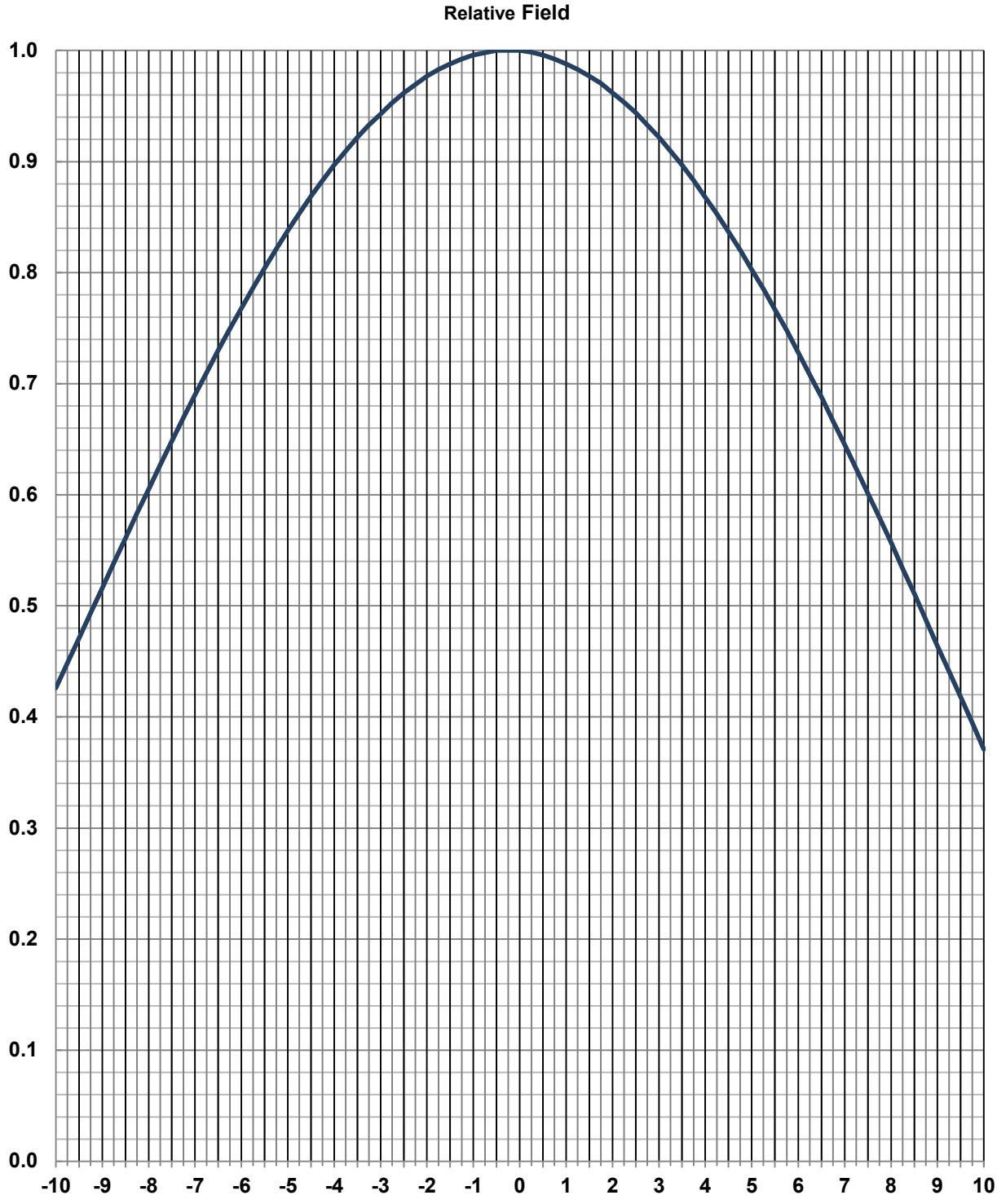
Angle	Field	dB
100	0.814	-1.79
102	0.797	-1.97
104	0.781	-2.15
106	0.764	-2.34
108	0.745	-2.56
110	0.728	-2.76
112	0.708	-3.00
114	0.688	-3.25
116	0.666	-3.53
118	0.643	-3.84
120	0.620	-4.15
122	0.596	-4.50
124	0.570	-4.88
126	0.547	-5.24
128	0.520	-5.68
130	0.493	-6.14
132	0.467	-6.61
134	0.440	-7.13
136	0.412	-7.70
138	0.385	-8.29
140	0.360	-8.87
142	0.332	-9.58
144	0.306	-10.29
146	0.283	-10.96
148	0.260	-11.70
150	0.240	-12.40
152	0.220	-13.15
154	0.203	-13.85
156	0.190	-14.42
158	0.179	-14.94
160	0.171	-15.34
162	0.166	-15.60
164	0.163	-15.76
166	0.164	-15.70
168	0.165	-15.65
170	0.168	-15.49
172	0.172	-15.29
174	0.175	-15.14
176	0.178	-14.99
178	0.179	-14.94
180	0.180	-14.89
182	0.179	-14.94
184	0.178	-14.99
186	0.175	-15.14
188	0.172	-15.29
190	0.168	-15.49
192	0.165	-15.65
194	0.164	-15.70
196	0.163	-15.76
198	0.166	-15.60

Angle	Field	dB
200	0.171	-15.34
202	0.179	-14.94
204	0.190	-14.42
206	0.203	-13.85
208	0.220	-13.15
210	0.240	-12.40
212	0.260	-11.70
214	0.283	-10.96
216	0.306	-10.29
218	0.332	-9.58
220	0.360	-8.87
222	0.385	-8.29
224	0.412	-7.70
226	0.440	-7.13
228	0.467	-6.61
230	0.493	-6.14
232	0.520	-5.68
234	0.547	-5.24
236	0.570	-4.88
238	0.596	-4.50
240	0.620	-4.15
242	0.643	-3.84
244	0.666	-3.53
246	0.688	-3.25
248	0.708	-3.00
250	0.728	-2.76
252	0.745	-2.56
254	0.764	-2.34
256	0.781	-2.15
258	0.797	-1.97
260	0.814	-1.79
262	0.828	-1.64
264	0.842	-1.49
266	0.856	-1.35
268	0.868	-1.23
270	0.882	-1.09
272	0.894	-0.97
274	0.903	-0.89
276	0.915	-0.77
278	0.925	-0.68
280	0.935	-0.58
282	0.945	-0.49
284	0.950	-0.45
286	0.960	-0.35
288	0.965	-0.31
290	0.973	-0.24
292	0.977	-0.20
294	0.982	-0.16
296	0.989	-0.10
298	0.991	-0.08

Angle	Field	dB
300	0.995	-0.04
302	0.996	-0.03
304	0.997	-0.03
306	0.998	-0.02
308	0.996	-0.03
310	0.999	-0.01
312	0.996	-0.03
314	0.995	-0.04
316	0.995	-0.04
318	0.993	-0.06
320	0.991	-0.08
322	0.987	-0.11
324	0.984	-0.14
326	0.981	-0.17
328	0.977	-0.20
330	0.974	-0.23
332	0.971	-0.26
334	0.967	-0.29
336	0.964	-0.32
338	0.960	-0.35
340	0.954	-0.41
342	0.951	-0.44
344	0.951	-0.44
346	0.948	-0.46
348	0.945	-0.49
350	0.942	-0.52
352	0.941	-0.53
354	0.939	-0.55
356	0.937	-0.57
358	0.939	-0.55
360	0.939	-0.55

Elevation Pattern

Type:	ALP4L0		**Polarization:**	Horizontal
Directivity:			**Channel:**	21 (ATSC)
Main Lobe:	4.58 numeric	(6.61 dB)	**Location:**	Springfield, MA
Horizontal:	4.58 numeric	(6.61 dB)	**Beam Tilt:**	0.00 degrees



Tabulated Data for Elevation Pattern

Type: ALP4L0

-10 to 10 degrees in 0.25 degree increments.
10 to 90 degrees in 0.50 degree increments.

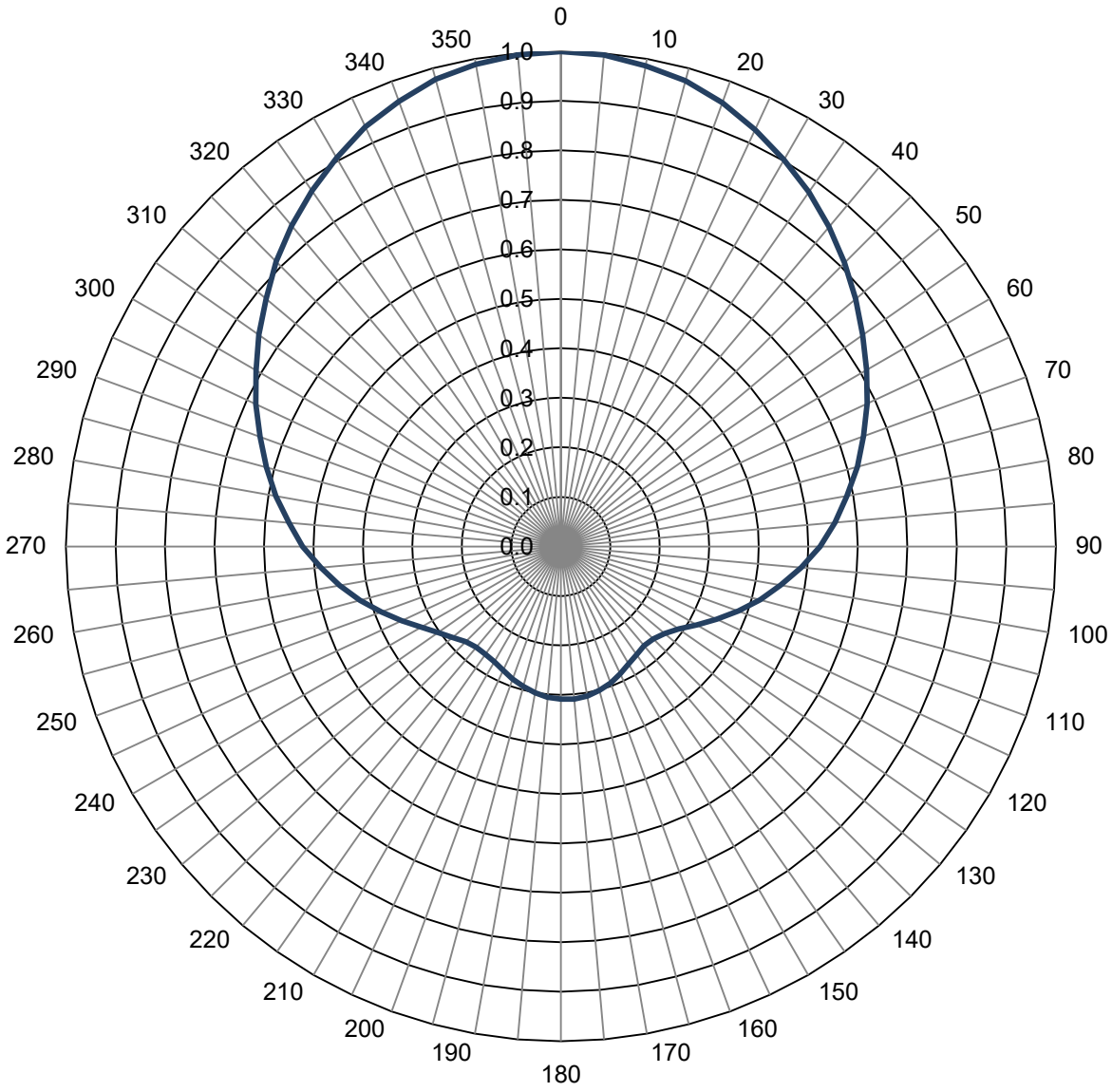
Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-10.00	0.426	-7.41	2.25	0.954	-0.41	19.00	0.241	-12.36	43.50	0.123	-18.20	68.00	0.268	-11.44
-9.75	0.449	-6.96	2.50	0.944	-0.50	19.50	0.251	-12.01	44.00	0.113	-18.94	68.50	0.265	-11.54
-9.50	0.471	-6.54	2.75	0.933	-0.60	20.00	0.258	-11.77	44.50	0.103	-19.74	69.00	0.262	-11.63
-9.25	0.494	-6.13	3.00	0.922	-0.71	20.50	0.262	-11.63	45.00	0.092	-20.72	69.50	0.258	-11.77
-9.00	0.516	-5.75	3.25	0.910	-0.82	21.00	0.264	-11.57	45.50	0.081	-21.83	70.00	0.254	-11.90
-8.75	0.539	-5.38	3.50	0.897	-0.94	21.50	0.263	-11.60	46.00	0.070	-23.10	70.50	0.250	-12.04
-8.50	0.561	-5.02	3.75	0.883	-1.08	22.00	0.261	-11.67	46.50	0.060	-24.44	71.00	0.245	-12.22
-8.25	0.584	-4.68	4.00	0.868	-1.23	22.50	0.255	-11.87	47.00	0.051	-25.85	71.50	0.240	-12.40
-8.00	0.605	-4.36	4.25	0.853	-1.38	23.00	0.248	-12.11	47.50	0.044	-27.13	72.00	0.235	-12.58
-7.75	0.627	-4.05	4.50	0.837	-1.55	23.50	0.239	-12.43	48.00	0.042	-27.54	72.50	0.230	-12.77
-7.50	0.648	-3.77	4.75	0.821	-1.72	24.00	0.228	-12.84	48.50	0.044	-27.13	73.00	0.225	-12.96
-7.25	0.670	-3.48	5.00	0.803	-1.91	24.50	0.216	-13.31	49.00	0.050	-26.02	73.50	0.219	-13.19
-7.00	0.690	-3.22	5.25	0.786	-2.10	25.00	0.202	-13.89	49.50	0.059	-24.58	74.00	0.213	-13.43
-6.75	0.710	-2.97	5.50	0.767	-2.30	25.50	0.186	-14.61	50.00	0.069	-23.22	74.50	0.207	-13.68
-6.50	0.730	-2.73	5.75	0.748	-2.52	26.00	0.170	-15.39	50.50	0.081	-21.83	75.00	0.201	-13.94
-6.25	0.750	-2.50	6.00	0.728	-2.76	26.50	0.152	-16.36	51.00	0.093	-20.63	75.50	0.195	-14.20
-6.00	0.768	-2.29	6.25	0.708	-3.00	27.00	0.134	-17.46	51.50	0.106	-19.49	76.00	0.189	-14.47
-5.75	0.787	-2.09	6.50	0.688	-3.25	27.50	0.115	-18.79	52.00	0.118	-18.56	76.50	0.183	-14.75
-5.50	0.804	-1.89	6.75	0.667	-3.52	28.00	0.096	-20.35	52.50	0.130	-17.72	77.00	0.176	-15.09
-5.25	0.822	-1.71	7.00	0.645	-3.81	28.50	0.077	-22.27	53.00	0.142	-16.95	77.50	0.170	-15.39
-5.00	0.838	-1.54	7.25	0.624	-4.10	29.00	0.057	-24.88	53.50	0.154	-16.25	78.00	0.163	-15.76
-4.75	0.854	-1.38	7.50	0.601	-4.42	29.50	0.038	-28.40	54.00	0.165	-15.65	78.50	0.157	-16.08
-4.50	0.869	-1.22	7.75	0.580	-4.74	30.00	0.019	-34.42	54.50	0.176	-15.09	79.00	0.150	-16.48
-4.25	0.883	-1.08	8.00	0.557	-5.08	30.50	0.005	-46.02	55.00	0.186	-14.61	79.50	0.143	-16.89
-4.00	0.897	-0.94	8.25	0.534	-5.46	31.00	0.020	-33.98	55.50	0.196	-14.15	80.00	0.137	-17.27
-3.75	0.910	-0.82	8.50	0.511	-5.83	31.50	0.038	-28.40	56.00	0.206	-13.72	80.50	0.130	-17.72
-3.50	0.922	-0.71	8.75	0.488	-6.24	32.00	0.055	-25.19	56.50	0.215	-13.35	81.00	0.123	-18.20
-3.25	0.933	-0.60	9.00	0.464	-6.67	32.50	0.071	-22.97	57.00	0.223	-13.03	81.50	0.116	-18.71
-3.00	0.943	-0.51	9.25	0.441	-7.11	33.00	0.086	-21.31	57.50	0.231	-12.73	82.00	0.110	-19.17
-2.75	0.953	-0.42	9.50	0.418	-7.58	33.50	0.100	-20.00	58.00	0.238	-12.47	82.50	0.103	-19.74
-2.50	0.962	-0.34	9.75	0.395	-8.08	34.00	0.113	-18.94	58.50	0.245	-12.22	83.00	0.096	-20.35
-2.25	0.970	-0.27	10.00	0.371	-8.61	34.50	0.125	-18.06	59.00	0.251	-12.01	83.50	0.089	-21.01
-2.00	0.977	-0.20	10.50	0.325	-9.76	35.00	0.136	-17.33	59.50	0.256	-11.84	84.00	0.082	-21.72
-1.75	0.983	-0.15	11.00	0.280	-11.06	35.50	0.145	-16.77	60.00	0.261	-11.67	84.50	0.075	-22.50
-1.50	0.988	-0.10	11.50	0.235	-12.58	36.00	0.153	-16.31	60.50	0.265	-11.54	85.00	0.069	-23.22
-1.25	0.993	-0.07	12.00	0.193	-14.29	36.50	0.160	-15.92	61.00	0.269	-11.40	85.50	0.062	-24.15
-1.00	0.996	-0.03	12.50	0.153	-16.31	37.00	0.166	-15.60	61.50	0.272	-11.31	86.00	0.055	-25.19
-0.75	0.998	-0.02	13.00	0.116	-18.71	37.50	0.170	-15.39	62.00	0.275	-11.21	86.50	0.048	-26.38
-0.50	1.000	0.00	13.50	0.086	-21.31	38.00	0.172	-15.29	62.50	0.277	-11.15	87.00	0.041	-27.74
-0.25	1.000	0.00	14.00	0.067	-23.48	38.50	0.174	-15.19	63.00	0.279	-11.09	87.50	0.034	-29.37
0.00	1.000	0.00	14.50	0.068	-23.35	39.00	0.174	-15.19	63.50	0.280	-11.06	88.00	0.027	-31.37
0.25	0.999	-0.01	15.00	0.084	-21.51	39.50	0.172	-15.29	64.00	0.280	-11.06	88.50	0.021	-33.56
0.50	0.996	-0.03	15.50	0.107	-19.41	40.00	0.170	-15.39	64.50	0.280	-11.06	89.00	0.014	-37.08
0.75	0.993	-0.07	16.00	0.131	-17.65	40.50	0.166	-15.60	65.00	0.280	-11.06	89.50	0.007	-43.10
1.00	0.988	-0.10	16.50	0.155	-16.19	41.00	0.162	-15.81	65.50	0.279	-11.09	90.00	0.000	---
1.25	0.983	-0.15	17.00	0.177	-15.04	41.50	0.156	-16.14	66.00	0.278	-11.12			
1.50	0.977	-0.20	17.50	0.196	-14.15	42.00	0.149	-16.54	66.50	0.276	-11.18			
1.75	0.971	-0.26	18.00	0.214	-13.39	42.50	0.141	-17.02	67.00	0.274	-11.24			
2.00	0.962	-0.34	18.50	0.229	-12.80	43.00	0.133	-17.52	67.50	0.271	-11.34			

Azimuth Pattern

Type:	ALP-WRe		**Polarization:**	Vertical
Directivity:	2.58 numeric	(4.12 dB)	**Channel:**	21 (ATSC)
Peak(s) at:			**Location:**	Springfield, MA

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

Relative Field



Tabulated Data for Azimuth Pattern

Type: ALP-WRe

Angle	Field	dB
0	1.000	0.00
2	0.999	-0.01
4	0.998	-0.02
6	0.995	-0.04
8	0.992	-0.07
10	0.986	-0.12
12	0.983	-0.15
14	0.977	-0.20
16	0.969	-0.27
18	0.962	-0.34
20	0.954	-0.41
22	0.944	-0.50
24	0.935	-0.58
26	0.925	-0.68
28	0.914	-0.78
30	0.902	-0.90
32	0.892	-0.99
34	0.880	-1.11
36	0.867	-1.24
38	0.855	-1.36
40	0.843	-1.48
42	0.830	-1.62
44	0.817	-1.76
46	0.803	-1.91
48	0.791	-2.04
50	0.778	-2.18
52	0.764	-2.34
54	0.753	-2.46
56	0.739	-2.63
58	0.727	-2.77
60	0.714	-2.93
62	0.701	-3.09
64	0.689	-3.24
66	0.677	-3.39
68	0.662	-3.58
70	0.651	-3.73
72	0.639	-3.89
74	0.627	-4.05
76	0.614	-4.24
78	0.599	-4.45
80	0.587	-4.63
82	0.576	-4.79
84	0.562	-5.01
86	0.550	-5.19
88	0.537	-5.40
90	0.524	-5.61
92	0.510	-5.85
94	0.497	-6.07
96	0.480	-6.38
98	0.468	-6.60

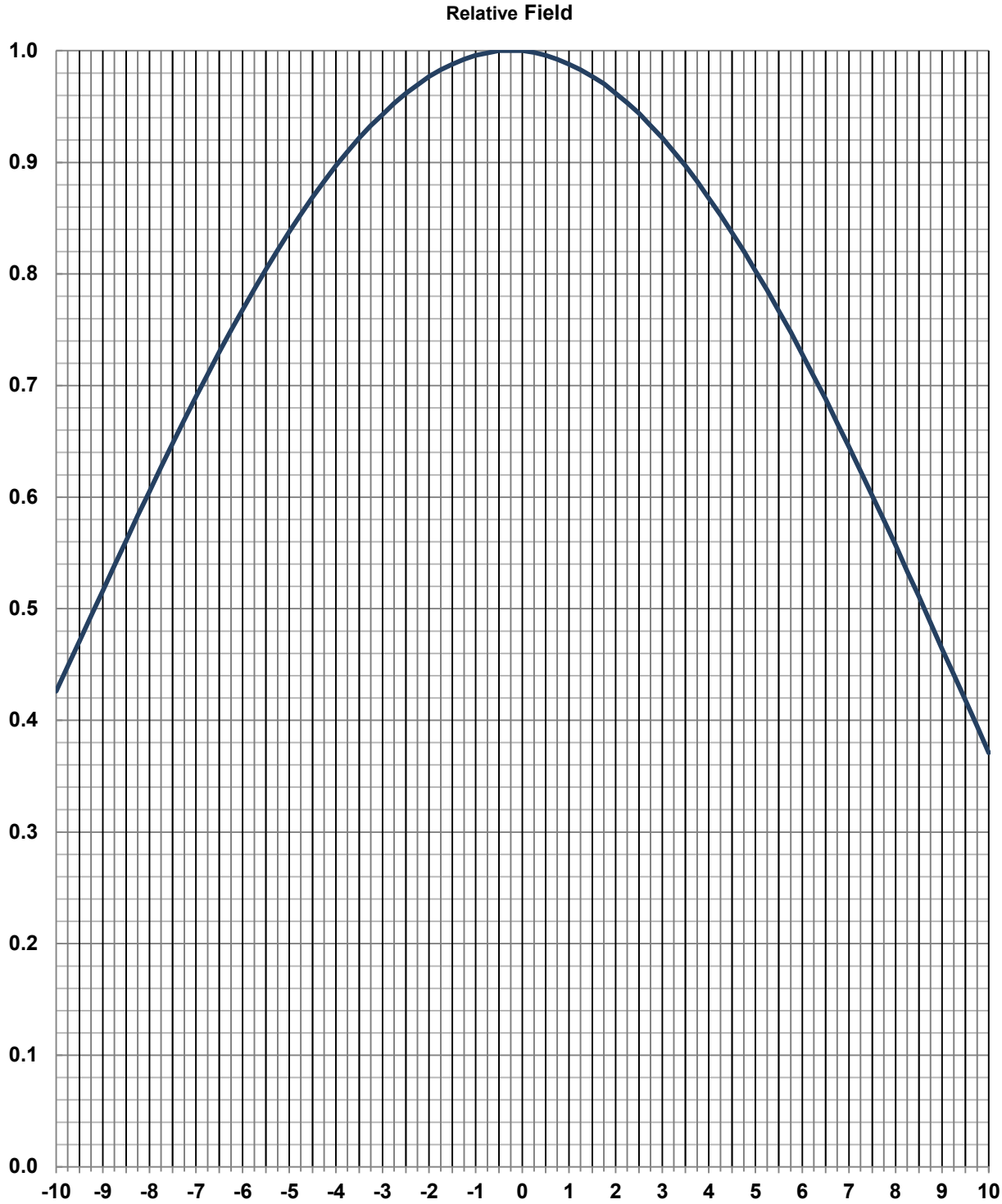
Angle	Field	dB
100	0.451	-6.92
102	0.439	-7.15
104	0.424	-7.45
106	0.409	-7.77
108	0.394	-8.09
110	0.382	-8.36
112	0.367	-8.71
114	0.355	-9.00
116	0.339	-9.40
118	0.329	-9.66
120	0.317	-9.98
122	0.305	-10.31
124	0.296	-10.57
126	0.288	-10.81
128	0.280	-11.06
130	0.274	-11.24
132	0.269	-11.40
134	0.265	-11.54
136	0.262	-11.63
138	0.261	-11.67
140	0.262	-11.63
142	0.262	-11.63
144	0.265	-11.54
146	0.267	-11.47
148	0.270	-11.37
150	0.274	-11.24
152	0.278	-11.12
154	0.283	-10.96
156	0.286	-10.87
158	0.289	-10.78
160	0.294	-10.63
162	0.298	-10.52
164	0.300	-10.46
166	0.303	-10.37
168	0.305	-10.31
170	0.307	-10.26
172	0.309	-10.20
174	0.310	-10.17
176	0.311	-10.14
178	0.310	-10.17
180	0.309	-10.20
182	0.308	-10.23
184	0.308	-10.23
186	0.305	-10.31
188	0.303	-10.37
190	0.300	-10.46
192	0.298	-10.52
194	0.295	-10.60
196	0.291	-10.72
198	0.288	-10.81

Angle	Field	dB
200	0.285	-10.90
202	0.281	-11.03
204	0.278	-11.12
206	0.274	-11.24
208	0.271	-11.34
210	0.269	-11.40
212	0.268	-11.44
214	0.267	-11.47
216	0.266	-11.50
218	0.265	-11.54
220	0.266	-11.50
222	0.267	-11.47
224	0.270	-11.37
226	0.275	-11.21
228	0.279	-11.09
230	0.286	-10.87
232	0.291	-10.72
234	0.299	-10.49
236	0.307	-10.26
238	0.318	-9.95
240	0.326	-9.74
242	0.339	-9.40
244	0.349	-9.14
246	0.360	-8.87
248	0.375	-8.52
250	0.386	-8.27
252	0.398	-8.00
254	0.412	-7.70
256	0.427	-7.39
258	0.439	-7.15
260	0.454	-6.86
262	0.466	-6.63
264	0.480	-6.38
266	0.494	-6.13
268	0.507	-5.90
270	0.522	-5.65
272	0.533	-5.47
274	0.547	-5.24
276	0.558	-5.07
278	0.571	-4.87
280	0.585	-4.66
282	0.596	-4.50
284	0.610	-4.29
286	0.621	-4.14
288	0.636	-3.93
290	0.647	-3.78
292	0.661	-3.60
294	0.673	-3.44
296	0.685	-3.29
298	0.699	-3.11

Angle	Field	dB
300	0.711	-2.96
302	0.724	-2.81
304	0.737	-2.65
306	0.751	-2.49
308	0.766	-2.32
310	0.778	-2.18
312	0.793	-2.01
314	0.806	-1.87
316	0.819	-1.73
318	0.832	-1.60
320	0.846	-1.45
322	0.858	-1.33
324	0.873	-1.18
326	0.883	-1.08
328	0.896	-0.95
330	0.906	-0.86
332	0.919	-0.73
334	0.929	-0.64
336	0.938	-0.56
338	0.948	-0.46
340	0.957	-0.38
342	0.965	-0.31
344	0.972	-0.25
346	0.980	-0.18
348	0.985	-0.13
350	0.989	-0.10
352	0.993	-0.06
354	0.996	-0.03
356	0.998	-0.02
358	0.999	-0.01
360	1.000	0.00

Elevation Pattern

Type:	ALP4L0		**Polarization:**	Vertical
Directivity:			**Channel:**	21 (ATSC)
Main Lobe:	4.58 numeric	(6.61 dB)	**Location:**	Springfield, MA
Horizontal:	4.58 numeric	(6.61 dB)	**Beam Tilt:**	0.00 degrees



Tabulated Data for Elevation Pattern

Type: ALP4L0

-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	0.426	-7.41	2.25	0.954	-0.41	19.00	0.241	-12.36	43.50	0.123	-18.20	68.00	0.268	-11.44
-9.75	0.449	-6.96	2.50	0.944	-0.50	19.50	0.251	-12.01	44.00	0.113	-18.94	68.50	0.265	-11.54
-9.50	0.471	-6.54	2.75	0.933	-0.60	20.00	0.258	-11.77	44.50	0.103	-19.74	69.00	0.262	-11.63
-9.25	0.494	-6.13	3.00	0.922	-0.71	20.50	0.262	-11.63	45.00	0.092	-20.72	69.50	0.258	-11.77
-9.00	0.516	-5.75	3.25	0.910	-0.82	21.00	0.264	-11.57	45.50	0.081	-21.83	70.00	0.254	-11.90
-8.75	0.539	-5.38	3.50	0.897	-0.94	21.50	0.263	-11.60	46.00	0.070	-23.10	70.50	0.250	-12.04
-8.50	0.561	-5.02	3.75	0.883	-1.08	22.00	0.261	-11.67	46.50	0.060	-24.44	71.00	0.245	-12.22
-8.25	0.584	-4.68	4.00	0.868	-1.23	22.50	0.255	-11.87	47.00	0.051	-25.85	71.50	0.240	-12.40
-8.00	0.605	-4.36	4.25	0.853	-1.38	23.00	0.248	-12.11	47.50	0.044	-27.13	72.00	0.235	-12.58
-7.75	0.627	-4.05	4.50	0.837	-1.55	23.50	0.239	-12.43	48.00	0.042	-27.54	72.50	0.230	-12.77
-7.50	0.648	-3.77	4.75	0.821	-1.72	24.00	0.228	-12.84	48.50	0.044	-27.13	73.00	0.225	-12.96
-7.25	0.670	-3.48	5.00	0.803	-1.91	24.50	0.216	-13.31	49.00	0.050	-26.02	73.50	0.219	-13.19
-7.00	0.690	-3.22	5.25	0.786	-2.10	25.00	0.202	-13.89	49.50	0.059	-24.58	74.00	0.213	-13.43
-6.75	0.710	-2.97	5.50	0.767	-2.30	25.50	0.186	-14.61	50.00	0.069	-23.22	74.50	0.207	-13.68
-6.50	0.730	-2.73	5.75	0.748	-2.52	26.00	0.170	-15.39	50.50	0.081	-21.83	75.00	0.201	-13.94
-6.25	0.750	-2.50	6.00	0.728	-2.76	26.50	0.152	-16.36	51.00	0.093	-20.63	75.50	0.195	-14.20
-6.00	0.768	-2.29	6.25	0.708	-3.00	27.00	0.134	-17.46	51.50	0.106	-19.49	76.00	0.189	-14.47
-5.75	0.787	-2.09	6.50	0.688	-3.25	27.50	0.115	-18.79	52.00	0.118	-18.56	76.50	0.183	-14.75
-5.50	0.804	-1.89	6.75	0.667	-3.52	28.00	0.096	-20.35	52.50	0.130	-17.72	77.00	0.176	-15.09
-5.25	0.822	-1.71	7.00	0.645	-3.81	28.50	0.077	-22.27	53.00	0.142	-16.95	77.50	0.170	-15.39
-5.00	0.838	-1.54	7.25	0.624	-4.10	29.00	0.057	-24.88	53.50	0.154	-16.25	78.00	0.163	-15.76
-4.75	0.854	-1.38	7.50	0.601	-4.42	29.50	0.038	-28.40	54.00	0.165	-15.65	78.50	0.157	-16.08
-4.50	0.869	-1.22	7.75	0.580	-4.74	30.00	0.019	-34.42	54.50	0.176	-15.09	79.00	0.150	-16.48
-4.25	0.883	-1.08	8.00	0.557	-5.08	30.50	0.005	-46.02	55.00	0.186	-14.61	79.50	0.143	-16.89
-4.00	0.897	-0.94	8.25	0.534	-5.46	31.00	0.020	-33.98	55.50	0.196	-14.15	80.00	0.137	-17.27
-3.75	0.910	-0.82	8.50	0.511	-5.83	31.50	0.038	-28.40	56.00	0.206	-13.72	80.50	0.130	-17.72
-3.50	0.922	-0.71	8.75	0.488	-6.24	32.00	0.055	-25.19	56.50	0.215	-13.35	81.00	0.123	-18.20
-3.25	0.933	-0.60	9.00	0.464	-6.67	32.50	0.071	-22.97	57.00	0.223	-13.03	81.50	0.116	-18.71
-3.00	0.943	-0.51	9.25	0.441	-7.11	33.00	0.086	-21.31	57.50	0.231	-12.73	82.00	0.110	-19.17
-2.75	0.953	-0.42	9.50	0.418	-7.58	33.50	0.100	-20.00	58.00	0.238	-12.47	82.50	0.103	-19.74
-2.50	0.962	-0.34	9.75	0.395	-8.08	34.00	0.113	-18.94	58.50	0.245	-12.22	83.00	0.096	-20.35
-2.25	0.970	-0.27	10.00	0.371	-8.61	34.50	0.125	-18.06	59.00	0.251	-12.01	83.50	0.089	-21.01
-2.00	0.977	-0.20	10.50	0.325	-9.76	35.00	0.136	-17.33	59.50	0.256	-11.84	84.00	0.082	-21.72
-1.75	0.983	-0.15	11.00	0.280	-11.06	35.50	0.145	-16.77	60.00	0.261	-11.67	84.50	0.075	-22.50
-1.50	0.988	-0.10	11.50	0.235	-12.58	36.00	0.153	-16.31	60.50	0.265	-11.54	85.00	0.069	-23.22
-1.25	0.993	-0.07	12.00	0.193	-14.29	36.50	0.160	-15.92	61.00	0.269	-11.40	85.50	0.062	-24.15
-1.00	0.996	-0.03	12.50	0.153	-16.31	37.00	0.166	-15.60	61.50	0.272	-11.31	86.00	0.055	-25.19
-0.75	0.998	-0.02	13.00	0.116	-18.71	37.50	0.170	-15.39	62.00	0.275	-11.21	86.50	0.048	-26.38
-0.50	1.000	0.00	13.50	0.086	-21.31	38.00	0.172	-15.29	62.50	0.277	-11.15	87.00	0.041	-27.74
-0.25	1.000	0.00	14.00	0.067	-23.48	38.50	0.174	-15.19	63.00	0.279	-11.09	87.50	0.034	-29.37
0.00	1.000	0.00	14.50	0.068	-23.35	39.00	0.174	-15.19	63.50	0.280	-11.06	88.00	0.027	-31.37
0.25	0.999	-0.01	15.00	0.084	-21.51	39.50	0.172	-15.29	64.00	0.280	-11.06	88.50	0.021	-33.56
0.50	0.996	-0.03	15.50	0.107	-19.41	40.00	0.170	-15.39	64.50	0.280	-11.06	89.00	0.014	-37.08
0.75	0.993	-0.07	16.00	0.131	-17.65	40.50	0.166	-15.60	65.00	0.280	-11.06	89.50	0.007	-43.10
1.00	0.988	-0.10	16.50	0.155	-16.19	41.00	0.162	-15.81	65.50	0.279	-11.09	90.00	0.000	---
1.25	0.983	-0.15	17.00	0.177	-15.04	41.50	0.156	-16.14	66.00	0.278	-11.12			
1.50	0.977	-0.20	17.50	0.196	-14.15	42.00	0.149	-16.54	66.50	0.276	-11.18			
1.75	0.971	-0.26	18.00	0.214	-13.39	42.50	0.141	-17.02	67.00	0.274	-11.24			
2.00	0.962	-0.34	18.50	0.229	-12.80	43.00	0.133	-17.52	67.50	0.271	-11.34			