PRELIMINARY SPECIFICATION FOR ANDREW AL8Plus HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

Prepared For
WJJA
Racine, WI

June 29, 2004

ANTENNA TYPE:
AL8W-48-PL

SPECIFICATION NO:
JEH062904-01B

PRELIMINARY SPECIFICATION FOR ANDREW AL8Plus HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

ELECTRICAL CHARACTERISTICS:

CHANNEL:	*48*	
FREQUENCY RANGE:	*674.00 - 680.00 MHz*	
AZIMUTH PATTERN NUMBER:	*Hor Pol:*	*ALP-W*
ELEVATION PATTERN NUMBER:	*Hor Pol:*	*AL8*
AZIMUTH DIRECTIVITY:	*Hor Pol:*	*1.56 (1.93 dB)*
ELEVATION DIRECTIVITY:	*Hor Pol:*	*8.50 (9.29 dBd)*
PEAK POWER GAIN:	*Hor Pol:*	*13.26 (11.23 dBd)*
GAIN AT HORIZONTAL:	*Hor Pol:*	*10.93 (10.39 dBd)*
ELECTRICAL BEAM TILT:	*1.75 Degrees*	
INPUT POWER REQUIRED:	*0.459 kW Average Power, 8VSB Digital*	
MAXIMUM INPUT POWER:	*3.00 kW Average Power*	
INPUT TYPE:	*1-5/8" EIA*	
ANTENNA VSWR (MAXIMUM):	*DTV: 1.10 Over 6 MHz of Channel*	

PRELIMINARY SPECIFICATION FOR ANDREW AL8Plus HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

MECHANICAL CHARACTERISTICS:

*MOUNTING CONFIGURATION: *(Tower Interface supplied and installed by others.)*	*Side Mount*
HEIGHT OF ANTENNA:	*16.8 feet*
HEIGHT OF CENTER OF RADIATION:	*8.4 feet*
OVERALL HEIGHT (A):	*16.8 feet*
DEICING:	*Pressurized Radome Enclosure*
RADOME DIAMETER (C):	*CONTACT ANDREW*
RADOME COLOR:	*GRAY*
CLIMBING DEVICE:	*NOT APPLICABLE*
CALCULATED WEIGHT[1]:	*116 lbs.*
WINDLOAD DATA[2]:	*SHEAR: 438 lbs.*
ANTENNA AREA[3]:	*FRONT AREA:* *C_AA_C: 16.4 square feet* *A_C: 13.7 square feet* *SIDE AREA:* *C_AA_C: 8.7 square feet* *A_C: 7.3 square feet*

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 transitional 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 ± 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.

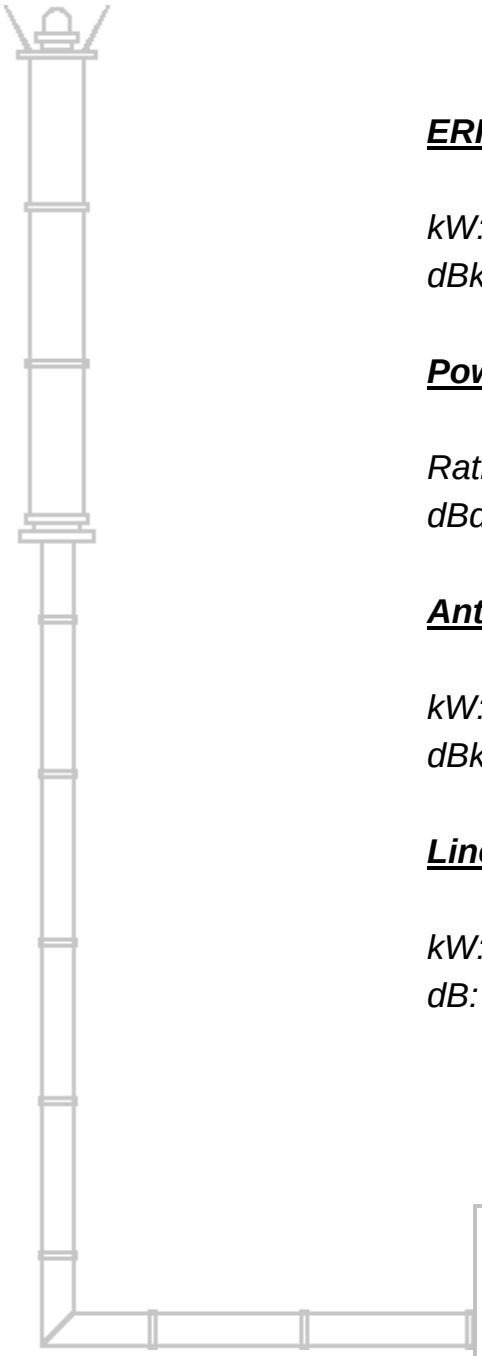
[2] Wind shear is based on 50 pounds per square foot (PSF) on flat surfaces and 33 PSF on cylindrical surfaces per EIA/TIA-RS222-C.

[3] Antenna Area is calculated per EIA/TIA-RS222-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

Type: AL8W-48-PL



ERP: **Hor Pol:**

kW:	6.09
dBk:	7.85

Transmission Line:

Type:
HJ8-50B
3" Air HELIAX

Vert. Length:	500 ft.
Horz. Length:	50 ft.

Attenuation:
0.438 dB/100 ft.

Efficiency:	57.43 %

Power Gain:

Ratio:	13.26
dBd:	11.23

Antenna Input:

kW:	0.46
dBk:	-3.38

Line Loss:

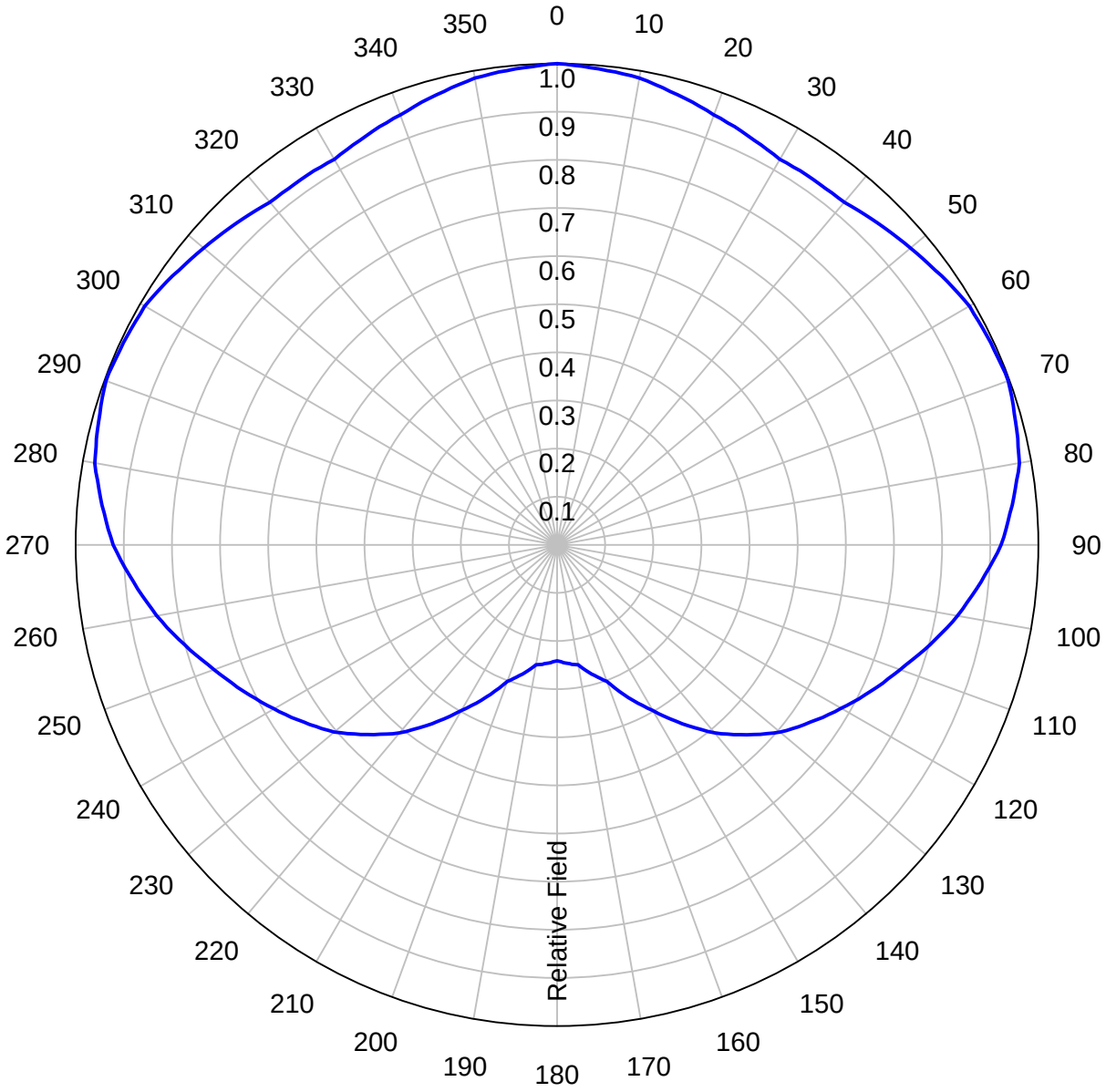
kW:	0.34
dB:	2.41

Transmitter Power

kW:	0.80
dBk:	-0.97

AZIMUTH PATTERN

Type:	ALP-W	
	Numeric	dBd
Directivity:	1.56	1.93
Peak(s) at:		
Polarization:	Horizontal	
Channel:	48	
Location:		
Note:		



ANDREW CORPORATION
10500 W. 153rd Street
Orland Park, Illinois U.S.A 60462

AZIMUTH TABULATED DATA

Type: ALP-W

Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	1.000	0.00	**92**	0.907	-0.85	**184**	0.246	-12.18	**276**	0.954	-0.41
2	0.997	-0.03	**94**	0.891	-1.00	**186**	0.248	-12.11	**278**	0.964	-0.32
4	0.994	-0.05	**96**	0.876	-1.15	**188**	0.251	-12.01	**280**	0.975	-0.22
6	0.991	-0.08	**98**	0.860	-1.31	**190**	0.253	-11.94	**282**	0.979	-0.18
8	0.988	-0.10	**100**	0.845	-1.46	**192**	0.263	-11.60	**284**	0.984	-0.14
10	0.985	-0.13	**102**	0.828	-1.64	**194**	0.273	-11.28	**286**	0.988	-0.10
12	0.978	-0.19	**104**	0.810	-1.83	**196**	0.282	-11.00	**288**	0.993	-0.06
14	0.971	-0.26	**106**	0.793	-2.01	**198**	0.292	-10.69	**290**	0.997	-0.03
16	0.965	-0.31	**108**	0.775	-2.21	**200**	0.302	-10.40	**292**	0.996	-0.03
18	0.958	-0.37	**110**	0.758	-2.41	**202**	0.321	-9.87	**294**	0.994	-0.05
20	0.951	-0.44	**112**	0.742	-2.59	**204**	0.340	-9.37	**296**	0.993	-0.06
22	0.946	-0.48	**114**	0.727	-2.77	**206**	0.359	-8.90	**298**	0.991	-0.08
24	0.941	-0.53	**116**	0.711	-2.96	**208**	0.378	-8.45	**300**	0.990	-0.09
26	0.935	-0.58	**118**	0.696	-3.15	**210**	0.397	-8.02	**302**	0.984	-0.14
28	0.930	-0.63	**120**	0.680	-3.35	**212**	0.420	-7.54	**304**	0.978	-0.19
30	0.925	-0.68	**122**	0.665	-3.54	**214**	0.442	-7.09	**306**	0.971	-0.26
32	0.926	-0.67	**124**	0.650	-3.74	**216**	0.465	-6.65	**308**	0.965	-0.31
34	0.927	-0.66	**126**	0.635	-3.94	**218**	0.487	-6.25	**310**	0.959	-0.36
36	0.927	-0.66	**128**	0.620	-4.15	**220**	0.510	-5.85	**312**	0.953	-0.42
38	0.928	-0.65	**130**	0.605	-4.36	**222**	0.529	-5.53	**314**	0.947	-0.47
40	0.929	-0.64	**132**	0.586	-4.64	**224**	0.548	-5.22	**316**	0.941	-0.53
42	0.935	-0.58	**134**	0.567	-4.93	**226**	0.567	-4.93	**318**	0.935	-0.58
44	0.941	-0.53	**136**	0.548	-5.22	**228**	0.586	-4.64	**320**	0.929	-0.64
46	0.947	-0.47	**138**	0.529	-5.53	**230**	0.605	-4.36	**322**	0.928	-0.65
48	0.953	-0.42	**140**	0.510	-5.85	**232**	0.620	-4.15	**324**	0.927	-0.66
50	0.959	-0.36	**142**	0.487	-6.25	**234**	0.635	-3.94	**326**	0.927	-0.66
52	0.965	-0.31	**144**	0.465	-6.65	**236**	0.650	-3.74	**328**	0.926	-0.67
54	0.971	-0.26	**146**	0.442	-7.09	**238**	0.665	-3.54	**330**	0.925	-0.68
56	0.978	-0.19	**148**	0.420	-7.54	**240**	0.680	-3.35	**332**	0.930	-0.63
58	0.984	-0.14	**150**	0.397	-8.02	**242**	0.696	-3.15	**334**	0.935	-0.58
60	0.990	-0.09	**152**	0.378	-8.45	**244**	0.711	-2.96	**336**	0.941	-0.53
62	0.991	-0.08	**154**	0.359	-8.90	**246**	0.727	-2.77	**338**	0.946	-0.48
64	0.993	-0.06	**156**	0.340	-9.37	**248**	0.742	-2.59	**340**	0.951	-0.44
66	0.994	-0.05	**158**	0.321	-9.87	**250**	0.758	-2.41	**342**	0.958	-0.37
68	0.996	-0.03	**160**	0.302	-10.40	**252**	0.775	-2.21	**344**	0.965	-0.31
70	0.997	-0.03	**162**	0.292	-10.69	**254**	0.793	-2.01	**346**	0.971	-0.26
72	0.993	-0.06	**164**	0.282	-11.00	**256**	0.810	-1.83	**348**	0.978	-0.19
74	0.988	-0.10	**166**	0.273	-11.28	**258**	0.828	-1.64	**350**	0.985	-0.13
76	0.984	-0.14	**168**	0.263	-11.60	**260**	0.845	-1.46	**352**	0.988	-0.10
78	0.979	-0.18	**170**	0.253	-11.94	**262**	0.860	-1.31	**354**	0.991	-0.08
80	0.975	-0.22	**172**	0.251	-12.01	**264**	0.876	-1.15	**356**	0.994	-0.05
82	0.964	-0.32	**174**	0.248	-12.11	**266**	0.891	-1.00	**358**	0.997	-0.03
84	0.954	-0.41	**176**	0.246	-12.18	**268**	0.907	-0.85	**360**	1.000	0.00
86	0.943	-0.51	**178**	0.243	-12.29	**270**	0.922	-0.71			
88	0.933	-0.60	**180**	0.241	-12.36	**272**	0.933	-0.60			
90	0.922	-0.71	**182**	0.243	-12.29	**274**	0.943	-0.51			

AZIMUTH PATTERN
FCC FILING FORMAT

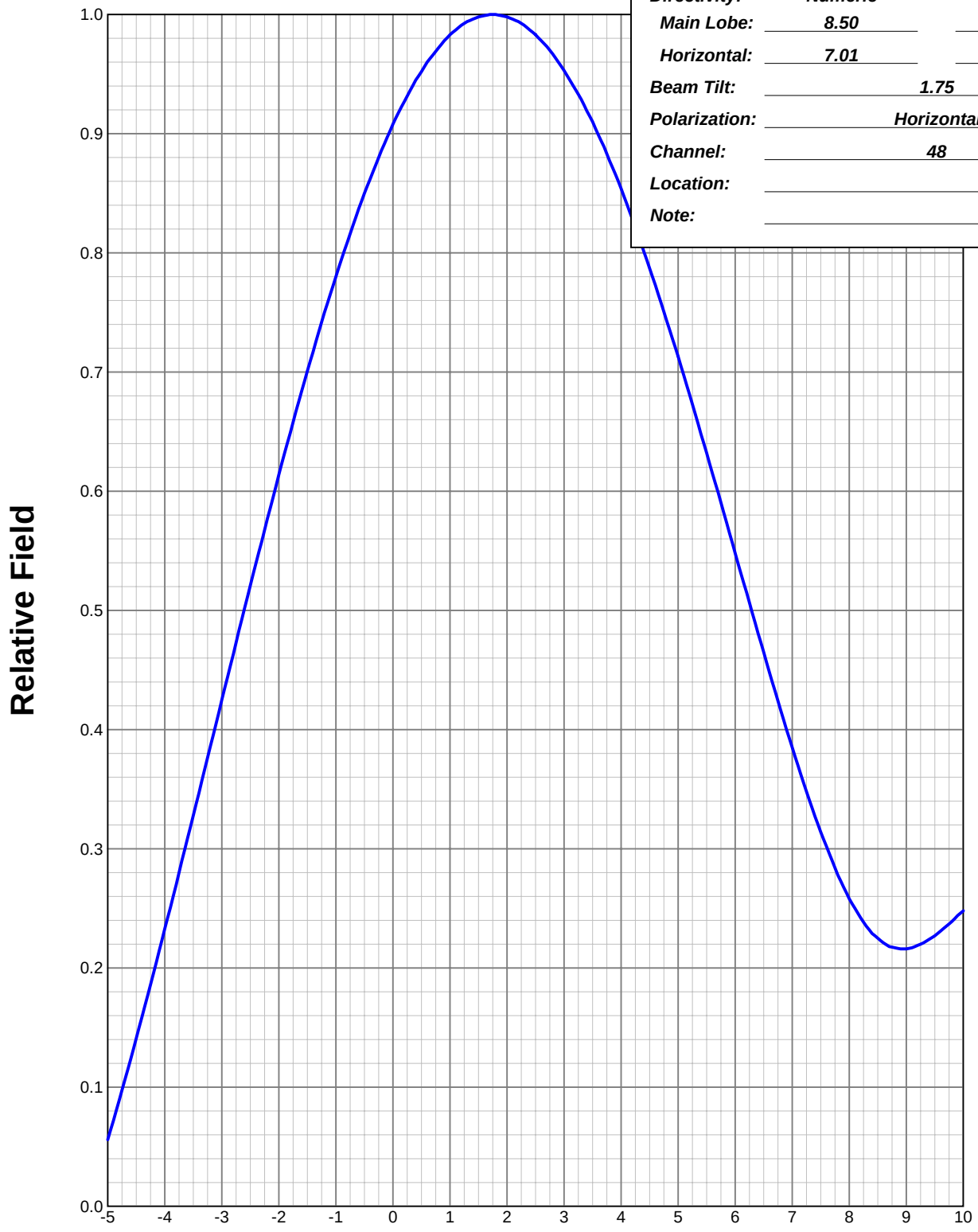
Type: ALP-W

Polarization: Horizontal

Angle	Field	ERP (kW)	ERP (dBk)
0	1.000	6.092	7.848
10	0.985	5.911	7.717
20	0.951	5.510	7.412
30	0.925	5.213	7.171
40	0.929	5.258	7.208
50	0.959	5.603	7.484
60	0.990	5.971	7.761
70	0.997	6.056	7.822
80	0.975	5.792	7.628
90	0.922	5.179	7.143
100	0.845	4.350	6.385
110	0.758	3.500	5.441
120	0.680	2.817	4.498
130	0.605	2.230	3.483
140	0.510	1.585	1.999
150	0.397	0.960	-0.176
160	0.302	0.556	-2.552
170	0.253	0.390	-4.090
180	0.241	0.354	-4.512
190	0.253	0.390	-4.090
200	0.302	0.556	-2.552
210	0.397	0.960	-0.176
220	0.510	1.585	1.999
230	0.605	2.230	3.483
240	0.680	2.817	4.498
250	0.758	3.500	5.441
260	0.845	4.350	6.385
270	0.922	5.179	7.143
280	0.975	5.792	7.628
290	0.997	6.056	7.822
300	0.990	5.971	7.761
310	0.959	5.603	7.484
320	0.929	5.258	7.208
330	0.925	5.213	7.171
340	0.951	5.510	7.412
350	0.985	5.911	7.717

ELEVATION PATTERN

Type:	AL8	
Directivity:	Numeric	dBd
Main Lobe:	8.50	9.29
Horizontal:	7.01	8.46
Beam Tilt:	1.75	
Polarization:	Horizontal	
Channel:	48	
Location:		
Note:		



ANDREW CORPORATION
10500 W. 153rd Street
Orland Park, Illinois U.S.A 60462

ELEVATION TABULATED DATA

Type: AL8

Polarization: Horizontal

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-5.00	0.056	-25.04	**6.50**	0.465	-6.65	**42.00**	0.029	-30.75	**88.00**	0.016	-35.92
-4.75	0.098	-20.22	**6.75**	0.424	-7.45	**43.00**	0.026	-31.70	**89.00**	0.008	-41.94
-4.50	0.141	-17.02	**7.00**	0.385	-8.29	**44.00**	0.050	-26.02	**90.00**	0.000	0.00
-4.25	0.186	-14.61	**7.25**	0.348	-9.17	**45.00**	0.074	-22.62			
-4.00	0.233	-12.65	**7.50**	0.314	-10.06	**46.00**	0.092	-20.72			
-3.75	0.280	-11.06	**7.75**	0.284	-10.93	**47.00**	0.104	-19.66			
-3.50	0.328	-9.68	**8.00**	0.258	-11.77	**48.00**	0.106	-19.49			
-3.25	0.377	-8.48	**8.25**	0.239	-12.45	**49.00**	0.101	-19.91			
-3.00	0.425	-7.43	**8.50**	0.225	-12.96	**50.00**	0.089	-21.01			
-2.75	0.473	-6.50	**8.75**	0.218	-13.25	**51.00**	0.070	-23.10			
-2.50	0.521	-5.66	**9.00**	0.216	-13.31	**52.00**	0.048	-26.38			
-2.25	0.568	-4.92	**9.25**	0.220	-13.15	**53.00**	0.023	-32.77			
-2.00	0.614	-4.24	**9.50**	0.227	-12.88	**54.00**	0.009	-40.92			
-1.75	0.658	-3.64	**9.75**	0.237	-12.51	**55.00**	0.032	-29.90			
-1.50	0.701	-3.09	**10.00**	0.248	-12.11	**56.00**	0.056	-25.04			
-1.25	0.742	-2.59	**11.00**	0.287	-10.84	**57.00**	0.076	-22.38			
-1.00	0.780	-2.16	**12.00**	0.299	-10.49	**58.00**	0.093	-20.63			
-0.75	0.816	-1.77	**13.00**	0.277	-11.15	**59.00**	0.105	-19.58			
-0.50	0.850	-1.41	**14.00**	0.227	-12.88	**60.00**	0.112	-19.02			
-0.25	0.880	-1.11	**15.00**	0.161	-15.86	**61.00**	0.115	-18.79			
0.00	0.908	-0.84	**16.00**	0.101	-19.91	**62.00**	0.114	-18.86			
0.25	0.932	-0.62	**17.00**	0.090	-20.92	**63.00**	0.109	-19.25			
0.50	0.952	-0.43	**18.00**	0.125	-18.06	**64.00**	0.101	-19.91			
0.75	0.969	-0.27	**19.00**	0.159	-15.97	**65.00**	0.090	-20.92			
1.00	0.983	-0.15	**20.00**	0.174	-15.19	**66.00**	0.077	-22.27			
1.25	0.993	-0.07	**21.00**	0.167	-15.55	**67.00**	0.064	-23.88			
1.50	0.998	-0.02	**22.00**	0.140	-17.08	**68.00**	0.051	-25.85			
1.75	1.000	0.00	**23.00**	0.099	-20.09	**69.00**	0.040	-27.96			
2.00	0.998	-0.02	**24.00**	0.060	-24.44	**70.00**	0.032	-29.90			
2.25	0.993	-0.07	**25.00**	0.053	-25.51	**71.00**	0.030	-30.46			
2.50	0.983	-0.15	**26.00**	0.083	-21.62	**72.00**	0.033	-29.63			
2.75	0.970	-0.26	**27.00**	0.112	-19.02	**73.00**	0.038	-28.40			
3.00	0.953	-0.42	**28.00**	0.128	-17.86	**74.00**	0.045	-26.94			
3.25	0.933	-0.60	**29.00**	0.129	-17.79	**75.00**	0.051	-25.85			
3.50	0.910	-0.82	**30.00**	0.115	-18.79	**76.00**	0.056	-25.04			
3.75	0.883	-1.08	**31.00**	0.088	-21.11	**77.00**	0.059	-24.58			
4.00	0.854	-1.37	**32.00**	0.056	-25.04	**78.00**	0.061	-24.29			
4.25	0.821	-1.71	**33.00**	0.034	-29.37	**79.00**	0.061	-24.29			
4.50	0.787	-2.08	**34.00**	0.048	-26.38	**80.00**	0.060	-24.44			
4.75	0.751	-2.49	**35.00**	0.075	-22.50	**81.00**	0.058	-24.73			
5.00	0.713	-2.94	**36.00**	0.098	-20.18	**82.00**	0.054	-25.35			
5.25	0.673	-3.44	**37.00**	0.110	-19.17	**83.00**	0.050	-26.02			
5.50	0.632	-3.99	**38.00**	0.111	-19.09	**84.00**	0.044	-27.13			
5.75	0.591	-4.58	**39.00**	0.100	-20.00	**85.00**	0.038	-28.40			
6.00	0.548	-5.22	**40.00**	0.080	-21.94	**86.00**	0.031	-30.17			
6.25	0.506	-5.91	**41.00**	0.055	-25.19	**87.00**	0.024	-32.40			