

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P646676

Luminaire Tested: S123RDRP-S340D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646676  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-2)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/20/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123RDRP-S340D830-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

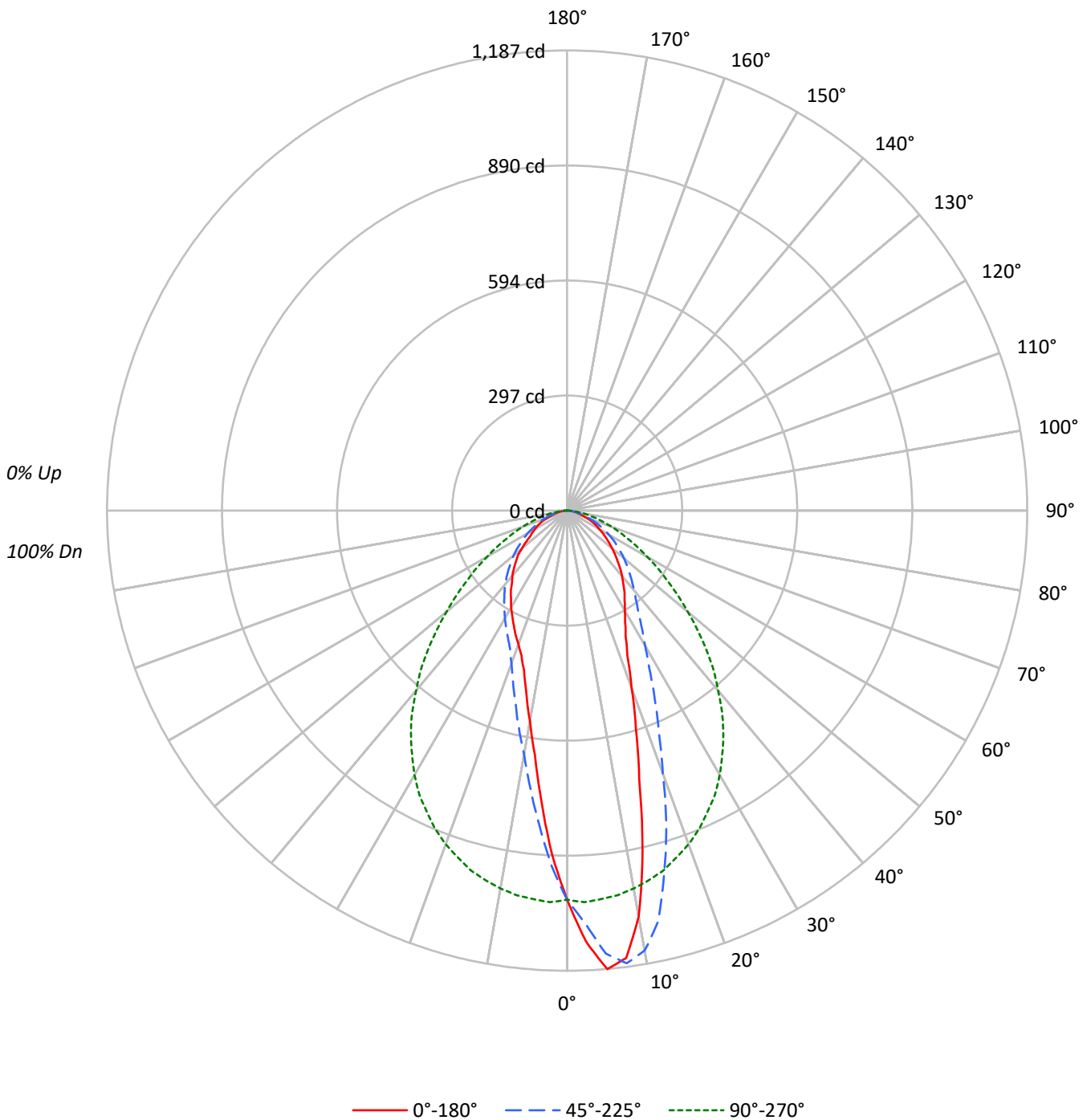
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1329.8 lumens  
Efficiency: N/A  
Efficacy: 111.7 lumens/watt  
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79  
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.9  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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### Luminous Intensity Polar Plot



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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					20	
RC	80					70					50					30					10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89				87	
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78				76	
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	69				67	
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61				59	
5	82	70	62	56	80	69	62	56	67	61	56	65	60	55	63	58	54				53	
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49				47	
7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45				43	
8	67	55	47	42	65	54	47	42	53	46	41	52	46	41	51	45	41				39	
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38				36	
10	60	47	40	36	58	47	40	35	46	40	35	45	39	35	44	39	35				33	

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	12094	12094	12094	12094	12094
5°	14361	13873	12170	9871	9134
10°	13011	14098	12109	7815	6762
15°	8958	12074	11981	6417	5349
20°	6232	9260	11742	5378	4702
25°	4749	7107	11391	4803	4333
30°	4134	5589	10954	4466	4014
35°	3795	4704	10333	4164	3723
40°	3464	4220	9522	3910	3457
45°	3127	3865	8646	3633	3190
50°	2838	3588	7614	3380	2862
55°	2567	3294	6621	3086	2456
60°	2301	2995	5752	2827	2321
65°	2124	2663	4952	2512	2195
70°	1726	2276	4319	2276	1783
75°	1513	1839	3659	1895	1569
80°	1374	1540	2998	1596	1485
85°	1258	1313	2281	1424	1369

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 9123 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	91.5	6.9
10°-20°	211.7	15.9
20°-30°	242.8	18.3
30°-40°	239.2	18.0
40°-50°	210.8	15.9
50°-60°	162.3	12.2
60°-70°	106.7	8.0
70°-80°	51.8	3.9
80°-90°	13.1	1.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	546.0	41.1
0°-40°	785.2	59.0
0°-60°	1158.2	87.1
0°-90°	1329.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1329.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1004	1004	1004	1004	1004	
5°	1187	1147	1006	816	755	108
15°	718	968	960	514	429	203
25°	357	535	857	361	326	169
35°	258	320	702	283	253	161
45°	184	227	507	213	187	142
55°	122	157	315	147	117	110
65°	74	93	174	88	77	73
75°	32	40	79	41	34	35
85°	9	10	16	10	10	10
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7
2.5°	1112.4	1105.4	1103.3	1100.9	1096.7	1081.9	1065.1	1066.7	1064.6	1051.9	1044.9
5°	1187.3	1188.1	1186.0	1184.4	1177.4	1159.3	1147.0	1139.5	1123.9	1100.0	1092.6
7.5°	1164.2	1177.4	1179.9	1182.8	1186.5	1182.3	1177.8	1174.9	1162.2	1136.3	1124.3
10°	1063.4	1062.6	1077.4	1089.3	1121.4	1144.1	1152.3	1164.2	1174.9	1156.8	1143.7
12.5°	898.8	900.0	948.6	948.6	990.2	1047.8	1084.8	1109.9	1156.0	1157.2	1149.4
15°	718.1	738.3	781.5	790.6	844.1	921.4	967.9	1019.8	1109.1	1137.1	1135.4
17.5°	589.7	598.4	639.9	651.9	699.2	786.9	851.1	913.6	1038.7	1097.6	1108.3
20°	486.0	493.8	523.9	532.9	580.7	664.2	722.2	789.7	953.5	1043.7	1062.6
22.5°	405.8	421.0	441.2	455.2	482.3	567.5	617.3	681.9	854.8	983.2	1005.4
25°	357.2	364.2	381.5	388.1	421.0	477.4	534.6	591.4	767.1	907.4	946.5
27.5°	324.3	326.3	339.1	344.9	364.6	416.9	458.0	510.7	677.8	829.7	875.3
30°	297.1	300.8	310.7	311.9	329.2	366.3	401.7	450.2	599.6	754.3	801.3
32.5°	276.1	278.2	286.4	288.9	300.0	329.2	358.0	393.4	527.2	675.7	729.7
35°	258.0	258.4	264.6	267.9	277.8	302.1	319.8	349.4	469.2	610.7	658.0
37.5°	237.5	240.3	244.9	247.7	256.4	276.1	292.2	315.2	415.7	549.0	593.0
40°	220.2	222.6	228.0	229.2	237.0	255.2	268.3	288.9	369.6	489.7	534.6
42.5°	202.9	204.5	209.9	212.4	221.0	235.4	247.3	263.4	332.9	437.1	481.1
45°	183.5	187.7	193.4	194.7	202.9	217.7	226.8	241.6	300.0	391.4	430.5
47.5°	167.5	169.6	174.5	176.5	186.0	199.2	208.6	221.4	271.6	349.8	388.1
50°	151.4	152.3	156.8	159.7	167.1	182.3	191.4	202.9	245.7	316.1	342.8
52.5°	136.2	138.3	142.8	144.9	149.8	165.4	173.7	185.6	221.0	281.5	308.2
55°	122.2	123.5	126.8	129.2	135.0	148.6	156.8	167.1	199.6	249.8	273.3
57.5°	109.1	110.7	113.2	115.2	120.6	132.5	140.7	151.0	179.4	221.0	239.1
60°	95.5	97.5	100.4	101.2	106.2	116.9	124.3	133.3	158.9	194.2	210.3
62.5°	85.6	86.0	88.5	89.7	92.6	101.2	109.1	117.7	140.3	168.3	181.5
65°	74.5	75.7	77.0	77.8	80.2	87.7	93.4	100.0	122.2	146.5	155.6
67.5°	63.0	64.2	66.3	67.1	69.1	74.1	79.0	85.6	104.1	124.7	132.9
70°	49.0	49.0	52.3	53.9	57.2	60.9	64.6	70.4	86.4	104.1	110.3
72.5°	39.9	40.3	40.7	40.7	43.6	49.8	51.9	55.6	68.3	85.2	90.5
75°	32.5	32.9	33.3	33.7	34.2	36.2	39.5	42.8	52.3	64.6	69.5
77.5°	25.9	26.3	26.7	26.7	27.6	28.4	29.2	30.9	37.4	46.5	50.6
80°	19.8	20.2	20.6	20.6	21.0	21.8	22.2	23.0	25.1	31.3	33.3
82.5°	14.4	14.4	14.4	14.8	15.2	15.2	16.0	16.0	17.3	18.9	20.2
85°	9.1	9.1	9.5	9.5	9.5	9.9	9.5	9.9	10.3	10.7	11.5
87.5°	4.1	3.7	4.1	4.1	4.1	4.5	4.5	4.5	4.5	4.9	4.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7	1003.7
2.5°	1025.5	1011.1	986.9	971.6	965.9	948.2	931.3	917.3	910.3	909.5	896.7
5°	1045.7	1006.2	956.0	914.0	904.1	873.3	833.4	816.1	793.4	784.4	773.7
7.5°	1062.2	1000.4	926.4	863.0	844.5	798.0	746.9	724.3	707.0	679.9	663.8
10°	1073.7	989.7	890.2	808.3	781.9	727.6	665.9	638.7	622.7	591.4	578.6
12.5°	1078.2	976.2	853.9	751.5	728.4	663.8	603.3	575.3	551.5	523.1	510.7
15°	1076.6	960.5	816.9	699.2	670.4	605.0	540.8	514.4	492.2	463.8	447.8
17.5°	1065.5	938.3	776.6	648.6	621.0	553.5	488.5	464.2	444.5	416.9	404.5
20°	1046.9	915.7	741.2	602.5	571.2	506.6	445.3	419.4	402.1	387.3	378.2
22.5°	1021.4	888.9	698.0	556.8	529.6	464.6	405.8	384.8	374.5	362.6	356.0
25°	982.7	856.8	658.9	518.5	491.4	426.8	375.3	361.3	351.0	343.2	336.2
27.5°	941.2	826.0	619.8	479.9	454.3	392.6	351.5	340.8	331.7	321.8	315.6
30°	893.0	787.3	582.7	445.7	421.0	365.0	330.9	321.0	313.6	302.9	296.7
32.5°	836.2	744.9	548.2	412.8	389.7	341.2	311.9	301.2	295.1	284.8	278.6
35°	777.4	702.5	510.3	382.3	361.3	320.2	293.4	283.1	276.6	266.3	260.1
37.5°	719.8	657.2	476.6	355.6	336.6	299.2	274.1	265.4	259.3	248.6	241.2
40°	658.9	605.4	443.6	330.5	312.8	280.7	256.4	248.6	240.3	230.9	223.5
42.5°	595.1	559.7	413.2	308.2	291.8	262.6	238.7	230.5	223.5	212.4	209.1
45°	535.4	507.4	381.1	284.8	271.6	244.5	221.4	213.2	205.4	195.9	192.6
47.5°	482.3	456.4	351.9	264.2	251.0	226.8	204.1	195.5	189.7	182.3	177.4
50°	427.6	406.2	319.8	244.0	231.7	207.8	186.0	180.3	173.7	164.6	160.9
52.5°	376.6	360.1	293.4	224.7	213.2	191.8	169.6	163.8	157.6	149.8	144.4
55°	331.7	315.2	263.4	202.9	194.2	174.1	154.3	146.9	142.0	132.9	126.3
57.5°	285.6	277.8	234.6	184.8	176.5	156.4	138.7	132.9	126.8	116.9	110.3
60°	247.7	238.7	207.8	165.0	157.2	140.3	123.0	117.3	111.5	102.1	99.2
62.5°	211.9	205.4	181.9	146.5	139.9	123.5	108.2	102.9	97.1	90.9	88.9
65°	179.4	173.7	156.0	127.6	122.2	107.8	93.8	88.1	84.4	81.5	79.4
67.5°	149.0	145.7	132.1	109.9	105.8	93.0	80.7	76.1	74.1	70.8	69.1
70°	121.4	122.6	110.3	93.8	89.3	79.0	68.3	64.6	62.1	59.3	56.0
72.5°	99.2	98.8	91.4	76.5	73.3	65.0	56.8	54.3	51.4	45.7	42.0
75°	77.0	78.6	71.6	63.4	60.1	51.9	44.0	40.7	37.9	35.8	34.6
77.5°	58.8	59.7	56.4	48.6	45.7	38.7	32.5	30.9	29.6	28.4	28.0
80°	42.0	43.2	39.9	35.0	32.5	26.7	23.5	23.0	22.6	21.8	21.4
82.5°	27.2	28.8	27.2	21.8	20.6	17.7	16.9	16.9	16.5	16.0	15.6
85°	14.8	16.5	15.6	12.8	11.9	11.1	10.7	10.3	10.3	10.3	10.3
87.5°	5.8	7.8	6.6	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	160°	170°	180°
0°	1003.7	1003.7	1003.7
2.5°	893.9	889.7	888.1
5°	770.8	758.1	755.2
7.5°	658.9	653.5	635.8
10°	576.6	560.1	552.7
12.5°	502.5	487.3	484.8
15°	443.2	432.5	428.8
17.5°	404.1	396.7	392.2
20°	375.3	370.0	366.7
22.5°	353.5	349.4	346.9
25°	334.2	328.0	325.9
27.5°	314.4	309.1	307.0
30°	295.9	291.4	288.5
32.5°	276.6	271.2	269.6
35°	258.0	254.7	253.1
37.5°	239.9	235.8	233.3
40°	223.1	221.0	219.8
42.5°	207.8	204.1	203.7
45°	191.8	188.1	187.2
47.5°	176.5	173.3	172.8
50°	160.5	156.0	152.7
52.5°	141.2	137.0	134.2
55°	123.9	119.3	116.9
57.5°	109.5	107.4	106.2
60°	98.4	97.1	96.3
62.5°	88.5	87.2	87.2
65°	79.4	78.2	77.0
67.5°	68.3	65.8	65.4
70°	54.7	51.0	50.6
72.5°	41.6	41.2	40.3
75°	34.6	33.7	33.7
77.5°	28.0	27.2	27.2
80°	21.4	21.0	21.4
82.5°	15.6	15.6	15.2
85°	10.3	9.9	9.9
87.5°	4.9	4.9	4.9
90°	0.0	0.0	0.0



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**CIE UGR TABLE:**

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	13.36	14.82	13.73	15.13	15.44	18.45	19.91	18.82	20.22	20.54
	3H	14.69	16.00	15.07	16.33	16.69	19.73	21.03	20.11	21.36	21.73
	4H	15.09	16.31	15.49	16.66	17.04	20.18	21.40	20.58	21.75	22.13
	6H	15.40	16.52	15.81	16.89	17.28	20.47	21.60	20.88	21.96	22.36
	8H	15.50	16.57	15.93	16.96	17.36	20.55	21.62	20.98	22.01	22.41
	12H	15.57	16.59	16.00	16.97	17.40	20.59	21.61	21.02	21.99	22.42
4H	2H	14.21	15.43	14.61	15.78	16.16	18.49	19.71	18.89	20.06	20.44
	3H	15.68	16.69	16.09	17.09	17.50	19.98	20.99	20.39	21.39	21.80
	4H	16.15	17.05	16.58	17.47	17.91	20.54	21.45	20.97	21.86	22.30
	6H	16.53	17.32	16.99	17.77	18.23	20.98	21.77	21.44	22.21	22.67
	8H	16.66	17.40	17.13	17.84	18.31	21.10	21.83	21.56	22.28	22.75
	12H	16.76	17.42	17.25	17.90	18.37	21.18	21.83	21.66	22.31	22.78
8H	4H	16.53	17.27	17.00	17.72	18.18	20.55	21.28	21.01	21.73	22.19
	6H	17.00	17.61	17.50	18.10	18.58	21.03	21.64	21.53	22.13	22.61
	8H	17.19	17.73	17.70	18.24	18.73	21.20	21.74	21.71	22.25	22.74
	12H	17.35	17.83	17.86	18.32	18.89	21.33	21.80	21.84	22.30	22.86
12H	4H	16.58	17.24	17.06	17.72	18.19	20.52	21.18	21.01	21.66	22.13
	6H	17.07	17.61	17.58	18.12	18.61	21.01	21.55	21.52	22.06	22.55
	8H	17.30	17.78	17.81	18.27	18.84	21.20	21.68	21.72	22.18	22.74