

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: P646615

Luminaire Tested: S123DRP-S1000D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646615  
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-S1000D840-X4F0-XX-UDD-G-W  
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: -

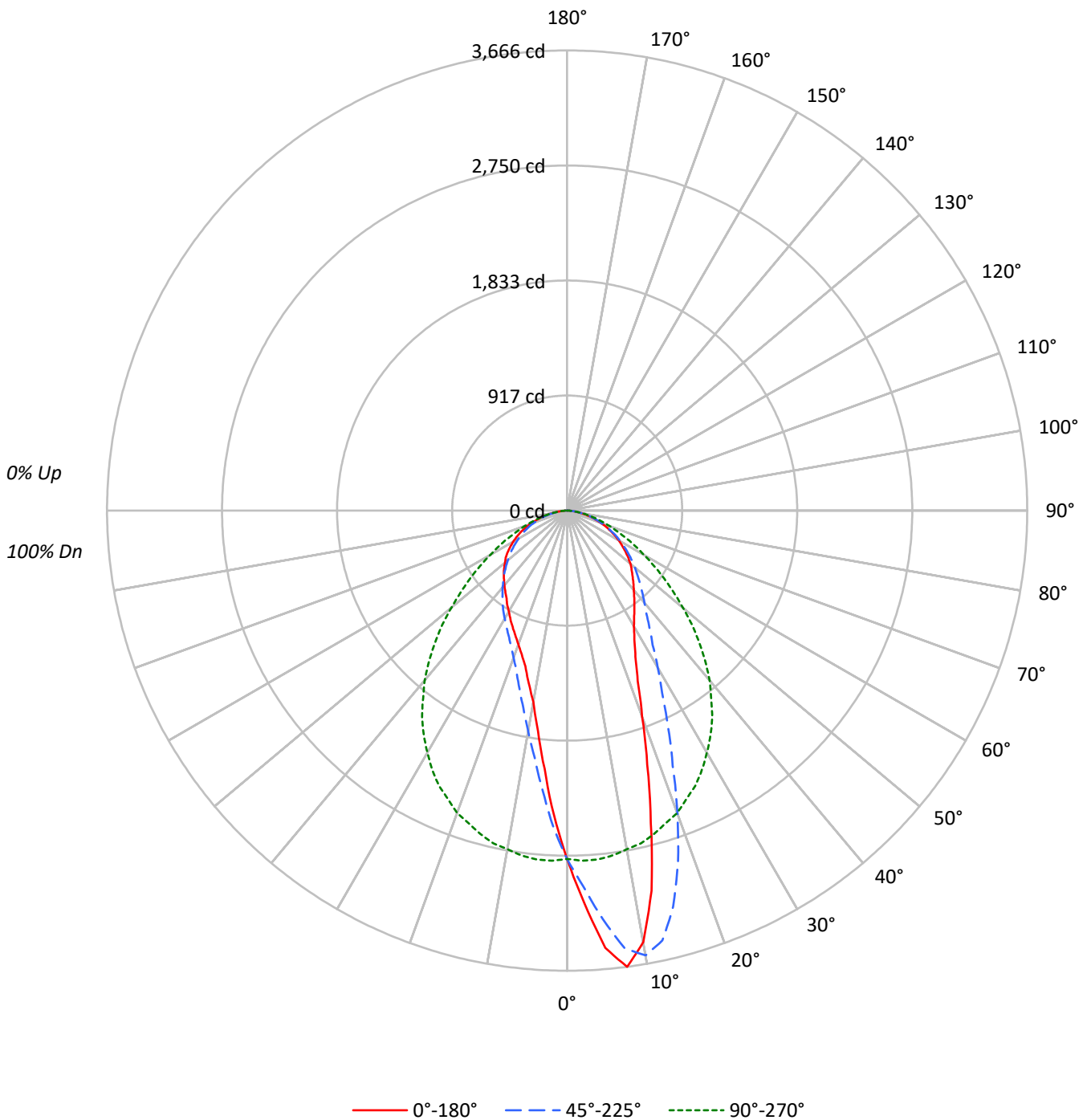
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4459.1 lumens  
Efficiency: N/A  
Efficacy: 129.2 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): 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: P646615

CATALOG NUMBER: S123DRP-S1000D840-X4F0-XX-UDD-G-W

### Luminous Intensity Polar Plot



TEST NUMBER: P646615

CATALOG NUMBER: S123DRP-S1000D840-X4F0-XX-UDD-G-W

**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°	33440	33440	33440	33440	33440
5°	42291	39549	33738	27057	24985
10°	42700	44024	33514	21854	18940
15°	32161	40740	33286	18313	16017
20°	22409	32943	32861	15968	14548
25°	17088	25271	32138	14639	13646
30°	14783	20086	30981	13832	12918
35°	13715	16822	29647	13184	12407
40°	12984	15051	27771	12579	12234
45°	12552	13978	25390	12047	12158
50°	12336	13204	22571	11588	12094
55°	11877	12472	19803	11174	12146
60°	11452	11794	17069	10770	11948
65°	10757	11051	14723	10318	11712
70°	9935	10252	12521	9755	11023
75°	8994	9292	10731	8934	10074
80°	7418	7952	8486	7772	8486
85°	5876	6415	6235	6760	6760

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 28989 cd/sqm



TEST NUMBER: P646615

CATALOG NUMBER: S123DRP-S1000D840-X4F0-XX-UDD-G-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	262.4	5.9
10°-20°	652.8	14.6
20°-30°	772.7	17.3
30°-40°	776.6	17.4
40°-50°	712.2	16.0
50°-60°	587.8	13.2
60°-70°	416.0	9.3
70°-80°	222.2	5.0
80°-90°	56.4	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°	1688.0	37.9
0°-40°	2464.6	55.3
0°-60°	3764.6	84.4
0°-90°	4459.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4459.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2775	2775	2775	2775	2775	
5°	3496	3270	2789	2237	2066	333
15°	2578	3266	2668	1468	1284	712
25°	1285	1901	2417	1101	1026	607
35°	932	1144	2016	896	844	586
45°	737	820	1490	707	714	570
55°	565	594	943	532	578	506
65°	377	388	516	362	411	375
75°	193	200	230	192	216	203
85°	42	46	45	49	49	50
90°	0	0	0	0	0	



TEST NUMBER: P646615

CATALOG NUMBER: S123DRP-S1000D840-X4F0-XX-UDD-G-W

**CANDELA DISTRIBUTION (FULL):**

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3
2.5°	3128.1	3121.7	3089.5	3068.9	3074.0	3027.7	2999.4	2976.2	2960.7	2923.4	2904.1
5°	3496.5	3514.5	3493.9	3483.6	3430.8	3347.1	3269.8	3253.1	3180.9	3092.1	3061.2
7.5°	3666.4	3676.8	3663.9	3663.9	3647.1	3572.4	3518.3	3475.8	3352.2	3237.6	3184.8
10°	3490.0	3513.2	3563.4	3586.6	3620.1	3609.8	3598.2	3581.5	3497.7	3365.1	3304.6
12.5°	3102.4	3130.7	3231.2	3245.3	3359.9	3470.7	3506.8	3548.0	3555.7	3443.7	3378.0
15°	2578.2	2656.8	2748.2	2792.0	2937.5	3170.6	3265.9	3378.0	3510.6	3464.3	3412.7
17.5°	2123.6	2153.2	2251.1	2343.8	2489.4	2758.5	2935.0	3102.4	3387.0	3433.4	3401.2
20°	1747.6	1774.6	1903.4	1897.0	2090.1	2392.8	2569.2	2762.4	3182.2	3332.9	3326.5
22.5°	1468.1	1510.6	1582.7	1622.7	1761.7	2030.9	2198.3	2439.1	2949.1	3187.4	3213.1
25°	1285.3	1316.2	1359.9	1394.7	1502.9	1724.4	1900.8	2099.2	2655.5	2996.8	3061.2
27.5°	1160.3	1173.2	1217.0	1237.6	1309.7	1500.3	1636.8	1818.4	2383.8	2783.0	2873.1
30°	1062.5	1071.5	1110.1	1116.5	1173.2	1311.0	1443.7	1591.8	2118.5	2562.8	2665.8
32.5°	994.2	1000.6	1030.3	1032.8	1075.3	1175.8	1268.5	1407.6	1867.4	2327.1	2454.6
35°	932.4	936.3	958.1	964.6	991.6	1067.6	1143.6	1250.5	1667.7	2114.6	2255.0
37.5°	878.3	883.5	896.3	904.1	925.9	986.5	1038.0	1126.9	1475.9	1893.1	2048.9
40°	825.5	834.5	843.5	843.5	868.0	914.4	956.9	1030.3	1311.0	1699.9	1837.7
42.5°	780.4	789.4	793.3	794.6	807.5	850.0	886.0	936.3	1186.1	1528.7	1663.9
45°	736.6	740.5	744.4	746.9	756.0	793.3	820.3	868.0	1067.6	1370.2	1501.6
47.5°	696.7	696.7	699.3	703.2	709.6	736.6	759.8	794.6	965.9	1228.6	1336.8
50°	658.1	658.1	654.2	656.8	660.7	681.3	704.4	732.8	870.6	1098.5	1195.1
52.5°	611.7	611.7	613.0	609.1	613.0	631.0	649.1	677.4	789.4	978.7	1061.2
55°	565.4	570.5	566.6	564.1	569.2	580.8	593.7	618.2	713.5	883.5	949.1
57.5°	519.0	521.6	520.3	524.1	521.6	531.9	543.5	560.2	645.2	776.6	838.4
60°	475.2	475.2	472.6	475.2	475.2	480.4	489.4	506.1	575.7	685.1	736.6
62.5°	426.3	427.6	428.8	427.6	426.3	432.7	440.4	452.0	515.1	596.3	634.9
65°	377.3	378.6	382.5	381.2	379.9	386.3	387.6	400.5	448.2	517.7	546.0
67.5°	333.5	331.0	332.3	334.8	336.1	337.4	340.0	352.9	386.3	443.0	466.2
70°	282.0	284.6	283.3	287.2	284.6	288.5	291.0	300.1	332.3	369.6	385.1
72.5°	235.7	237.0	237.0	240.8	239.5	243.4	246.0	249.8	273.0	306.5	312.9
75°	193.2	193.2	195.7	197.0	197.0	197.0	199.6	202.2	221.5	242.1	248.6
77.5°	146.8	153.3	152.0	153.3	154.5	158.4	155.8	161.0	172.6	184.2	188.0
80°	106.9	106.9	108.2	109.5	112.0	114.6	114.6	119.8	124.9	131.4	135.2
82.5°	68.3	69.5	73.4	74.7	76.0	79.8	79.8	79.8	86.3	88.9	88.9
85°	42.5	39.9	42.5	43.8	45.1	46.4	46.4	48.9	50.2	51.5	51.5
87.5°	20.6	20.6	20.6	20.6	21.9	21.9	21.9	21.9	23.2	23.2	23.2
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: P646615

CATALOG NUMBER: S123DRP-S1000D840-X4F0-XX-UDD-G-W

**CANDELA DISTRIBUTION (continued):**

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3	2775.3
2.5°	2839.7	2792.0	2721.2	2663.2	2665.8	2613.0	2574.4	2524.1	2508.7	2493.2	2472.6
5°	2898.9	2789.4	2642.6	2525.4	2489.4	2401.8	2291.0	2237.0	2204.8	2148.1	2126.2
7.5°	2972.3	2771.4	2547.3	2364.5	2324.5	2179.0	2047.6	1983.3	1922.7	1882.8	1833.9
10°	3020.0	2739.2	2450.7	2208.6	2170.0	2003.9	1832.6	1786.2	1710.2	1661.3	1614.9
12.5°	3056.0	2714.7	2351.6	2069.5	2006.4	1845.5	1672.9	1609.8	1554.4	1483.6	1450.1
15°	3088.2	2668.4	2249.8	1924.0	1858.3	1684.5	1524.8	1468.1	1417.9	1356.1	1326.5
17.5°	3076.6	2611.7	2137.8	1795.2	1729.6	1558.3	1405.0	1340.6	1307.1	1253.1	1232.5
20°	3062.5	2562.8	2032.2	1672.9	1600.8	1441.1	1291.7	1245.3	1211.8	1177.1	1159.0
22.5°	3017.4	2485.5	1925.3	1560.8	1492.6	1332.9	1205.4	1166.8	1141.0	1116.5	1101.1
25°	2941.4	2417.3	1821.0	1448.8	1394.7	1245.3	1137.2	1101.1	1084.4	1059.9	1045.7
27.5°	2847.4	2327.1	1716.7	1357.4	1295.6	1162.9	1070.2	1047.0	1029.0	1009.7	995.5
30°	2728.9	2226.7	1614.9	1268.5	1211.8	1094.7	1014.8	994.2	977.5	958.1	941.4
32.5°	2578.2	2124.9	1519.6	1186.1	1138.4	1036.7	963.3	946.6	932.4	909.2	900.2
35°	2409.5	2015.5	1425.6	1107.5	1062.5	973.6	913.1	896.3	882.2	862.8	855.1
37.5°	2238.2	1885.4	1332.9	1040.6	1000.6	920.8	862.8	846.1	833.2	816.5	812.6
40°	2056.7	1765.6	1241.5	972.3	937.5	869.3	812.6	799.7	786.9	776.6	774.0
42.5°	1873.8	1627.8	1161.6	915.6	878.3	815.2	763.7	749.5	741.8	736.6	737.9
45°	1701.2	1490.0	1079.2	850.0	824.2	766.3	718.6	707.0	700.6	696.7	701.9
47.5°	1514.5	1349.6	1001.9	794.6	768.8	717.3	672.2	661.9	659.4	658.1	667.1
50°	1349.6	1204.1	918.2	737.9	716.0	663.2	627.2	618.2	615.6	619.4	632.3
52.5°	1193.8	1068.9	842.2	685.1	663.2	615.6	582.1	575.7	574.4	583.4	596.3
55°	1039.3	942.7	759.8	627.2	605.3	564.1	538.3	531.9	530.6	548.6	560.2
57.5°	907.9	820.3	682.5	571.8	555.1	516.4	493.2	488.1	492.0	508.7	520.3
60°	779.1	708.3	611.7	512.6	499.7	466.2	448.2	446.9	450.7	470.1	481.6
62.5°	663.2	609.1	535.7	458.5	449.5	419.8	403.1	405.7	409.5	428.8	439.1
65°	564.1	516.4	461.0	404.4	392.8	372.2	360.6	361.9	369.6	386.3	396.7
67.5°	467.5	428.8	397.9	352.9	343.9	325.8	316.8	322.0	325.8	342.6	352.9
70°	386.3	355.4	332.3	298.8	292.3	276.9	270.4	276.9	280.7	294.9	307.8
72.5°	310.4	291.0	273.0	248.6	242.1	231.8	230.5	233.1	239.5	253.7	258.9
75°	240.8	230.5	215.1	199.6	195.7	190.6	189.3	191.9	198.3	206.1	211.2
77.5°	182.9	173.9	162.3	155.8	150.7	148.1	149.4	153.3	155.8	163.6	167.4
80°	132.6	122.3	119.8	110.8	109.5	108.2	110.8	112.0	115.9	121.1	123.6
82.5°	87.6	79.8	77.3	76.0	74.7	73.4	77.3	78.6	81.1	85.0	86.3
85°	47.6	45.1	45.1	43.8	45.1	47.6	47.6	48.9	48.9	50.2	48.9
87.5°	21.9	19.3	20.6	20.6	20.6	21.9	21.9	23.2	23.2	23.2	21.9
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: P646615

CATALOG NUMBER: S123DRP-S1000D840-X4F0-XX-UDD-G-W

**CANDELA DISTRIBUTION (continued):**

	160°	170°	180°
0°	2775.3	2775.3	2775.3
2.5°	2471.3	2462.3	2426.3
5°	2106.9	2076.0	2065.7
7.5°	1828.7	1826.1	1772.1
10°	1593.0	1596.9	1548.0
12.5°	1444.9	1412.7	1408.9
15°	1318.7	1289.1	1284.0
17.5°	1224.7	1206.7	1201.5
20°	1153.9	1143.6	1134.6
22.5°	1097.2	1084.4	1076.6
25°	1040.6	1029.0	1026.4
27.5°	991.6	977.5	977.5
30°	941.4	932.4	928.5
32.5°	896.3	888.6	888.6
35°	852.5	848.7	843.5
37.5°	812.6	812.6	810.0
40°	774.0	777.8	777.8
42.5°	740.5	744.4	744.4
45°	704.4	710.9	713.5
47.5°	668.4	678.7	681.3
50°	636.2	643.9	645.2
52.5°	601.4	610.4	616.9
55°	565.4	574.4	578.2
57.5°	526.7	535.7	537.0
60°	484.2	493.2	495.8
62.5°	445.6	450.7	453.3
65°	397.9	405.7	410.8
67.5°	354.2	360.6	360.6
70°	306.5	309.1	312.9
72.5°	261.4	262.7	262.7
75°	212.5	215.1	216.4
77.5°	167.4	168.7	168.7
80°	123.6	122.3	122.3
82.5°	86.3	82.4	82.4
85°	48.9	47.6	48.9
87.5°	21.9	21.9	21.9
90°	0.0	0.0	0.0



TEST NUMBER: P646615  
 CATALOG NUMBER: S123DRP-S1000D840-X4F0-XX-UDD-G-W

**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	19.68	21.19	20.05	21.51	21.82	22.14	23.64	22.50	23.96	24.27
	3H	21.38	22.73	21.75	23.06	23.42	23.35	24.71	23.73	25.03	25.40
	4H	21.98	23.25	22.38	23.60	23.98	23.77	25.04	24.17	25.39	25.77
	6H	22.38	23.56	22.79	23.92	24.32	24.04	25.22	24.46	25.59	25.98
	8H	22.48	23.60	22.91	23.99	24.39	24.11	25.23	24.54	25.62	26.02
	12H	22.54	23.61	22.97	23.99	24.42	24.15	25.22	24.58	25.60	26.03
4H	2H	20.33	21.60	20.73	21.95	22.33	22.36	23.63	22.76	23.98	24.36
	3H	22.22	23.27	22.63	23.67	24.07	23.84	24.90	24.25	25.30	25.70
	4H	22.94	23.89	23.37	24.31	24.74	24.41	25.36	24.84	25.77	26.21
	6H	23.45	24.28	23.91	24.72	25.18	24.80	25.63	25.26	26.07	26.53
	8H	23.59	24.36	24.05	24.80	25.27	24.91	25.68	25.37	26.12	26.59
	12H	23.67	24.36	24.15	24.84	25.31	24.97	25.66	25.45	26.14	26.61
8H	4H	23.26	24.04	23.72	24.48	24.95	24.57	25.35	25.03	25.79	26.26
	6H	23.88	24.52	24.37	25.01	25.48	25.06	25.70	25.56	26.19	26.67
	8H	24.07	24.65	24.59	25.16	25.64	25.23	25.80	25.74	26.31	26.80
	12H	24.22	24.72	24.73	25.21	25.78	25.34	25.85	25.85	26.34	26.91
12H	4H	23.29	23.99	23.78	24.46	24.94	24.58	25.27	25.06	25.75	26.22
	6H	23.93	24.50	24.44	25.01	25.50	25.08	25.66	25.60	26.17	26.65
	8H	24.18	24.68	24.69	25.18	25.74	25.29	25.80	25.80	26.29	26.85