

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: P646658

Luminaire Tested: S123RDRP-S1000D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646658  
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-S1000D830-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: -

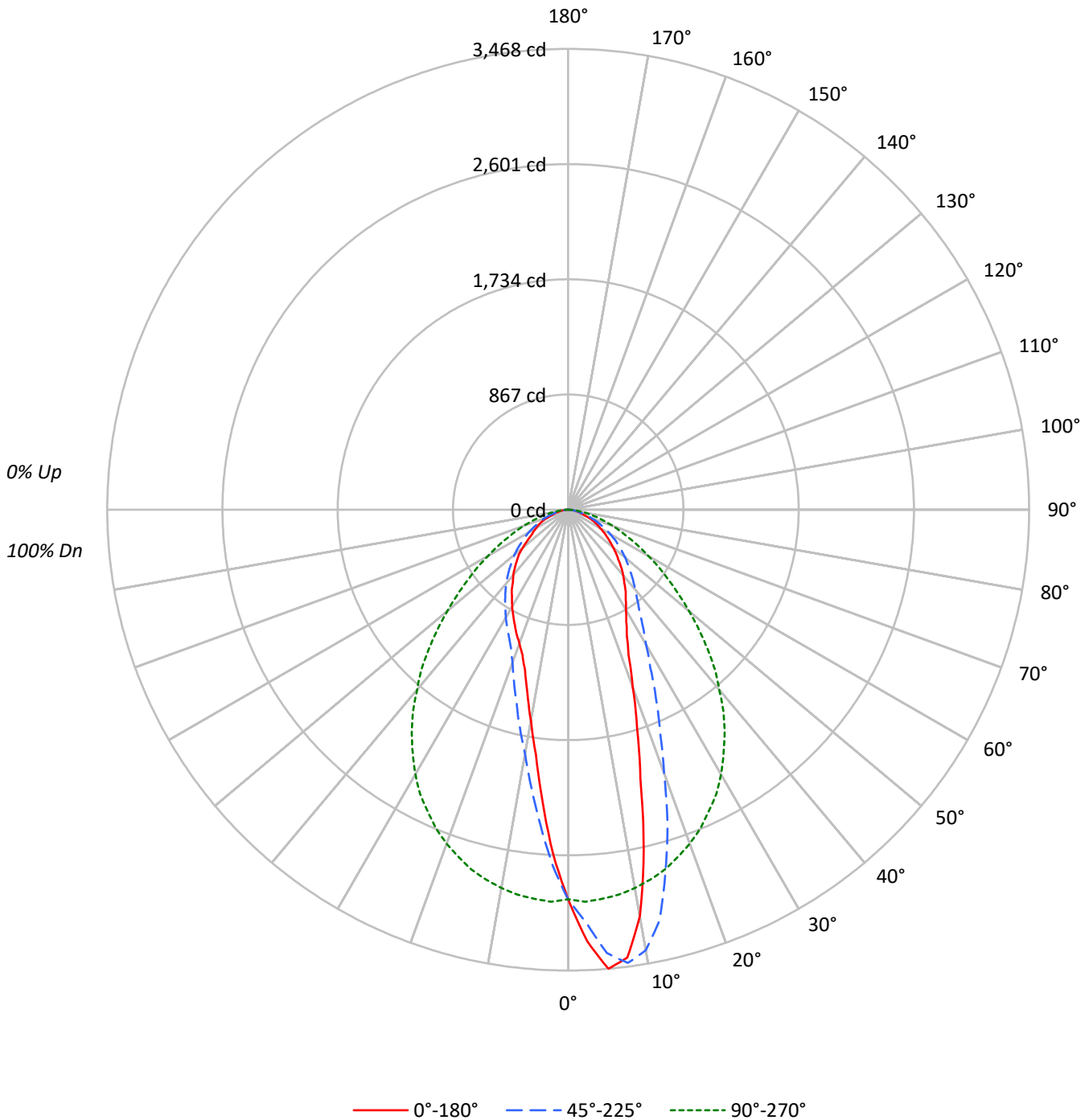
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3883.9 lumens  
Efficiency: N/A  
Efficacy: 112.6 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): 34.5  
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: P646658

CATALOG NUMBER: S123RDRP-S1000D830-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	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°	35323	35323	35323	35323	35323
5°	41943	40518	35545	28829	26677
10°	38001	41177	35368	22824	19751
15°	26163	35265	34995	18743	15624
20°	18201	27049	34292	15705	13733
25°	13870	20758	33270	14030	12657
30°	12074	16322	31992	13044	11723
35°	11085	13737	30181	12165	10873
40°	10115	12327	27811	11419	10096
45°	9135	11286	25253	10609	9319
50°	8291	10477	22237	9869	8358
55°	7500	9621	19341	9014	7172
60°	6721	8748	16799	8256	6779
65°	6204	7778	14461	7333	6409
70°	5038	6648	12619	6648	5207
75°	4423	5372	10689	5540	4590
80°	4004	4503	8757	4670	4337
85°	3650	3816	6650	4147	3982

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 26647 cd/sqm



TEST NUMBER: P646658

CATALOG NUMBER: S123RDRP-S1000D830-X4F0-XX-UDD-G-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	267.2	6.9
10°-20°	618.2	15.9
20°-30°	709.2	18.3
30°-40°	698.6	18.0
40°-50°	615.8	15.9
50°-60°	473.9	12.2
60°-70°	311.6	8.0
70°-80°	151.3	3.9
80°-90°	38.2	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°	1594.6	41.1
0°-40°	2293.2	59.0
0°-60°	3382.8	87.1
0°-90°	3883.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3883.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2932	2932	2932	2932	2932	
5°	3468	3350	2939	2384	2206	317
15°	2097	2827	2805	1502	1252	592
25°	1043	1561	2502	1055	952	493
35°	754	934	2052	827	739	470
45°	536	662	1482	623	547	416
55°	357	458	921	429	341	320
65°	218	273	507	257	225	213
75°	95	115	230	119	99	102
85°	26	28	48	30	29	30
90°	0	0	0	0	0	



TEST NUMBER: P646658

CATALOG NUMBER: S123RDRP-S1000D830-X4F0-XX-UDD-G-W

**CANDELA DISTRIBUTION (FULL):**

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6
2.5°	3248.9	3228.5	3222.5	3215.3	3203.3	3160.0	3110.7	3115.5	3109.5	3072.2	3051.8
5°	3467.7	3470.1	3464.1	3459.3	3438.8	3386.0	3349.9	3328.3	3282.6	3212.9	3191.2
7.5°	3400.4	3438.8	3446.1	3454.5	3465.3	3453.3	3440.1	3431.6	3394.4	3318.7	3283.8
10°	3105.9	3103.5	3146.8	3181.6	3275.4	3341.5	3365.5	3400.4	3431.6	3378.8	3340.3
12.5°	2625.1	2628.7	2770.6	2770.6	2892.0	3060.2	3168.4	3241.7	3376.3	3380.0	3357.1
15°	2097.4	2156.3	2282.5	2309.0	2465.2	2691.2	2827.0	2978.5	3239.3	3321.1	3316.2
17.5°	1722.4	1747.7	1869.1	1903.9	2042.2	2298.2	2485.7	2668.4	3033.8	3205.7	3236.9
20°	1419.5	1442.4	1530.1	1556.6	1696.0	1940.0	2109.5	2306.6	2785.0	3048.2	3103.5
22.5°	1185.1	1229.6	1288.5	1329.4	1408.7	1657.5	1803.0	1991.7	2496.5	2871.5	2936.4
25°	1043.3	1063.7	1114.2	1133.5	1229.6	1394.3	1561.4	1727.2	2240.5	2650.4	2764.5
27.5°	947.2	953.2	990.4	1007.3	1064.9	1217.6	1337.8	1491.7	1979.7	2423.2	2556.6
30°	867.8	878.6	907.5	911.1	961.6	1069.8	1173.1	1315.0	1751.3	2203.2	2340.2
32.5°	806.5	812.5	836.6	843.8	876.2	961.6	1045.7	1149.1	1539.7	1973.6	2131.1
35°	753.6	754.8	772.9	782.5	811.3	882.2	933.9	1020.5	1370.3	1783.7	1922.0
37.5°	693.5	702.0	715.2	723.6	748.8	806.5	853.4	920.7	1214.0	1603.4	1732.0
40°	643.1	650.3	665.9	669.5	692.3	745.2	783.7	843.8	1079.4	1430.3	1561.4
42.5°	592.6	597.4	613.0	620.2	645.5	687.5	722.4	769.3	972.4	1276.5	1405.1
45°	536.1	548.1	564.9	568.5	592.6	635.8	662.3	705.6	876.2	1143.1	1257.3
47.5°	489.2	495.2	509.6	515.6	543.3	581.8	609.4	646.7	793.3	1021.7	1133.5
50°	442.3	444.7	458.0	466.4	488.0	532.5	558.9	592.6	717.6	923.1	1001.2
52.5°	397.9	403.9	417.1	423.1	437.5	483.2	507.2	542.1	645.5	822.2	900.3
55°	357.0	360.6	370.2	377.4	394.2	433.9	458.0	488.0	583.0	729.6	798.1
57.5°	318.5	323.3	330.5	336.6	352.2	387.0	411.1	441.1	524.1	645.5	698.3
60°	278.9	284.9	293.3	295.7	310.1	341.4	363.0	389.4	464.0	567.3	614.2
62.5°	250.0	251.2	258.4	262.0	270.4	295.7	318.5	343.8	409.9	491.6	530.1
65°	217.6	221.2	224.8	227.2	234.4	256.0	272.8	292.1	357.0	427.9	454.3
67.5°	183.9	187.5	193.5	195.9	201.9	216.4	230.8	250.0	304.1	364.2	388.2
70°	143.0	143.0	152.7	157.5	167.1	177.9	188.7	205.5	252.4	304.1	322.1
72.5°	116.6	117.8	119.0	119.0	127.4	145.4	151.4	162.3	199.5	248.8	264.4
75°	95.0	96.2	97.4	98.6	99.8	105.8	115.4	125.0	152.7	188.7	203.1
77.5°	75.7	76.9	78.1	78.1	80.5	82.9	85.3	90.1	109.4	135.8	147.8
80°	57.7	58.9	60.1	60.1	61.3	63.7	64.9	67.3	73.3	91.4	97.4
82.5°	42.1	42.1	42.1	43.3	44.5	44.5	46.9	46.9	50.5	55.3	58.9
85°	26.4	26.4	27.6	27.6	27.6	28.8	27.6	28.8	30.0	31.3	33.7
87.5°	12.0	10.8	12.0	12.0	12.0	13.2	13.2	13.2	13.2	14.4	14.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P646658

CATALOG NUMBER: S123RDRP-S1000D830-X4F0-XX-UDD-G-W

**CANDELA DISTRIBUTION (continued):**

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6	2931.6
2.5°	2995.3	2953.3	2882.3	2837.9	2821.0	2769.3	2720.1	2679.2	2658.8	2656.4	2619.1
5°	3054.2	2938.8	2792.2	2669.6	2640.7	2550.6	2434.0	2383.5	2317.4	2291.0	2259.7
7.5°	3102.3	2922.0	2705.6	2520.5	2466.5	2330.6	2181.6	2115.5	2065.0	1985.7	1938.8
10°	3136.0	2890.7	2599.9	2360.7	2283.8	2125.1	1944.8	1865.5	1818.6	1727.2	1690.0
12.5°	3149.2	2851.1	2494.1	2194.8	2127.5	1938.8	1762.1	1680.4	1610.6	1527.7	1491.7
15°	3144.4	2805.4	2385.9	2042.2	1958.0	1766.9	1579.4	1502.5	1437.6	1354.6	1307.7
17.5°	3111.9	2740.5	2268.1	1894.3	1813.8	1616.7	1426.7	1355.8	1298.1	1217.6	1181.5
20°	3057.8	2674.4	2164.8	1759.7	1668.3	1479.6	1300.5	1224.8	1174.3	1131.1	1104.6
22.5°	2983.3	2596.3	2038.5	1626.3	1546.9	1357.0	1185.1	1123.8	1093.8	1058.9	1039.7
25°	2870.3	2502.5	1924.4	1514.5	1435.2	1246.4	1096.2	1055.3	1025.3	1002.4	982.0
27.5°	2748.9	2412.4	1810.2	1401.5	1327.0	1146.7	1026.5	995.2	968.8	939.9	921.9
30°	2608.3	2299.4	1702.0	1301.7	1229.6	1066.2	966.4	937.5	915.9	884.7	866.6
32.5°	2442.4	2175.6	1601.0	1205.6	1138.3	996.4	911.1	879.8	861.8	831.8	813.7
35°	2270.5	2051.8	1490.4	1116.6	1055.3	935.1	857.0	827.0	807.7	777.7	759.6
37.5°	2102.3	1919.6	1391.9	1038.5	983.2	873.8	800.5	775.3	757.2	726.0	704.4
40°	1924.4	1768.1	1295.7	965.2	913.5	819.7	748.8	726.0	702.0	674.3	652.7
42.5°	1738.1	1634.7	1206.8	900.3	852.2	766.9	697.1	673.1	652.7	620.2	610.6
45°	1563.8	1482.0	1113.0	831.8	793.3	714.0	646.7	622.6	599.8	572.1	562.5
47.5°	1408.7	1333.0	1027.7	771.7	733.2	662.3	596.2	570.9	554.1	532.5	518.1
50°	1248.9	1186.3	933.9	712.8	676.7	607.0	543.3	526.5	507.2	480.8	470.0
52.5°	1099.8	1051.7	857.0	656.3	622.6	560.1	495.2	478.4	460.4	437.5	421.9
55°	968.8	920.7	769.3	592.6	567.3	508.4	450.7	429.1	414.7	388.2	369.0
57.5°	834.2	811.3	685.1	539.7	515.6	456.8	405.1	388.2	370.2	341.4	322.1
60°	723.6	697.1	607.0	482.0	459.2	409.9	359.4	342.6	325.7	298.1	289.7
62.5°	619.0	599.8	531.3	427.9	408.7	360.6	316.1	300.5	283.7	265.6	259.6
65°	524.1	507.2	455.5	372.6	357.0	314.9	274.1	257.2	246.4	238.0	232.0
67.5°	435.1	425.5	385.8	320.9	308.9	271.6	235.6	222.4	216.4	206.7	201.9
70°	354.6	358.2	322.1	274.1	260.8	230.8	199.5	188.7	181.5	173.1	163.5
72.5°	289.7	288.5	266.8	223.6	214.0	189.9	165.9	158.7	150.2	133.4	122.6
75°	224.8	229.6	209.1	185.1	175.5	151.4	128.6	119.0	110.6	104.6	101.0
77.5°	171.9	174.3	164.7	141.8	133.4	113.0	95.0	90.1	86.5	82.9	81.7
80°	122.6	126.2	116.6	102.2	95.0	78.1	68.5	67.3	66.1	63.7	62.5
82.5°	79.3	84.1	79.3	63.7	60.1	51.7	49.3	49.3	48.1	46.9	45.7
85°	43.3	48.1	45.7	37.3	34.9	32.5	31.3	30.0	30.0	30.0	30.0
87.5°	16.8	22.8	19.2	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P646658

CATALOG NUMBER: S123RDRP-S1000D830-X4F0-XX-UDD-G-W

**CANDELA DISTRIBUTION (continued):**

	160°	170°	180°
0°	2931.6	2931.6	2931.6
2.5°	2610.7	2598.7	2593.9
5°	2251.3	2214.0	2205.6
7.5°	1924.4	1908.7	1857.1
10°	1684.0	1635.9	1614.3
12.5°	1467.6	1423.1	1415.9
15°	1294.5	1263.3	1252.5
17.5°	1180.3	1158.7	1145.5
20°	1096.2	1080.6	1071.0
22.5°	1032.5	1020.5	1013.3
25°	976.0	958.0	952.0
27.5°	918.3	902.7	896.7
30°	864.2	851.0	842.6
32.5°	807.7	792.1	787.3
35°	753.6	744.0	739.2
37.5°	700.8	688.7	681.5
40°	651.5	645.5	641.9
42.5°	607.0	596.2	595.0
45°	560.1	549.3	546.9
47.5°	515.6	506.0	504.8
50°	468.8	455.5	445.9
52.5°	412.3	400.3	391.8
55°	361.8	348.6	341.4
57.5°	319.7	313.7	310.1
60°	287.3	283.7	281.3
62.5°	258.4	254.8	254.8
65°	232.0	228.4	224.8
67.5°	199.5	192.3	191.1
70°	159.9	149.0	147.8
72.5°	121.4	120.2	117.8
75°	101.0	98.6	98.6
77.5°	81.7	79.3	79.3
80°	62.5	61.3	62.5
82.5°	45.7	45.7	44.5
85°	30.0	28.8	28.8
87.5°	14.4	14.4	14.4
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	17.08	18.54	17.45	18.85	19.17	22.18	23.63	22.54	23.95	24.26
	3H	18.42	19.72	18.80	20.05	20.41	23.46	24.76	23.83	25.09	25.45
	4H	18.82	20.04	19.22	20.38	20.76	23.90	25.12	24.30	25.47	25.85
	6H	19.12	20.25	19.54	20.62	21.01	24.20	25.32	24.61	25.69	26.08
	8H	19.22	20.29	19.65	20.68	21.09	24.27	25.34	24.70	25.73	26.13
	12H	19.29	20.32	19.72	20.70	21.13	24.31	25.34	24.74	25.72	26.15
4H	2H	17.93	19.15	18.33	19.50	19.88	22.22	23.44	22.62	23.79	24.17
	3H	19.41	20.42	19.82	20.82	21.22	23.71	24.72	24.12	25.12	25.52
	4H	19.87	20.78	20.30	21.19	21.63	24.26	25.17	24.70	25.59	26.03
	6H	20.26	21.05	20.72	21.49	21.95	24.70	25.49	25.16	25.93	26.40
	8H	20.39	21.12	20.85	21.57	22.04	24.82	25.56	25.29	26.00	26.47
	12H	20.49	21.14	20.97	21.62	22.09	24.90	25.55	25.38	26.03	26.51
8H	4H	20.26	20.99	20.72	21.44	21.91	24.27	25.00	24.73	25.45	25.92
	6H	20.73	21.33	21.23	21.83	22.30	24.76	25.36	25.26	25.86	26.33
	8H	20.91	21.45	21.43	21.97	22.46	24.92	25.46	25.44	25.97	26.46
	12H	21.07	21.55	21.58	22.04	22.61	25.05	25.53	25.56	26.02	26.59
12H	4H	20.31	20.96	20.79	21.44	21.91	24.25	24.90	24.73	25.38	25.85
	6H	20.79	21.34	21.31	21.85	22.34	24.73	25.27	25.25	25.79	26.28
	8H	21.03	21.50	21.54	22.00	22.56	24.93	25.41	25.44	25.90	26.47