



ENGINEERING STATEMENT

OF

JOHN F.X. BROWNE, P.E.

**IN SUPPORT OF REQUEST FOR
SPECIAL TEMPORARY AUTHORITY
FOR WRPT-DT
HIBBING, MN**

Background

Duluth-Superior Area Educational TV Corporation holds a construction permit (BPEDT-20030605AFB, Facility ID# 159007) for digital WRPT, located at Hibbing, MN, on Channel 31 with the following parameters:

Pre-transition Facility (Ch. 31)

Coordinates: 47° 22' 53" N (NAD27)
92° 57' 15" W
ERP: 500 kW (DA)
HAAT: 212m

WRPT is a digital singleton and has been allotted post-transition DTV operation with the Appendix B Eighth Report and Order facility parameters listed below:

Post-transition Appendix B Facility (Ch. 31)

Coordinates: 47° 22' 53" N (NAD27)
92° 57' 15" W
ERP: 500 kW (DA)
HAAT: 212m

During the channel election process, WRPT certified-to its maximized DTV coverage (BNPEDT-20030605AFB) on Channel 31, which specified a facility with the parameters listed in



Appendix B. WRPT has filed a post-transition application for facilities that specify the use of an ERI ATW20H3-HSP5-31S directional antenna that will be side-mounted at a height of 107.9m AGL on a tower owned by WIRT (Hibbing, MN). WIRT-DT is operating its pre-transition facility on CH36 but is returning to its analog CH13 for post-transition operation. The WIRT-DT CH36 antenna is side-mounted on the tower at the position where the final WRPT-DT antenna will be placed. The tower is not capable of taking the extra loading which would be caused by the addition of the proposed WRPT-DT antenna and, therefore, this work must be delayed until after the transition when WIRT-DT will switch to CH13 and operate using a top-mounted antenna. After WIRT switches to the antenna on top of the tower, the CH36 antenna will be removed and the WRPT-DT antenna will be installed in its place. WRPT-DT wishes to operate with lesser temporary facilities until such time as this work can be accomplished.

Site

The facility is located within the Canadian border zone and coordination with the Canadian government is requested to the extent necessary in light of the FCC's ongoing negotiations with the Canadian government regarding the allotments specified in Appendix B of the Eighth Report and Order.

Antenna System and Tower

WRPT-DT proposes to utilize an ERI DELPHINUS AL8-31-PL omniod antenna with an ERP of 35.2 kW at a height of 585.2m AMSL (150.5m HAAT) until after the transition when the WIRT-DT antenna can be removed and the WRPT ERI ATW20H3-HSP5-31S antenna can be side-mounted in its place. The ERI DELPHINUS antenna has an electrical beam tilt of 1.75 degrees. The azimuth and elevation patterns and tabulations are attached as Exhibits 1a-e and a relative field/dBk table is attached as Table 1.

The tower (ASRN 1033720) is the same tower as specified in the present construction permit. The proposed ERI DELPHINUS antenna will be side mounted on the tower at a height



of 585.2m AMSL (150.5m HAAT), 61.5m lower than the 212m HAAT specified for the Appendix B facility. The installation will not alter the overall tower height and, therefore, neither notification to the FAA nor modification of the ASR is necessary.

Coverage

The entire principal community of Hibbing, MN is well within the predicted F(50,90) 48dBu contour using the proposed directional antenna and 35.2 kW ERP. Appendix B lists the population served by the facility as 118,000. The proposed 35.2 kW facility is predicted to provide coverage to 105,765 people or 89.5% and, therefore, meets the 85% population requirement for a phased transition.

Interference

Interference studies were run utilizing software that emulates that used by the Commission. The results of these studies indicate that the proposed facility would not cause any full service digital TV station more than 0.5% new interference or more than 2% interference to any Class A television station.

Environmental/RFR

The proposed construction does not require preparation of an Environmental Assessment, as it does not involve any of the factors listed in Section 1.1306.

The additional ground level RFR contributed to the site by this proposal in public areas is calculated to be 0.001397 mW/cm², which is less than 5% of the MPE for public exposure (0.383333 mW/cm²) at the proposed frequency and, therefore, the proposal is excluded from further consideration.



WRPT agrees to comply with the Commission's requirements regarding power adjustments or cessation of operation as may be necessary to ensure a compliant environment for worker access. Workers are encouraged to wear personal RFR monitors when on the structure. A locked security fence encloses the tower base and appropriate signage warning of RFR hazards are posted.

Certification

I hereby certify that the foregoing report or statement was prepared by me but may include work performed by others under my supervision or direction. The statements of fact contained therein are believed to be true and correct based on personal knowledge, information and belief unless otherwise stated; with respect to facts not known of my own personal knowledge, I believe them to be true and correct based on their origin from sources known to me to be generally reliable and accurate. I have prepared this document with due care and in accordance with applicable standards of professional practice.

A handwritten signature in black ink, reading 'John F.X. Browne', written over a horizontal line.

John F.X. Browne, P.E.
June 10, 2008

DIRECTIONAL ANTENNA DATA**WRPT-DT STA****dBk Table**

Pattern Rotated 180 degrees

Actual Bearing	Pattern Azimuth	Relative Field	ERP (dBk)	CONTOURS(km)	
				48 dBu	41 dBu
N000E	0.00	0.676	11.72	48.2	55.9
	10.00	0.672	11.67		
	20.00	0.659	11.50		
	30.00	0.642	11.27		
	40.00	0.623	11.01		
N045E	45.00	0.614	10.88	49.1	57.0
	50.00	0.608	10.80		
	60.00	0.602	10.71		
	70.00	0.609	10.81		
	80.00	0.631	11.12		
N090E	90.00	0.668	11.61	52.1	60.0
	100.00	0.715	12.20		
	110.00	0.767	12.81		
	120.00	0.820	13.40		
	130.00	0.871	13.92		
N135E	135.00	0.893	14.14	55.7	63.4
	140.00	0.915	14.35		
	150.00	0.951	14.68		
	160.00	0.978	14.93		
	170.00	0.994	15.07		
N180E	180.00	1.000	15.12	56.4	64.0
	190.00	0.994	15.07		
	200.00	0.978	14.93		
	210.00	0.951	14.68		
	220.00	0.915	14.35		
N225E	225.00	0.893	14.14	53.3	61.0
	230.00	0.871	13.92		
	240.00	0.820	13.40		
	250.00	0.767	12.81		
	260.00	0.715	12.20		
N270E	270.00	0.668	11.61	49.5	57.4
	280.00	0.631	11.12		
	290.00	0.609	10.81		
	300.00	0.602	10.71		
	310.00	0.609	10.81		
N315E	315.00	0.615	10.90	47.4	55.1
	320.00	0.623	11.01		
	330.00	0.642	11.27		
	340.00	0.659	11.50		
	350.00	0.672	11.67		

Maximum: N180E 15.12 dBk

Minima: N060E 10.71 dBk

N300E 10.71 dBk

Exhibit 1a

AZIMUTH PATTERN

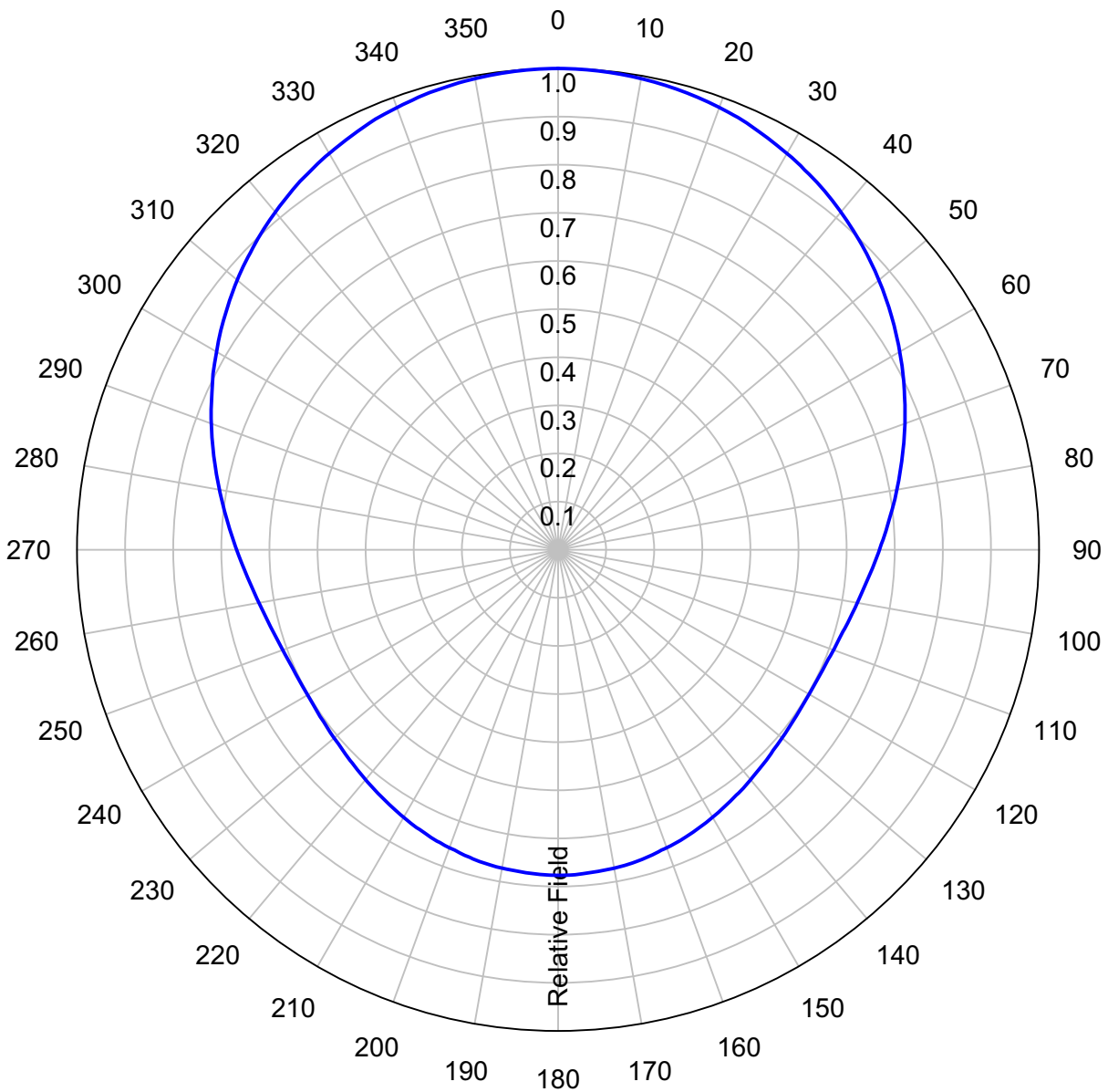
Type: ALP-OC

	Numeric	dBd
Directivity:	<u>1.70</u>	<u>2.30</u>
Peak(s) at:		

Channel: 31

Location:	<u>Hibbing, MN.</u>
Polarization:	<u>Horizontal</u>

Note: Pattern shape and directivity may vary with channel and mouting configuration.



Preliminary, subject to final design and review.

Exhibit 1b

TABULATED DATA FOR AZIMUTH PATTERN**Type: ALP-OC****PolarizationHorizontal**

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	1.000	0.00	92	0.660	-3.61	184	0.675	-3.41	276	0.695	-3.16
2	1.000	0.00	94	0.652	-3.72	186	0.674	-3.43	278	0.705	-3.04
4	0.999	-0.01	96	0.644	-3.82	188	0.673	-3.44	280	0.715	-2.91
6	0.998	-0.02	98	0.638	-3.90	190	0.672	-3.45	282	0.725	-2.79
8	0.996	-0.03	100	0.631	-4.00	192	0.670	-3.48	284	0.735	-2.67
10	0.994	-0.05	102	0.626	-4.07	194	0.668	-3.50	286	0.746	-2.55
12	0.992	-0.07	104	0.621	-4.14	196	0.665	-3.54	288	0.756	-2.43
14	0.989	-0.10	106	0.616	-4.21	198	0.662	-3.58	290	0.767	-2.30
16	0.986	-0.12	108	0.612	-4.26	200	0.659	-3.62	292	0.778	-2.18
18	0.982	-0.16	110	0.609	-4.31	202	0.656	-3.66	294	0.788	-2.07
20	0.978	-0.19	112	0.606	-4.35	204	0.653	-3.70	296	0.799	-1.95
22	0.974	-0.23	114	0.604	-4.38	206	0.649	-3.76	298	0.810	-1.83
24	0.969	-0.27	116	0.603	-4.39	208	0.646	-3.80	300	0.820	-1.72
26	0.963	-0.33	118	0.602	-4.41	210	0.642	-3.85	302	0.831	-1.61
28	0.957	-0.38	120	0.602	-4.41	212	0.638	-3.90	304	0.841	-1.50
30	0.951	-0.44	122	0.602	-4.41	214	0.634	-3.96	306	0.851	-1.40
32	0.945	-0.49	124	0.603	-4.39	216	0.630	-4.01	308	0.861	-1.30
34	0.938	-0.56	126	0.604	-4.38	218	0.627	-4.05	310	0.871	-1.20
36	0.931	-0.62	128	0.606	-4.35	220	0.623	-4.11	312	0.880	-1.11
38	0.923	-0.70	130	0.608	-4.32	222	0.619	-4.17	314	0.889	-1.02
40	0.915	-0.77	132	0.610	-4.29	224	0.616	-4.21	316	0.898	-0.93
42	0.907	-0.85	134	0.613	-4.25	226	0.613	-4.25	318	0.907	-0.85
44	0.898	-0.93	136	0.616	-4.21	228	0.610	-4.29	320	0.915	-0.77
46	0.889	-1.02	138	0.619	-4.17	230	0.608	-4.32	322	0.923	-0.70
48	0.880	-1.11	140	0.623	-4.11	232	0.606	-4.35	324	0.931	-0.62
50	0.871	-1.20	142	0.627	-4.05	234	0.604	-4.38	326	0.938	-0.56
52	0.861	-1.30	144	0.630	-4.01	236	0.603	-4.39	328	0.945	-0.49
54	0.851	-1.40	146	0.634	-3.96	238	0.602	-4.41	330	0.951	-0.44
56	0.841	-1.50	148	0.638	-3.90	240	0.602	-4.41	332	0.957	-0.38
58	0.831	-1.61	150	0.642	-3.85	242	0.602	-4.41	334	0.963	-0.33
60	0.820	-1.72	152	0.646	-3.80	244	0.603	-4.39	336	0.969	-0.27
62	0.810	-1.83	154	0.649	-3.76	246	0.604	-4.38	338	0.974	-0.23
64	0.799	-1.95	156	0.653	-3.70	248	0.606	-4.35	340	0.978	-0.19
66	0.788	-2.07	158	0.656	-3.66	250	0.609	-4.31	342	0.982	-0.16
68	0.778	-2.18	160	0.659	-3.62	252	0.612	-4.26	344	0.986	-0.12
70	0.767	-2.30	162	0.662	-3.58	254	0.616	-4.21	346	0.989	-0.10
72	0.756	-2.43	164	0.665	-3.54	256	0.621	-4.14	348	0.992	-0.07
74	0.746	-2.55	166	0.668	-3.50	258	0.626	-4.07	350	0.994	-0.05
76	0.735	-2.67	168	0.670	-3.48	260	0.631	-4.00	352	0.996	-0.03
78	0.725	-2.79	170	0.672	-3.45	262	0.638	-3.90	354	0.998	-0.02
80	0.715	-2.91	172	0.673	-3.44	264	0.644	-3.82	356	0.999	-0.01
82	0.705	-3.04	174	0.674	-3.43	266	0.652	-3.72	358	1.000	0.00
84	0.695	-3.16	176	0.675	-3.41	268	0.660	-3.61	360	1.000	0.00
86	0.686	-3.27	178	0.676	-3.40	270	0.668	-3.50			
88	0.677	-3.39	180	0.676	-3.40	272	0.677	-3.39			
90	0.668	-3.50	182	0.676	-3.40	274	0.686	-3.27			

Preliminary, subject to final design and review.

Exhibit 1c

**TABULATED DATA FOR AZIMUTH PATTERN
FCC FILING FORMAT****Type: ALP-OC****PolarizationHorizontal**

ANGLE	FIELD	ERP (kW)	ERP (dBk)
0	1.000	43.350	16.370
10	0.994	42.831	16.318
20	0.978	41.464	16.177
30	0.951	39.206	15.934
40	0.915	36.294	15.598
50	0.871	32.887	15.170
60	0.820	29.149	14.646
70	0.767	25.502	14.066
80	0.715	22.162	13.456
90	0.668	19.344	12.865
100	0.631	17.260	12.370
110	0.609	16.078	12.062
120	0.602	15.710	11.962
130	0.608	16.025	12.048
140	0.623	16.825	12.260
150	0.642	17.867	12.521
160	0.659	18.826	12.748
170	0.672	19.576	12.917
180	0.676	19.810	12.969
190	0.672	19.576	12.917
200	0.659	18.826	12.748
210	0.642	17.867	12.521
220	0.623	16.825	12.260
230	0.608	16.025	12.048
240	0.602	15.710	11.962
250	0.609	16.078	12.062
260	0.631	17.260	12.370
270	0.668	19.344	12.865
280	0.715	22.162	13.456
290	0.767	25.502	14.066
300	0.820	29.149	14.646
310	0.871	32.887	15.170
320	0.915	36.294	15.598
330	0.951	39.206	15.934
340	0.978	41.464	16.177
350	0.994	42.831	16.318

Preliminary, subject to final design and review.

Exhibit 1d

ELEVATION PATTERN

Type:	AL8		Channel:	31
Directivity:	Numeric	dBd	Location:	Hibbing, MN.
Main Lobe:	8.50	9.29	Beam Tilt:	-1.75
Horizontal:	7.01	8.46	Polarization:	Horizontal

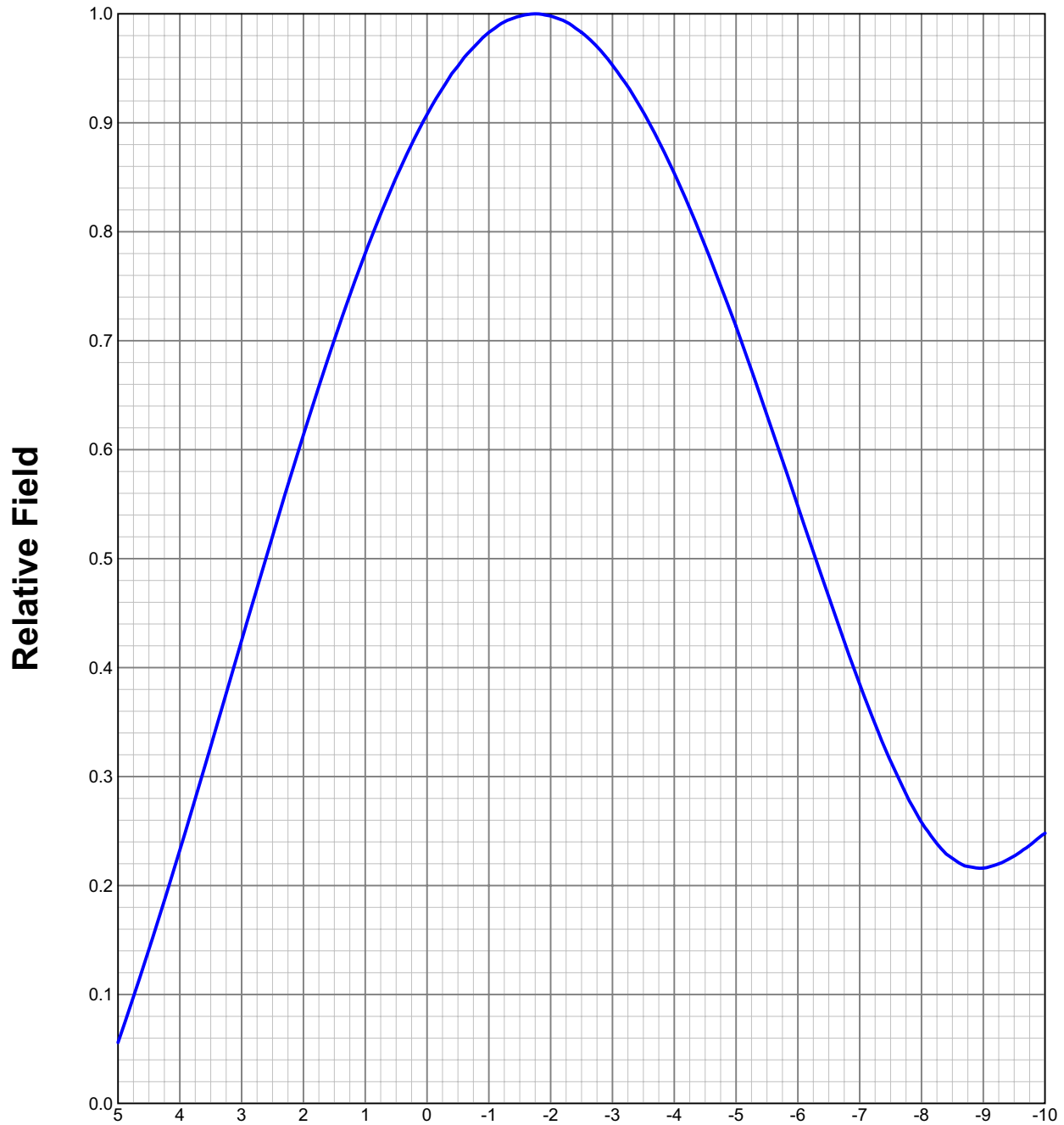
*Preliminary, subject to final design and review.*

Exhibit 1e

TABULATED DATA FOR ELEVATION PATTERN**Type: AL8****Polarization Horizontal**

ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB
5.00	0.056	-25.04	-6.75	0.424	-7.45	-27.00	0.112	-19.02	-50.50
4.75	0.098	-20.22	-7.00	0.385	-8.29	-27.50	0.122	-18.27	-51.00
4.50	0.141	-17.02	-7.25	0.348	-9.17	-28.00	0.128	-17.86	-51.50
4.25	0.186	-14.61	-7.50	0.314	-10.06	-28.50	0.131	-17.65	-52.00
4.00	0.233	-12.65	-7.75	0.284	-10.93	-29.00	0.129	-17.79	-52.50
3.75	0.280	-11.06	-8.00	0.258	-11.77	-29.50	0.124	-18.13	-53.00
3.50	0.328	-9.68	-8.25	0.238	-12.45	-30.00	0.115	-18.79	-53.50
3.25	0.377	-8.48	-8.50	0.225	-12.96	-30.50	0.103	-19.74	-54.00
3.00	0.425	-7.43	-8.75	0.217	-13.25	-31.00	0.088	-21.11	-54.50
2.75	0.473	-6.50	-9.00	0.216	-13.31	-31.50	0.073	-22.73	-55.00
2.50	0.521	-5.66	-9.25	0.220	-13.15	-32.00	0.056	-25.04	-55.50
2.25	0.568	-4.92	-9.50	0.227	-12.88	-32.50	0.042	-27.54	-56.00
2.00	0.614	-4.24	-9.75	0.237	-12.51	-33.00	0.034	-29.37	-56.50
1.75	0.658	-3.64	-10.00	0.248	-12.11	-33.50	0.037	-28.64	-57.00
1.50	0.701	-3.09	-10.50	0.270	-11.37	-34.00	0.048	-26.38	-57.50
1.25	0.742	-2.59	-11.00	0.287	-10.84	-34.50	0.061	-24.29	-58.00
1.00	0.780	-2.16	-11.50	0.298	-10.52	-35.00	0.075	-22.50	-58.50
0.75	0.816	-1.77	-12.00	0.299	-10.49	-35.50	0.087	-21.21	-59.00
0.50	0.850	-1.41	-12.50	0.292	-10.69	-36.00	0.098	-20.18	-59.50
0.25	0.880	-1.11	-13.00	0.277	-11.15	-36.50	0.105	-19.58	-60.00
0.00	0.908	-0.84	-13.50	0.255	-11.87	-37.00	0.110	-19.17	-60.50
-0.25	0.931	-0.62	-14.00	0.227	-12.88	-37.50	0.112	-19.02	-61.00
-0.50	0.952	-0.43	-14.50	0.195	-14.20	-38.00	0.111	-19.09	-61.50
-0.75	0.969	-0.27	-15.00	0.161	-15.86	-38.50	0.107	-19.41	-62.00
-1.00	0.983	-0.15	-15.50	0.128	-17.86	-39.00	0.100	-20.00	-62.50
-1.25	0.992	-0.07	-16.00	0.101	-19.91	-39.50	0.091	-20.82	-63.00
-1.50	0.998	-0.02	-16.50	0.087	-21.21	-40.00	0.080	-21.94	-63.50
-1.75	1.000	0.00	-17.00	0.090	-20.92	-40.50	0.068	-23.35	-64.00
-2.00	0.998	-0.02	-17.50	0.105	-19.58	-41.00	0.055	-25.19	-64.50
-2.25	0.992	-0.07	-18.00	0.125	-18.06	-41.50	0.041	-27.74	-65.00
-2.50	0.983	-0.15	-18.50	0.144	-16.83	-42.00	0.029	-30.75	-65.50
-2.75	0.970	-0.26	-19.00	0.159	-15.97	-42.50	0.022	-33.15	-66.00
-3.00	0.953	-0.42	-19.50	0.169	-15.44	-43.00	0.026	-31.70	-66.50
-3.25	0.933	-0.60	-20.00	0.174	-15.19	-43.50	0.037	-28.64	-67.00
-3.50	0.910	-0.82	-20.50	0.173	-15.24	-44.00	0.050	-26.02	-67.50
-3.75	0.883	-1.08	-21.00	0.167	-15.55	-44.50	0.062	-24.15	-68.00
-4.00	0.854	-1.37	-21.50	0.155	-16.19	-45.00	0.074	-22.62	-68.50
-4.25	0.821	-1.71	-22.00	0.140	-17.08	-45.50	0.084	-21.51	-69.00
-4.50	0.787	-2.08	-22.50	0.120	-18.42	-46.00	0.092	-20.72	-69.50
-4.75	0.750	-2.49	-23.00	0.099	-20.09	-46.50	0.099	-20.09	-70.00
-5.00	0.713	-2.94	-23.50	0.078	-22.16	-47.00	0.104	-19.66	-70.50
-5.25	0.673	-3.44	-24.00	0.060	-24.44	-47.50	0.106	-19.49	-71.00
-5.50	0.632	-3.99	-24.50	0.050	-26.02	-48.00	0.106	-19.49	-71.50
-5.75	0.591	-4.58	-25.00	0.053	-25.51	-48.50	0.105	-19.58	-72.00
-6.00	0.548	-5.22	-25.50	0.066	-23.61	-49.00	0.101	-19.91	-72.50
-6.25	0.506	-5.91	-26.00	0.083	-21.62	-49.50	0.096	-20.35	-73.00
-6.50	0.465	-6.65	-26.50	0.098	-20.18	-50.00	0.089	-21.01	-73.50

Preliminary, subject to final design and review.