

Proposed Minor Change to W288DL at Stamford, Connecticut

Facility ID 24109

Technical Statement

Summary

This application proposes a relocation of W288DL to the east tower of WNLK(AM) (Facility ID 14378). The licensed antenna system of W280FX (Facility ID 202426) will be diplexed. No physical or electrical changes will be made to either antenna system.

The 60 dBu service contour of the proposed amended 10 Watt facility overlaps that of the presently authorized facility (both green), as illustrated in Figure 1.

Section 74.1204 Study

The following facilities were studied.

Call Sign	C	ST	City	Freq. ▼	ERP	Class	Status	D
WPKN	1	CT	BRIDGEPORT	89.5	10000.0	B	LIC	27.73
WWPR-FM	1	NY	NEW YORK	105.1	6000.0	B	LIC	61.75
W287AZ	1	CT	SOUTHPORT	105.3	50.0	D	LIC	15.85
Proposed	3	CT	STAMFORD	105.5	10.0	A	APP	0.00
W288DL	2	CT	STAMFORD	105.5	10.0	A	LIC	10.79
W288DV	2	CT	NEW HAVEN	105.5	125.0	D	LIC	46.68
WDBY	1	NY	PATTERSON	105.5	900.0	A	LIC	48.17
WBLI	1	NY	PATCHOGUE	106.1	49000.0	B	LIC	44.96

Figure 2 illustrates the absence of prohibited overlap between the proposed modified translator F(50,10) interfering contours and the pertinent service contours of all facilities listed above except WWPR-FM and WBLI (Key: same colors may not overlap.)

As shown in Figure 2, the proposed translator interfering contour lies inside the protected service contours of WWPR-FM and WBLI. Therefore, the applicant respectfully requests a waiver pursuant to 74.1204(d) as described below.

Also as illustrated in Figure 2, the WWPR-FM places a 55.8 dBu service contour, and WBLI places a 57.9 dBu service contour over the proposed site (both light blue.) The Commission has generally considered overlap from a proposed translator interfering contour to be acceptable where the ratio of undesired to desired signal (U/D) does not exceed 40 dB i.e. where in the instant case the proposed translator F(50,10) interfering signal does not exceed 95.8 dBu.

Protection to WWPR-FM and WBLI

The proposed translator facility will operate with an ERP of 0.01 kW. As seen in Figure 3, the nearest residence to the proposed antenna site is 69 meters from the tower base. For 0.01 kW ERP the 95.8 dBu F(50,10) interfering contour extends 360 meters in free space.

The applicant will diplex into the existing 8-bay antenna array of W280FX to protect the entire area that lies at distances between 69 and 360 meters from the proposed site from receiving an interfering signal level that could equal or exceed 95.8 dBu F(50,10). That is to say, the interfering signal will not reach the ground at any point.

The proposed antenna array is comprised of eight Label Italy AKG-1/N vertical dipoles centered 51 meters above ground level on the WNLK(AM) east tower. The individual vertical dipoles are identically the same as those sold by Nicom as model BKG-1/P. The relative spacing, magnitude, and phase of the power fed to each bay is shown in Figure 4.

The array produces the elevation pattern graphed in Appendix 1. A detailed tabulation at increments of 0.1 degree of the elevation pattern is provided in Appendix 2.

Figure 5 illustrates interference protection by showing the downward or depression angle to points on the ground at distances between 69 meters and 360 meters together with the actual distance in space (hypotenuse of a right triangle) to each point, the field and ERP produced by the antenna array at the pertinent downward angle, the distance to the 95.8 dBu F(50,10) interfering contour, and the margin of safety dB between the interfering contour and the allowable maximum. The margin of safety is greater than 10 dB at any point.

The applicant therefore believes its application meets the requirements of Section 74.1204(d) with respect to "other factors" insuring no actual interference to either WWPR-FM or WBLI. Nevertheless, as required by the Commission's Rules, in the event of any complaints that the proposed translator interferes with reception of either station, the applicant will take the required steps to eliminate the interference, including, if necessary, reducing power or cessation of translator operation.

Environmental Considerations

No physical or electrical changes will be made to the licensed antenna systems of either W280FX or WNLK(AM). Although categorically excluded at only 10 Watts ERP, compliance with RFR limits was determined by use of the Commission's RF Worksheet #1. The applicant will cease operation or reduce power as necessary in order to prevent uncontrolled or controlled exposure in excess of the guidelines of OET-65 Appendix A.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Dennis Jackson", with a stylized flourish at the end.

Dennis Jackson
Technical Consultant
August 30, 2023

Figure 1 – Closeup of Proposed Overlap to Licensed Facility

Proposed service contour overlaps that of authorized facility (both green.)

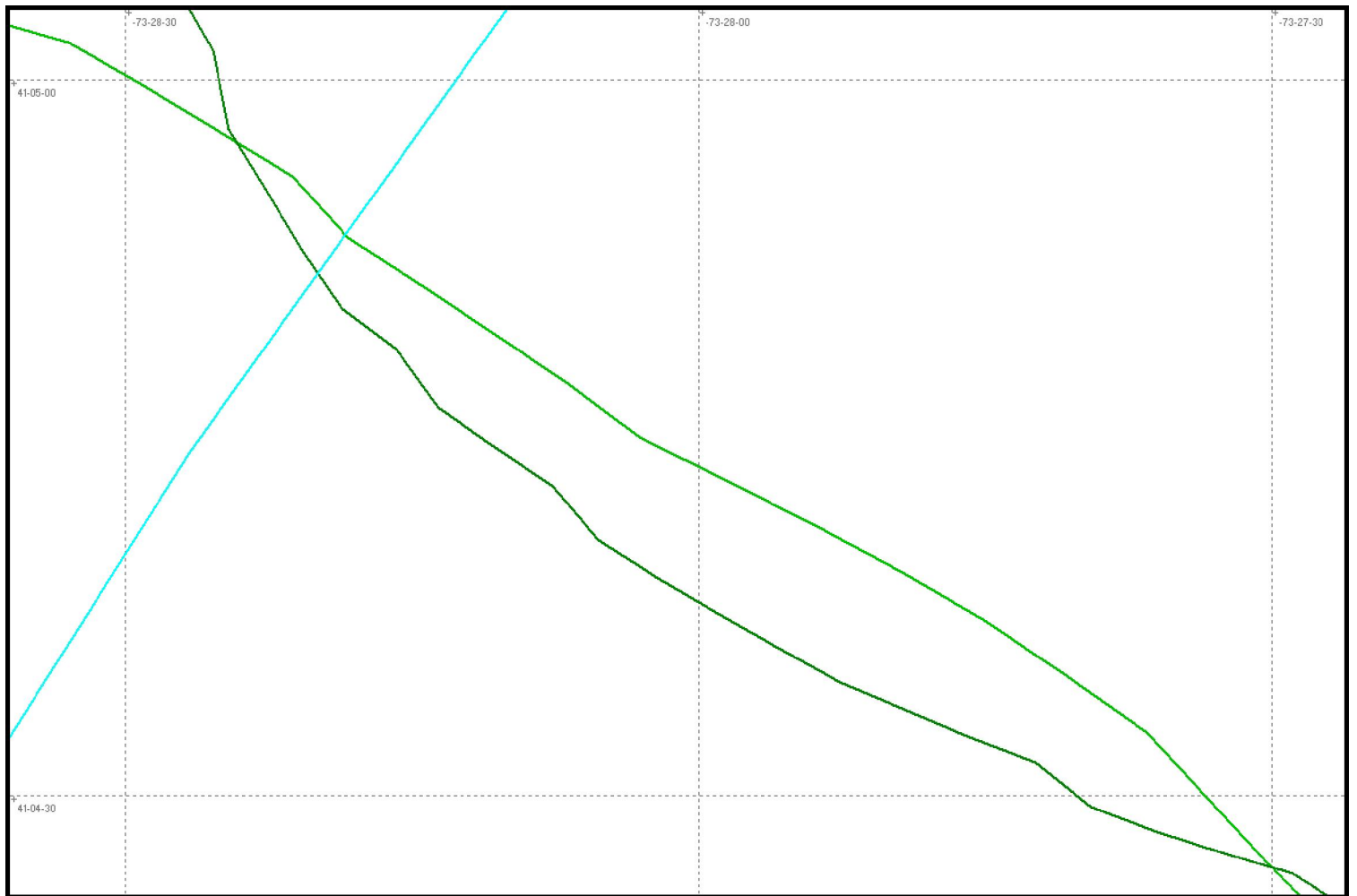


Figure 2 – Section 74.1204 Study

No prohibited overlap is created. (Key: Same colors may not overlap.)
Proposed service contour overlaps that of authorized facility (both green.)
WWPR-FM places a 55.8 dBu service contours over the proposed site, and
WBLI places a 57.9 dBu service contour over the proposed site (both blue.)
WPKN 60 dBu service contour is thin black. Proposed ERP is 10 Watts (V-only)

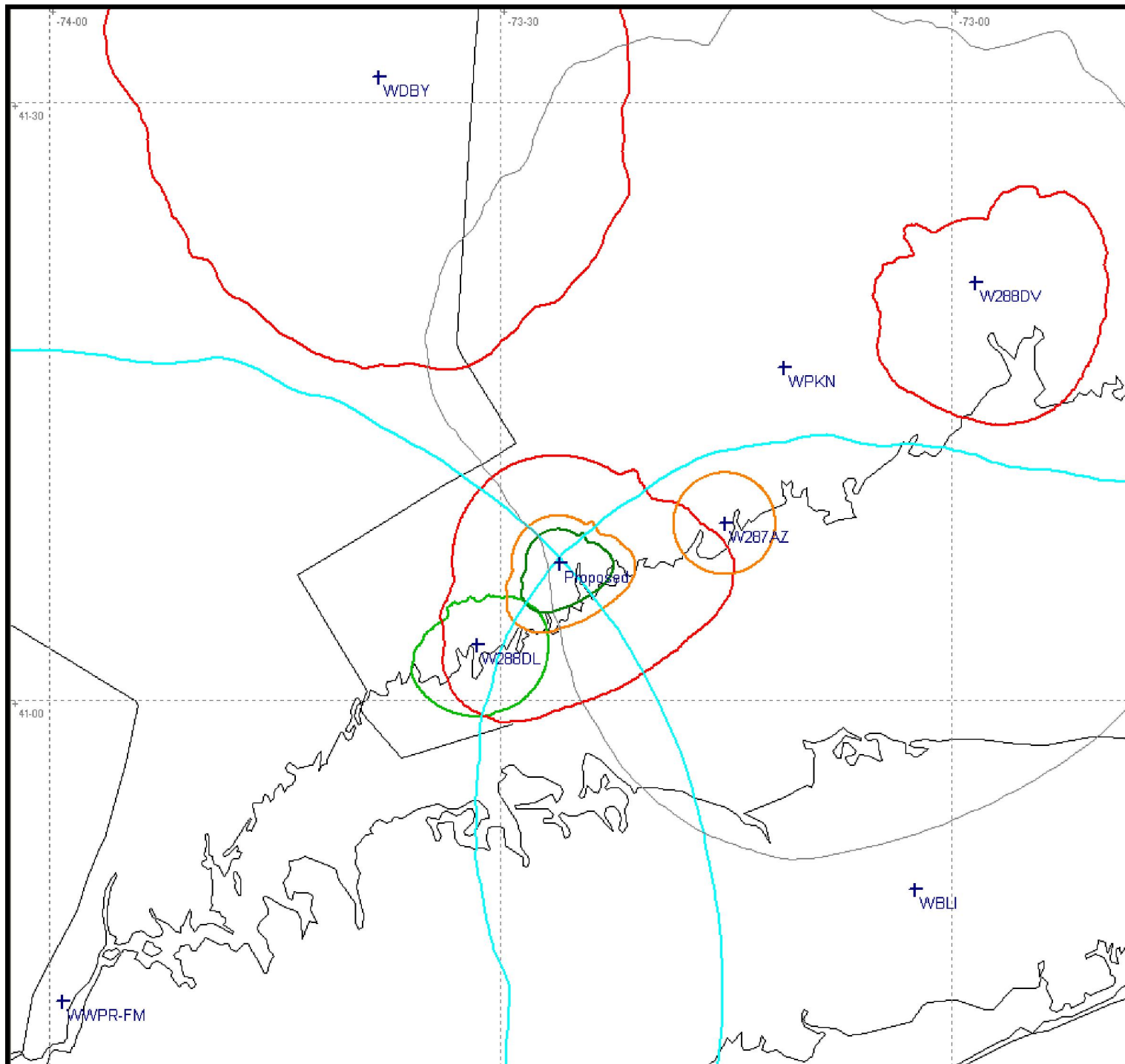


Figure 3 – Antenna Vicinity

Nearest residence is 69 meters from proposed antenna site on WNLK(AM) east tower



Figure 4 – Antenna Array Parameters

Bay from Top	1	2	3	4	5	6	7	8
Relative Phase	-65.794	-55.619	-45.042	-31.738	-26.675	-14.223	-9.288	0.000
Magnitude	0.447	0.892	1	0.989	0.892	0.881	0.794	0.501
Attenuation (dB) (unchanged)	-6.994	-0.993	0	-0.096	-0.993	-1.1	-2.004	-6.003

Figure 5 – Clearance from 95.8 dBu F(50,10) Interfering Contour to Ground

at distances from 69 meters to 360 meters from antenna site,

expressed as a margin of safety in dB.

Antenna HAGL = 51 meters

Protection is not less than 10 dB.

Horizontal Distance to Point (meters)	Downward Vertical Angle (degrees)	Actual Distance in Space (meters)	Power Limit (Watts)	Antenna Field Limit	Actual Antenna Field	Margin of Safety (dB)
69	36.5	85.8	0.57	0.239	0.021	21.11
70	36.1	86.6	0.58	0.241	0.036	16.51
85	31.0	99.1	0.75	0.274	0.066	12.36
100	27.0	112.3	0.97	0.311	0.085	11.28
125	22.2	135.0	1.40	0.374	0.045	18.40
150	18.8	158.4	1.94	0.440	0.125	10.94
175	16.2	182.3	2.57	0.507	0.127	12.02
200	14.3	206.4	3.28	0.573	0.030	25.62
250	11.5	255.1	5.04	0.710	0.170	12.42
300	9.6	304.3	7.15	0.846	0.206	12.27
325	8.9	329.0	8.34	0.913	0.180	14.11
350	8.3	353.7	9.66	0.983	0.145	16.62
360	8.1	363.6	10.2	1.011	0.123	18.30

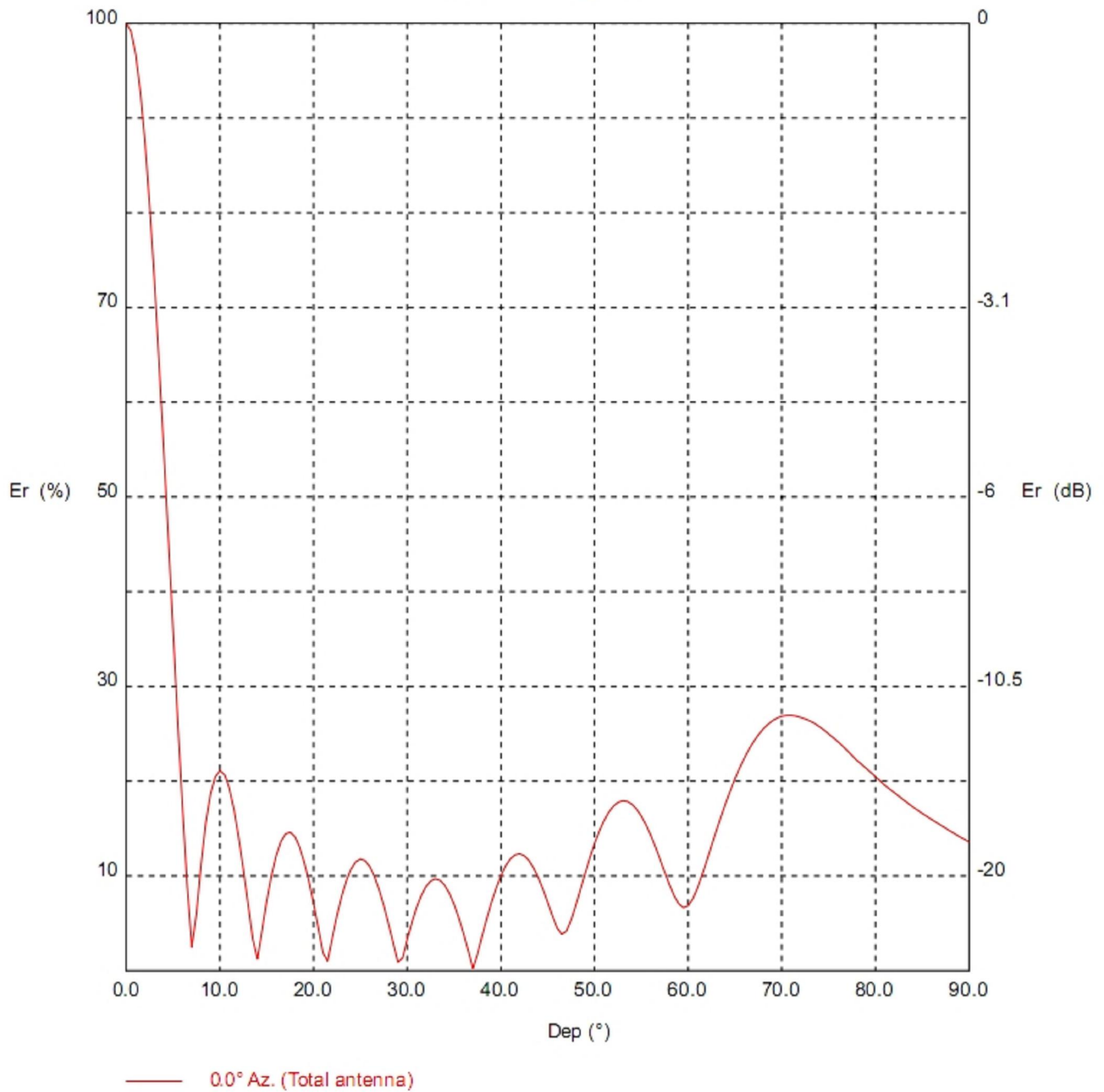
Appendix 1

Antenna Array Elevation Pattern At Downward Angles

TX station: NICOM

Site name: BKG1P 8-BAY

Vertical diagram



Appendix 2

Antenna Array Elevation Pattern Tabulation At Downward Angles

TX station: NICOM

Site name: BKG1P 8-BAY

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)
0.0	100.0	18.63	30.0	3.3	0.02	60.0	6.8	0.09
0.5	99.2	18.32	30.5	5.1	0.05	60.5	7.6	0.11
1.0	96.7	17.43	31.0	6.6	0.08	61.0	8.7	0.14
1.5	92.7	16.02	31.5	7.9	0.12	61.5	10.1	0.19
2.0	87.3	14.20	32.0	8.9	0.15	62.0	11.6	0.25
2.5	80.6	12.10	32.5	9.5	0.17	62.5	13.2	0.32
3.0	72.8	9.88	33.0	9.7	0.17	63.0	14.7	0.40
3.5	64.2	7.68	33.5	9.5	0.17	63.5	16.2	0.49
4.0	55.0	5.63	34.0	9.0	0.15	64.0	17.6	0.58
4.5	45.4	3.84	34.5	8.2	0.12	64.5	19.0	0.67
5.0	35.7	2.38	35.0	7.0	0.09	65.0	20.2	0.76
5.5	26.2	1.28	35.5	5.6	0.06	65.5	21.4	0.85
6.0	17.2	0.55	36.0	3.9	0.03	66.0	22.4	0.94
6.5	8.9	0.15	36.5	2.1	0.01	66.5	23.4	1.02
7.0	2.5	0.01	37.0	0.2	0.00	67.0	24.2	1.09
7.5	6.1	0.07	37.5	1.7	0.01	67.5	24.9	1.15
8.0	11.4	0.24	38.0	3.6	0.02	68.0	25.5	1.21
8.5	15.6	0.45	38.5	5.5	0.06	68.5	26.0	1.26
9.0	18.6	0.65	39.0	7.2	0.10	69.0	26.4	1.29
9.5	20.5	0.78	39.5	8.7	0.14	69.5	26.7	1.32
10.0	21.1	0.83	40.0	10.0	0.19	70.0	26.8	1.34
10.5	20.7	0.80	40.5	11.0	0.23	70.5	26.9	1.35
11.0	19.3	0.69	41.0	11.8	0.26	71.0	27.0	1.35
11.5	17.0	0.54	41.5	12.2	0.28	71.5	26.9	1.35
12.0	14.1	0.37	42.0	12.3	0.28	72.0	26.7	1.33
12.5	10.8	0.22	42.5	12.1	0.27	72.5	26.6	1.32
13.0	7.1	0.09	43.0	11.6	0.25	73.0	26.4	1.29
13.5	3.4	0.02	43.5	10.8	0.22	73.5	26.1	1.27
14.0	1.2	0.00	44.0	9.8	0.18	74.0	25.8	1.24
14.5	4.2	0.03	44.5	8.6	0.14	74.5	25.4	1.20
15.0	7.3	0.10	45.0	7.2	0.10	75.0	25.0	1.16
15.5	10.0	0.19	45.5	5.8	0.06	75.5	24.6	1.13
16.0	12.1	0.27	46.0	4.5	0.04	76.0	24.2	1.09
16.5	13.6	0.35	46.5	3.9	0.03	76.5	23.7	1.05
17.0	14.4	0.39	47.0	4.2	0.03	77.0	23.2	1.00
17.5	14.6	0.40	47.5	5.3	0.05	77.5	22.7	0.96
18.0	14.1	0.37	48.0	6.9	0.09	78.0	22.2	0.92
18.5	13.1	0.32	48.5	8.6	0.14	78.5	21.8	0.88
19.0	11.5	0.24	49.0	10.3	0.20	79.0	21.4	0.85
19.5	9.4	0.17	49.5	11.9	0.26	79.5	20.9	0.82
20.0	7.1	0.09	50.0	13.4	0.33	80.0	20.5	0.78
20.5	4.5	0.04	50.5	14.7	0.40	80.5	20.0	0.75
21.0	1.9	0.01	51.0	15.8	0.46	81.0	19.6	0.71
21.5	1.0	0.00	51.5	16.7	0.52	81.5	19.2	0.69
22.0	3.5	0.02	52.0	17.3	0.56	82.0	18.8	0.66
22.5	5.8	0.06	52.5	17.8	0.59	82.5	18.4	0.63
23.0	7.8	0.11	53.0	17.9	0.60	83.0	18.0	0.61
23.5	9.5	0.17	53.5	17.9	0.59	83.5	17.6	0.58
24.0	10.7	0.21	54.0	17.6	0.57	84.0	17.3	0.56
24.5	11.5	0.25	54.5	17.0	0.54	84.5	16.9	0.53
25.0	11.8	0.26	55.0	16.3	0.49	85.0	16.6	0.51
25.5	11.6	0.25	55.5	15.4	0.44	85.5	16.3	0.49
26.0	11.0	0.22	56.0	14.3	0.38	86.0	16.0	0.47
26.5	9.9	0.18	56.5	13.1	0.32	86.5	15.6	0.46
27.0	8.5	0.14	57.0	11.7	0.26	87.0	15.3	0.44
27.5	6.9	0.09	57.5	10.4	0.20	87.5	15.0	0.42
28.0	5.0	0.05	58.0	9.1	0.15	88.0	14.7	0.40
28.5	2.9	0.02	58.5	7.9	0.12	88.5	14.4	0.39
29.0	0.9	0.00	59.0	7.0	0.09	89.0	14.1	0.37
29.5	1.3	0.00	59.5	6.6	0.08	89.5	13.9	0.36