

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

**WTMJ-TV, RF Channel 28
E.W. Scripps Company, Milwaukee, WI
November 11, 2016**

**Antenna Model:
ETU-P3H1-1451**

**Specification Number
20161111-838**

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

Electrical Characteristics:

Channel:		28	
Frequency:		572 MHz to 578 MHz	
Service:		ATSC	
Azimuth Pattern Number:	Horizontal Polarization	ETUP3	
Elevation Pattern Number:	Horizontal Polarization	ETU-1H	
Azimuth Directivity:	Horizontal Polarization	1.79	(2.54 dB)
Elevation Directivity:	Horizontal Polarization	2.15	(3.31 dBd)
Peak Power Gain:	Horizontal Polarization	3.85	(5.85 dBd)
Gain at Horizontal:	Horizontal Polarization	3.85	(5.85 dBd)
Electrical Beam Tilt:		0.00 Degrees	
RF Input:		3-1/8-inch EIA flanged, 50 ohm, male	
Input Power Rating (maximum):		7.5 kW Average Power, 8VSB	
Antenna VSWR (maximum):		1.10 Over 6 MHz Channel	

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Mechanical Characteristics:

Mounting Configuration:	Side Mount		
Height of Antenna:	3.9 feet	(1.2 meters)	
Height of Center of Radiation:	1.9 feet	(0.6 meters)	
Deicing:	Fully enclosed pressurized radome		
Radome Diameter:	12.40 inches	(302.6 millimeters)	
Radome Color:	Aviation Orange		
Climbing Device:	Not Applicable		
Calculated Weight ¹ :	No Ice	440.0 lbm	199.6 kg
	0.5inch (13 mm) ice	515.0 lbm	233.6 kg
Windload Data ² :	EPA No Ice	24.6 sq.ft.	2.3 sq.m.
	0.5inch (13 mm) ice	28.3 sq.ft.	2.6 sq.m.

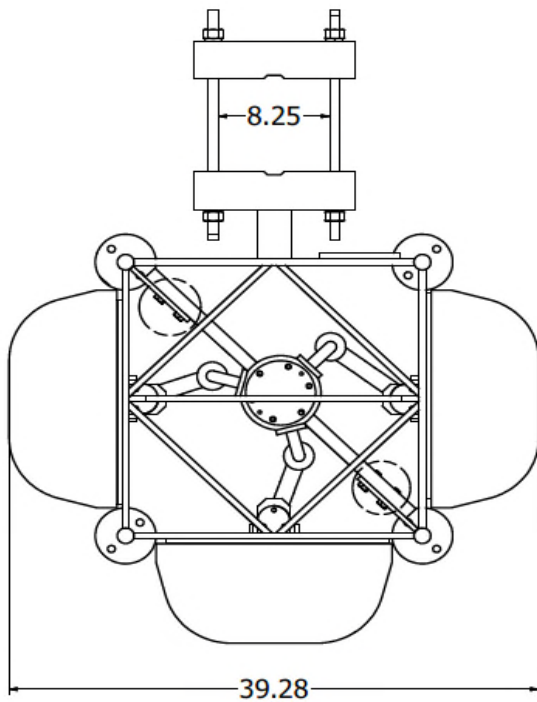
This antenna is designed to be supported by a structure that can resist the antenna base reactions and which provides a support that is rigid in the three translational and three rotational degrees of freedom.

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, beacon and lightning spurs only. Custom mounting brackets/adapters and/or antenna input section are NOT included.

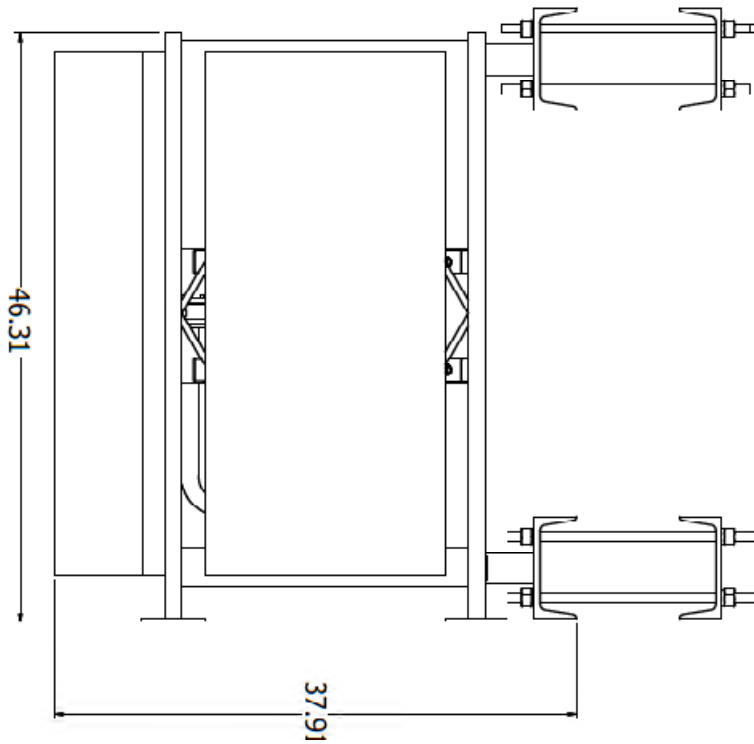
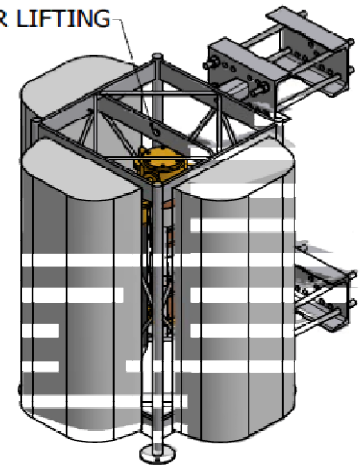
2 Loads calculated in accordance with the ANSI/TIA-222 standard

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: Ø1-1/16" HOLE FOR LIFTING

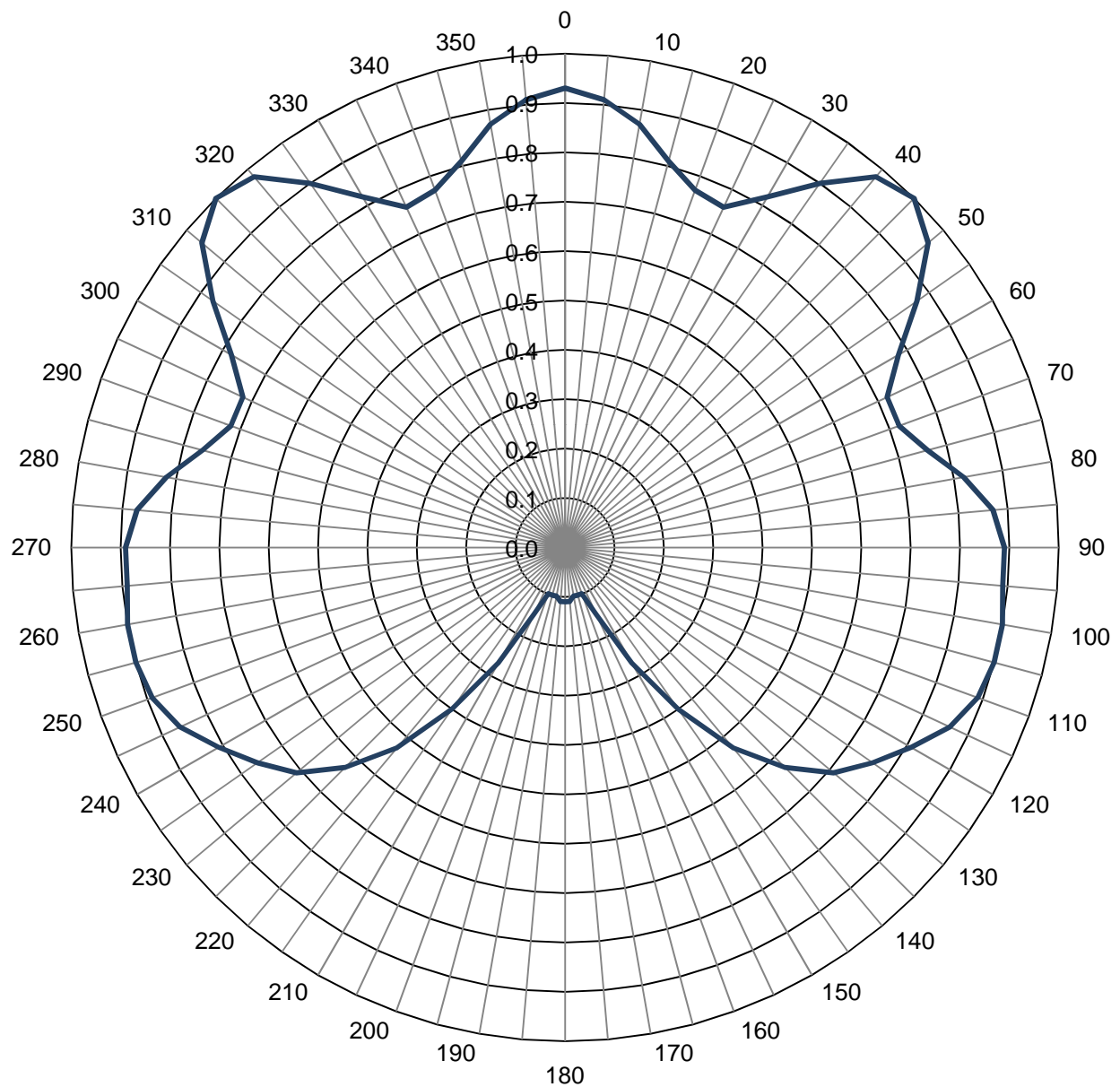


Leg mount included for up to 7 inch OD leg or pipe.

Azimuth Pattern

Type:	ETUP3	Polarization:	Horizontal
Directivity:	1.79 numeric (2.54 dB)	Frequency:	28 (ATSC)
Peak(s) at:		Location:	Milwaukee, WI
		NOTE: Pattern shape and directivity may vary with channel and mounting configuration.	

Relative Field



Tabulated Data for Azimuth Pattern

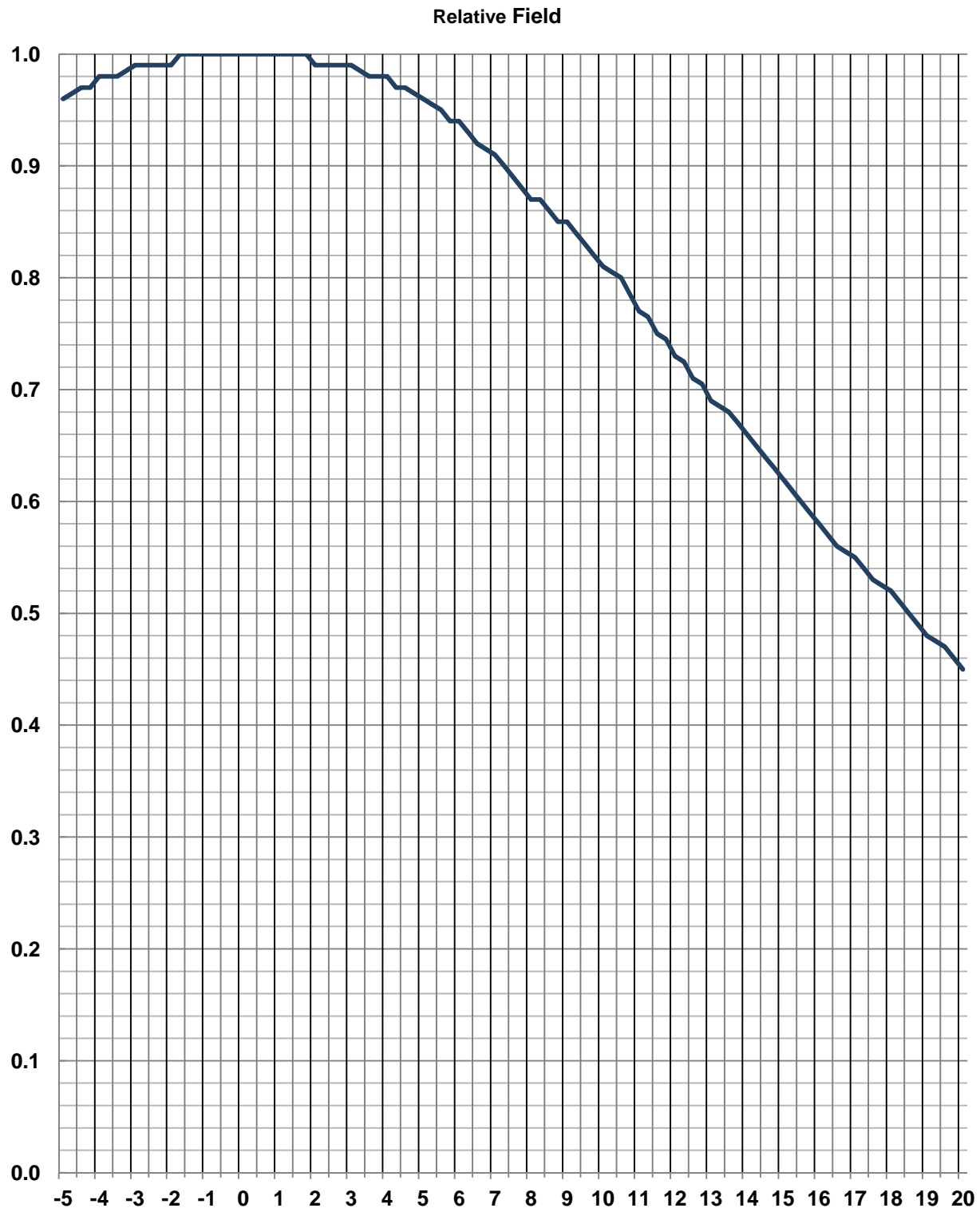
Type:

ETUP3

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.930	-0.63	100	0.900	-0.92	200	0.100	-20.00	300	0.780	-2.16
2	0.920	-0.72	102	0.900	-0.92	202	0.110	-19.17	302	0.810	-1.83
4	0.920	-0.72	104	0.900	-0.92	204	0.140	-17.08	304	0.850	-1.41
6	0.910	-0.82	106	0.900	-0.92	206	0.170	-15.39	306	0.890	-1.01
8	0.890	-1.01	108	0.900	-0.92	208	0.220	-13.15	308	0.920	-0.72
10	0.870	-1.21	110	0.890	-1.01	210	0.270	-11.37	310	0.960	-0.35
12	0.850	-1.41	112	0.880	-1.11	212	0.320	-9.90	312	0.980	-0.18
14	0.820	-1.72	114	0.870	-1.21	214	0.380	-8.40	314	0.990	-0.09
16	0.800	-1.94	116	0.850	-1.41	216	0.430	-7.33	316	1.000	0.00
18	0.780	-2.16	118	0.830	-1.62	218	0.480	-6.38	318	1.000	0.00
20	0.770	-2.27	120	0.810	-1.83	220	0.530	-5.51	320	0.980	-0.18
22	0.760	-2.38	122	0.790	-2.05	222	0.570	-4.88	322	0.950	-0.45
24	0.760	-2.38	124	0.770	-2.27	224	0.610	-4.29	324	0.920	-0.72
26	0.770	-2.27	126	0.750	-2.50	226	0.650	-3.74	326	0.890	-1.01
28	0.790	-2.05	128	0.730	-2.73	228	0.680	-3.35	328	0.850	-1.41
30	0.820	-1.72	130	0.710	-2.97	230	0.710	-2.97	330	0.820	-1.72
32	0.850	-1.41	132	0.680	-3.35	232	0.730	-2.73	332	0.790	-2.05
34	0.890	-1.01	134	0.650	-3.74	234	0.750	-2.50	334	0.770	-2.27
36	0.920	-0.72	136	0.610	-4.29	236	0.770	-2.27	336	0.760	-2.38
38	0.950	-0.45	138	0.570	-4.88	238	0.790	-2.05	338	0.760	-2.38
40	0.980	-0.18	140	0.530	-5.51	240	0.810	-1.83	340	0.770	-2.27
42	1.000	0.00	142	0.480	-6.38	242	0.830	-1.62	342	0.780	-2.16
44	1.000	0.00	144	0.430	-7.33	244	0.850	-1.41	344	0.800	-1.94
46	0.990	-0.09	146	0.380	-8.40	246	0.870	-1.21	346	0.820	-1.72
48	0.980	-0.18	148	0.320	-9.90	248	0.880	-1.11	348	0.850	-1.41
50	0.960	-0.35	150	0.270	-11.37	250	0.890	-1.01	350	0.870	-1.21
52	0.920	-0.72	152	0.220	-13.15	252	0.900	-0.92	352	0.890	-1.01
54	0.890	-1.01	154	0.170	-15.39	254	0.900	-0.92	354	0.910	-0.82
56	0.850	-1.41	156	0.140	-17.08	256	0.900	-0.92	356	0.920	-0.72
58											-0.63
60	0.780	-2.16	160	0.100	-20.00	260	0.900	-0.92	360	0.930	-0.63
62	0.740	-2.62	162	0.090	-20.92	262	0.900	-0.92			
64	0.730	-2.73	164	0.090	-20.92	264	0.900	-0.92			
66	0.710	-2.97	166	0.100	-20.00	266	0.900	-0.92			
68	0.710	-2.97	168	0.100	-20.00	268	0.900	-0.92			
70	0.720	-2.85	170	0.100	-20.00	270	0.890	-1.01			
72	0.730	-2.73	172	0.100	-20.00	272	0.890	-1.01			
74	0.750	-2.50	174	0.100	-20.00	274	0.870	-1.21			
76	0.770	-2.27	176	0.110	-19.17	276	0.860	-1.31			
78	0.800	-1.94	178	0.110	-19.17	278	0.840	-1.51			
80	0.820	-1.72	180	0.110	-19.17	280	0.820	-1.72			
82	0.840	-1.51	182	0.110	-19.17	282	0.800	-1.94			
84	0.860	-1.31	184	0.110	-19.17	284	0.770	-2.27			
86	0.870	-1.21	186	0.100	-20.00	286	0.750	-2.50			
88	0.890	-1.01	188	0.100	-20.00	288	0.730	-2.73			
90	0.890	-1.01	190	0.100	-20.00	290	0.720	-2.85			
92	0.900	-0.92	192	0.100	-20.00	292	0.710	-2.97			
94	0.900	-0.92	194	0.100	-20.00	294	0.710	-2.97			
96	0.900	-0.92	196	0.090	-20.92	296	0.730	-2.73			
98	0.900	-0.92	198	0.090	-20.92	298	0.740	-2.62			

Elevation Pattern

Type:	ETU-1H		Polarization:	Horizontal
Directivity:			Frequency:	28 (ATSC)
Main Lobe:	2.15 numeric	(3.31 dB)	Location:	Milwaukee, WI
Horizontal:	2.15 numeric	(3.31 dB)	Beam Tilt:	0.00 degrees



Tabulated Data for Elevation PatternType: ETU-1H

-5 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
-5.00	0.960	-0.35	7.25	0.900	-0.92	29.00	0.260	-11.70	53.50	0.280	-11.06	78.00	0.170	-15.39
-4.75	0.965	-0.31	7.50	0.890	-1.01	29.50	0.250	-12.04	54.00	0.280	-11.06	78.50	0.170	-15.39
-4.50	0.970	-0.26	7.75	0.880	-1.11	30.00	0.250	-12.04	54.50	0.270	-11.37	79.00	0.170	-15.39
-4.25	0.970	-0.26	8.00	0.870	-1.21	30.50	0.250	-12.04	55.00	0.270	-11.37	79.50	0.170	-15.39
-4.00	0.980	-0.18	8.25	0.870	-1.21	31.00	0.250	-12.04	55.50	0.260	-11.70	80.00	0.170	-15.39
-3.75	0.980	-0.18	8.50	0.860	-1.31	31.50	0.250	-12.04	56.00	0.260	-11.70	80.50	0.170	-15.39
-3.50	0.980	-0.18	8.75	0.850	-1.41	32.00	0.250	-12.04	56.50	0.260	-11.70	81.00	0.170	-15.39
-3.25	0.985	-0.13	9.00	0.850	-1.41	32.50	0.260	-11.70	57.00	0.250	-12.04	81.50	0.170	-15.39
-3.00	0.990	-0.09	9.25	0.840	-1.51	33.00	0.260	-11.70	57.50	0.250	-12.04	82.00	0.170	-15.39
-2.75	0.990	-0.09	9.50	0.830	-1.62	33.50	0.260	-11.70	58.00	0.240	-12.40	82.50	0.170	-15.39
-2.50	0.990	-0.09	9.75	0.820	-1.72	34.00	0.270	-11.37	58.50	0.240	-12.40	83.00	0.160	-15.92
-2.25	0.990	-0.09	10.00	0.810	-1.83	34.50	0.270	-11.37	59.00	0.230	-12.77	83.50	0.160	-15.92
-2.00	0.990	-0.09	10.50	0.800	-1.94	35.00	0.280	-11.06	59.50	0.230	-12.77	84.00	0.160	-15.92
-1.75	1.000	0.00	11.00	0.770	-2.27	35.50	0.280	-11.06	60.00	0.220	-13.15	84.50	0.160	-15.92
-1.50	1.000	0.00	11.50	0.750	-2.50	36.00	0.290	-10.75	60.50	0.220	-13.15	85.00	0.160	-15.92
-1.25	1.000	0.00	12.00	0.730	-2.73	36.50	0.290	-10.75	61.00	0.210	-13.56	85.50	0.160	-15.92
-1.00	1.000	0.00	12.50	0.710	-2.97	37.00	0.290	-10.75	61.50	0.210	-13.56	86.00	0.160	-15.92
-0.75	1.000	0.00	13.00	0.690	-3.22	37.50	0.300	-10.46	62.00	0.210	-13.56	86.50	0.160	-15.92
-0.50	1.000	0.00	13.50	0.680	-3.35	38.00	0.300	-10.46	62.50	0.200	-13.98	87.00	0.160	-15.92
-0.25	1.000	0.00	14.00	0.660	-3.61	38.50	0.300	-10.46	63.00	0.200	-13.98	87.50	0.160	-15.92
0.00	1.000	0.00	14.50	0.640	-3.88	39.00	0.310	-10.17	63.50	0.200	-13.98	88.00	0.160	-15.92
0.25	1.000	0.00	15.00	0.620	-4.15	39.50	0.310	-10.17	64.00	0.200	-13.98	88.50	0.160	-15.92
0.50	1.000	0.00	15.50	0.600	-4.44	40.00	0.310	-10.17	64.50	0.190	-14.42	89.00	0.150	-16.48
0.75	1.000	0.00	16.00	0.580	-4.73	40.50	0.320	-9.90	65.00	0.190	-14.42	89.50	0.150	-16.48
1.00	1.000	0.00	16.50	0.560	-5.04	41.00	0.320	-9.90	65.50	0.190	-14.42	90.00	0.150	-16.48
1.25	1.000	0.00	17.00	0.550	-5.19	41.50	0.320	-9.90	66.00	0.190	-14.42			
1.50	1.000	0.00	17.50	0.530	-5.51	42.00	0.320	-9.90	66.50	0.180	-14.89			
1.75	1.000	0.00	18.00	0.520	-5.68	42.50	0.320	-9.90	67.00	0.180	-14.89			
2.00	0.990	-0.09	18.50	0.500	-6.02	43.00	0.330	-9.63	67.50	0.180	-14.89			
2.25	0.990	-0.09	19.00	0.480	-6.38	43.50	0.330	-9.63	68.00	0.180	-14.89			
2.50	0.990	-0.09	19.50	0.470	-6.56	44.00	0.330	-9.63	68.50	0.180	-14.89			
2.75	0.990	-0.09	20.00	0.450	-6.94	44.50	0.330	-9.63	69.00	0.180	-14.89			
3.00	0.990	-0.09	20.50	0.440	-7.13	45.00	0.330	-9.63	69.50	0.170	-15.39			
3.25	0.985	-0.13	21.00	0.420	-7.54	45.50	0.320	-9.90	70.00	0.170	-15.39			
3.50	0.980	-0.18	21.50	0.410	-7.74	46.00	0.320	-9.90	70.50	0.170	-15.39			
3.75	0.980	-0.18	22.00	0.400	-7.96	46.50	0.320	-9.90	71.00	0.170	-15.39			
4.00	0.980	-0.18	22.50	0.390	-8.18	47.00	0.320	-9.90	71.50	0.170	-15.39			
4.25	0.970	-0.26	23.00	0.380	-8.40	47.50	0.320	-9.90	72.00	0.170	-15.39			
4.50	0.970	-0.26	23.50	0.360	-8.87	48.00	0.310	-10.17	72.50	0.170	-15.39			
4.75	0.965	-0.31	24.00	0.340	-9.37	48.50	0.310	-10.17	73.00	0.170	-15.39			
5.00	0.960	-0.35	24.50	0.330	-9.63	49.00	0.310	-10.17	73.50	0.170	-15.39			
5.25	0.955	-0.40	25.00	0.320	-9.90	49.50	0.310	-10.17	74.00	0.170	-15.39			
5.50	0.950	-0.45	25.50	0.300	-10.46	50.00	0.300	-10.46	74.50	0.170	-15.39			
5.75	0.940	-0.54	26.00	0.290	-10.75	50.50	0.300	-10.46	75.00	0.170	-15.39			
6.00	0.940	-0.54	26.50	0.280	-11.06	51.00	0.300	-10.46	75.50	0.170	-15.39			
6.25	0.930	-0.63	27.00	0.270	-11.37	51.50	0.300	-10.46	76.00	0.170	-15.39			
6.50	0.920	-0.72	27.50	0.270	-11.37	52.00	0.290	-10.75	76.50	0.170	-15.39			
6.75	0.915	-0.77	28.00	0.260	-11.70	52.50	0.290	-10.75	77.00	0.170	-15.39			
7.00	0.910	-0.82	28.50	0.260	-11.70	53.00	0.290	-10.75	77.50	0.170	-15.39			