KTMD Application for Post-Repack Construction Permit

July 5, 2017

Engineering Exhibit

The purpose of this application is to request authority to construct a post-repack broadcast facility for operation on channel 22 for KTMD, Galveston, TX, Facility ID 64984, licensed to NBC Telemundo License LLC.

This application specifies a top mount antenna location at a radiation center height of 616.1m AMSL on the same tower currently used by KTMD. The TVStudy computed HAAT of 597.0m is slightly less than the current database HAAT of 597.1m and radiation center of 616.2m. A TVStudy 2.2.2 analysis at 592 kW ERP and 616.1m RC-AMSL showed the contour of the proposed facility will not exceed the authorized post-repack contour by more than 1% in any direction and will not cause new interference above 0.5% to any other station.

Antenna System

The proposed facility will use a directional antenna with elliptical polarization. The proposed vertically polarized ERP is 296 kW. The vertically polarized ERP will not exceed the horizontally polarized ERP (592 kW) in the main beam in any direction. Plots and tabulation of antenna data required by FCC Rules Section 73.625(c) are attached.

Environmental Statement

The requested facility will be installed on top an existing tower (ASR # 1064696) located in an antenna farm. The proposed top mount antenna not change height of the tower.

Due to different elevation patterns for the two polarities, RF power density from the facility was calculated separately for horizontally and vertically polarized signals using the procedures in FCC Office of Engineering and Technology Bulletin 65 and combined to obtain the maximum power density for the combined polarities anywhere on the ground. The maximum power density around the site, allowing for 10m building height and terrain variation, and 2m person height, is calculated to be 0 000227 mW/cm^2 or 0.07% of the FCC maximum permissible exposure level of 0 347 mW/cm^2 at 521 MHz for an uncontrolled environment. The tower is secured with a fence and locked gate with required signage. At full power, RF power density from the proposed facility is calculated to be below occupational exposure levels in the main beam of the antenna at distances greater than . 131m and below uncontrolled environment exposure levels at distances greater than 293m. There are no other towers or structures in the antenna's main beam within these distances. KTMD will coordinate with other users at the site and reduce power or shut off as required to protect workers on this tower from RF exposure above the limits specified in FCC rule §1.1310.

Broadcast Facility

The facility proposed in this application provides similar coverage to the current authorized facility and matches, within the tolerances allowed, the post-repack facility assigned by the FCC.

Doug Lung
July 5, 2017

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AZIMUTH PATTERN (H-Pol): ERI ATW19HS6-ETCX-22H

Main beam axis of symmetry: 55° true
Electrical Beam Tilt: 1.50

Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak)	**1.57**	**(1.96 dBd)**
Maximum Main Beam H-Pol. Effective Radiated Power (ERP):	**592.0 kW**	**27.72 dBk**
Maximum Main Beam V-Pol. Effective Radiated Power (ERP):	**296.0 kW**	**24.71 dBk**

Tabulation of Azimuth Pattern (Horizontal polarization)

Angle	RF	dBk	ERP kW
0	0.987	27.61	576.7
10	0.953	27.31	537.7
20	0.920	27.00	501.1
30	0.916	26.96	496.7
40	0.946	27.24	529.8
50	0.974	27.49	561.6
60	0.974	27.49	561.6
70	0.946	27.24	529.8
80	0.916	26.96	496.7
90	0.920	27.00	501.1
100	0.953	27.31	537.7
110	0.987	27.61	576.7
120	1.000	27.72	592.0
130	0.979	27.54	567.4
140	0.926	27.05	507.5
150	0.864	26.45	442.0
160	0.794	25.72	372.9
170	0.709	24.74	297.7
180	0.607	23.39	218.3
190	0.480	21.34	136.2
200	0.354	18.70	74.1
210	0.333	18.18	65.8
220	0.426	20.31	107.3
230	0.496	21.64	145.8
240	0.487	21.48	140.6
250	0.409	19.95	98.8
260	0.321	17.85	61.0
270	0.372	19.14	82.1
280	0.506	21.80	151.4
290	0.630	23.71	234.9
300	0.727	24.96	313.1
310	0.809	25.88	387.4
320	0.877	26.58	455.4
330	0.937	27.16	519.4
340	0.981	27.56	569.8
350	0.999	27.71	590.5

Maximum

Angle	RF	dBk	ERP kW
55	0.974	27.49	561.6
120	1.000	27.72	592.0
234	0.501	21.72	148.6
270	1.000	18.45	592.0

Minimum

Angle	RF	dBk	ERP kW
29	0.916	26.96	497.2
81	0.916	26.96	497.2
207	0.318	17.77	59.9
261	0.318	17.77	59.9

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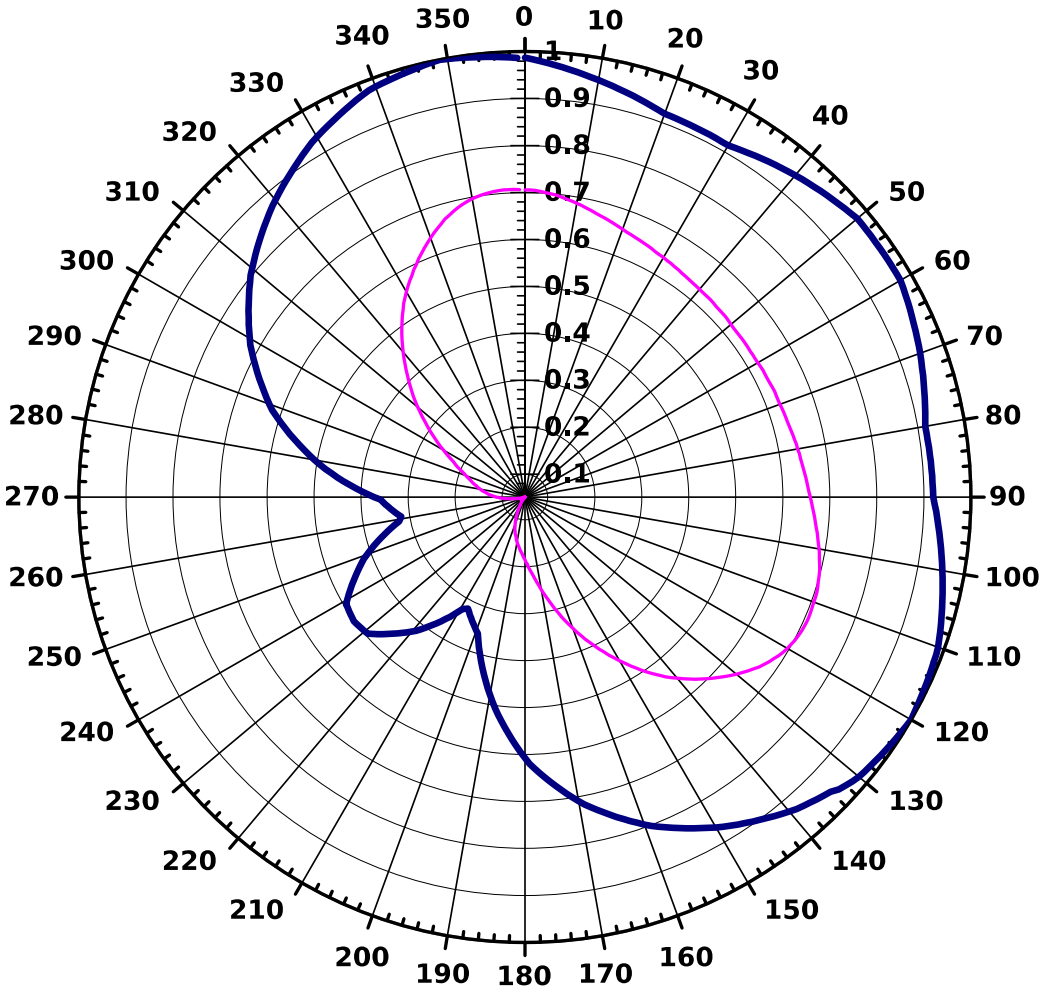
AZIMUTH PATTERN RELATIVE FIELD



Blue plot shows azimuth pattern relative field for horizontal polarization
Red plot shows azimuth pattern relative field for vertical polarization

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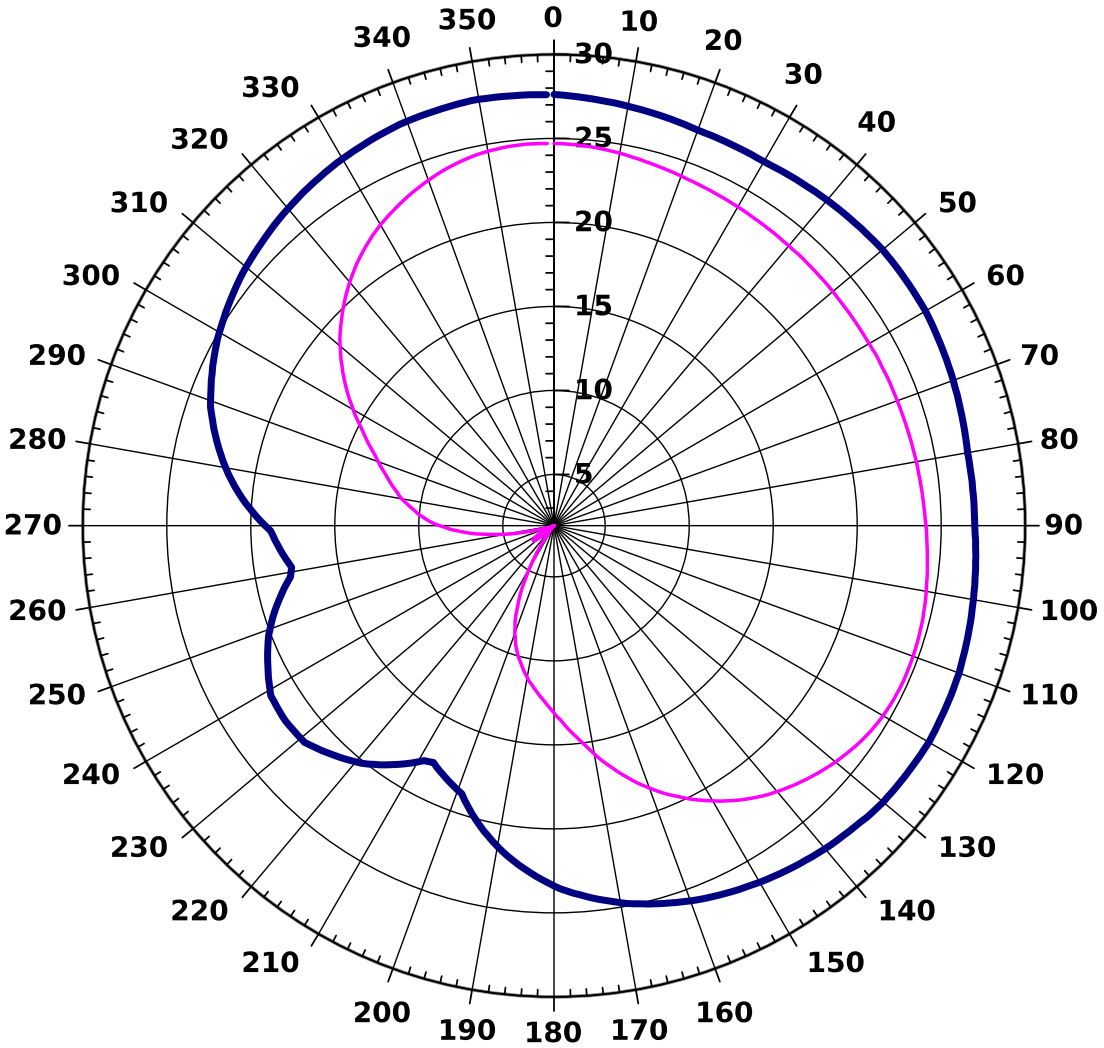
AZIMUTH PATTERN ERP (dBk)



Blue plot shows effective radiated power (dBk) for horizontal polarization
Red plot shows effective radiated power (dBk) for vertical polarization

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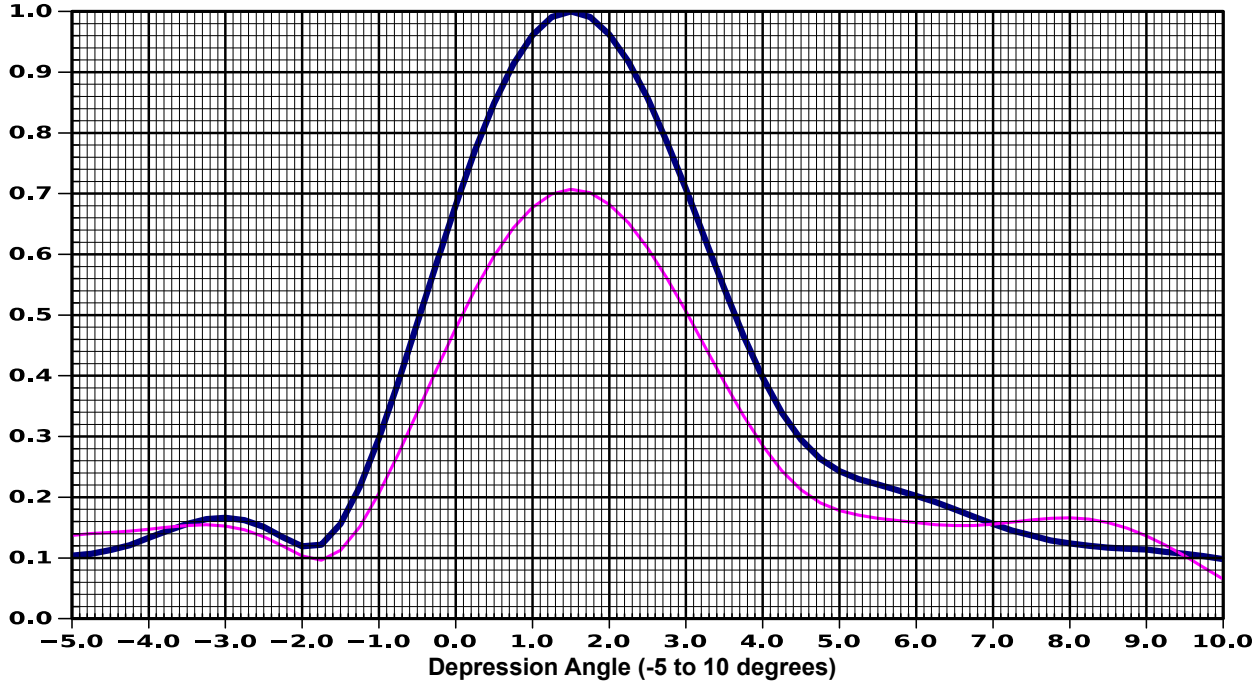
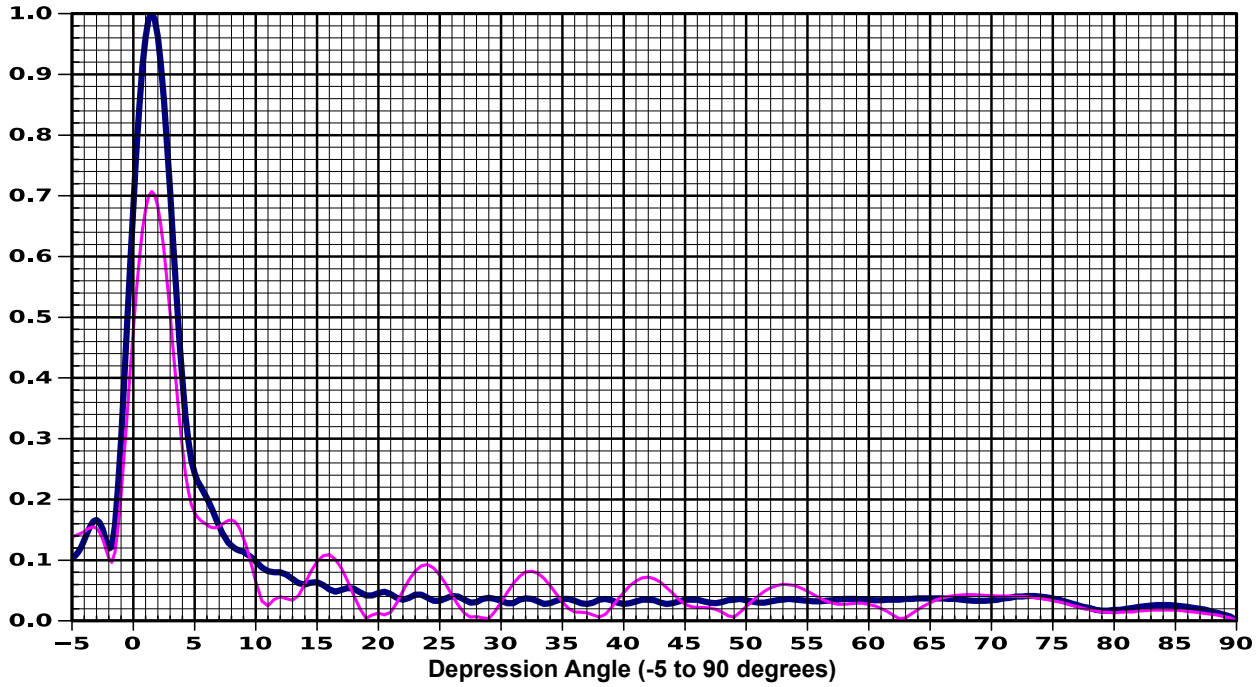
ELEVATION PATTERN ERI ATW19HS6-ETCX-22H

Electrical Beam Tilt: 1.5°		
Calculated Maximum Elevation Gain (Horizontal polarization):	**19.00**	**12.79 dBd**
RMS Gain at Horizontal (Horizontal polarization):	**9.48**	**9.77 dBd**
Maximum Main Beam H-Pol. Effective Radiated Power (ERP):	**592.0 kW**	**27.72 dBk**
Maximum Main Beam V-Pol. Effective Radiated Power (ERP):	**296.0 kW**	**24.71 dBk**

Relative Field (blue at horizontal polarization, red at vertical polarization)





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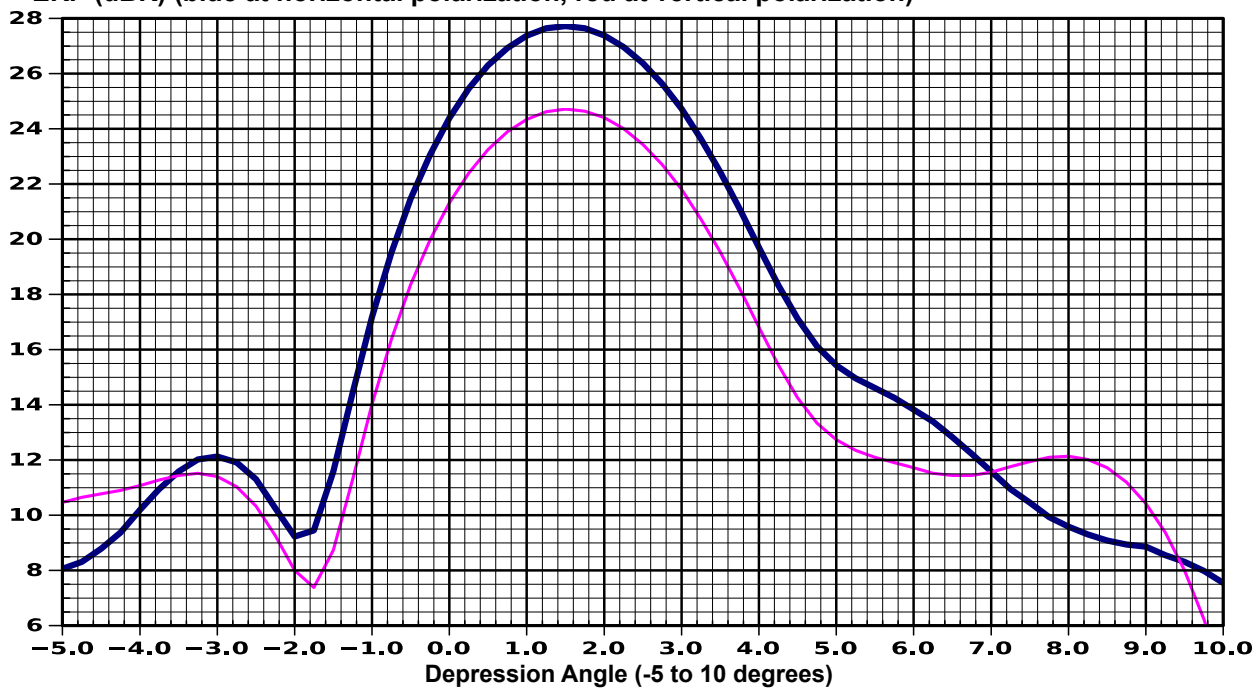
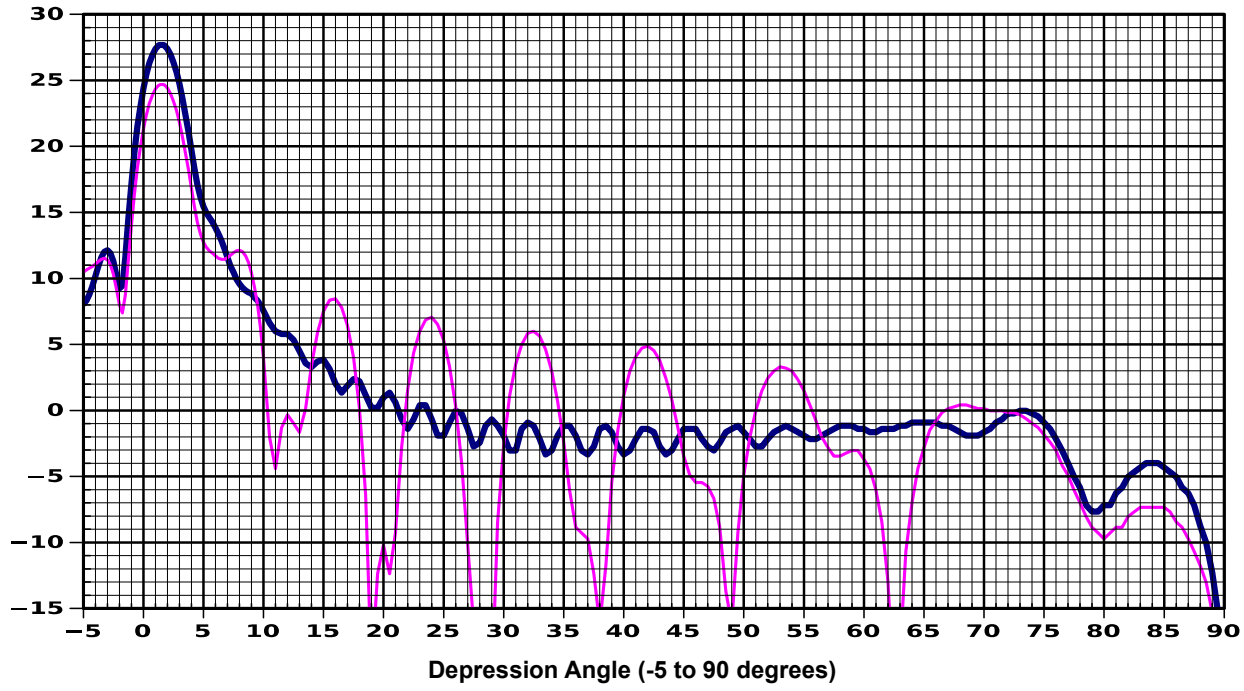
ERP (dBK) (blue at horizontal polarization, red at vertical polarization)





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Elevation pattern at horizontal polarization

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-5.00	0.104	3.75	0.466	15.00	0.064	32.5	0.036	50.0	0.034	67.5	0.035	85.0	0.025
-4.75	0.107	4.00	0.397	15.50	0.059	33.0	0.032	50.5	0.032	68.0	0.034	85.5	0.024
-4.50	0.113	4.25	0.339	16.00	0.052	33.5	0.028	51.0	0.030	68.5	0.033	86.0	0.023
-4.25	0.121	4.50	0.295	16.50	0.048	34.0	0.029	51.5	0.030	69.0	0.033	86.5	0.021
-4.00	0.133	4.75	0.263	17.00	0.051	34.5	0.033	52.0	0.032	69.5	0.033	87.0	0.020
-3.75	0.145	5.00	0.243	17.50	0.054	35.0	0.036	52.5	0.034	70.0	0.034	87.5	0.018
-3.50	0.156	5.25	0.230	18.00	0.053	35.5	0.036	53.0	0.035	70.5	0.035	88.0	0.015
-3.25	0.164	5.50	0.221	18.50	0.047	36.0	0.033	53.5	0.036	71.0	0.037	88.5	0.013
-3.00	0.166	5.75	0.212	19.00	0.042	36.5	0.029	54.0	0.035	71.5	0.038	89.0	0.010
-2.75	0.162	6.00	0.202	19.5	0.042	37.0	0.028	54.5	0.034	72.0	0.040	89.5	0.007
-2.50	0.151	6.25	0.192	20.0	0.046	37.5	0.030	55.0	0.033	72.5	0.040	90.0	0.000
-2.25	0.134	6.50	0.180	20.5	0.048	38.0	0.035	55.5	0.032	73.0	0.041		
-2.00	0.119	6.75	0.168	21.0	0.044	38.5	0.036	56.0	0.032	73.5	0.041		
-1.75	0.122	7.00	0.156	21.5	0.038	39.0	0.034	56.5	0.033	74.0	0.040		
-1.50	0.156	7.25	0.145	22.0	0.035	39.5	0.030	57.0	0.034	74.5	0.039		
-1.25	0.217	7.50	0.137	22.5	0.038	40.0	0.028	57.5	0.035	75.0	0.037		
-1.00	0.297	7.75	0.129	23.0	0.043	40.5	0.029	58.0	0.036	75.5	0.035		
-0.75	0.389	8.00	0.124	23.5	0.043	41.0	0.032	58.5	0.036	76.0	0.032		
-0.50	0.487	8.25	0.120	24.0	0.038	41.5	0.035	59.0	0.036	76.5	0.029		
-0.25	0.585	8.50	0.117	24.5	0.033	42.0	0.035	59.5	0.035	77.0	0.026		
0.00	0.681	8.75	0.115	25.0	0.033	42.5	0.034	60.0	0.035	77.5	0.023		
0.25	0.771	9.00	0.114	25.5	0.037	43.0	0.030	60.5	0.034	78.0	0.021		
0.50	0.849	9.25	0.110	26.0	0.041	43.5	0.028	61.0	0.034	78.5	0.018		
0.75	0.913	9.50	0.107	26.5	0.040	44.0	0.029	61.5	0.035	79.0	0.017		
1.00	0.961	9.75	0.103	27.0	0.035	44.5	0.032	62.0	0.035	79.5	0.017		
1.25	0.991	10.00	0.098	27.5	0.030	45.0	0.035	62.5	0.035	80.0	0.018		
1.50	1.000	10.50	0.088	28.0	0.031	45.5	0.035	63.0	0.036	80.5	0.018		
1.75	0.991	11.00	0.082	28.5	0.036	46.0	0.035	63.5	0.036	81.0	0.020		
2.00	0.962	11.50	0.080	29.0	0.038	46.5	0.032	64.0	0.037	81.5	0.021		
2.25	0.917	12.00	0.080	29.5	0.036	47.0	0.030	64.5	0.037	82.0	0.023		
2.50	0.857	12.50	0.076	30.0	0.033	47.5	0.029	65.0	0.037	82.5	0.024		
2.75	0.786	13.00	0.069	30.5	0.029	48.0	0.031	65.5	0.037	83.0	0.025		
3.00	0.708	13.50	0.062	31.0	0.029	48.5	0.034	66.0	0.037	83.5	0.026		
3.25	0.625	14.00	0.060	31.5	0.035	49.0	0.035	66.5	0.036	84.0	0.026		
3.50	0.544	14.50	0.063	32.0	0.037	49.5	0.036	67.0	0.036	84.5	0.026		

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