ELECTRONICS RESEARCH, INC. ERI®

PRELIMINARY SPECIFICATION FOR ERI TRASAR® ELLIPTICALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

Prepared For Channel 32

April 17, 2018

ANTENNA TYPE:
ATW16HS12-ESO-32H

SPECIFICATION NO:

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Chandler, IN 47610-9219
USA

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PRELIMINARY SPECIFICATION FOR ERI TRASAR® ELLIPTICALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

ELECTRICAL CHARACTERISTICS:

CHANNEL:	DTV:	32
FREQUENCY RANGE:	DTV:	578.00 - 584.00 MHz
AZIMUTH PATTERN NUMBER:	Hor Pol: Ver Pol:	ATW-O ATW-V1
ELEVATION PATTERN NUMBER:	Hor Pol: Ver Pol:	ATW16HS12H ATW13HS12V
AZIMUTH DIRECTIVITY:	Hor Pol: Ver Pol:	1.00 (0.00 dB) 1.00 (0.00 dB)
ELEVATION DIRECTIVITY:	Hor Pol: Ver Pol:	16.00 (12.04 dBd) 13.00 (11.14 dBd)
ELEVATION GAIN:	Hor Pol: Ver Pol:	7.17 (8.56 dBd) 7.17 (8.56 dBd)
PEAK POWER GAIN:	Hor Pol: Ver Pol:	7.17 (8.56 dBd) 7.17 (8.56 dBd)
GAIN AT HORIZONTAL:	Hor Pol: Ver Pol:	0.78 (-1.10 dBd) 0.74 (-1.33 dBd)
GAIN RATIO: VER POL/HOR POL		1.00
ELECTRICAL BEAM TILT:		-3.00 Degrees
INPUT POWER REQUIRED:		2.091 kW Average Power, 8VSB Digital
MAXIMUM INPUT POWER:		CONTACT ERI
INPUT TYPE:		CONTACT ERI
ANTENNA VSWR (MAXIMUM):	DTV:	1.10 Over 6 MHz of Channel

Preliminary, subject to final design and review.

PRELIMINARY SPECIFICATION FOR ERI TRASAR® ELLIPTICALLY POLARIZED COAXIAL SLOTTED ARRAY ANTENNA

MECHANICAL CHARACTERISTICS:

MOUNTING CONFIGURATION: **(Tower Interface supplied and installed by others.)*	*Side Mount*
HEIGHT OF ANTENNA:	*34.4 feet*
HEIGHT OF CENTER OF RADIATION:	*17.2 feet*
OVERALL HEIGHT (A):	*37.4 feet*
DEICING:	*Pressurized Radome Enclosure*
RADOME DIAMETER (C):	*CONTACT ERI*
RADOME COLOR:	*AVIATION ORANGE (standard)*
CLIMBING DEVICE:	*NOT APPLICABLE*
CALCULATED WEIGHT[1]:	*CONTACT ERI*
ANTENNA AREA:	*CONTACT ERI*

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.

Note: Localized conditions may require higher wind speed specifications than TIA/EIA specifications. Check with local authorities to verify wind speed requirements.

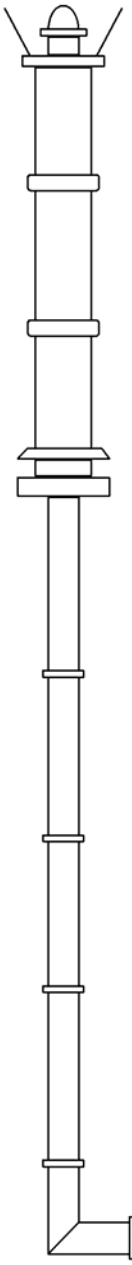
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Broadcast Antenna System

Power Analysis

Channel 32

ATW16HS12-ESO-32H



ANTENNA PARAMETERS

Azimuth Directivity:
Hor. Pol: 1.00 (0.00 dBd)
Ver. Pol: 1.00 (0.00 dBd)

Elevation Directivity:
Hor. Pol: 16.00 (12.04 dBd)
Ver. Pol: 13.00 (11.14 dBd)

TRANSMISSION LINE:

VERTICAL RUN:
Type: 1329350
Length, ft: 1350 ft.
Attenuation, dB/100 ft: 0.234 dB/100 ft.

HORIZONTAL RUN:
Type: 1329350
Length, ft: 100 ft.
Attenuation, dB/100 ft: 0.234 dB/100 ft.

Line Efficiency: 45.73 %

ERP:
Hor. Pol: 15.00 kW (11.76 dBk)
Ver. Pol: 15.00 kW (11.76 dBk)

POWER GAIN:
Hor. Pol: 7.17 (8.56 dBd)
Ver. Pol: 7.17 (8.56 dBd)

ANTENNA INPUT:
kW: 2.09
dBk: 3.20

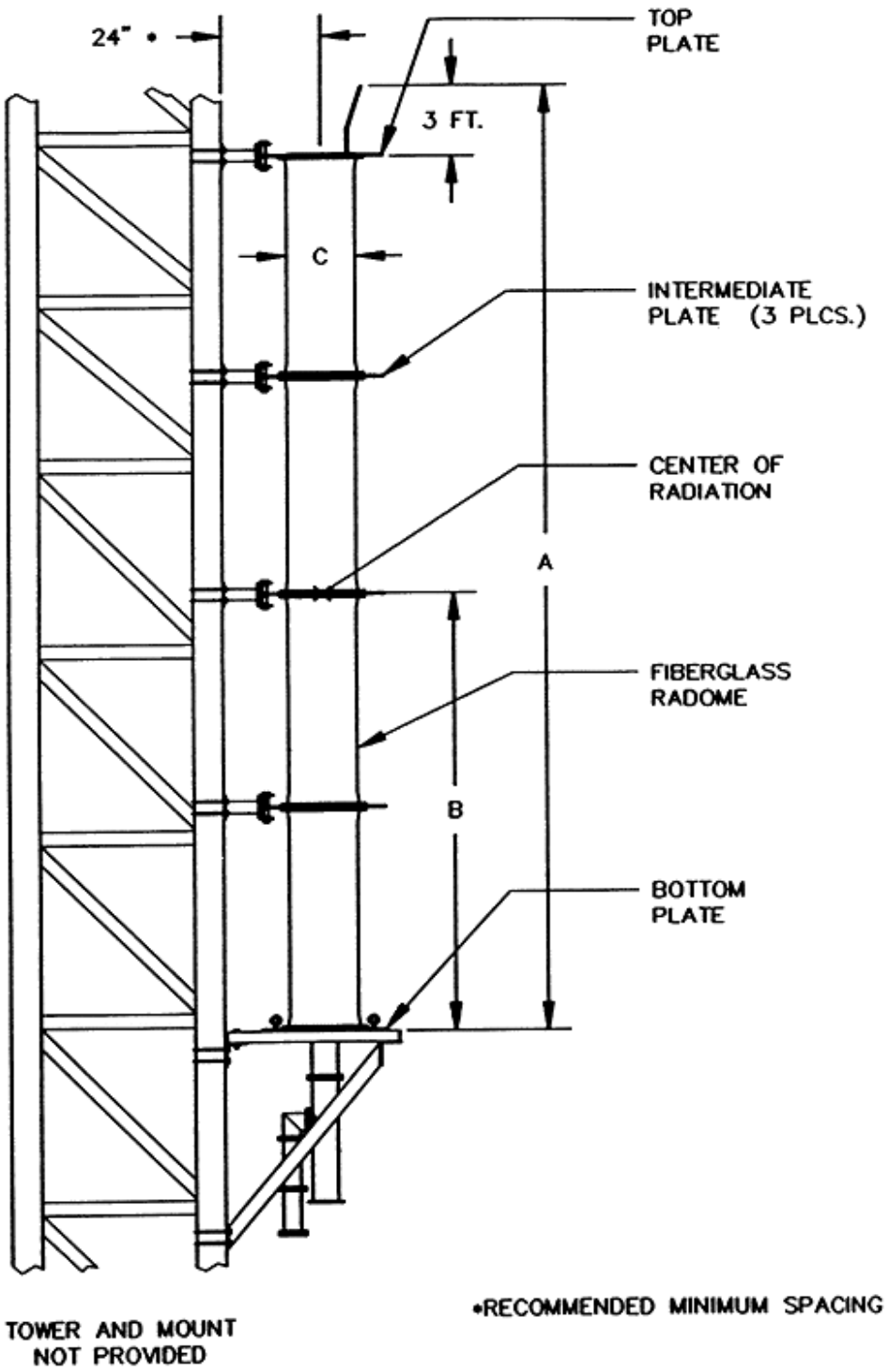
LINE LOSS:
kW: 2.48
dB: 3.40

TRANSMITTER POWER:
kW: 4.57
dBk: 6.60

Preliminary, subject to final design and review.

TYPICAL MOUNTING CONFIGURATION SHOWN. ACTUAL MOUNTING CONFIGURATION MAY VARY.

SIDE MOUNT ANTENNA DIMENSIONS AND TOWER ATTACHMENT DETAILS

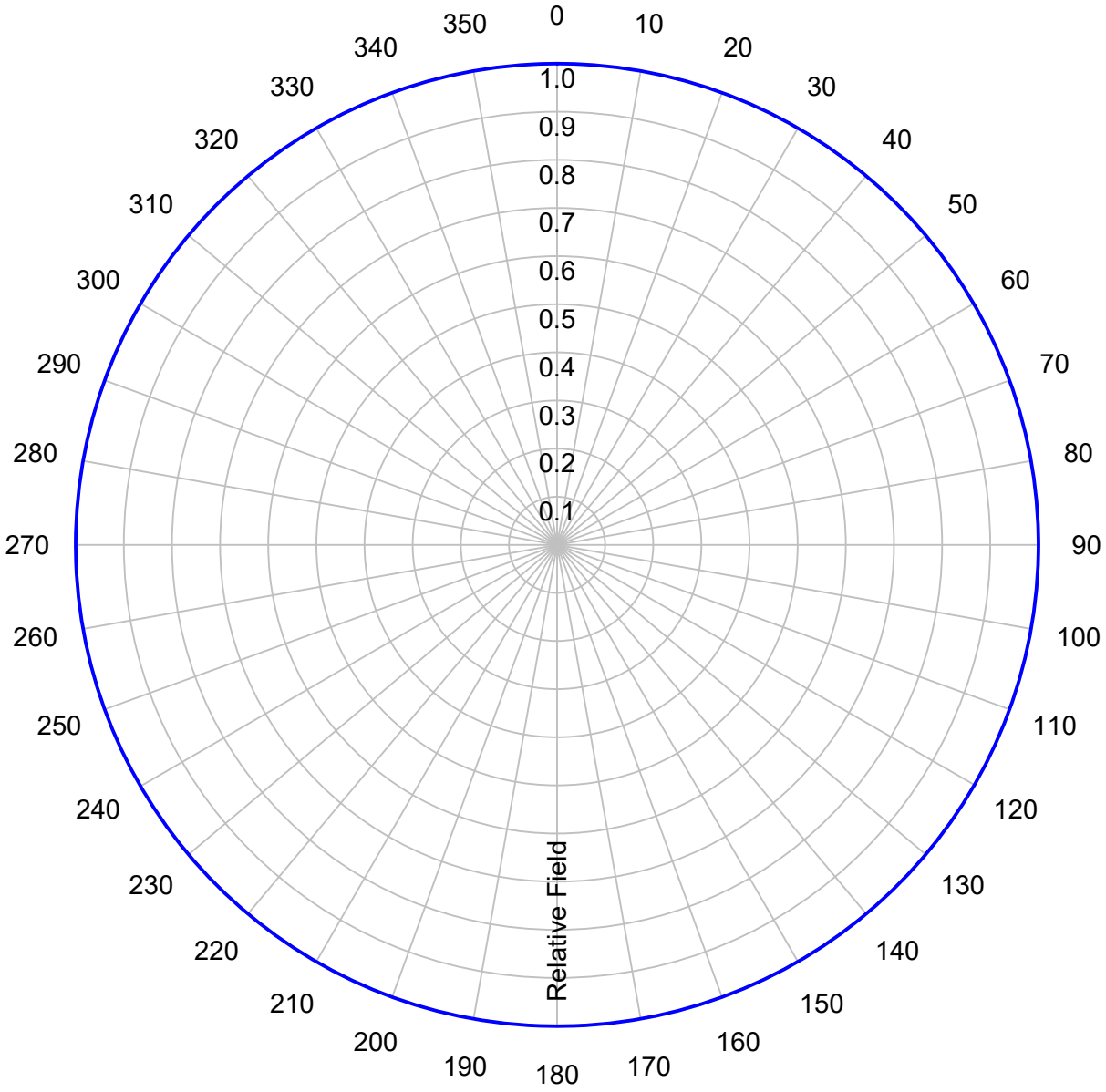


Preliminary, subject to final design and review.

AZIMUTH PATTERN

Type:	**ATW-O**		**Channel:**	**32**
	Numeric	**dBd**	**Location:**	
Directivity:	**1.00**	**0.00**	**Polarization:**	**Horizontal**
Peak(s) at:				

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



Preliminary, subject to final design and review.

TABULATED DATA FOR AZIMUTH PATTERN

Type: ATW-O
PolarizationHorizontal

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	1.000	0.00	92	1.000	0.00	184	1.000	0.00	276	1.000	0.00
2	1.000	0.00	94	1.000	0.00	186	1.000	0.00	278	1.000	0.00
4	1.000	0.00	96	1.000	0.00	188	1.000	0.00	280	1.000	0.00
6	1.000	0.00	98	1.000	0.00	190	1.000	0.00	282	1.000	0.00
8	1.000	0.00	100	1.000	0.00	192	1.000	0.00	284	1.000	0.00
10	1.000	0.00	102	1.000	0.00	194	1.000	0.00	286	1.000	0.00
12	1.000	0.00	104	1.000	0.00	196	1.000	0.00	288	1.000	0.00
14	1.000	0.00	106	1.000	0.00	198	1.000	0.00	290	1.000	0.00
16	1.000	0.00	108	1.000	0.00	200	1.000	0.00	292	1.000	0.00
18	1.000	0.00	110	1.000	0.00	202	1.000	0.00	294	1.000	0.00
20	1.000	0.00	112	1.000	0.00	204	1.000	0.00	296	1.000	0.00
22	1.000	0.00	114	1.000	0.00	206	1.000	0.00	298	1.000	0.00
24	1.000	0.00	116	1.000	0.00	208	1.000	0.00	300	1.000	0.00
26	1.000	0.00	118	1.000	0.00	210	1.000	0.00	302	1.000	0.00
28	1.000	0.00	120	1.000	0.00	212	1.000	0.00	304	1.000	0.00
30	1.000	0.00	122	1.000	0.00	214	1.000	0.00	306	1.000	0.00
32	1.000	0.00	124	1.000	0.00	216	1.000	0.00	308	1.000	0.00
34	1.000	0.00	126	1.000	0.00	218	1.000	0.00	310	1.000	0.00
36	1.000	0.00	128	1.000	0.00	220	1.000	0.00	312	1.000	0.00
38	1.000	0.00	130	1.000	0.00	222	1.000	0.00	314	1.000	0.00
40	1.000	0.00	132	1.000	0.00	224	1.000	0.00	316	1.000	0.00
42	1.000	0.00	134	1.000	0.00	226	1.000	0.00	318	1.000	0.00
44	1.000	0.00	136	1.000	0.00	228	1.000	0.00	320	1.000	0.00
46	1.000	0.00	138	1.000	0.00	230	1.000	0.00	322	1.000	0.00
48	1.000	0.00	140	1.000	0.00	232	1.000	0.00	324	1.000	0.00
50	1.000	0.00	142	1.000	0.00	234	1.000	0.00	326	1.000	0.00
52	1.000	0.00	144	1.000	0.00	236	1.000	0.00	328	1.000	0.00
54	1.000	0.00	146	1.000	0.00	238	1.000	0.00	330	1.000	0.00
56	1.000	0.00	148	1.000	0.00	240	1.000	0.00	332	1.000	0.00
58	1.000	0.00	150	1.000	0.00	242	1.000	0.00	334	1.000	0.00
60	1.000	0.00	152	1.000	0.00	244	1.000	0.00	336	1.000	0.00
62	1.000	0.00	154	1.000	0.00	246	1.000	0.00	338	1.000	0.00
64	1.000	0.00	156	1.000	0.00	248	1.000	0.00	340	1.000	0.00
66	1.000	0.00	158	1.000	0.00	250	1.000	0.00	342	1.000	0.00
68	1.000	0.00	160	1.000	0.00	252	1.000	0.00	344	1.000	0.00
70	1.000	0.00	162	1.000	0.00	254	1.000	0.00	346	1.000	0.00
72	1.000	0.00	164	1.000	0.00	256	1.000	0.00	348	1.000	0.00
74	1.000	0.00	166	1.000	0.00	258	1.000	0.00	350	1.000	0.00
76	1.000	0.00	168	1.000	0.00	260	1.000	0.00	352	1.000	0.00
78	1.000	0.00	170	1.000	0.00	262	1.000	0.00	354	1.000	0.00
80	1.000	0.00	172	1.000	0.00	264	1.000	0.00	356	1.000	0.00
82	1.000	0.00	174	1.000	0.00	266	1.000	0.00	358	1.000	0.00
84	1.000	0.00	176	1.000	0.00	268	1.000	0.00	360	1.000	0.00
86	1.000	0.00	178	1.000	0.00	270	1.000	0.00			
88	1.000	0.00	180	1.000	0.00	272	1.000	0.00			
90	1.000	0.00	182	1.000	0.00	274	1.000	0.00			

Preliminary, subject to final design and review.

TABULATED DATA FOR AZIMUTH PATTERN
FCC FILING FORMAT

Type: ATW-O
PolarizationHorizontal

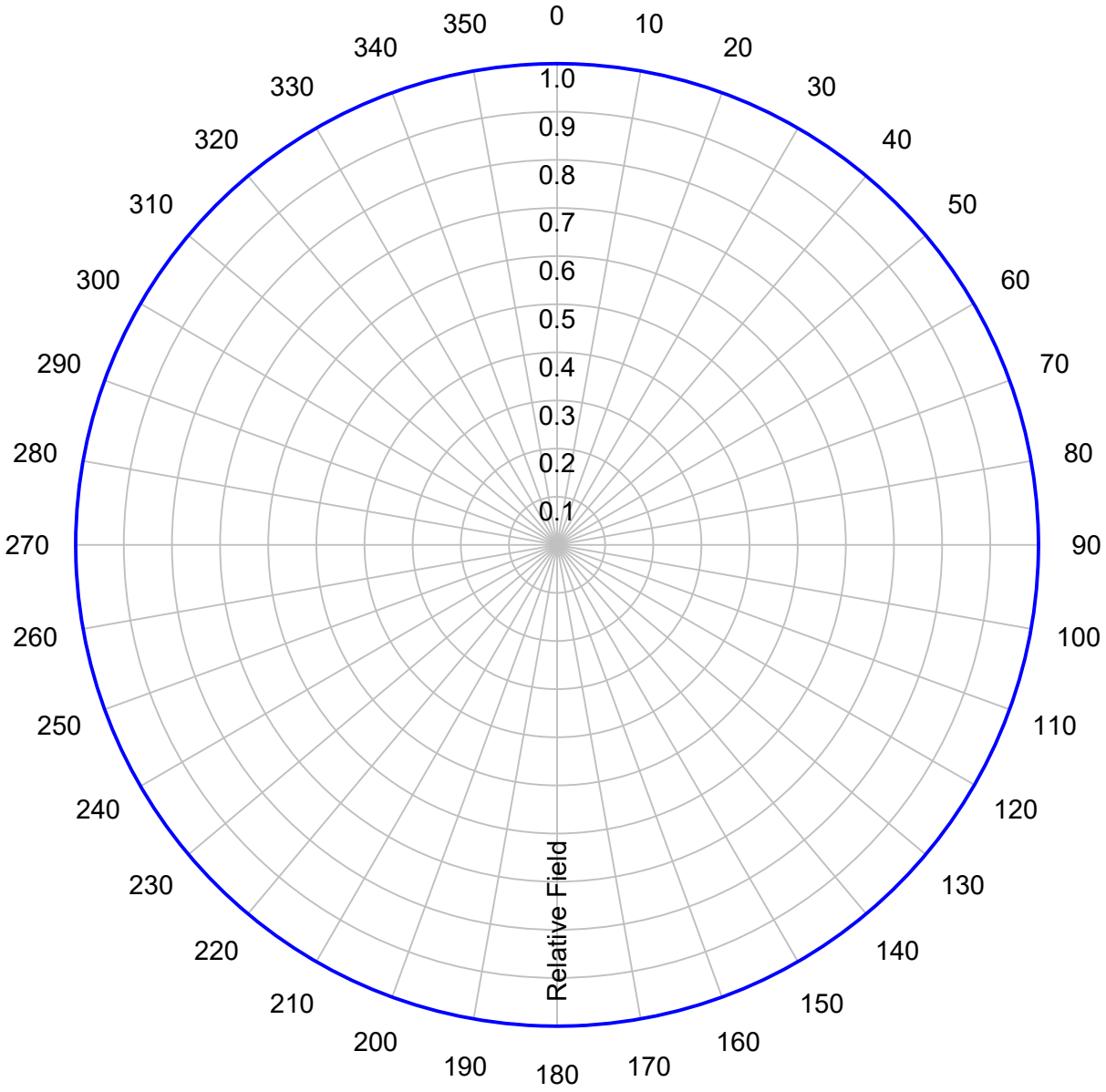
ANGLE	FIELD	ERP (kW)	ERP (dBk)
0	1.000	15.000	11.761
10	1.000	15.000	11.761
20	1.000	15.000	11.761
30	1.000	15.000	11.761
40	1.000	15.000	11.761
50	1.000	15.000	11.761
60	1.000	15.000	11.761
70	1.000	15.000	11.761
80	1.000	15.000	11.761
90	1.000	15.000	11.761
100	1.000	15.000	11.761
110	1.000	15.000	11.761
120	1.000	15.000	11.761
130	1.000	15.000	11.761
140	1.000	15.000	11.761
150	1.000	15.000	11.761
160	1.000	15.000	11.761
170	1.000	15.000	11.761
180	1.000	15.000	11.761
190	1.000	15.000	11.761
200	1.000	15.000	11.761
210	1.000	15.000	11.761
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250	1.000	15.000	11.761
260	1.000	15.000	11.761
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280	1.000	15.000	11.761
290	1.000	15.000	11.761
300	1.000	15.000	11.761
310	1.000	15.000	11.761
320	1.000	15.000	11.761
330	1.000	15.000	11.761
340	1.000	15.000	11.761
350	1.000	15.000	11.761

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AZIMUTH PATTERN

Type:	**ATW-V1**		**Channel:**	**32**
	Numeric	**dBd**	**Location:**	
Directivity:	**1.00**	**0.00**	**Polarization:**	**Vertical**
Peak(s) at:				

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



Preliminary, subject to final design and review.

TABULATED DATA FOR AZIMUTH PATTERN

Type: ATW-V1
Polarization: Vertical

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	1.000	0.00	92	1.000	0.00	184	1.000	0.00	276	1.000	0.00
2	1.000	0.00	94	1.000	0.00	186	1.000	0.00	278	1.000	0.00
4	1.000	0.00	96	1.000	0.00	188	1.000	0.00	280	1.000	0.00
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12	1.000	0.00	104	1.000	0.00	196	1.000	0.00	288	1.000	0.00
14	1.000	0.00	106	1.000	0.00	198	1.000	0.00	290	1.000	0.00
16	1.000	0.00	108	1.000	0.00	200	1.000	0.00	292	1.000	0.00
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22	1.000	0.00	114	1.000	0.00	206	1.000	0.00	298	1.000	0.00
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28	1.000	0.00	120	1.000	0.00	212	1.000	0.00	304	1.000	0.00
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32	1.000	0.00	124	1.000	0.00	216	1.000	0.00	308	1.000	0.00
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48	1.000	0.00	140	1.000	0.00	232	1.000	0.00	324	1.000	0.00
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78	1.000	0.00	170	1.000	0.00	262	1.000	0.00	354	1.000	0.00
80	1.000	0.00	172	1.000	0.00	264	1.000	0.00	356	1.000	0.00
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84	1.000	0.00	176	1.000	0.00	268	1.000	0.00	360	1.000	0.00
86	1.000	0.00	178	1.000	0.00	270	1.000	0.00			
88	1.000	0.00	180	1.000	0.00	272	1.000	0.00			
90	1.000	0.00	182	1.000	0.00	274	1.000	0.00			

Preliminary, subject to final design and review.

TABULATED DATA FOR AZIMUTH PATTERN
FCC FILING FORMAT

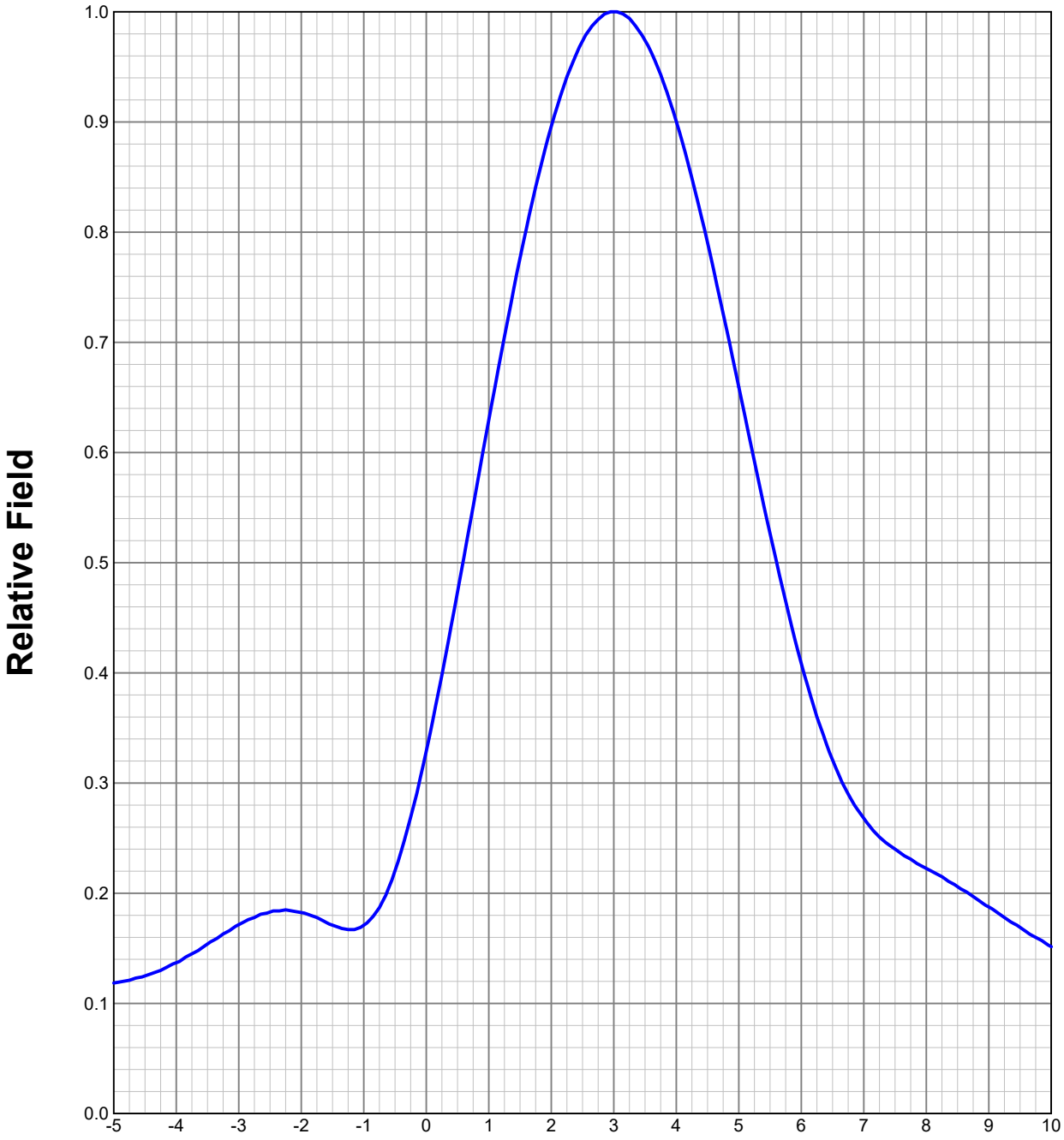
Type: ATW-V1
Polarization: Vertical

ANGLE	FIELD	ERP (kW)	ERP (dBk)
0	1.000	15.000	11.761
10	1.000	15.000	11.761
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40	1.000	15.000	11.761
50	1.000	15.000	11.761
60	1.000	15.000	11.761
70	1.000	15.000	11.761
80	1.000	15.000	11.761
90	1.000	15.000	11.761
100	1.000	15.000	11.761
110	1.000	15.000	11.761
120	1.000	15.000	11.761
130	1.000	15.000	11.761
140	1.000	15.000	11.761
150	1.000	15.000	11.761
160	1.000	15.000	11.761
170	1.000	15.000	11.761
180	1.000	15.000	11.761
190	1.000	15.000	11.761
200	1.000	15.000	11.761
210	1.000	15.000	11.761
220	1.000	15.000	11.761
230	1.000	15.000	11.761
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260	1.000	15.000	11.761
270	1.000	15.000	11.761
280	1.000	15.000	11.761
290	1.000	15.000	11.761
300	1.000	15.000	11.761
310	1.000	15.000	11.761
320	1.000	15.000	11.761
330	1.000	15.000	11.761
340	1.000	15.000	11.761
350	1.000	15.000	11.761

Preliminary, subject to final design and review.

ELEVATION PATTERN

Type:	ATW16HS12H		Channel:	32
Directivity:	Numeric	dBd	Location:	
Main Lobe:	16.00	12.04	Beam Tilt:	-3.00
Horizontal:	1.73	2.39	Polarization:	Horizontal



Preliminary, subject to final design and review.

TABULATED DATA FOR ELEVATION PATTERN

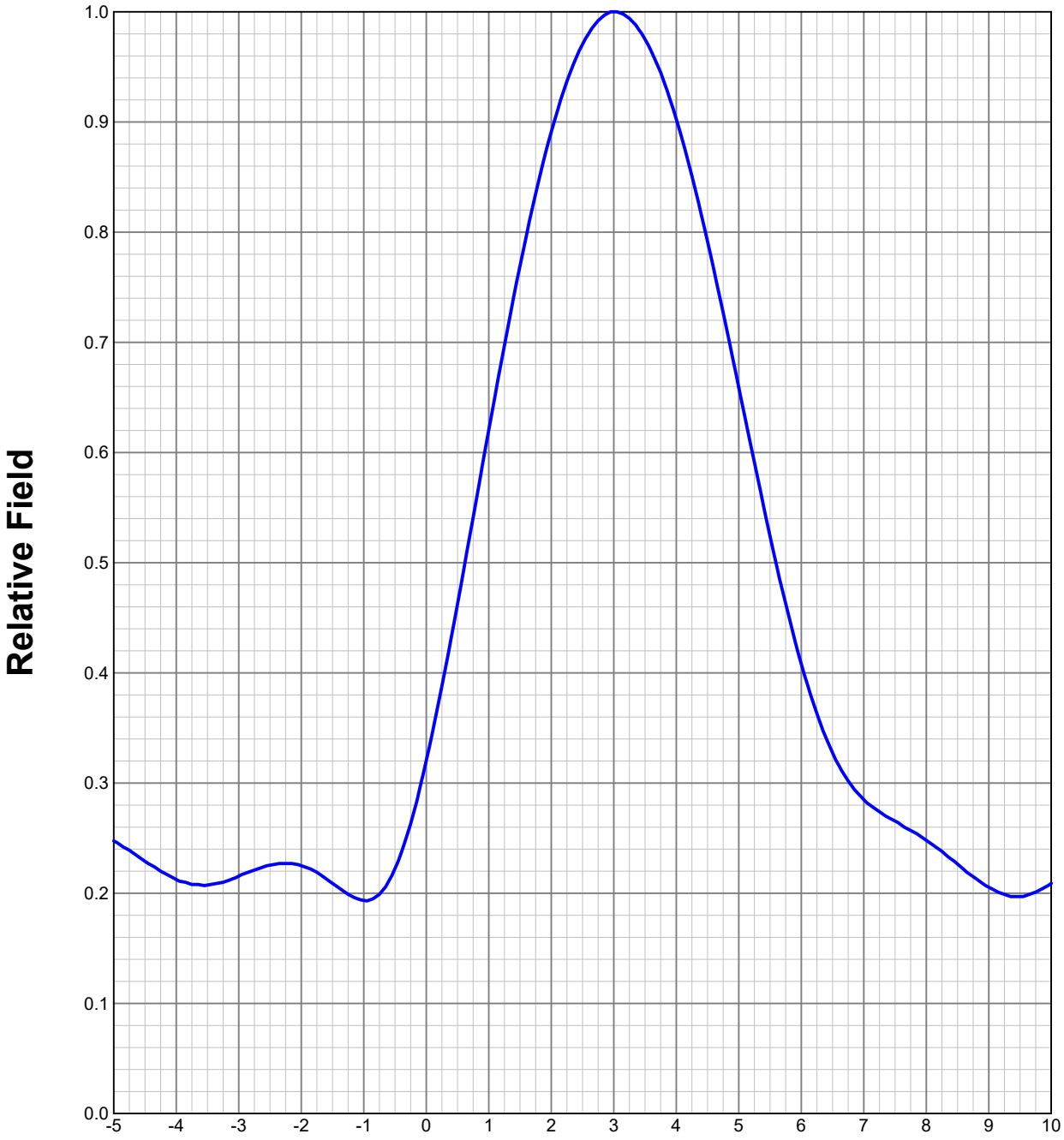
Type: ATW16HS12H
PolarizationHorizontal

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-5.00	0.118	-18.53	6.75	0.290	-10.75	27.00	0.050	-26.11	50.50	0.046	-26.74	74.00	0.048	-26.38
-4.75	0.121	-18.34	7.00	0.268	-11.44	27.50	0.044	-27.03	51.00	0.045	-26.94	74.50	0.046	-26.74
-4.50	0.125	-18.06	7.25	0.251	-12.01	28.00	0.041	-27.85	51.50	0.043	-27.33	75.00	0.043	-27.23
-4.25	0.130	-17.72	7.50	0.240	-12.40	28.50	0.040	-27.96	52.00	0.042	-27.64	75.50	0.041	-27.74
-4.00	0.137	-17.27	7.75	0.231	-12.73	29.00	0.043	-27.23	52.50	0.041	-27.74	76.00	0.038	-28.29
-3.75	0.145	-16.77	8.00	0.223	-13.05	29.50	0.048	-26.47	53.00	0.041	-27.74	76.50	0.036	-28.75
-3.50	0.154	-16.25	8.25	0.215	-13.35	30.00	0.049	-26.20	53.50	0.042	-27.54	77.00	0.035	-29.24
-3.25	0.163	-15.76	8.50	0.206	-13.72	30.50	0.046	-26.65	54.00	0.043	-27.33	77.50	0.033	-29.63
-3.00	0.171	-15.31	8.75	0.197	-14.11	31.00	0.042	-27.64	54.50	0.045	-26.94	78.00	0.033	-29.63
-2.75	0.178	-14.99	9.00	0.188	-14.54	31.50	0.038	-28.40	55.00	0.046	-26.74	78.50	0.033	-29.63
-2.50	0.183	-14.75	9.25	0.178	-14.99	32.00	0.037	-28.64	55.50	0.046	-26.74	79.00	0.033	-29.63
-2.25	0.185	-14.66	9.50	0.169	-15.44	32.50	0.041	-27.85	56.00	0.046	-26.74	79.50	0.034	-29.37
-2.00	0.182	-14.77	9.75	0.160	-15.92	33.00	0.044	-27.13	56.50	0.045	-26.94	80.00	0.036	-29.00
-1.75	0.178	-14.99	10.00	0.151	-16.39	33.50	0.046	-26.74	57.00	0.044	-27.13	80.50	0.037	-28.64
-1.50	0.171	-15.34	10.50	0.138	-17.20	34.00	0.045	-26.84	57.50	0.043	-27.23	81.00	0.039	-28.18
-1.25	0.167	-15.55	11.00	0.128	-17.86	34.50	0.042	-27.43	58.00	0.043	-27.33	81.50	0.040	-27.96
-1.00	0.171	-15.34	11.50	0.120	-18.38	35.00	0.038	-28.29	58.50	0.043	-27.33	82.00	0.042	-27.64
-0.75	0.187	-14.56	12.00	0.117	-18.67	35.50	0.037	-28.64	59.00	0.043	-27.23	82.50	0.042	-27.43
-0.50	0.221	-13.13	12.50	0.113	-18.98	36.00	0.038	-28.40	59.50	0.044	-27.13	83.00	0.043	-27.33
-0.25	0.269	-11.40	13.00	0.107	-19.37	36.50	0.042	-27.64	60.00	0.045	-26.94	83.50	0.043	-27.33
0.00	0.329	-9.66	13.50	0.101	-19.96	37.00	0.045	-26.94	60.50	0.045	-26.84	84.00	0.043	-27.33
0.25	0.398	-8.00	14.00	0.092	-20.72	37.50	0.046	-26.74	61.00	0.046	-26.74	84.50	0.043	-27.33
0.50	0.474	-6.49	14.50	0.085	-21.36	38.00	0.044	-27.13	61.50	0.046	-26.74	85.00	0.042	-27.54
0.75	0.551	-5.18	15.00	0.083	-21.62	38.50	0.041	-27.85	62.00	0.046	-26.74	85.50	0.041	-27.74
1.00	0.629	-4.02	15.50	0.083	-21.62	39.00	0.037	-28.52	62.50	0.046	-26.74	86.00	0.040	-28.07
1.25	0.705	-3.04	16.00	0.083	-21.62	39.50	0.037	-28.64	63.00	0.046	-26.74	86.50	0.037	-28.52
1.50	0.776	-2.20	16.50	0.081	-21.88	40.00	0.038	-28.29	63.50	0.046	-26.74	87.00	0.036	-29.00
1.75	0.841	-1.50	17.00	0.074	-22.56	40.50	0.042	-27.64	64.00	0.046	-26.74	87.50	0.033	-29.63
2.00	0.896	-0.95	17.50	0.068	-23.41	41.00	0.044	-27.03	64.50	0.046	-26.74	88.00	0.030	-30.46
2.25	0.941	-0.53	18.00	0.063	-24.01	41.50	0.045	-26.94	65.00	0.046	-26.74	88.50	0.028	-31.21
2.50	0.974	-0.23	18.50	0.063	-24.01	42.00	0.044	-27.13	65.50	0.046	-26.74	89.00	0.024	-32.40
2.75	0.993	-0.06	19.00	0.066	-23.61	42.50	0.041	-27.74	66.00	0.045	-26.94	89.50	0.021	-33.76
3.00	1.000	0.00	19.50	0.067	-23.48	43.00	0.038	-28.29	66.50	0.045	-26.94	90.00	0.017	-35.39
3.25	0.994	-0.05	20.00	0.065	-23.81	43.50	0.037	-28.64	67.00	0.045	-26.94			
3.50	0.974	-0.23	20.50	0.058	-24.66	44.00	0.038	-28.40	67.50	0.045	-26.94			
3.75	0.943	-0.51	21.00	0.052	-25.60	44.50	0.041	-27.85	68.00	0.045	-26.94			
4.00	0.901	-0.91	21.50	0.051	-25.85	45.00	0.043	-27.33	68.50	0.046	-26.74			
4.25	0.849	-1.42	22.00	0.053	-25.43	45.50	0.045	-26.94	69.00	0.047	-26.56			
4.50	0.790	-2.04	22.50	0.057	-24.96	46.00	0.045	-26.94	69.50	0.048	-26.38			
4.75	0.726	-2.78	23.00	0.058	-24.73	46.50	0.043	-27.33	70.00	0.049	-26.20			
5.00	0.659	-3.62	23.50	0.054	-25.27	47.00	0.041	-27.74	70.50	0.050	-26.02			
5.25	0.592	-4.55	24.00	0.050	-26.11	47.50	0.039	-28.18	71.00	0.051	-25.85			
5.50	0.526	-5.57	24.50	0.045	-26.94	48.00	0.038	-28.40	71.50	0.052	-25.68			
5.75	0.465	-6.65	25.00	0.044	-27.03	48.50	0.040	-28.07	72.00	0.052	-25.68			
6.00	0.408	-7.78	25.50	0.048	-26.47	49.00	0.042	-27.64	72.50	0.052	-25.68			
6.25	0.360	-8.87	26.00	0.051	-25.76	49.50	0.044	-27.13	73.00	0.051	-25.85			
6.50	0.321	-9.87	26.50	0.052	-25.60	50.00	0.045	-26.94	73.50	0.050	-26.11			

Preliminary, subject to final design and review.

ELEVATION PATTERN

Type:	ATW13HS12V		Channel:	32
Directivity:	Numeric	dBd	Location:	
Main Lobe:	13.00	11.14	Beam Tilt:	-3.00
Horizontal:	1.34	1.26	Polarization:	Vertical



Preliminary, subject to final design and review.

TABULATED DATA FOR ELEVATION PATTERN

Type: ATW13HS12V
Polarization: Vertical

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-5.00	0.247	-12.13	6.75	0.302	-10.40	27.00	0.003	-52.04	50.50	0.070	-23.10	74.00	0.059	-24.58
-4.75	0.239	-12.43	7.00	0.285	-10.90	27.50	0.010	-39.58	51.00	0.059	-24.58	74.50	0.057	-24.96
-4.50	0.229	-12.80	7.25	0.274	-11.24	28.00	0.017	-35.39	51.50	0.051	-25.93	75.00	0.053	-25.43
-4.25	0.220	-13.15	7.50	0.266	-11.52	28.50	0.017	-35.65	52.00	0.044	-27.03	75.50	0.051	-25.93
-4.00	0.212	-13.45	7.75	0.257	-11.80	29.00	0.010	-40.00	52.50	0.042	-27.54	76.00	0.048	-26.47
-3.75	0.208	-13.64	8.00	0.248	-12.11	29.50	0.011	-39.17	53.00	0.042	-27.54	76.50	0.044	-27.13
-3.50	0.207	-13.66	8.25	0.238	-12.47	30.00	0.027	-31.37	53.50	0.043	-27.33	77.00	0.042	-27.64
-3.25	0.210	-13.56	8.50	0.227	-12.90	30.50	0.049	-26.29	54.00	0.043	-27.33	77.50	0.039	-28.18
-3.00	0.215	-13.33	8.75	0.215	-13.35	31.00	0.072	-22.91	54.50	0.042	-27.43	78.00	0.037	-28.64
-2.75	0.221	-13.11	9.00	0.205	-13.74	31.50	0.094	-20.54	55.00	0.041	-27.74	78.50	0.036	-28.87
-2.50	0.226	-12.94	9.25	0.199	-14.02	32.00	0.115	-18.79	55.50	0.037	-28.52	79.00	0.036	-29.00
-2.25	0.227	-12.88	9.50	0.197	-14.11	32.50	0.133	-17.56	56.00	0.033	-29.76	79.50	0.036	-28.87
-2.00	0.225	-12.96	9.75	0.201	-13.94	33.00	0.146	-16.71	56.50	0.026	-31.54	80.00	0.036	-28.87
-1.75	0.219	-13.19	10.00	0.209	-13.60	33.50	0.153	-16.28	57.00	0.019	-34.42	80.50	0.037	-28.64
-1.50	0.209	-13.60	10.50	0.232	-12.67	34.00	0.155	-16.17	57.50	0.010	-39.58	81.00	0.038	-28.40
-1.25	0.199	-14.02	11.00	0.256	-11.84	34.50	0.151	-16.39	58.00	0.003	-52.04	81.50	0.040	-28.07
-1.00	0.194	-14.27	11.50	0.269	-11.42	35.00	0.143	-16.89	58.50	0.010	-40.00	82.00	0.041	-27.85
-0.75	0.199	-14.02	12.00	0.266	-11.50	35.50	0.129	-17.79	59.00	0.021	-33.56	82.50	0.041	-27.74
-0.50	0.223	-13.05	12.50	0.249	-12.08	36.00	0.112	-19.02	59.50	0.033	-29.63	83.00	0.042	-27.54
-0.25	0.263	-11.60	13.00	0.220	-13.17	36.50	0.092	-20.72	60.00	0.044	-27.13	83.50	0.042	-27.54
0.00	0.321	-9.88	13.50	0.182	-14.80	37.00	0.071	-22.97	60.50	0.055	-25.19	84.00	0.042	-27.54
0.25	0.388	-8.22	14.00	0.140	-17.08	37.50	0.051	-25.85	61.00	0.066	-23.61	84.50	0.042	-27.54
0.50	0.463	-6.70	14.50	0.097	-20.26	38.00	0.034	-29.50	61.50	0.075	-22.50	85.00	0.041	-27.74
0.75	0.541	-5.34	15.00	0.057	-24.88	38.50	0.022	-33.15	62.00	0.084	-21.57	85.50	0.040	-27.96
1.00	0.621	-4.15	15.50	0.023	-32.77	39.00	0.019	-34.42	62.50	0.090	-20.87	86.00	0.038	-28.29
1.25	0.697	-3.14	16.00	0.015	-36.19	39.50	0.021	-33.35	63.00	0.096	-20.40	86.50	0.036	-28.75
1.50	0.770	-2.28	16.50	0.035	-29.24	40.00	0.023	-32.77	63.50	0.100	-20.04	87.00	0.035	-29.24
1.75	0.835	-1.57	17.00	0.048	-26.38	40.50	0.022	-33.15	64.00	0.101	-19.91	87.50	0.032	-29.90
2.00	0.891	-1.00	17.50	0.052	-25.68	41.00	0.017	-35.39	64.50	0.101	-19.91	88.00	0.029	-30.60
2.25	0.937	-0.57	18.00	0.050	-26.11	41.50	0.009	-40.92	65.00	0.100	-20.00	88.50	0.026	-31.54
2.50	0.970	-0.26	18.50	0.044	-27.03	42.00	0.008	-41.94	65.50	0.098	-20.22	89.00	0.024	-32.58
2.75	0.992	-0.07	19.00	0.047	-26.56	42.50	0.021	-33.35	66.00	0.094	-20.54	89.50	0.021	-33.76
3.00	1.000	0.00	19.50	0.065	-23.81	43.00	0.037	-28.52	66.50	0.089	-20.96	90.00	0.017	-35.65
3.25	0.994	-0.05	20.00	0.091	-20.77	43.50	0.054	-25.27	67.00	0.085	-21.36			
3.50	0.975	-0.22	20.50	0.120	-18.38	44.00	0.072	-22.91	67.50	0.081	-21.88			
3.75	0.945	-0.49	21.00	0.146	-16.68	44.50	0.087	-21.16	68.00	0.076	-22.33			
4.00	0.903	-0.89	21.50	0.168	-15.52	45.00	0.103	-19.79	68.50	0.073	-22.73			
4.25	0.851	-1.40	22.00	0.180	-14.89	45.50	0.115	-18.79	69.00	0.070	-23.10			
4.50	0.792	-2.03	22.50	0.185	-14.66	46.00	0.124	-18.13	69.50	0.068	-23.35			
4.75	0.727	-2.77	23.00	0.180	-14.87	46.50	0.130	-17.75	70.00	0.067	-23.54			
5.00	0.659	-3.62	23.50	0.169	-15.47	47.00	0.132	-17.59	70.50	0.066	-23.61			
5.25	0.591	-4.57	24.00	0.150	-16.48	47.50	0.131	-17.69	71.00	0.065	-23.74			
5.50	0.524	-5.61	24.50	0.126	-17.99	48.00	0.126	-18.03	71.50	0.065	-23.74			
5.75	0.463	-6.69	25.00	0.100	-20.04	48.50	0.118	-18.56	72.00	0.065	-23.74			
6.00	0.408	-7.79	25.50	0.072	-22.91	49.00	0.107	-19.37	72.50	0.064	-23.88			
6.25	0.363	-8.80	26.00	0.045	-26.84	49.50	0.096	-20.40	73.00	0.063	-24.08			
6.50	0.328	-9.70	26.50	0.021	-33.35	50.00	0.083	-21.67	73.50	0.061	-24.29			

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