

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

**WEAO, RF Channel 24
Western Reserve Public Media, Kent, Ohio
July 18, 2018**

**Antenna Model:
ALP24M2-HSOC-24**

**Specification Number
20180516-095**

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ALP™ Series Side Mounted
UHF Horizontally Polarized
Coaxial Slotted Array Television Antenna***

Electrical Characteristics:

Channel:		24	
Frequency:		530 MHz to 536 MHz	
Service:		ATSC	
Azimuth Pattern Number:	Horizontal Polarization	ALP-OC	
Elevation Pattern Number:	Horizontal Polarization	ALP24L2	
Azimuth Directivity:	Horizontal Polarization	1.70	(2.30 dB)
Elevation Directivity:	Horizontal Polarization	25.21	(14.02 dBd)
Peak Power Gain:	Horizontal Polarization	42.86	(16.32 dBd)
Gain at Horizontal:	Horizontal Polarization	32.22	(15.08 dBd)
Electrical Beam Tilt:		0.50 Degrees	
Input Power Required:		9.45 kW	(9.75 dBk)
RF Input:		3-1/8-inch EIA, 50 Ω , flanged male	
Input Power Rating (maximum):		15 kW Average Power, 8VSB	
Antenna VSWR (maximum):		1.10 Over 6 MHz Channel	

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Antenna Mechanical Characteristics:

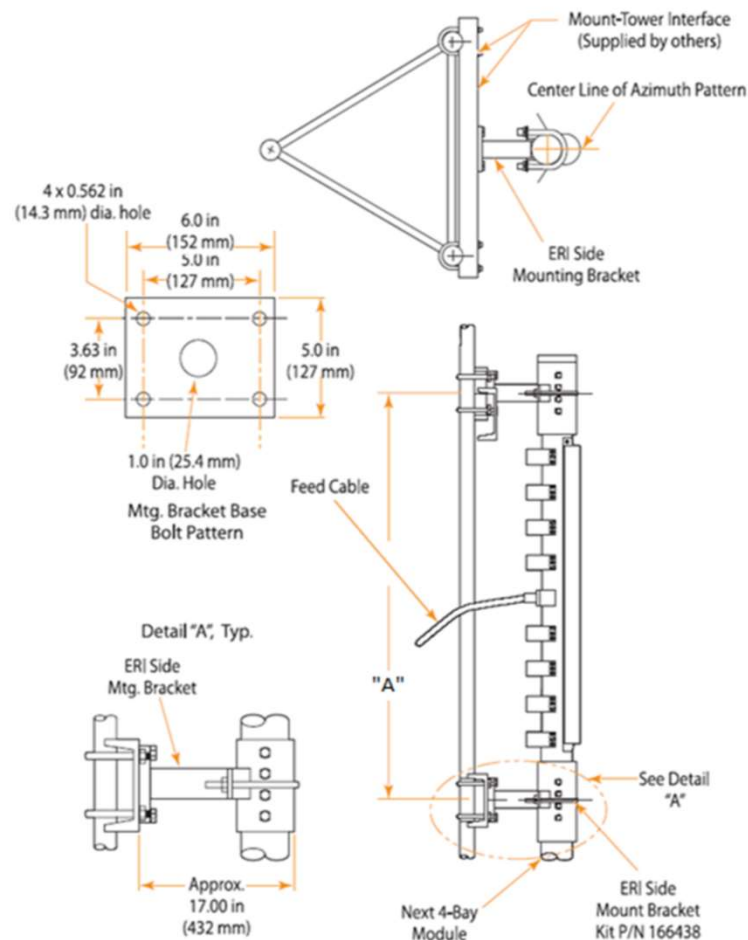
Mounting Configuration:	Side Mounted		
Height of Antenna	60.8 feet	(18.5 meters)	
Height of Center of Radiation (above RF input)	30.4 feet	(9.3 meters)	
Deicing:	Unpressurized radome slot covers		
Radome Height:	1.50 inches	(38.1 millimeters)	
Radome Color:	Gray		
Climbing Device:	Not Applicable		
Calculated Weight ¹ :	No Ice	654.0 lb	296.6 kg
	0.5inch (13 mm) ice	1102.0 lb	499.9 kg
Windload Data ^{1, 2}	EPA No Ice	44.9 ft ²	(4.2 m ²)
	0.5inch (13 mm) ice	63.2 ft ²	(5.9 m ²)

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.

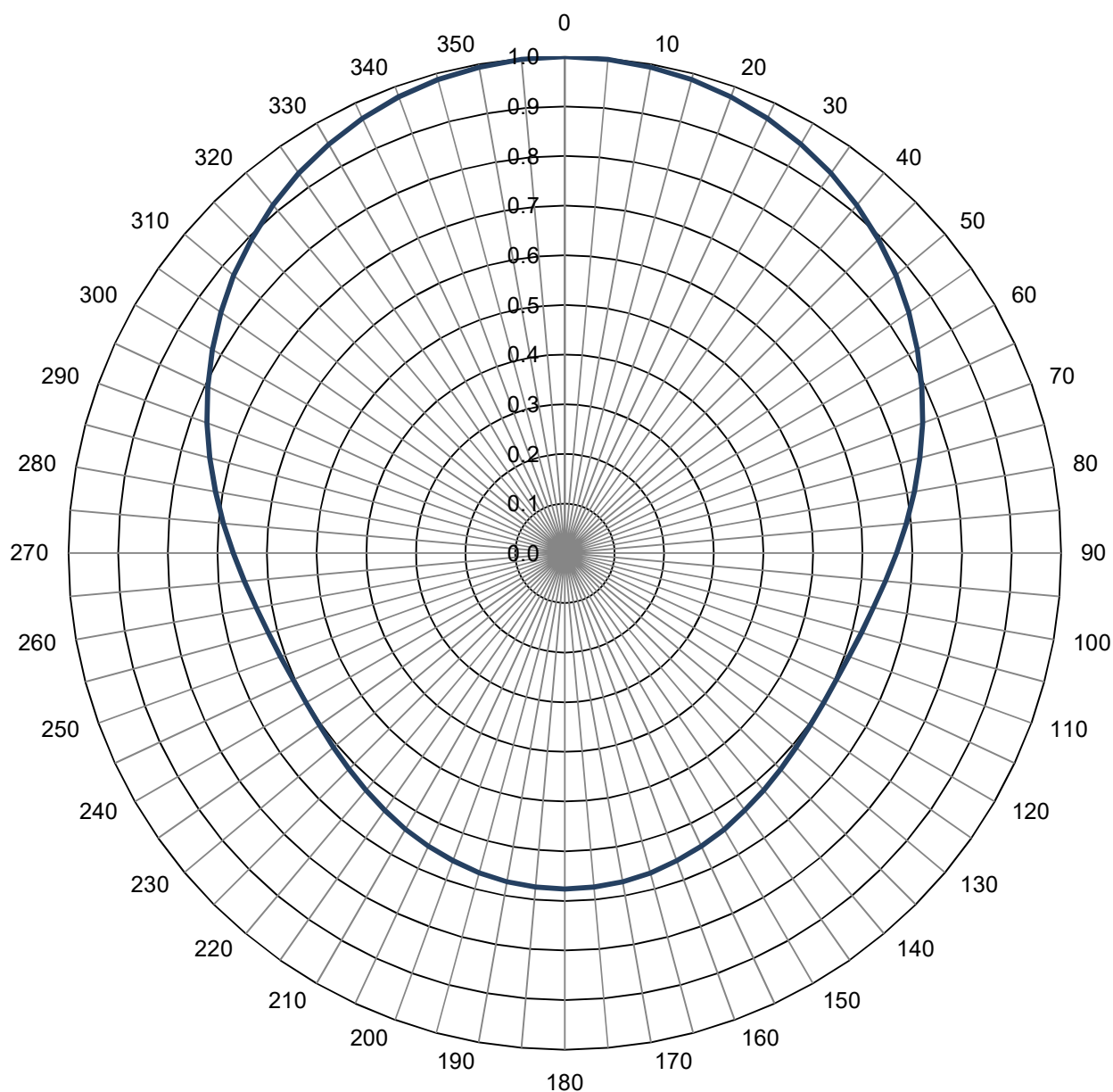
Typical Mounting Configuration Shown. Actual Configuration May Vary.



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.

Azimuth Pattern

Type:	ALP-OC	Polarization:	Horizontal
Directivity:	1.70 numeric (2.30 dB)	Channel:	24 (ATSC)
Peak(s) at:		Location:	Kent, Ohio
		NOTE: Pattern shape and directivity may vary with channel and mounting configuration.	

Relative Field

Tabulated Data for Azimuth Pattern

Type:

ALP-OC

Angle	Field	dB
0	1.000	0.00
2	1.000	0.00
4	0.999	-0.01
6	0.998	-0.02
8	0.996	-0.03
10	0.994	-0.05
12	0.992	-0.07
14	0.989	-0.10
16	0.986	-0.12
18	0.982	-0.16
20	0.978	-0.19
22	0.974	-0.23
24	0.969	-0.27
26	0.963	-0.33
28	0.957	-0.38
30	0.951	-0.44
32	0.945	-0.49
34	0.938	-0.56
36	0.931	-0.62
38	0.923	-0.70
40	0.915	-0.77
42	0.907	-0.85
44	0.898	-0.93
46	0.889	-1.02
48	0.880	-1.11
50	0.871	-1.20
52	0.861	-1.30
54	0.851	-1.40
56	0.841	-1.50
58	0.831	-1.61
60	0.820	-1.72
62	0.810	-1.83
64	0.799	-1.95
66	0.788	-2.07
68	0.778	-2.18
70	0.767	-2.30
72	0.756	-2.43
74	0.746	-2.55
76	0.735	-2.67
78	0.725	-2.79
80	0.715	-2.91
82	0.705	-3.04
84	0.695	-3.16
86	0.686	-3.27
88	0.677	-3.39
90	0.668	-3.50
92	0.660	-3.61
94	0.652	-3.72
96	0.644	-3.82
98	0.638	-3.90

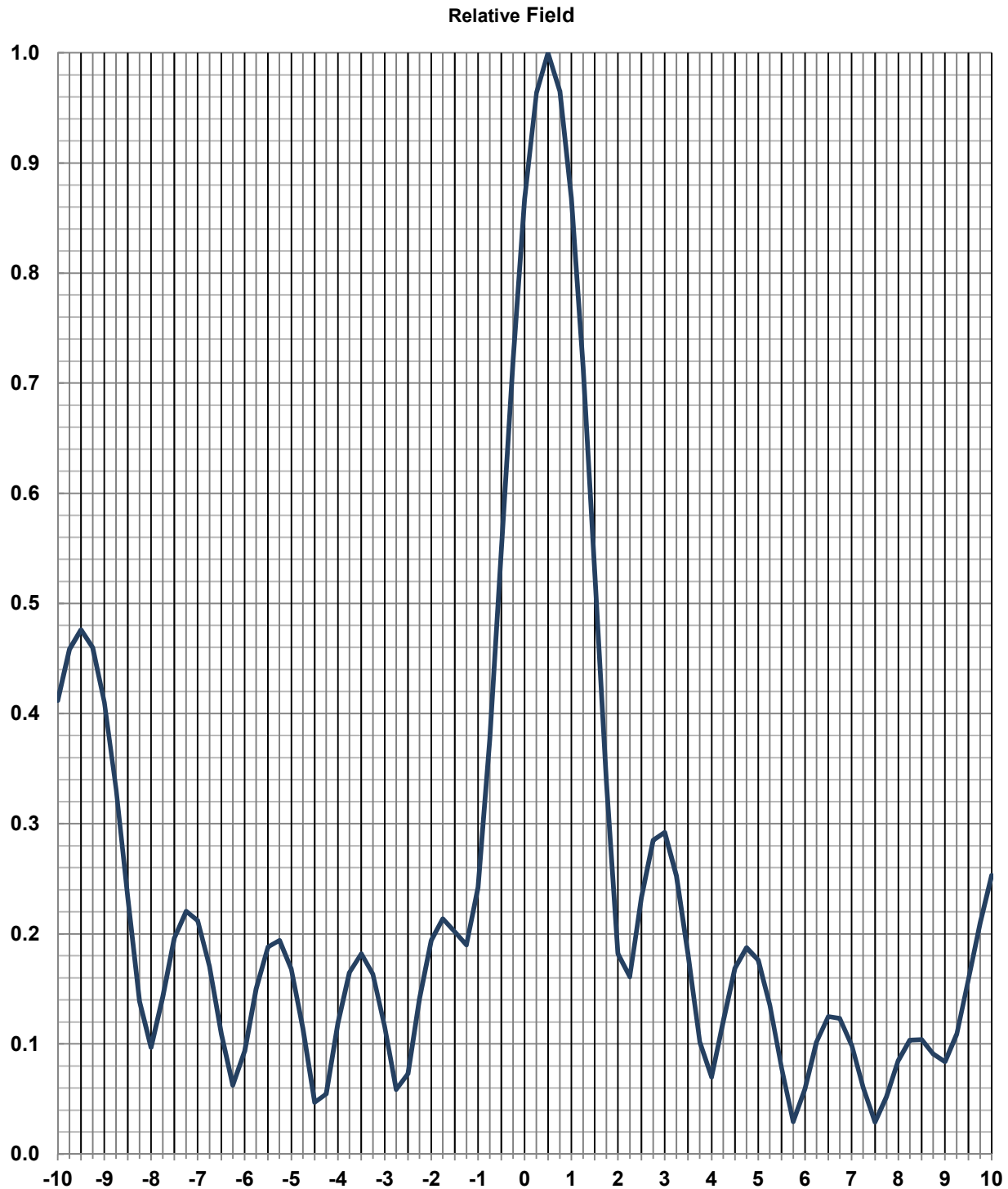
Angle	Field	dB
100	0.631	-4.00
102	0.626	-4.07
104	0.621	-4.14
106	0.616	-4.21
108	0.612	-4.26
110	0.609	-4.31
112	0.606	-4.35
114	0.604	-4.38
116	0.603	-4.39
118	0.602	-4.41
120	0.602	-4.41
122	0.602	-4.41
124	0.603	-4.39
126	0.604	-4.38
128	0.606	-4.35
130	0.608	-4.32
132	0.610	-4.29
134	0.613	-4.25
136	0.616	-4.21
138	0.619	-4.17
140	0.623	-4.11
142	0.627	-4.05
144	0.630	-4.01
146	0.634	-3.96
148	0.638	-3.90
150	0.642	-3.85
152	0.646	-3.80
154	0.649	-3.76
156	0.653	-3.70
158	0.656	-3.66
160	0.659	-3.62
162	0.662	-3.58
164	0.665	-3.54
166	0.668	-3.50
168	0.670	-3.48
170	0.672	-3.45
172	0.673	-3.44
174	0.674	-3.43
176	0.675	-3.41
178	0.676	-3.40
180	0.676	-3.40
182	0.676	-3.40
184	0.675	-3.41
186	0.674	-3.43
188	0.673	-3.44
190	0.672	-3.45
192	0.670	-3.48
194	0.668	-3.50
196	0.665	-3.54
198	0.662	-3.58

Angle	Field	dB
200	0.659	-3.62
202	0.656	-3.66
204	0.653	-3.70
206	0.649	-3.76
208	0.646	-3.80
210	0.642	-3.85
212	0.638	-3.90
214	0.634	-3.96
216	0.630	-4.01
218	0.627	-4.05
220	0.623	-4.11
222	0.619	-4.17
224	0.616	-4.21
226	0.613	-4.25
228	0.610	-4.29
230	0.608	-4.32
232	0.606	-4.35
234	0.604	-4.38
236	0.603	-4.39
238	0.602	-4.41
240	0.602	-4.41
242	0.602	-4.41
244	0.603	-4.39
246	0.604	-4.38
248	0.606	-4.35
250	0.609	-4.31
252	0.612	-4.26
254	0.616	-4.21
256	0.621	-4.14
258	0.626	-4.07
260	0.631	-4.00
262	0.638	-3.90
264	0.644	-3.82
266	0.652	-3.72
268	0.660	-3.61
270	0.668	-3.50
272	0.677	-3.39
274	0.686	-3.27
276	0.695	-3.16
278	0.705	-3.04
280	0.715	-2.91
282	0.725	-2.79
284	0.735	-2.67
286	0.746	-2.55
288	0.756	-2.43
290	0.767	-2.30
292	0.778	-2.18
294	0.788	-2.07
296	0.799	-1.95
298	0.810	-1.83

Angle	Field	dB
300	0.820	-1.72
302	0.831	-1.61
304	0.841	-1.50
306	0.851	-1.40
308	0.861	-1.30
310	0.871	-1.20
312	0.880	-1.11
314	0.889	-1.02
316	0.898	-0.93
318	0.907	-0.85
320	0.915	-0.77
322	0.923	-0.70
324	0.931	-0.62
326	0.938	-0.56
328	0.945	-0.49
330	0.951	-0.44
332	0.957	-0.38
334	0.963	-0.33
336	0.969	-0.27
338	0.974	-0.23
340	0.978	-0.19
342	0.982	-0.16
344	0.986	-0.12
346	0.989	-0.10
348	0.992	-0.07
350	0.994	-0.05
352	0.996	-0.03
354	0.998	-0.02
356	0.999	-0.01
358	1.000	0.00
360	1.000	0.00

Elevation Pattern

Type:	ALP24L2	Polarization:	Horizontal
Directivity:		Channel:	24 (ATSC)
Main Lobe:	25.21 numeric (14.02 dB)	Location:	Kent, Ohio
Horizontal:	18.95 numeric (12.78 dB)	Beam Tilt:	0.50 degrees



Tabulated Data for Elevation PatternType: ALP24L2

-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	0.412	-7.70	2.25	0.161	-15.86	19.00	0.050	-26.02	43.50	0.024	-32.40	68.00	0.044	-27.13
-9.75	0.459	-6.77	2.50	0.233	-12.65	19.50	0.046	-26.74	44.00	0.031	-30.17	68.50	0.043	-27.33
-9.50	0.476	-6.45	2.75	0.285	-10.90	20.00	0.094	-20.54	44.50	0.049	-26.20	69.00	0.057	-24.88
-9.25	0.460	-6.75	3.00	0.292	-10.69	20.50	0.174	-15.19	45.00	0.065	-23.74	69.50	0.070	-23.10
-9.00	0.410	-7.74	3.25	0.253	-11.95	21.00	0.234	-12.62	45.50	0.069	-23.22	70.00	0.077	-22.27
-8.75	0.331	-9.60	3.50	0.182	-14.80	21.50	0.242	-12.32	46.00	0.061	-24.29	70.50	0.079	-22.05
-8.50	0.233	-12.65	3.75	0.102	-19.87	22.00	0.194	-14.24	46.50	0.045	-26.94	71.00	0.075	-22.50
-8.25	0.139	-17.17	4.00	0.070	-23.10	22.50	0.110	-19.17	47.00	0.026	-31.70	71.50	0.067	-23.48
-8.00	0.097	-20.26	4.25	0.121	-18.38	23.00	0.038	-28.40	47.50	0.010	-40.00	72.00	0.055	-25.19
-7.75	0.143	-16.89	4.50	0.169	-15.44	23.50	0.053	-25.51	48.00	0.001	-60.00	72.50	0.043	-27.33
-7.50	0.196	-14.15	4.75	0.188	-14.54	24.00	0.064	-23.88	48.50	0.002	-53.98	73.00	0.030	-30.46
-7.25	0.221	-13.13	5.00	0.176	-15.09	24.50	0.043	-27.33	49.00	0.006	-44.44	73.50	0.020	-33.98
-7.00	0.212	-13.47	5.25	0.135	-17.39	25.00	0.014	-37.08	49.50	0.013	-37.72	74.00	0.016	-35.92
-6.75	0.171	-15.37	5.50	0.078	-22.16	25.50	0.025	-32.04	50.00	0.017	-35.39	74.50	0.020	-33.98
-6.50	0.109	-19.25	5.75	0.030	-30.60	26.00	0.032	-29.90	50.50	0.016	-35.92	75.00	0.027	-31.37
-6.25	0.063	-24.08	6.00	0.059	-24.58	26.50	0.022	-33.15	51.00	0.010	-40.00	75.50	0.033	-29.63
-6.00	0.093	-20.63	6.25	0.102	-19.83	27.00	0.005	-46.02	51.50	0.009	-40.92	76.00	0.037	-28.64
-5.75	0.150	-16.48	6.50	0.125	-18.06	27.50	0.009	-40.92	52.00	0.020	-33.98	76.50	0.039	-28.18
-5.50	0.188	-14.52	6.75	0.123	-18.20	28.00	0.011	-39.17	52.50	0.029	-30.75	77.00	0.039	-28.18
-5.25	0.194	-14.24	7.00	0.099	-20.09	28.50	0.006	-44.44	53.00	0.032	-29.90	77.50	0.039	-28.18
-5.00	0.168	-15.49	7.25	0.061	-24.36	29.00	0.001	-60.00	53.50	0.026	-31.70	78.00	0.037	-28.64
-4.75	0.114	-18.86	7.50	0.029	-30.75	29.50	0.000	---	54.00	0.014	-37.08	78.50	0.034	-29.37
-4.50	0.047	-26.56	7.75	0.052	-25.68	30.00	0.004	-47.96	54.50	0.008	-41.94	79.00	0.030	-30.46
-4.25	0.055	-25.27	8.00	0.085	-21.41	30.50	0.008	-41.94	55.00	0.023	-32.77	79.50	0.026	-31.70
-4.00	0.119	-18.49	8.25	0.104	-19.70	31.00	0.013	-37.72	55.50	0.035	-29.12	80.00	0.022	-33.15
-3.75	0.165	-15.65	8.50	0.104	-19.66	31.50	0.036	-28.87	56.00	0.040	-27.96	80.50	0.019	-34.42
-3.50	0.182	-14.80	8.75	0.091	-20.82	32.00	0.070	-23.10	56.50	0.035	-29.12	81.00	0.015	-36.48
-3.25	0.164	-15.73	9.00	0.084	-21.51	32.50	0.102	-19.83	57.00	0.023	-32.77	81.50	0.012	-38.42
-3.00	0.116	-18.71	9.25	0.109	-19.25	33.00	0.119	-18.49	57.50	0.011	-39.17	82.00	0.009	-40.92
-2.75	0.059	-24.66	9.50	0.158	-16.03	33.50	0.111	-19.09	58.00	0.025	-32.04	82.50	0.006	-44.44
-2.50	0.073	-22.73	9.75	0.210	-13.56	34.00	0.079	-22.05	58.50	0.042	-27.54	83.00	0.004	-47.96
-2.25	0.141	-17.02	10.00	0.253	-11.94	34.50	0.037	-28.64	59.00	0.053	-25.51	83.50	0.003	-50.46
-2.00	0.194	-14.24	10.50	0.286	-10.87	35.00	0.031	-30.17	59.50	0.054	-25.35	84.00	0.003	-50.46
-1.75	0.214	-13.41	11.00	0.239	-12.43	35.50	0.053	-25.51	60.00	0.050	-26.02	84.50	0.003	-50.46
-1.50	0.202	-13.89	11.50	0.146	-16.71	36.00	0.055	-25.19	60.50	0.053	-25.51	85.00	0.003	-50.46
-1.25	0.190	-14.42	12.00	0.055	-25.19	36.50	0.036	-28.87	61.00	0.077	-22.27	85.50	0.003	-50.46
-1.00	0.242	-12.32	12.50	0.019	-34.42	37.00	0.015	-36.48	61.50	0.118	-18.56	86.00	0.003	-50.46
-0.75	0.377	-8.47	13.00	0.023	-32.77	37.50	0.032	-29.90	62.00	0.163	-15.76	86.50	0.003	-50.46
-0.50	0.548	-5.22	13.50	0.010	-40.00	38.00	0.045	-26.94	62.50	0.207	-13.68	87.00	0.003	-50.46
-0.25	0.721	-2.85	14.00	0.000	---	38.50	0.040	-27.96	63.00	0.243	-12.29	87.50	0.003	-50.46
0.00	0.867	-1.24	14.50	0.005	-46.02	39.00	0.020	-33.98	63.50	0.267	-11.47	88.00	0.002	-53.98
0.25	0.964	-0.32	15.00	0.016	-35.92	39.50	0.010	-40.00	64.00	0.278	-11.12	88.50	0.001	-60.00
0.50	1.000	0.00	15.50	0.020	-33.98	40.00	0.029	-30.75	64.50	0.274	-11.24	89.00	0.001	-60.00
0.75	0.966	-0.30	16.00	0.008	-41.94	40.50	0.035	-29.12	65.00	0.257	-11.80	89.50	0.000	---
1.00	0.868	-1.23	16.50	0.018	-34.89	41.00	0.026	-31.70	65.50	0.229	-12.80	90.00	0.001	-60.00
1.25	0.715	-2.92	17.00	0.033	-29.63	41.50	0.010	-40.00	66.00	0.192	-14.33			
1.50	0.530	-5.51	17.50	0.028	-31.06	42.00	0.017	-35.39	66.50	0.150	-16.48			
1.75	0.338	-9.42	18.00	0.011	-39.17	42.50	0.028	-31.06	67.00	0.108	-19.33			
2.00	0.182	-14.80	18.50	0.037	-28.64	43.00	0.029	-30.75	67.50	0.070	-23.10			