

**PRELIMINARY SPECIFICATION FOR  
ERI CARINA™ HORIZONTALLY POLARIZED  
COAXIAL SLOTTED ARRAY ANTENNA**

*Prepared For*

*Channel 36*

*October 12, 2009*

**ANTENNA TYPE:  
ALP8L8-HSER-36**

**SPECIFICATION NO:**



## PRELIMINARY SPECIFICATION FOR ERI CARINA™ HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

### ELECTRICAL CHARACTERISTICS:

CHANNEL:	NTSC:	36
FREQUENCY RANGE:	NTSC:	602.00 - 608.00 MHz
AZIMUTH PATTERN NUMBER:	Hor Pol:	ALP-ER
ELEVATION PATTERN NUMBER:	Hor Pol:	ALP8L8
AZIMUTH DIRECTIVITY:	Hor Pol:	1.93 (2.86 dB)
ELEVATION DIRECTIVITY:	Hor Pol:	9.05 (9.57 dBd)
PEAK POWER GAIN:	Hor Pol:	17.47 (12.42 dBd)
GAIN AT HORIZONTAL:	Hor Pol:	11.15 (10.47 dBd)
ELECTRICAL BEAM TILT:		-2.00 Degrees
INPUT POWER REQUIRED:		0.027 kW Peak Visual plus 10% Aural
MAXIMUM INPUT POWER:		3.000 kW Peak Visual plus 10% Aural
INPUT TYPE:		1-5/8" EIA
ANTENNA VSWR (MAXIMUM):	NTSC:	1.05 Visual + 0.5 MHz 1.08 Chroma 1.10 Over remainder of Channel

*Preliminary, subject to final design and review.*

## PRELIMINARY SPECIFICATION FOR ERI CARINA™ HORIZONTALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

### MECHANICAL CHARACTERISTICS:

#### MOUNTING CONFIGURATION:

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

Side Mount

HEIGHT OF ANTENNA: 18.8 feet

HEIGHT OF CENTER OF RADIATION: 9.4 feet

OVERALL HEIGHT (A): 18.8 feet

DEICING: Unpressurized Slot Cover Radome Enclosure

RADOME DIAMETER (C): CONTACT ERI

RADOME COLOR: GRAY

CLIMBING DEVICE: NOT APPLICABLE

CALCULATED WEIGHT<sup>1</sup>: 126 lbs.

ANTENNA AREA<sup>3</sup>:

FRONT AREA:

$C_A A_C$ : 22.2 square feet

$A_C$ : 18.5 square feet

SIDE AREA:

$C_A A_C$ : 12.6 square feet

$A_C$ : 10.5 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 translational and three rotational degrees of freedom.***

<sup>1</sup> 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 that accompanies the antenna.

<sup>3</sup> 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.**

Preliminary, subject to final design and review.

## Broadcast Antenna System Power Analysis

### Channel 36

### ALP8L8-HSER-36

#### ANTENNA PARAMETERS

##### Azimuth Directivity:

Hor. Pol: 1.93  
dBd: 2.86

##### Elevation Directivity:

Hor. Pol: 9.05  
dBd: 9.57

#### TRANSMISSION LINE:

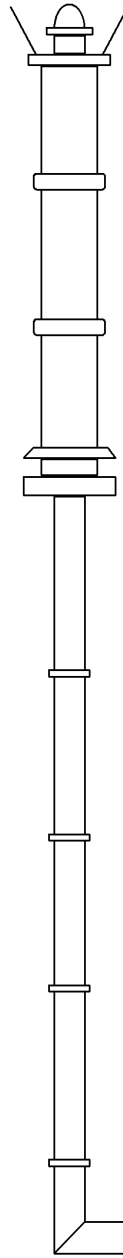
##### VERTICAL RUN:

Type: LDF5-50B  
Length, ft: 25 ft.  
Attenuation, dB/100 ft: 0.886 dB/100 ft.

##### HORIZONTAL RUN:

Type: LDF5-50B  
Length, ft: 25 ft.  
Attenuation, dB/100 ft: 0.886 dB/100 ft.

Line Efficiency: 90.30 %



#### ERP:

kW: 0.47  
dBk: -3.25

#### POWER GAIN:

Ratio: 17.47  
dBd: 12.42

#### ANTENNA INPUT:

kW: 0.03  
dBk: -15.67

#### LINE LOSS:

kW: 0.00  
dB: 0.44

#### TRANSMITTER POWER:

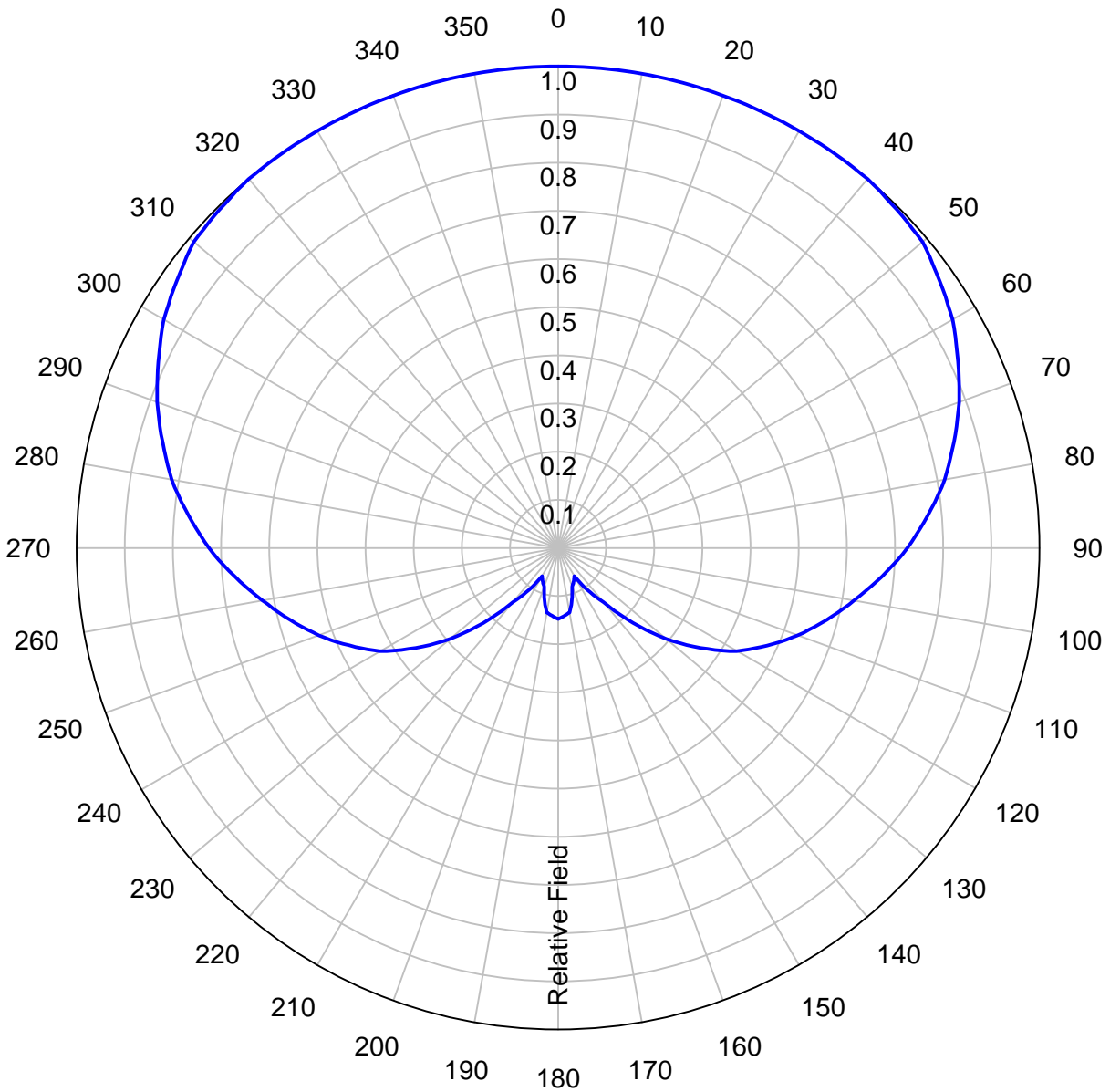
kW: 0.03  
dBk: -15.23

Preliminary, subject to final design and review.

### AZIMUTH PATTERN

Type: ALP-ER  
 Directivity: Numeric 1.93 dBd 2.86  
 Peak(s) at: \_\_\_\_\_

Channel: 36  
 Location: \_\_\_\_\_  
 Polarization: Horizontal  
 Note: Pattern shape and directivity may vary with channel and routing configuration.



Preliminary, subject to final design and review.

## TABULATED DATA FOR AZIMUTH PATTERN

Type: ALP-ER

Polarization:Horizontal

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	1.000	0.00	92	0.705	-3.04	184	0.143	-16.89	276	0.779	-2.17
2	1.000	0.00	94	0.685	-3.29	186	0.140	-17.08	278	0.797	-1.97
4	1.000	0.00	96	0.664	-3.56	188	0.138	-17.20	280	0.815	-1.78
6	1.000	0.00	98	0.644	-3.82	190	0.136	-17.33	282	0.829	-1.63
8	1.000	0.00	100	0.624	-4.10	192	0.126	-17.99	284	0.843	-1.48
10	1.000	0.00	102	0.605	-4.36	194	0.116	-18.71	286	0.858	-1.33
12	1.000	0.00	104	0.586	-4.64	196	0.105	-19.58	288	0.872	-1.19
14	1.000	0.00	106	0.567	-4.93	198	0.095	-20.45	290	0.886	-1.05
16	1.000	0.00	108	0.548	-5.22	200	0.085	-21.41	292	0.898	-0.93
18	1.000	0.00	110	0.529	-5.53	202	0.081	-21.83	294	0.910	-0.82
20	1.000	0.00	112	0.509	-5.87	204	0.078	-22.16	296	0.922	-0.71
22	1.000	0.00	114	0.489	-6.21	206	0.074	-22.62	298	0.934	-0.59
24	1.000	0.00	116	0.468	-6.60	208	0.071	-22.97	300	0.946	-0.48
26	1.000	0.00	118	0.448	-6.97	210	0.067	-23.48	302	0.954	-0.41
28	1.000	0.00	120	0.428	-7.37	212	0.083	-21.62	304	0.963	-0.33
30	1.000	0.00	122	0.401	-7.94	214	0.099	-20.09	306	0.971	-0.26
32	1.000	0.00	124	0.374	-8.54	216	0.114	-18.86	308	0.980	-0.18
34	1.000	0.00	126	0.347	-9.19	218	0.130	-17.72	310	0.988	-0.10
36	1.000	0.00	128	0.320	-9.90	220	0.146	-16.71	312	0.990	-0.09
38	1.000	0.00	130	0.293	-10.66	222	0.175	-15.14	314	0.993	-0.06
40	1.000	0.00	132	0.264	-11.57	224	0.205	-13.76	316	0.995	-0.04
42	0.998	-0.02	134	0.234	-12.62	226	0.234	-12.62	318	0.998	-0.02
44	0.995	-0.04	136	0.205	-13.76	228	0.264	-11.57	320	1.000	0.00
46	0.993	-0.06	138	0.175	-15.14	230	0.293	-10.66	322	1.000	0.00
48	0.990	-0.09	140	0.146	-16.71	232	0.320	-9.90	324	1.000	0.00
50	0.988	-0.10	142	0.130	-17.72	234	0.347	-9.19	326	1.000	0.00
52	0.980	-0.18	144	0.114	-18.86	236	0.374	-8.54	328	1.000	0.00
54	0.971	-0.26	146	0.099	-20.09	238	0.401	-7.94	330	1.000	0.00
56	0.963	-0.33	148	0.083	-21.62	240	0.428	-7.37	332	1.000	0.00
58	0.954	-0.41	150	0.067	-23.48	242	0.448	-6.97	334	1.000	0.00
60	0.946	-0.48	152	0.071	-22.97	244	0.468	-6.60	336	1.000	0.00
62	0.934	-0.59	154	0.074	-22.62	246	0.489	-6.21	338	1.000	0.00
64	0.922	-0.71	156	0.078	-22.16	248	0.509	-5.87	340	1.000	0.00
66	0.910	-0.82	158	0.081	-21.83	250	0.529	-5.53	342	1.000	0.00
68	0.898	-0.93	160	0.085	-21.41	252	0.548	-5.22	344	1.000	0.00
70	0.886	-1.05	162	0.095	-20.45	254	0.567	-4.93	346	1.000	0.00
72	0.872	-1.19	164	0.105	-19.58	256	0.586	-4.64	348	1.000	0.00
74	0.858	-1.33	166	0.116	-18.71	258	0.605	-4.36	350	1.000	0.00
76	0.843	-1.48	168	0.126	-17.99	260	0.624	-4.10	352	1.000	0.00
78	0.829	-1.63	170	0.136	-17.33	262	0.644	-3.82	354	1.000	0.00
80	0.815	-1.78	172	0.138	-17.20	264	0.664	-3.56	356	1.000	0.00
82	0.797	-1.97	174	0.140	-17.08	266	0.685	-3.29	358	1.000	0.00
84	0.779	-2.17	176	0.143	-16.89	268	0.705	-3.04	360	1.000	0.00
86	0.761	-2.37	178	0.145	-16.77	270	0.725	-2.79			
88	0.743	-2.58	180	0.147	-16.65	272	0.743	-2.58			
90	0.725	-2.79	182	0.145	-16.77	274	0.761	-2.37			

Preliminary, subject to final design and review.

## TABULATED DATA FOR AZIMUTH PATTERN FCC FILING FORMAT

Type: ALP-ER

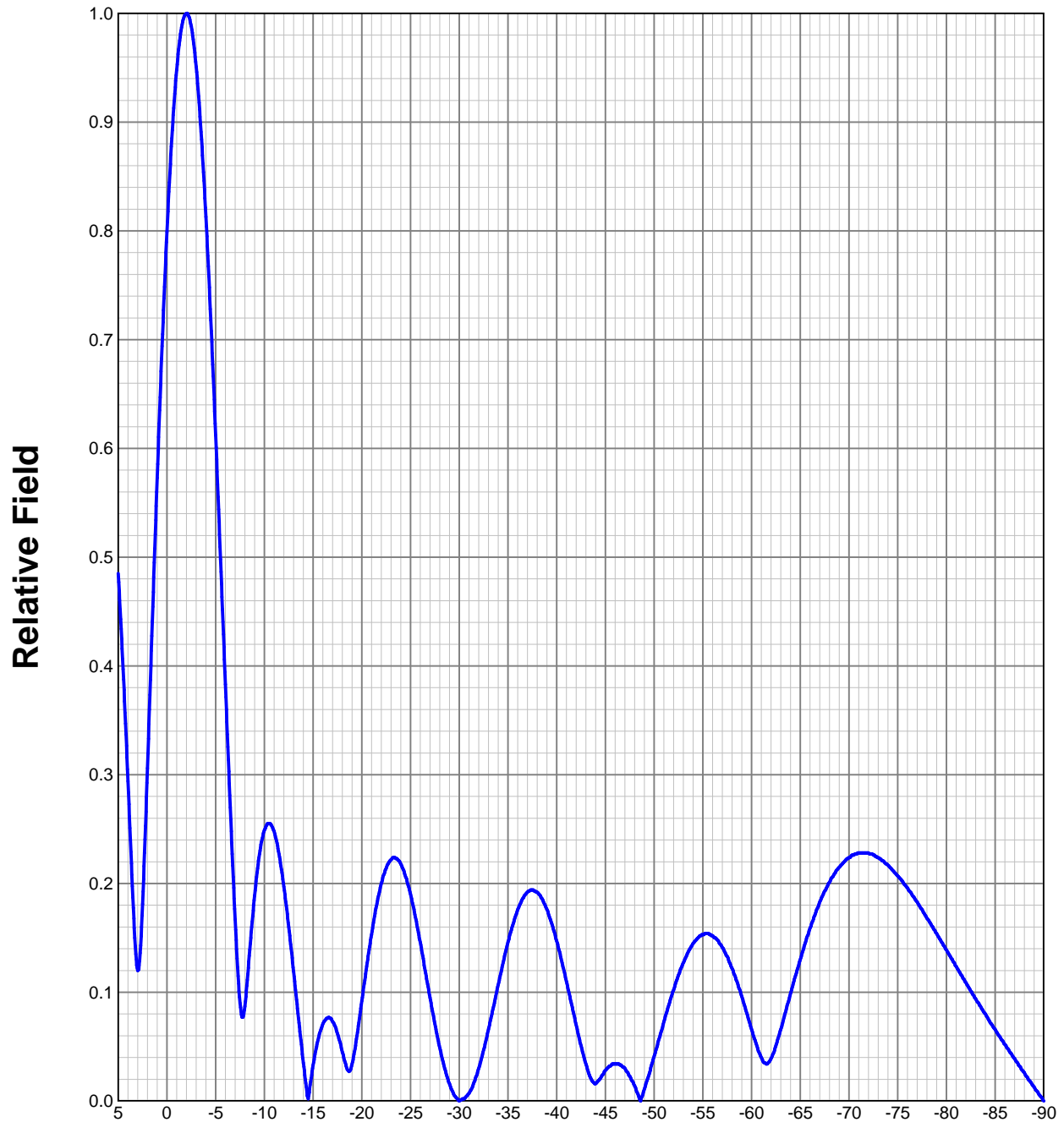
Polarization: Horizontal

ANGLE	FIELD	ERP (kW)	ERP (dBk)
0	1.000	0.473	-3.250
10	1.000	0.473	-3.250
20	1.000	0.473	-3.250
30	1.000	0.473	-3.250
40	1.000	0.473	-3.250
50	0.988	0.462	-3.355
60	0.946	0.423	-3.732
70	0.886	0.371	-4.301
80	0.815	0.314	-5.027
90	0.725	0.249	-6.043
100	0.624	0.184	-7.346
110	0.529	0.132	-8.781
120	0.428	0.087	-10.621
130	0.293	0.041	-13.912
140	0.146	0.010	-19.963
150	0.067	0.002	-26.728
160	0.085	0.003	-24.661
170	0.136	0.009	-20.579
180	0.147	0.010	-19.903
190	0.136	0.009	-20.579
200	0.085	0.003	-24.661
210	0.067	0.002	-26.728
220	0.146	0.010	-19.963
230	0.293	0.041	-13.912
240	0.428	0.087	-10.621
250	0.529	0.132	-8.781
260	0.624	0.184	-7.346
270	0.725	0.249	-6.043
280	0.815	0.314	-5.027
290	0.886	0.371	-4.301
300	0.946	0.423	-3.732
310	0.988	0.462	-3.355
320	1.000	0.473	-3.250
330	1.000	0.473	-3.250
340	1.000	0.473	-3.250
350	1.000	0.473	-3.250

*Preliminary, subject to final design and review.*

**ELEVATION PATTERN**

Type:	<u>ALP8L8</u>		Channel:	<u>36</u>
Directivity:	<u>Numeric</u>	<u>dBd</u>	Location:	<u></u>
Main Lobe:	<u>9.05</u>	<u>9.57</u>	Beam Tilt:	<u>-2.00</u>
Horizontal:	<u>5.78</u>	<u>7.62</u>	Polarization:	<u>Horizontal</u>



Preliminary, subject to final design and review.



## TABULATED DATA FOR ELEVATION PATTERN

Type: ALP8L8

Polarization: Horizontal

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
5.00	0.485	-6.29	-6.75	0.216	-13.29	-27.00	0.095	-20.45	-50.50	0.057	-24.88	-74.00	0.217	-13.27
4.75	0.443	-7.07	-7.00	0.167	-15.55	-27.50	0.071	-22.97	-51.00	0.073	-22.73	-74.50	0.212	-13.47
4.50	0.397	-8.02	-7.25	0.123	-18.20	-28.00	0.049	-26.20	-51.50	0.088	-21.11	-75.00	0.207	-13.68
4.25	0.347	-9.19	-7.50	0.090	-20.92	-28.50	0.030	-30.46	-52.00	0.102	-19.83	-75.50	0.202	-13.89
4.00	0.294	-10.63	-7.75	0.077	-22.27	-29.00	0.016	-35.92	-52.50	0.116	-18.71	-76.00	0.196	-14.15
3.75	0.240	-12.40	-8.00	0.087	-21.21	-29.50	0.005	-46.02	-53.00	0.127	-17.92	-76.50	0.189	-14.47
3.50	0.187	-14.56	-8.25	0.112	-19.05	-30.00	0.000	-40.00	-53.50	0.137	-17.27	-77.00	0.183	-14.75
3.25	0.143	-16.92	-8.50	0.139	-17.14	-30.50	0.002	-53.98	-54.00	0.145	-16.77	-77.50	0.176	-15.09
3.00	0.120	-18.42	-8.75	0.165	-15.65	-31.00	0.007	-43.10	-54.50	0.150	-16.48	-78.00	0.168	-15.49
2.75	0.136	-17.33	-9.00	0.189	-14.47	-31.50	0.017	-35.39	-55.00	0.153	-16.31	-78.50	0.161	-15.86
2.50	0.181	-14.85	-9.25	0.210	-13.56	-32.00	0.030	-30.46	-55.50	0.154	-16.25	-79.00	0.154	-16.25
2.25	0.240	-12.38	-9.50	0.227	-12.88	-32.50	0.047	-26.56	-56.00	0.152	-16.36	-79.50	0.146	-16.71
2.00	0.306	-10.29	-9.75	0.240	-12.40	-33.00	0.066	-23.61	-56.50	0.148	-16.59	-80.00	0.139	-17.14
1.75	0.373	-8.55	-10.00	0.249	-12.08	-33.50	0.086	-21.31	-57.00	0.141	-17.02	-80.50	0.131	-17.65
1.50	0.441	-7.11	-10.50	0.255	-11.87	-34.00	0.107	-19.41	-57.50	0.133	-17.52	-81.00	0.124	-18.13
1.25	0.508	-5.88	-11.00	0.248	-12.11	-34.50	0.127	-17.92	-58.00	0.122	-18.27	-81.50	0.116	-18.71
1.00	0.573	-4.84	-11.50	0.227	-12.88	-35.00	0.146	-16.71	-58.50	0.110	-19.17	-82.00	0.109	-19.25
0.75	0.635	-3.94	-12.00	0.197	-14.11	-35.50	0.162	-15.81	-59.00	0.096	-20.35	-82.50	0.101	-19.91
0.50	0.694	-3.17	-12.50	0.160	-15.92	-36.00	0.176	-15.09	-59.50	0.081	-21.83	-83.00	0.094	-20.54
0.25	0.748	-2.52	-13.00	0.119	-18.49	-36.50	0.186	-14.61	-60.00	0.066	-23.61	-83.50	0.087	-21.21
0.00	0.799	-1.95	-13.50	0.076	-22.38	-37.00	0.192	-14.33	-60.50	0.052	-25.68	-84.00	0.080	-21.94
-0.25	0.845	-1.47	-14.00	0.035	-29.12	-37.50	0.194	-14.24	-61.00	0.040	-27.96	-84.50	0.072	-22.85
-0.50	0.885	-1.06	-14.50	0.002	-53.98	-38.00	0.192	-14.33	-61.50	0.034	-29.37	-85.00	0.066	-23.61
-0.75	0.919	-0.73	-15.00	0.033	-29.63	-38.50	0.186	-14.61	-62.00	0.039	-28.18	-85.50	0.059	-24.58
-1.00	0.948	-0.46	-15.50	0.056	-25.04	-39.00	0.176	-15.09	-62.50	0.051	-25.85	-86.00	0.052	-25.68
-1.25	0.971	-0.26	-16.00	0.071	-22.97	-39.50	0.163	-15.76	-63.00	0.066	-23.61	-86.50	0.045	-26.94
-1.50	0.987	-0.11	-16.50	0.076	-22.38	-40.00	0.147	-16.65	-63.50	0.082	-21.72	-87.00	0.039	-28.18
-1.75	0.996	-0.03	-17.00	0.073	-22.73	-40.50	0.129	-17.79	-64.00	0.099	-20.09	-87.50	0.032	-29.90
-2.00	1.000	0.00	-17.50	0.062	-24.15	-41.00	0.110	-19.17	-64.50	0.115	-18.79	-88.00	0.026	-31.70
-2.25	0.997	-0.03	-18.00	0.045	-26.94	-41.50	0.090	-20.92	-65.00	0.130	-17.72	-88.50	0.019	-34.42
-2.50	0.988	-0.10	-18.50	0.029	-30.75	-42.00	0.070	-23.10	-65.50	0.145	-16.77	-89.00	0.013	-37.72
-2.75	0.972	-0.25	-19.00	0.034	-29.37	-42.50	0.051	-25.85	-66.00	0.159	-15.97	-89.50	0.006	-44.44
-3.00	0.951	-0.44	-19.50	0.060	-24.44	-43.00	0.034	-29.37	-66.50	0.171	-15.34	-90.00	0.000	-40.00
-3.25	0.924	-0.69	-20.00	0.092	-20.72	-43.50	0.021	-33.56	-67.00	0.183	-14.75			
-3.50	0.891	-1.00	-20.50	0.124	-18.13	-44.00	0.016	-35.92	-67.50	0.193	-14.29			
-3.75	0.854	-1.37	-21.00	0.153	-16.31	-44.50	0.021	-33.56	-68.00	0.201	-13.94			
-4.00	0.813	-1.80	-21.50	0.179	-14.94	-45.00	0.028	-31.06	-68.50	0.209	-13.60			
-4.25	0.768	-2.30	-22.00	0.200	-13.98	-45.50	0.032	-29.90	-69.00	0.215	-13.35			
-4.50	0.718	-2.88	-22.50	0.214	-13.39	-46.00	0.034	-29.37	-69.50	0.220	-13.15			
-4.75	0.667	-3.52	-23.00	0.222	-13.07	-46.50	0.033	-29.63	-70.00	0.224	-13.00			
-5.00	0.612	-4.26	-23.50	0.223	-13.03	-47.00	0.030	-30.46	-70.50	0.226	-12.92			
-5.25	0.555	-5.11	-24.00	0.218	-13.23	-47.50	0.023	-32.77	-71.00	0.228	-12.84			
-5.50	0.498	-6.06	-24.50	0.206	-13.72	-48.00	0.014	-37.08	-71.50	0.228	-12.84			
-5.75	0.441	-7.12	-25.00	0.190	-14.42	-48.50	0.002	-53.98	-72.00	0.228	-12.84			
-6.00	0.383	-8.34	-25.50	0.169	-15.44	-49.00	0.011	-39.17	-72.50	0.226	-12.92			
-6.25	0.326	-9.75	-26.00	0.146	-16.71	-49.50	0.025	-32.04	-73.00	0.224	-13.00			
-6.50	0.270	-11.37	-26.50	0.120	-18.42	-50.00	0.041	-27.74	-73.50	0.221	-13.11			

Preliminary, subject to final design and review.