

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: P646623

Luminaire Tested: S123DRP-S1165D835-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646623
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-S1165D835-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3500K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

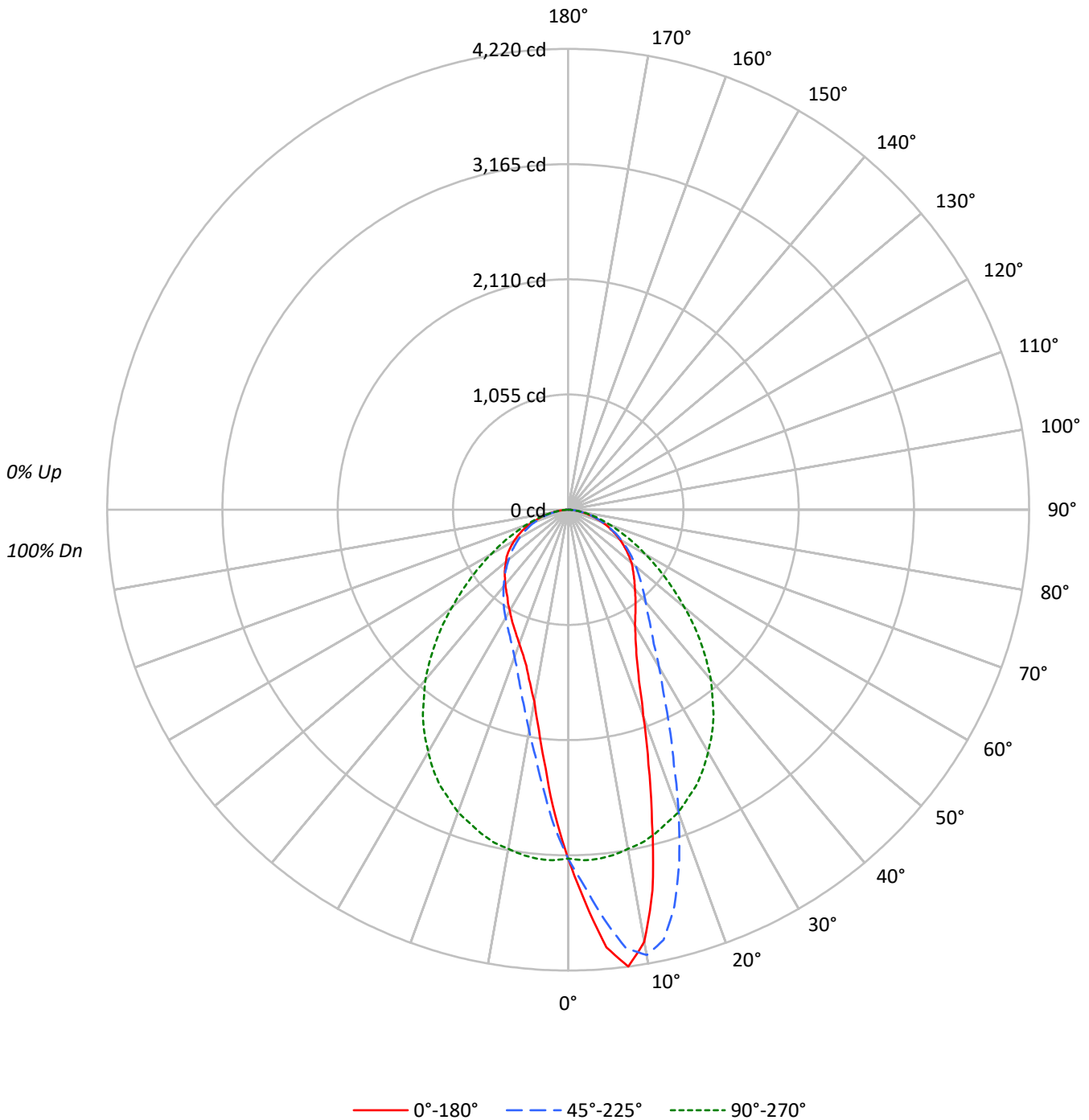
Lumens per Lamp: N/A
Luminaire Lumens: 5131.7 lumens
Efficiency: N/A
Efficacy: 128.0 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 40.1
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: P646623

CATALOG NUMBER: S123DRP-S1165D835-X4F0-XX-UDD-G-W

Luminous Intensity Polar Plot





TEST NUMBER: P646623

CATALOG NUMBER: S123DRP-S1165D835-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°	38484	38484	38484	38484	38484
5°	48669	45514	38828	31138	28754
10°	49141	50664	38570	25150	21797
15°	37012	46886	38307	21076	18432
20°	25789	37912	37817	18377	16742
25°	19664	29082	36985	16847	15704
30°	17012	23115	35653	15919	14868
35°	15783	19359	34118	15173	14280
40°	14943	17321	31960	14477	14081
45°	14445	16088	29220	13866	13992
50°	14196	15197	25975	13335	13918
55°	13667	14352	22791	12858	13980
60°	13179	13572	19643	12394	13751
65°	12379	12719	16944	11875	13480
70°	11435	11798	14412	11224	12686
75°	10349	10694	12351	10279	11592
80°	8535	9152	9770	8944	9770
85°	6760	7382	7175	7783	7783

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 33361 cd/sqm



TEST NUMBER: P646623

CATALOG NUMBER: S123DRP-S1165D835-X4F0-XX-UDD-G-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	302.0	5.9
10°-20°	751.3	14.6
20°-30°	889.3	17.3
30°-40°	893.7	17.4
40°-50°	819.6	16.0
50°-60°	676.5	13.2
60°-70°	478.7	9.3
70°-80°	255.7	5.0
80°-90°	64.9	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°	1942.6	37.9
0°-40°	2836.3	55.3
0°-60°	4332.4	84.4
0°-90°	5131.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5131.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3194	3194	3194	3194	3194	
5°	4024	3763	3210	2574	2377	383
15°	2967	3759	3071	1690	1478	820
25°	1479	2188	2782	1267	1181	698
35°	1073	1316	2320	1032	971	674
45°	848	944	1715	814	821	656
55°	651	683	1085	612	666	582
65°	434	446	594	416	473	432
75°	222	230	265	221	249	234
85°	49	53	52	56	56	58
90°	0	0	0	0	0	



TEST NUMBER: P646623

CATALOG NUMBER: S123DRP-S1165D835-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9
2.5°	3600.0	3592.6	3555.5	3531.8	3537.7	3484.4	3451.8	3425.1	3407.3	3364.3	3342.1
5°	4023.8	4044.6	4020.9	4009.0	3948.3	3851.9	3763.0	3743.7	3660.7	3558.5	3522.9
7.5°	4219.5	4231.3	4216.5	4216.5	4197.2	4111.3	4049.0	4000.1	3857.9	3725.9	3665.2
10°	4016.4	4043.1	4100.9	4127.6	4166.1	4154.3	4140.9	4121.7	4025.3	3872.7	3803.0
12.5°	3570.3	3602.9	3718.5	3734.8	3866.7	3994.2	4035.7	4083.1	4092.0	3963.1	3887.5
15°	2967.1	3057.5	3162.8	3213.1	3380.6	3648.9	3758.6	3887.5	4040.1	3986.8	3927.5
17.5°	2443.9	2478.0	2590.7	2697.4	2864.9	3174.6	3377.7	3570.3	3897.9	3951.2	3914.2
20°	2011.2	2042.3	2190.5	2183.1	2405.4	2753.7	2956.7	3179.1	3662.2	3835.6	3828.2
22.5°	1689.6	1738.5	1821.5	1867.4	2027.5	2337.2	2529.9	2807.1	3394.0	3668.1	3697.8
25°	1479.1	1514.7	1565.1	1605.1	1729.6	1984.5	2187.5	2415.8	3056.0	3448.8	3522.9
27.5°	1335.4	1350.2	1400.6	1424.3	1507.3	1726.6	1883.7	2092.7	2743.3	3202.8	3306.5
30°	1222.7	1233.1	1277.6	1285.0	1350.2	1508.8	1661.4	1831.8	2438.0	2949.3	3067.9
32.5°	1144.2	1151.6	1185.7	1188.6	1237.5	1353.1	1459.8	1619.9	2149.0	2678.1	2824.8
35°	1073.0	1077.5	1102.7	1110.1	1141.2	1228.6	1316.1	1439.1	1919.3	2433.6	2595.1
37.5°	1010.8	1016.7	1031.5	1040.4	1065.6	1135.3	1194.6	1296.8	1698.5	2178.7	2358.0
40°	950.0	960.4	970.8	970.8	998.9	1052.3	1101.2	1185.7	1508.8	1956.3	2114.9
42.5°	898.1	908.5	913.0	914.4	929.3	978.2	1019.7	1077.5	1365.0	1759.2	1914.8
45°	847.7	852.2	856.6	859.6	870.0	913.0	944.1	998.9	1228.6	1576.9	1728.1
47.5°	801.8	801.8	804.8	809.2	816.6	847.7	874.4	914.4	1111.6	1413.9	1538.4
50°	757.3	757.3	752.9	755.9	760.3	784.0	810.7	843.3	1001.9	1264.2	1375.4
52.5°	704.0	704.0	705.5	701.0	705.5	726.2	747.0	779.6	908.5	1126.4	1221.2
55°	650.6	656.6	652.1	649.2	655.1	668.4	683.2	711.4	821.1	1016.7	1092.3
57.5°	597.3	600.2	598.8	603.2	600.2	612.1	625.4	644.7	742.5	893.7	964.8
60°	546.9	546.9	543.9	546.9	546.9	552.8	563.2	582.5	662.5	788.5	847.7
62.5°	490.6	492.1	493.5	492.1	490.6	498.0	506.9	520.2	592.8	686.2	730.7
65°	434.2	435.7	440.2	438.7	437.2	444.6	446.1	460.9	515.8	595.8	628.4
67.5°	383.9	380.9	382.4	385.3	386.8	388.3	391.3	406.1	444.6	509.8	536.5
70°	324.6	327.5	326.1	330.5	327.5	332.0	334.9	345.3	382.4	425.4	443.1
72.5°	271.2	272.7	272.7	277.1	275.7	280.1	283.1	287.5	314.2	352.7	360.1
75°	222.3	222.3	225.3	226.8	226.8	226.8	229.7	232.7	254.9	278.6	286.0
77.5°	169.0	176.4	174.9	176.4	177.8	182.3	179.3	185.3	198.6	211.9	216.4
80°	123.0	123.0	124.5	126.0	128.9	131.9	131.9	137.8	143.8	151.2	155.6
82.5°	78.6	80.0	84.5	86.0	87.4	91.9	91.9	91.9	99.3	102.3	102.3
85°	48.9	45.9	48.9	50.4	51.9	53.4	53.4	56.3	57.8	59.3	59.3
87.5°	23.7	23.7	23.7	23.7	25.2	25.2	25.2	25.2	26.7	26.7	26.7
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: P646623

CATALOG NUMBER: S123DRP-S1165D835-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (continued):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9	3193.9
2.5°	3268.0	3213.1	3131.6	3064.9	3067.9	3007.1	2962.7	2904.9	2887.1	2869.3	2845.6
5°	3336.2	3210.2	3041.2	2906.4	2864.9	2764.1	2636.6	2574.4	2537.3	2472.1	2446.9
7.5°	3420.6	3189.4	2931.6	2721.1	2675.2	2507.7	2356.5	2282.4	2212.7	2166.8	2110.5
10°	3475.5	3152.4	2820.4	2541.8	2497.3	2306.1	2109.0	2055.6	1968.2	1911.9	1858.5
12.5°	3517.0	3124.2	2706.3	2381.7	2309.1	2123.8	1925.2	1852.6	1788.9	1707.4	1668.8
15°	3554.0	3070.9	2589.2	2214.2	2138.6	1938.6	1754.8	1689.6	1631.8	1560.6	1526.5
17.5°	3540.7	3005.7	2460.3	2066.0	1990.4	1793.3	1616.9	1542.8	1504.3	1442.1	1418.3
20°	3524.4	2949.3	2338.7	1925.2	1842.2	1658.4	1486.5	1433.2	1394.6	1354.6	1333.9
22.5°	3472.5	2860.4	2215.7	1796.3	1717.7	1534.0	1387.2	1342.8	1313.1	1285.0	1267.2
25°	3385.1	2781.9	2095.7	1667.3	1605.1	1433.2	1308.7	1267.2	1247.9	1219.8	1203.4
27.5°	3276.9	2678.1	1975.6	1562.1	1491.0	1338.3	1231.6	1204.9	1184.2	1161.9	1145.6
30°	3140.5	2562.5	1858.5	1459.8	1394.6	1259.8	1167.9	1144.2	1124.9	1102.7	1083.4
32.5°	2967.1	2445.4	1748.9	1365.0	1310.2	1193.1	1108.6	1089.3	1073.0	1046.3	1036.0
35°	2773.0	2319.5	1640.7	1274.6	1222.7	1120.5	1050.8	1031.5	1015.2	993.0	984.1
37.5°	2575.9	2169.8	1534.0	1197.5	1151.6	1059.7	993.0	973.7	958.9	939.6	935.2
40°	2366.9	2031.9	1428.7	1119.0	1079.0	1000.4	935.2	920.4	905.6	893.7	890.7
42.5°	2156.4	1873.3	1336.8	1053.8	1010.8	938.2	878.9	862.6	853.7	847.7	849.2
45°	1957.8	1714.8	1242.0	978.2	948.5	881.8	827.0	813.7	806.3	801.8	807.7
47.5°	1742.9	1553.2	1153.1	914.4	884.8	825.5	773.6	761.8	758.8	757.3	767.7
50°	1553.2	1385.7	1056.7	849.2	824.0	763.3	721.8	711.4	708.4	712.9	727.7
52.5°	1373.9	1230.1	969.3	788.5	763.3	708.4	669.9	662.5	661.0	671.4	686.2
55°	1196.0	1084.9	874.4	721.8	696.6	649.2	619.5	612.1	610.6	631.4	644.7
57.5°	1044.9	944.1	785.5	658.0	638.8	594.3	567.6	561.7	566.2	585.4	598.8
60°	896.7	815.1	704.0	589.9	575.0	536.5	515.8	514.3	518.7	541.0	554.3
62.5°	763.3	701.0	616.5	527.6	517.2	483.2	463.9	466.9	471.3	493.5	505.4
65°	649.2	594.3	530.6	465.4	452.0	428.3	415.0	416.5	425.4	444.6	456.5
67.5°	538.0	493.5	458.0	406.1	395.7	375.0	364.6	370.5	375.0	394.2	406.1
70°	444.6	409.1	382.4	343.8	336.4	318.6	311.2	318.6	323.1	339.4	354.2
72.5°	357.2	334.9	314.2	286.0	278.6	266.8	265.3	268.3	275.7	292.0	297.9
75°	277.1	265.3	247.5	229.7	225.3	219.3	217.9	220.8	228.2	237.1	243.1
77.5°	210.5	200.1	186.7	179.3	173.4	170.4	171.9	176.4	179.3	188.2	192.7
80°	152.7	140.8	137.8	127.5	126.0	124.5	127.5	128.9	133.4	139.3	142.3
82.5°	100.8	91.9	88.9	87.4	86.0	84.5	88.9	90.4	93.4	97.8	99.3
85°	54.8	51.9	51.9	50.4	51.9	54.8	54.8	56.3	56.3	57.8	56.3
87.5°	25.2	22.2	23.7	23.7	23.7	25.2	25.2	26.7	26.7	26.7	25.2
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: P646623

CATALOG NUMBER: S123DRP-S1165D835-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (continued):

	160°	170°	180°
0°	3193.9	3193.9	3193.9
2.5°	2844.1	2833.7	2792.2
5°	2424.7	2389.1	2377.3
7.5°	2104.6	2101.6	2039.3
10°	1833.3	1837.8	1781.5
12.5°	1662.9	1625.8	1621.4
15°	1517.6	1483.6	1477.6
17.5°	1409.5	1388.7	1382.8
20°	1327.9	1316.1	1305.7
22.5°	1262.7	1247.9	1239.0
25°	1197.5	1184.2	1181.2
27.5°	1141.2	1124.9	1124.9
30°	1083.4	1073.0	1068.6
32.5°	1031.5	1022.6	1022.6
35°	981.1	976.7	970.8
37.5°	935.2	935.2	932.2
40°	890.7	895.2	895.2
42.5°	852.2	856.6	856.6
45°	810.7	818.1	821.1
47.5°	769.2	781.1	784.0
50°	732.1	741.0	742.5
52.5°	692.1	702.5	709.9
55°	650.6	661.0	665.5
57.5°	606.2	616.5	618.0
60°	557.3	567.6	570.6
62.5°	512.8	518.7	521.7
65°	458.0	466.9	472.8
67.5°	407.6	415.0	415.0
70°	352.7	355.7	360.1
72.5°	300.9	302.3	302.3
75°	244.5	247.5	249.0
77.5°	192.7	194.2	194.2
80°	142.3	140.8	140.8
82.5°	99.3	94.9	94.9
85°	56.3	54.8	56.3
87.5°	25.2	25.2	25.2
90°	0.0	0.0	0.0



TEST NUMBER: P646623
 CATALOG NUMBER: S123DRP-S1165D835-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	20.17	21.68	20.54	21.99	22.31	22.63	24.13	22.99	24.45	24.76
	3H	21.86	23.22	22.24	23.55	23.91	23.84	25.19	24.22	25.52	25.88
	4H	22.47	23.74	22.87	24.09	24.46	24.26	25.53	24.66	25.88	26.26
	6H	22.87	24.05	23.28	24.41	24.80	24.53	25.71	24.94	26.07	26.47
	8H	22.97	24.09	23.40	24.48	24.88	24.60	25.72	25.03	26.11	26.51
	12H	23.03	24.10	23.46	24.48	24.91	24.64	25.71	25.07	26.09	26.52
4H	2H	20.82	22.09	21.22	22.44	22.82	22.85	24.12	23.25	24.47	24.84
	3H	22.70	23.76	23.11	24.16	24.56	24.33	25.39	24.74	25.79	26.19
	4H	23.42	24.38	23.86	24.79	25.23	24.89	25.85	25.33	26.26	26.70
	6H	23.94	24.77	24.39	25.21	25.67	25.29	26.12	25.75	26.56	27.02
	8H	24.07	24.85	24.54	25.29	25.76	25.39	26.17	25.86	26.61	27.08
	12H	24.16	24.85	24.64	25.33	25.80	25.46	26.15	25.94	26.63	27.10
8H	4H	23.75	24.52	24.21	24.97	25.44	25.06	25.83	25.52	26.28	26.75
	6H	24.36	25.00	24.86	25.50	25.97	25.55	26.19	26.05	26.68	27.16
	8H	24.56	25.13	25.08	25.64	26.13	25.71	26.29	26.23	26.80	27.28
	12H	24.70	25.21	25.21	25.70	26.27	25.83	26.34	26.34	26.83	27.39
12H	4H	23.78	24.47	24.26	24.95	25.42	25.06	25.76	25.55	26.23	26.71
	6H	24.42	24.99	24.93	25.50	25.99	25.57	26.14	26.08	26.65	27.14
	8H	24.67	25.17	25.18	25.66	26.23	25.78	26.29	26.29	26.78	27.34