

KDEN Application to Add Licensed Elevation Pattern Data

January 14, 2022

AZIMUTH PATTERN (H-Pol): Dielectric TFU-24ETT-VP-R CT220SP

Main beam axis of symmetry: 110° true

Electrical Beam Tilt: 1.00°

Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 2.20 3.42 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 800.0 kW 29.03 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 160.0 kW 22.04 dBk

Tabulation of Azimuth Pattern (Horizontal polarization)

Angle	RF	dBk	ERP kW
0	0.860	27.72	591.7
10	0.951	28.59	723.5
20	0.996	29.00	793.6
30	0.989	28.93	782.5
40	0.925	28.35	684.5
50	0.809	27.19	523.6
60	0.672	25.58	361.3
70	0.567	24.10	257.2
80	0.538	23.65	231.6
90	0.574	24.21	263.6
100	0.622	24.91	309.5
110	0.643	25.20	330.8
120	0.622	24.91	309.5
130	0.574	24.21	263.6
140	0.538	23.65	231.6
150	0.567	24.10	257.2
160	0.672	25.58	361.3
170	0.809	27.19	523.6
180	0.925	28.35	684.5
190	0.989	28.93	782.5
200	0.996	29.00	793.6
210	0.951	28.59	723.5
220	0.860	27.72	591.7
230	0.723	26.21	418.2
240	0.546	23.77	238.5
250	0.350	19.91	98.0
260	0.195	14.83	30.4
270	0.204	15.22	33.3
280	0.293	18.37	68.7
290	0.332	19.45	88.2
300	0.293	18.37	68.7
310	0.204	15.22	33.3
320	0.195	14.83	30.4
330	0.350	19.91	98.0
340	0.546	23.77	238.5
350	0.723	26.21	418.2

Maximum

Angle	RF	dBk	ERP kW
24	1.000	29.03	800.0
110	0.643	25.20	330.8
196	1.000	29.03	800.0
290	0.332	19.45	88.2

Minimum

Angle	RF	dBk	ERP kW
78	0.537	23.63	230.7
142	0.537	23.63	230.7
264	0.176	13.94	24.8
316	0.176	13.94	24.8

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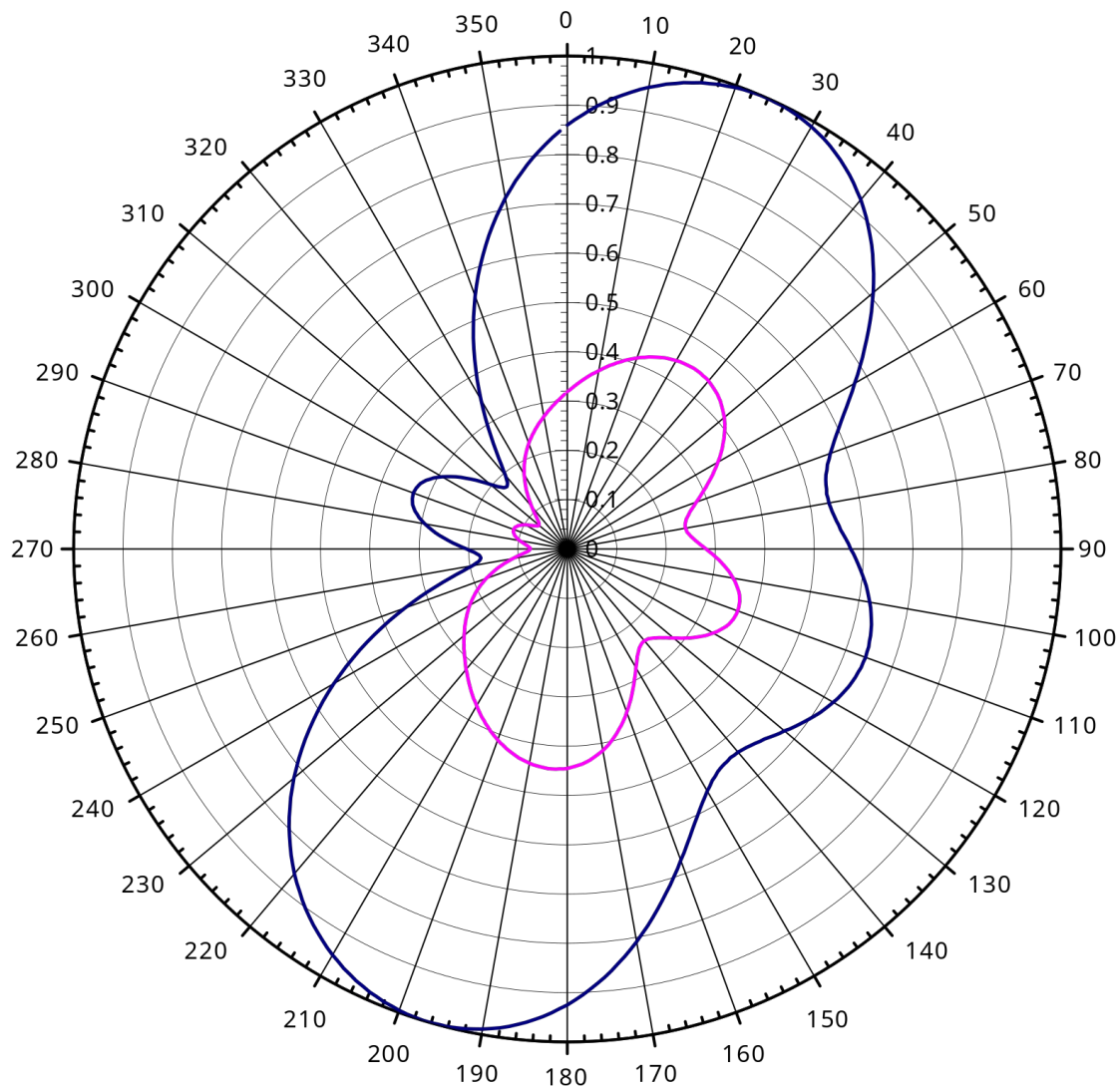
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AZIMUTH PATTERN RELATIVE FIELD



Blue plot shows horizontally polarized azimuth pattern relative field
Magenta plot shows vertically polarized azimuth pattern relative field

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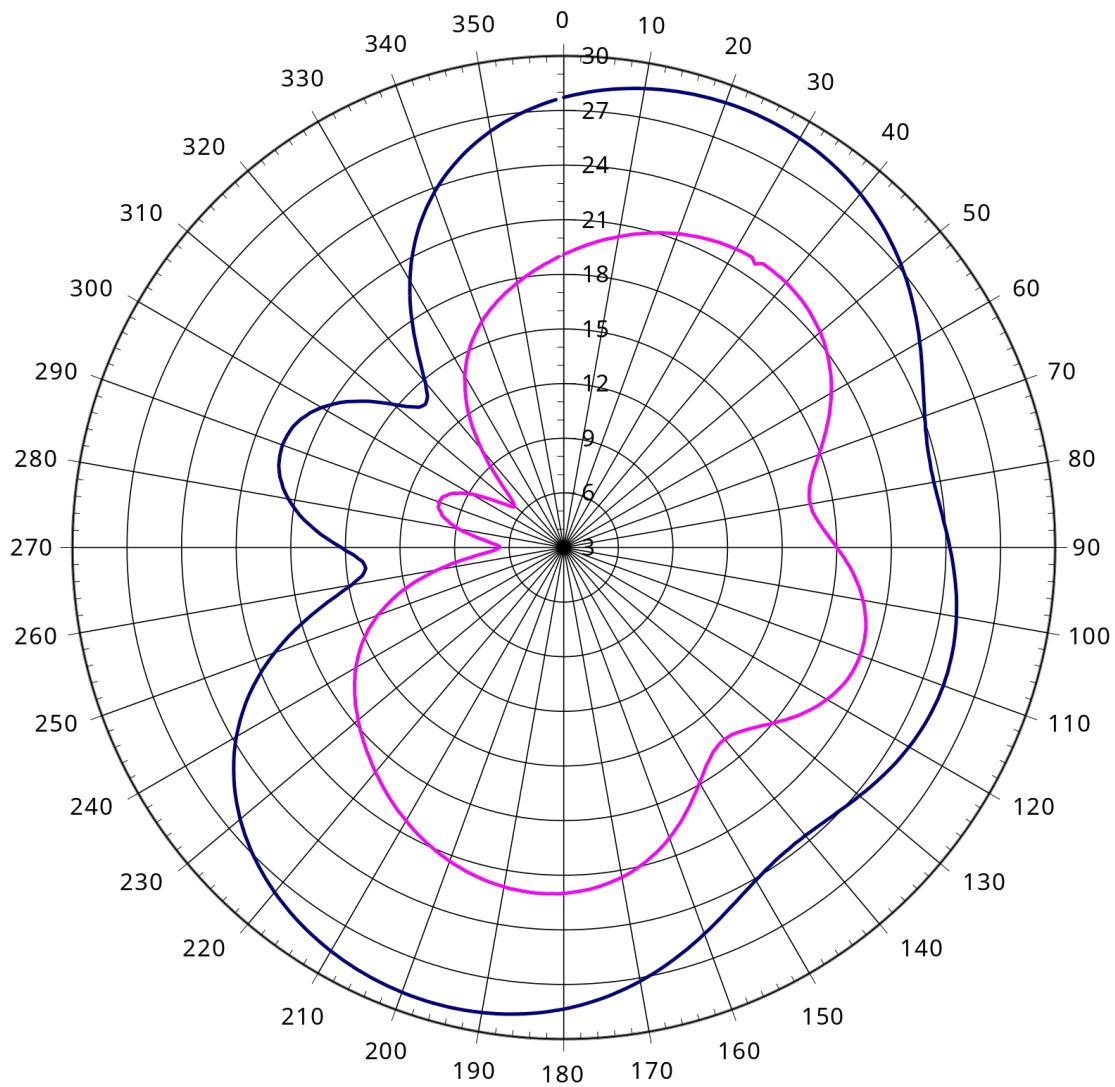
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AZIMUTH PATTERN ERP (dBk)



Blue plot shows horizontally polarized ERP in dBk

Magenta plot shows vertically polarized ERP in dBk

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ELEVATION PATTERN Dielectric TFU-24ETT-VP-R CT220SP

Electrical Beam Tilt: 1.00°

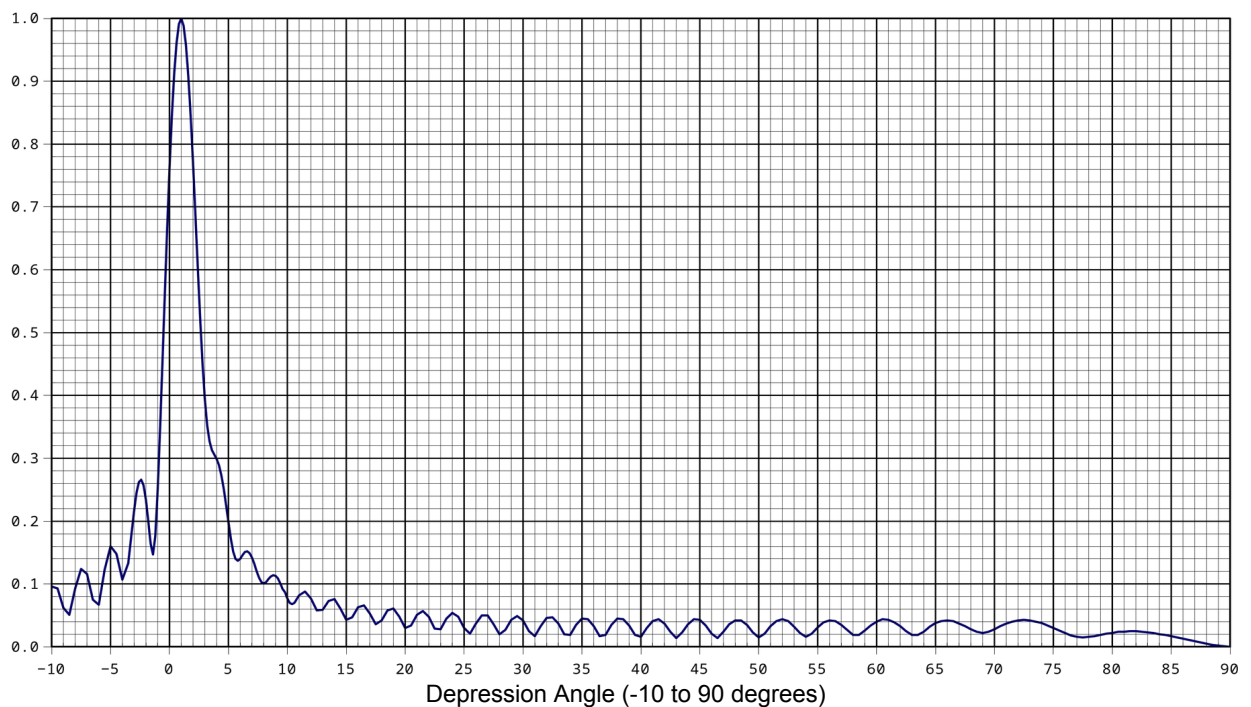
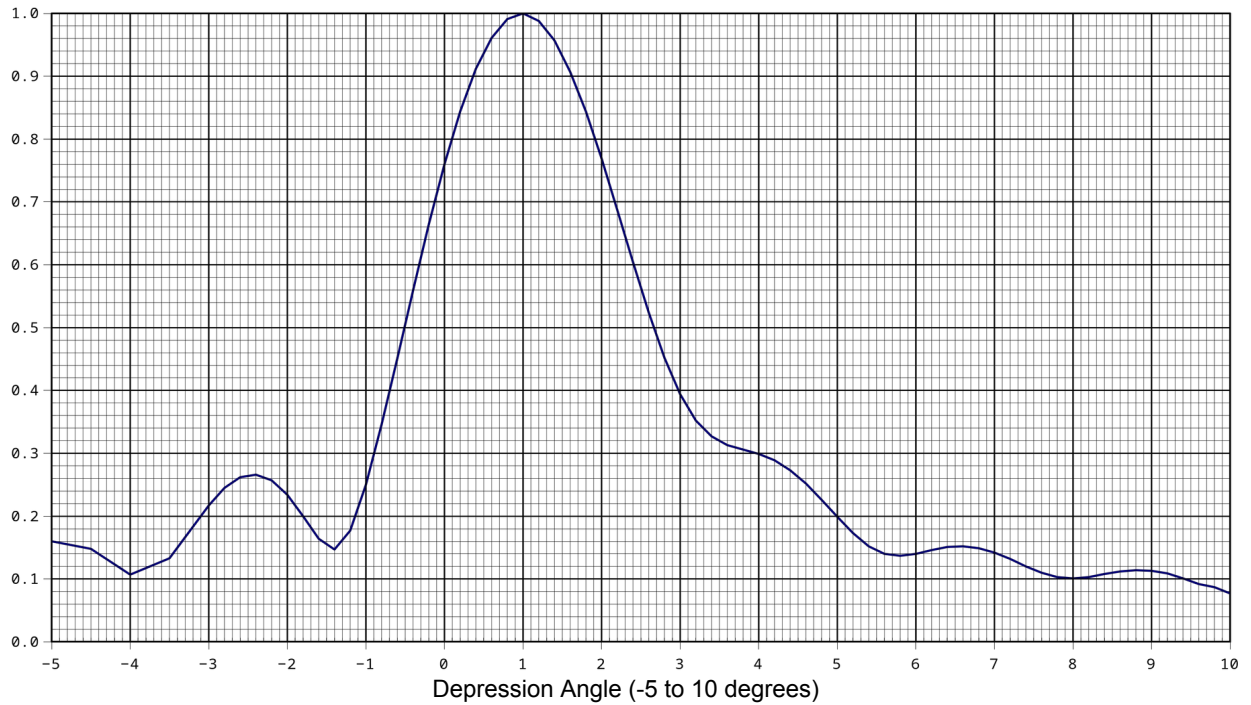
Calculated Maximum Elevation Gain (H polarization): 22.00 13.42 dBd

RMS Gain at Horizontal (H polarization): 12.70 11.04 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 800.0 kW 29.03 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 160.0 kW 22.04 dBk

Relative Field



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Electrical Beam Tilt: 1.00°

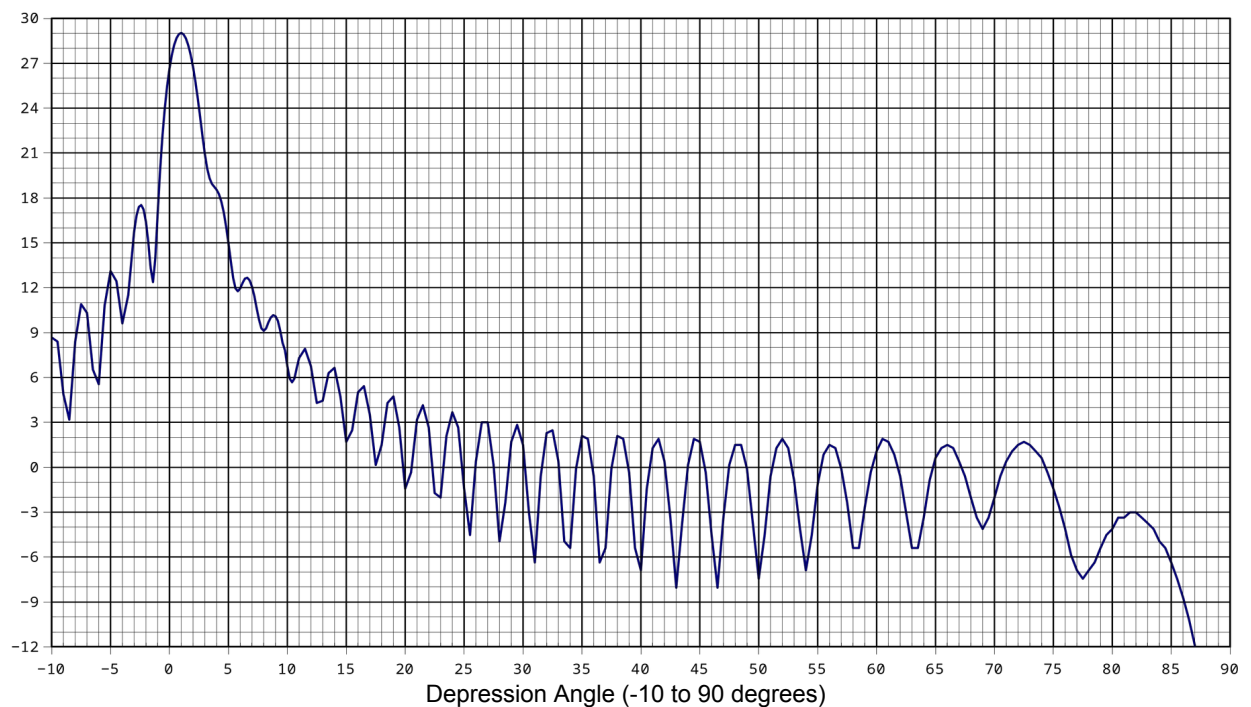
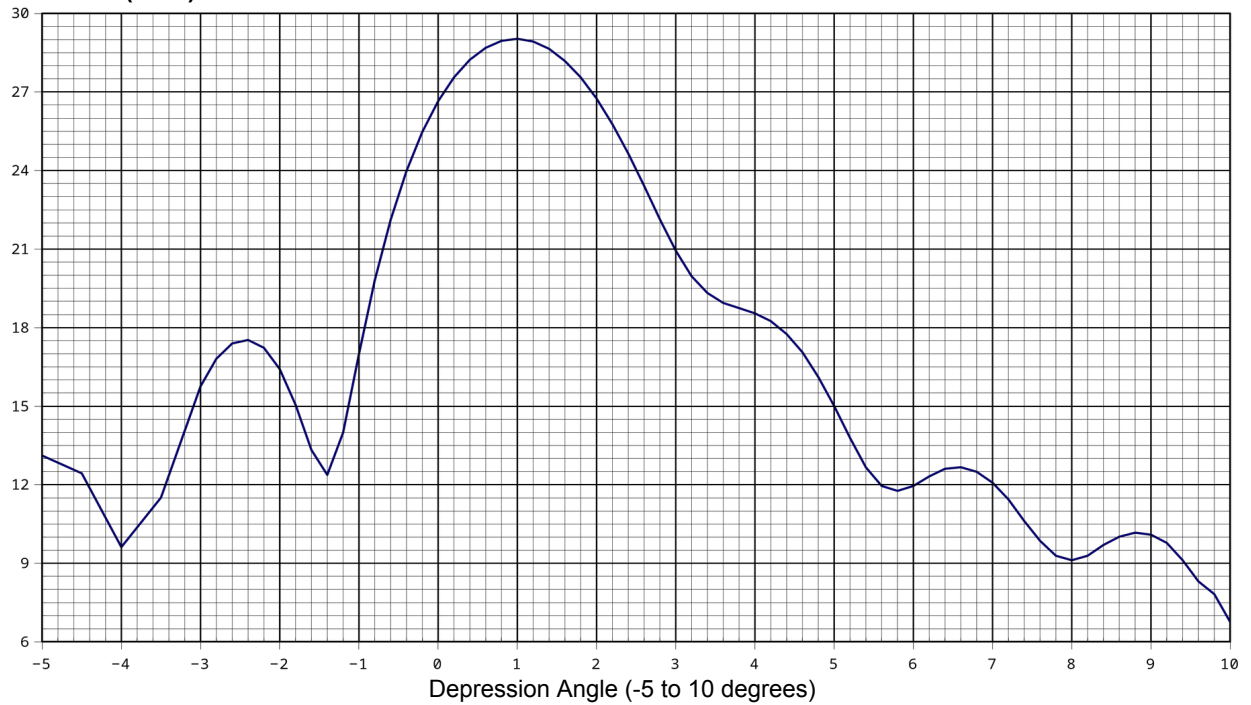
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ERP (dBK)



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Elevation Pattern Tabulation:

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.096	1.20	0.988	8.20	0.103	21.5	0.057	39.0	0.034	56.5	0.041	74.0	0.038
-9.50	0.093	1.40	0.957	8.40	0.108	22.0	0.048	39.5	0.019	57.0	0.035	74.5	0.034
-9.00	0.062	1.60	0.907	8.60	0.112	22.5	0.029	40.0	0.016	57.5	0.027	75.0	0.030
-8.50	0.051	1.80	0.844	8.80	0.114	23.0	0.028	40.5	0.030	58.0	0.019	75.5	0.026
-8.00	0.093	2.00	0.769	9.00	0.113	23.5	0.045	41.0	0.041	58.5	0.019	76.0	0.022
-7.50	0.124	2.20	0.687	9.20	0.109	24.0	0.054	41.5	0.044	59.0	0.026	76.5	0.018
-7.00	0.116	2.40	0.604	9.40	0.101	24.5	0.048	42.0	0.037	59.5	0.034	77.0	0.016
-6.50	0.075	2.60	0.524	9.60	0.092	25.0	0.030	42.5	0.024	60.0	0.040	77.5	0.015
-6.00	0.067	2.80	0.452	9.80	0.087	25.5	0.021	43.0	0.014	60.5	0.044	78.0	0.016
-5.50	0.123	3.00	0.394	10.00	0.077	26.0	0.037	43.5	0.023	61.0	0.043	78.5	0.017
-5.00	0.160	3.20	0.352	10.2	0.070	26.5	0.050	44.0	0.036	61.5	0.039	79.0	0.019
-4.50	0.148	3.40	0.327	10.4	0.068	27.0	0.05	44.5	0.044	62.0	0.033	79.5	0.021
-4.00	0.107	3.60	0.313	10.6	0.070	27.5	0.036	45.0	0.043	62.5	0.025	80.0	0.022
-3.50	0.133	3.80	0.306	10.8	0.076	28.0	0.020	45.5	0.034	63.0	0.019	80.5	0.024
-3.00	0.217	4.00	0.299	11.0	0.082	28.5	0.027	46.0	0.021	63.5	0.019	81.0	0.024
-2.80	0.245	4.20	0.289	11.5	0.088	29.0	0.043	46.5	0.014	64.0	0.024	81.5	0.025
-2.60	0.262	4.40	0.273	12.0	0.077	29.5	0.049	47.0	0.024	64.5	0.032	82.0	0.025
-2.40	0.266	4.60	0.252	12.5	0.058	30.0	0.042	47.5	0.036	65.0	0.038	82.5	0.024
-2.20	0.257	4.80	0.226	13.0	0.059	30.5	0.025	48.0	0.042	65.5	0.041	83.0	0.023
-2.00	0.234	5.00	0.199	13.5	0.073	31.0	0.017	48.5	0.042	66.0	0.042	83.5	0.022
-1.80	0.200	5.20	0.173	14.0	0.076	31.5	0.033	49.0	0.035	66.5	0.041	84.0	0.020
-1.60	0.164	5.40	0.152	14.5	0.061	32.0	0.046	49.5	0.023	67.0	0.037	84.5	0.019
-1.40	0.147	5.60	0.140	15.0	0.043	32.5	0.047	50.0	0.015	67.5	0.033	85.0	0.017
-1.20	0.177	5.80	0.137	15.5	0.047	33.0	0.037	50.5	0.021	68.0	0.028	85.5	0.015
-1.00	0.250	6.00	0.140	16.0	0.063	33.5	0.020	51.0	0.033	68.5	0.024	86.0	0.013
-0.80	0.346	6.20	0.146	16.5	0.066	34.0	0.019	51.5	0.041	69.0	0.022	86.5	0.011
-0.60	0.451	6.40	0.151	17.0	0.053	34.5	0.035	52.0	0.044	69.5	0.024	87.0	0.009
-0.40	0.559	6.60	0.152	17.5	0.036	35.0	0.045	52.5	0.041	70.0	0.028	87.5	0.007
-0.20	0.664	6.80	0.149	18.0	0.042	35.5	0.044	53.0	0.032	70.5	0.033	88.0	0.005
0.00	0.760	7.00	0.142	18.5	0.058	36.0	0.033	53.5	0.022	71.0	0.037	88.5	0.003
0.20	0.844	7.20	0.132	19.0	0.061	36.5	0.017	54.0	0.016	71.5	0.040	89.0	0.002
0.40	0.912	7.40	0.120	19.5	0.048	37.0	0.019	54.5	0.021	72.0	0.042	89.5	0.001
0.60	0.961	7.60	0.110	20.0	0.030	37.5	0.035	55.0	0.031	72.5	0.043	90.0	0.000
0.80	0.991	7.80	0.103	20.5	0.034	38.0	0.045	55.5	0.039	73.0	0.042		
1.00	1.000	8.00	0.101	21.0	0.051	38.5	0.044	56.0	0.042	73.5	0.040		