

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: P646631

Luminaire Tested: S123DRP-S340D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646631  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-1)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/20/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123DRP-S340D830-X4F0-XX-UDD-G-W  
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

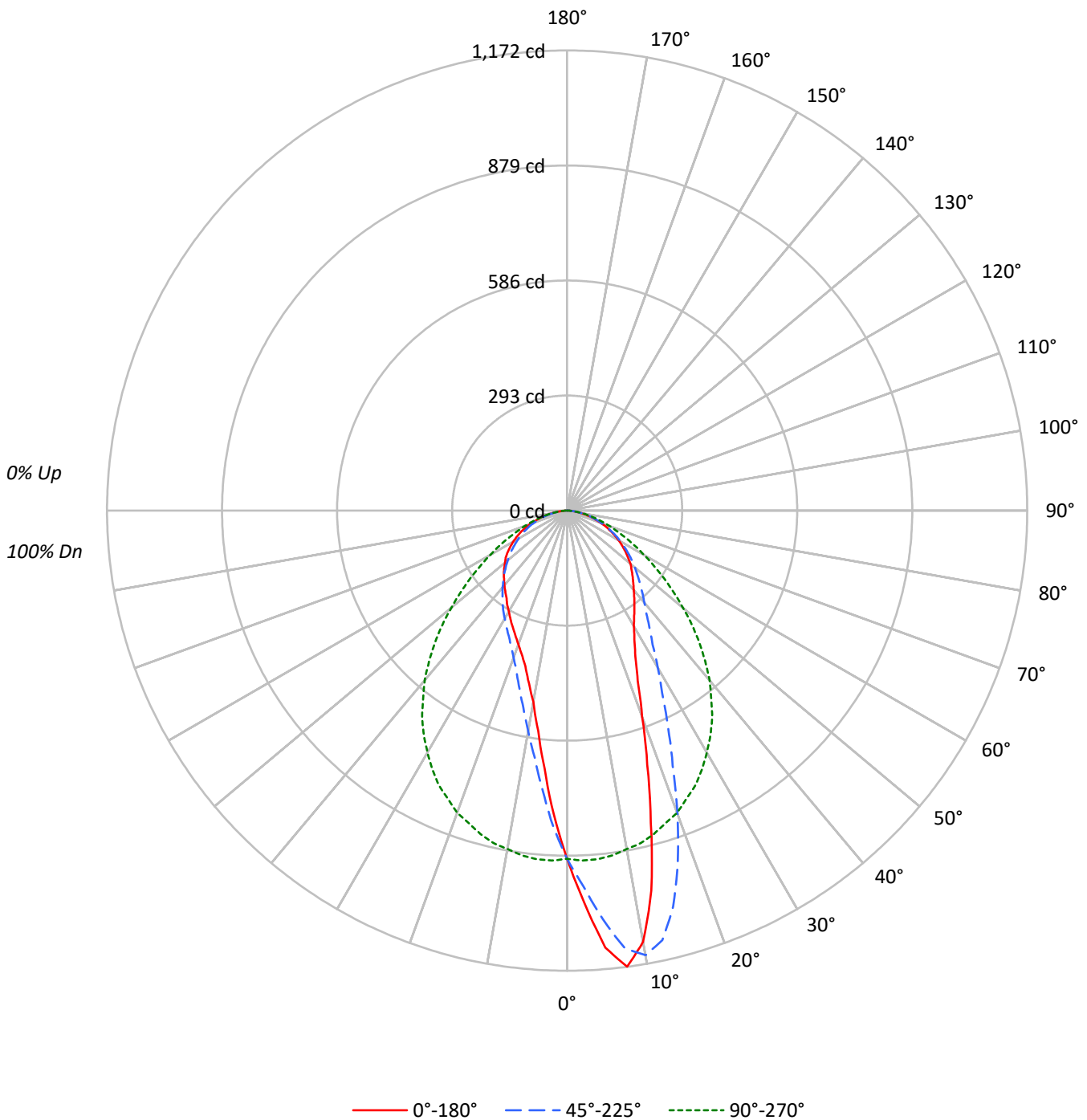
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1424.9 lumens  
Efficiency: N/A  
Efficacy: 119.7 lumens/watt  
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89  
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

TEST NUMBER: P646631

CATALOG NUMBER: S123DRP-S340D830-X4F0-XX-UDD-G-W

### 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	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	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86					86			
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76	74					74			
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64					64			
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58	56					56			
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50					50			
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47	45					45			
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40					40			
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39	37					37			
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35	34					34			
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31					31			

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

	0°	45°	90°	135°	180°
0°	10686	10686	10686	10686	10686
5°	13514	12638	10782	8646	7984
10°	13646	14068	10709	6984	6053
15°	10278	13019	10637	5853	5118
20°	7161	10527	10502	5103	4649
25°	5460	8075	10270	4678	4361
30°	4724	6418	9899	4420	4128
35°	4383	5375	9474	4213	3966
40°	4149	4810	8874	4020	3910
45°	4011	4466	8113	3849	3885
50°	3942	4220	7213	3702	3865
55°	3796	3985	6327	3571	3882
60°	3661	3769	5453	3441	3817
65°	3438	3532	4704	3296	3743
70°	3174	3276	4002	3118	3523
75°	2872	2970	3431	2854	3217
80°	2373	2540	2713	2484	2713
85°	1880	2046	1991	2157	2157

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 9263 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	83.8	5.9
10°-20°	208.6	14.6
20°-30°	246.9	17.3
30°-40°	248.2	17.4
40°-50°	227.6	16.0
50°-60°	187.8	13.2
60°-70°	132.9	9.3
70°-80°	71.0	5.0
80°-90°	18.0	1.3
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°	539.4	37.9
0°-40°	787.6	55.3
0°-60°	1203.0	84.4
0°-90°	1424.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1424.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	887	887	887	887	887	
5°	1117	1045	891	715	660	106
15°	824	1044	853	469	410	228
25°	411	607	772	352	328	194
35°	298	365	644	286	270	187
45°	235	262	476	226	228	182
55°	181	190	301	170	185	162
65°	121	124	165	116	131	120
75°	62	64	74	61	69	65
85°	14	15	14	16	16	16
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°	886.9	886.9	886.9	886.9	886.9	886.9	886.9	886.9	886.9	886.9	886.9
2.5°	999.6	997.6	987.3	980.7	982.3	967.5	958.5	951.1	946.1	934.2	928.0
5°	1117.3	1123.1	1116.5	1113.2	1096.3	1069.6	1044.9	1039.5	1016.5	988.1	978.2
7.5°	1171.6	1174.9	1170.8	1170.8	1165.5	1141.6	1124.3	1110.7	1071.2	1034.6	1017.7
10°	1115.3	1122.7	1138.7	1146.1	1156.8	1153.5	1149.8	1144.5	1117.7	1075.3	1056.0
12.5°	991.4	1000.4	1032.5	1037.1	1073.7	1109.1	1120.6	1133.8	1136.3	1100.4	1079.5
15°	823.9	849.0	878.2	892.2	938.7	1013.2	1043.7	1079.5	1121.8	1107.0	1090.6
17.5°	678.6	688.1	719.4	749.0	795.5	881.5	937.9	991.4	1082.3	1097.2	1086.9
20°	558.5	567.1	608.3	606.2	667.9	764.6	821.0	882.7	1016.9	1065.1	1063.0
22.5°	469.2	482.7	505.8	518.5	563.0	649.0	702.5	779.5	942.4	1018.6	1026.8
25°	410.7	420.6	434.6	445.7	480.3	551.0	607.4	670.8	848.6	957.6	978.2
27.5°	370.8	374.9	388.9	395.5	418.5	479.4	523.1	581.1	761.8	889.3	918.1
30°	339.5	342.4	354.7	356.8	374.9	418.9	461.3	508.7	677.0	819.0	851.9
32.5°	317.7	319.8	329.2	330.1	343.6	375.7	405.4	449.8	596.7	743.6	784.4
35°	298.0	299.2	306.2	308.2	316.9	341.2	365.4	399.6	532.9	675.7	720.6
37.5°	280.7	282.3	286.4	288.9	295.9	315.2	331.7	360.1	471.6	605.0	654.8
40°	263.8	266.7	269.6	269.6	277.4	292.2	305.8	329.2	418.9	543.2	587.3
42.5°	249.4	252.3	253.5	253.9	258.0	271.6	283.1	299.2	379.0	488.5	531.7
45°	235.4	236.6	237.9	238.7	241.6	253.5	262.1	277.4	341.2	437.9	479.9
47.5°	222.6	222.6	223.5	224.7	226.8	235.4	242.8	253.9	308.7	392.6	427.2
50°	210.3	210.3	209.1	209.9	211.1	217.7	225.1	234.2	278.2	351.0	381.9
52.5°	195.5	195.5	195.9	194.7	195.9	201.7	207.4	216.5	252.3	312.8	339.1
55°	180.7	182.3	181.1	180.3	181.9	185.6	189.7	197.5	228.0	282.3	303.3
57.5°	165.8	166.7	166.3	167.5	166.7	170.0	173.7	179.0	206.2	248.2	267.9
60°	151.9	151.9	151.0	151.9	151.9	153.5	156.4	161.7	184.0	218.9	235.4
62.5°	136.2	136.6	137.0	136.6	136.2	138.3	140.7	144.4	164.6	190.5	202.9
65°	120.6	121.0	122.2	121.8	121.4	123.5	123.9	128.0	143.2	165.4	174.5
67.5°	106.6	105.8	106.2	107.0	107.4	107.8	108.6	112.8	123.5	141.6	149.0
70°	90.1	90.9	90.5	91.8	90.9	92.2	93.0	95.9	106.2	118.1	123.0
72.5°	75.3	75.7	75.7	77.0	76.5	77.8	78.6	79.8	87.2	97.9	100.0
75°	61.7	61.7	62.6	63.0	63.0	63.0	63.8	64.6	70.8	77.4	79.4
77.5°	46.9	49.0	48.6	49.0	49.4	50.6	49.8	51.4	55.1	58.8	60.1
80°	34.2	34.2	34.6	35.0	35.8	36.6	36.6	38.3	39.9	42.0	43.2
82.5°	21.8	22.2	23.5	23.9	24.3	25.5	25.5	25.5	27.6	28.4	28.4
85°	13.6	12.8	13.6	14.0	14.4	14.8	14.8	15.6	16.0	16.5	16.5
87.5°	6.6	6.6	6.6	6.6	7.0	7.0	7.0	7.0	7.4	7.4	7.4
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°	886.9	886.9	886.9	886.9	886.9	886.9	886.9	886.9	886.9	886.9	886.9
2.5°	907.4	892.2	869.6	851.1	851.9	835.0	822.7	806.6	801.7	796.7	790.2
5°	926.4	891.4	844.5	807.0	795.5	767.5	732.1	714.8	704.6	686.4	679.4
7.5°	949.8	885.6	814.0	755.6	742.8	696.3	654.3	633.8	614.4	601.7	586.0
10°	965.1	875.3	783.2	705.8	693.4	640.4	585.6	570.8	546.5	530.9	516.1
12.5°	976.6	867.5	751.5	661.3	641.2	589.7	534.6	514.4	496.7	474.1	463.4
15°	986.9	852.7	719.0	614.8	593.8	538.3	487.3	469.2	453.1	433.3	423.9
17.5°	983.2	834.6	683.2	573.7	552.7	498.0	449.0	428.4	417.7	400.4	393.8
20°	978.6	819.0	649.4	534.6	511.5	460.5	412.8	398.0	387.3	376.1	370.4
22.5°	964.2	794.3	615.2	498.8	477.0	425.9	385.2	372.9	364.6	356.8	351.9
25°	939.9	772.5	581.9	463.0	445.7	398.0	363.4	351.9	346.5	338.7	334.2
27.5°	909.9	743.6	548.6	433.8	414.0	371.6	342.0	334.6	328.8	322.6	318.1
30°	872.0	711.5	516.1	405.4	387.3	349.8	324.3	317.7	312.4	306.2	300.8
32.5°	823.9	679.0	485.6	379.0	363.8	331.3	307.8	302.5	298.0	290.5	287.7
35°	770.0	644.1	455.6	353.9	339.5	311.1	291.8	286.4	281.9	275.7	273.3
37.5°	715.3	602.5	425.9	332.5	319.8	294.2	275.7	270.4	266.3	260.9	259.7
40°	657.2	564.2	396.7	310.7	299.6	277.8	259.7	255.6	251.4	248.2	247.3
42.5°	598.8	520.2	371.2	292.6	280.7	260.5	244.0	239.5	237.0	235.4	235.8
45°	543.6	476.1	344.9	271.6	263.4	244.9	229.6	225.9	223.9	222.6	224.3
47.5°	484.0	431.3	320.2	253.9	245.7	229.2	214.8	211.5	210.7	210.3	213.2
50°	431.3	384.8	293.4	235.8	228.8	211.9	200.4	197.5	196.7	197.9	202.1
52.5°	381.5	341.6	269.1	218.9	211.9	196.7	186.0	184.0	183.5	186.4	190.5
55°	332.1	301.2	242.8	200.4	193.4	180.3	172.0	170.0	169.6	175.3	179.0
57.5°	290.1	262.1	218.1	182.7	177.4	165.0	157.6	156.0	157.2	162.6	166.3
60°	249.0	226.3	195.5	163.8	159.7	149.0	143.2	142.8	144.0	150.2	153.9
62.5°	211.9	194.7	171.2	146.5	143.6	134.2	128.8	129.6	130.9	137.0	140.3
65°	180.3	165.0	147.3	129.2	125.5	118.9	115.2	115.6	118.1	123.5	126.8
67.5°	149.4	137.0	127.2	112.8	109.9	104.1	101.2	102.9	104.1	109.5	112.8
70°	123.5	113.6	106.2	95.5	93.4	88.5	86.4	88.5	89.7	94.2	98.4
72.5°	99.2	93.0	87.2	79.4	77.4	74.1	73.7	74.5	76.5	81.1	82.7
75°	77.0	73.7	68.7	63.8	62.6	60.9	60.5	61.3	63.4	65.8	67.5
77.5°	58.4	55.6	51.9	49.8	48.1	47.3	47.7	49.0	49.8	52.3	53.5
80°	42.4	39.1	38.3	35.4	35.0	34.6	35.4	35.8	37.0	38.7	39.5
82.5°	28.0	25.5	24.7	24.3	23.9	23.5	24.7	25.1	25.9	27.2	27.6
85°	15.2	14.4	14.4	14.0	14.4	15.2	15.2	15.6	15.6	16.0	15.6
87.5°	7.0	6.2	6.6	6.6	6.6	7.0	7.0	7.4	7.4	7.4	7.0
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°	886.9	886.9	886.9
2.5°	789.7	786.9	775.3
5°	673.3	663.4	660.1
7.5°	584.4	583.6	566.3
10°	509.1	510.3	494.7
12.5°	461.7	451.5	450.2
15°	421.4	411.9	410.3
17.5°	391.4	385.6	384.0
20°	368.7	365.4	362.6
22.5°	350.6	346.5	344.0
25°	332.5	328.8	328.0
27.5°	316.9	312.4	312.4
30°	300.8	298.0	296.7
32.5°	286.4	284.0	284.0
35°	272.4	271.2	269.6
37.5°	259.7	259.7	258.9
40°	247.3	248.6	248.6
42.5°	236.6	237.9	237.9
45°	225.1	227.2	228.0
47.5°	213.6	216.9	217.7
50°	203.3	205.8	206.2
52.5°	192.2	195.1	197.1
55°	180.7	183.5	184.8
57.5°	168.3	171.2	171.6
60°	154.7	157.6	158.4
62.5°	142.4	144.0	144.9
65°	127.2	129.6	131.3
67.5°	113.2	115.2	115.2
70°	97.9	98.8	100.0
72.5°	83.5	84.0	84.0
75°	67.9	68.7	69.1
77.5°	53.5	53.9	53.9
80°	39.5	39.1	39.1
82.5°	27.6	26.3	26.3
85°	15.6	15.2	15.6
87.5°	7.0	7.0	7.0
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	15.72	17.23	16.09	17.54	17.86	18.17	19.68	18.54	19.99	20.31
	3H	17.41	18.77	17.79	19.09	19.46	19.39	20.74	19.76	21.07	21.43
	4H	18.01	19.29	18.41	19.63	20.01	19.81	21.08	20.21	21.43	21.81
	6H	18.42	19.59	18.83	19.96	20.35	20.08	21.26	20.49	21.62	22.01
	8H	18.52	19.64	18.95	20.03	20.43	20.15	21.27	20.58	21.66	22.06
	12H	18.58	19.65	19.01	20.03	20.46	20.18	21.26	20.61	21.64	22.07
4H	2H	16.37	17.64	16.77	17.99	18.37	18.39	19.67	18.79	20.01	20.39
	3H	18.25	19.31	18.66	19.71	20.11	19.88	20.93	20.29	21.33	21.74
	4H	18.97	19.93	19.41	20.34	20.78	20.44	21.40	20.87	21.81	22.25
	6H	19.49	20.32	19.94	20.76	21.22	20.84	21.67	21.29	22.11	22.57
	8H	19.62	20.40	20.09	20.84	21.31	20.94	21.72	21.41	22.16	22.63
	12H	19.71	20.40	20.19	20.88	21.35	21.01	21.70	21.49	22.18	22.65
8H	4H	19.30	20.07	19.76	20.52	20.98	20.61	21.38	21.07	21.83	22.29
	6H	19.91	20.55	20.41	21.04	21.52	21.10	21.74	21.60	22.23	22.71
	8H	20.11	20.68	20.62	21.19	21.68	21.26	21.84	21.78	22.34	22.83
	12H	20.25	20.76	20.76	21.25	21.82	21.38	21.89	21.89	22.38	22.94
12H	4H	19.33	20.02	19.81	20.50	20.97	20.61	21.30	21.09	21.78	22.25
	6H	19.97	20.54	20.48	21.05	21.54	21.12	21.69	21.63	22.20	22.69
	8H	20.22	20.72	20.73	21.21	21.78	21.33	21.83	21.84	22.33	22.89