

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: P646622

Luminaire Tested: S123DRP-S1165D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646622
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-S1165D830-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

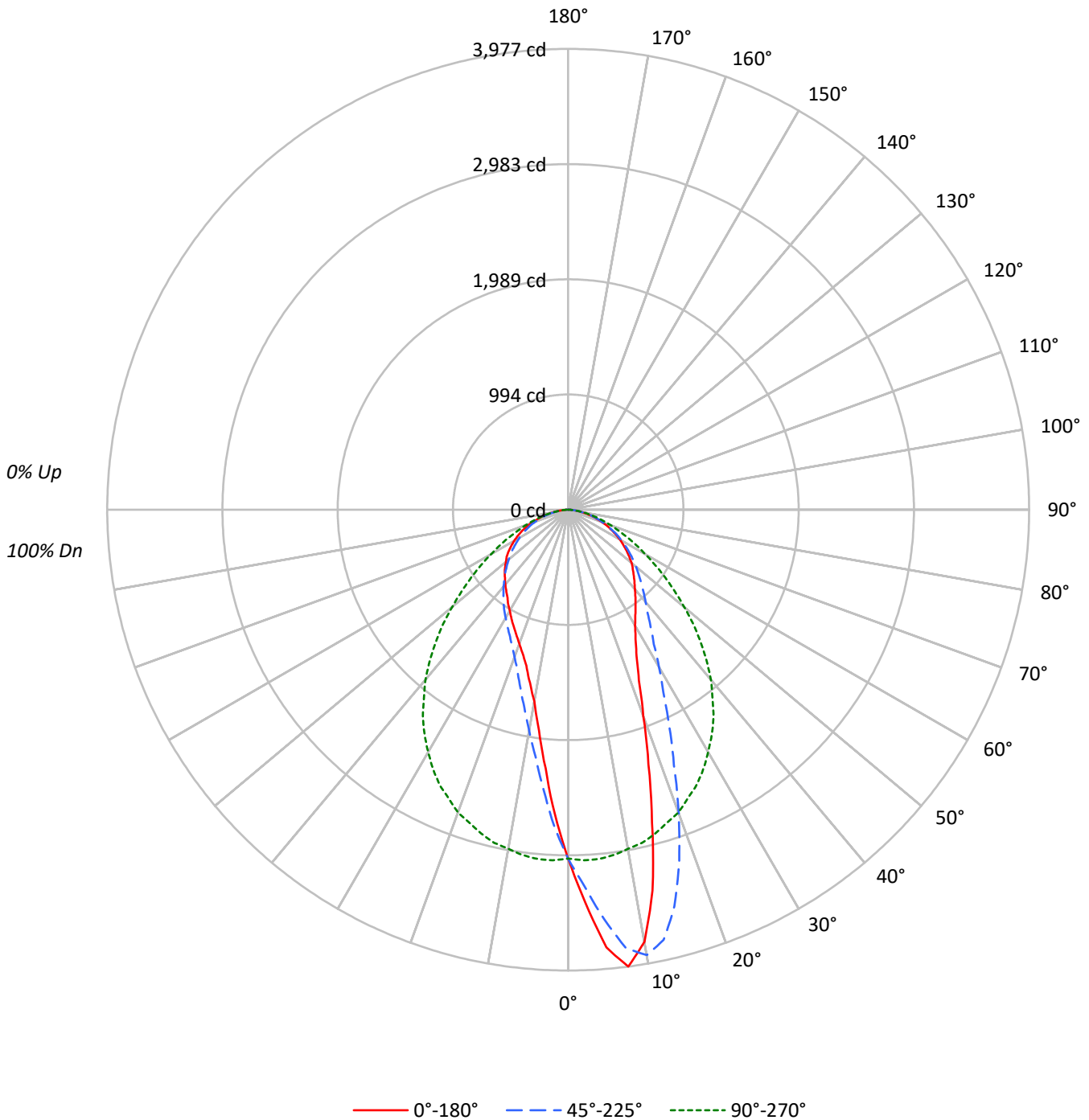
Lumens per Lamp: N/A
Luminaire Lumens: 4836.8 lumens
Efficiency: N/A
Efficacy: 120.6 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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

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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	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°	36273	36273	36273	36273	36273
5°	45872	42899	36596	29349	27102
10°	46318	47753	36354	23705	20544
15°	34885	44191	36105	19865	17373
20°	24306	35735	35645	17321	15781
25°	18534	27413	34859	15879	14801
30°	16035	21787	33605	15004	14013
35°	14877	18247	32158	14302	13459
40°	14084	16325	30124	13645	13271
45°	13615	15162	27540	13068	13187
50°	13380	14323	24483	12569	13120
55°	12882	13529	21480	12119	13176
60°	12423	12791	18515	11680	12960
65°	11669	11989	15972	11190	12704
70°	10777	11122	13584	10579	11960
75°	9753	10079	11639	9688	10926
80°	8042	8625	9208	8431	9208
85°	6373	6954	6760	7341	7341

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 31444 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.6	5.9
10°-20°	708.1	14.6
20°-30°	838.2	17.3
30°-40°	842.4	17.4
40°-50°	772.5	16.0
50°-60°	637.6	13.2
60°-70°	451.2	9.3
70°-80°	241.0	5.0
80°-90°	61.1	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°	1831.0	37.9
0°-40°	2673.3	55.3
0°-60°	4083.5	84.4
0°-90°	4836.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4836.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3010	3010	3010	3010	3010	
5°	3793	3547	3026	2426	2241	361
15°	2797	3543	2894	1592	1393	773
25°	1394	2062	2622	1194	1113	658
35°	1011	1240	2186	972	915	636
45°	799	890	1616	767	774	619
55°	613	644	1022	577	627	549
65°	409	420	560	392	446	407
75°	210	216	250	208	235	220
85°	46	50	49	53	53	55
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°	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4
2.5°	3393.1	3386.1	3351.2	3328.9	3334.5	3284.2	3253.4	3228.3	3211.5	3171.0	3150.1
5°	3792.6	3812.2	3789.8	3778.7	3721.4	3630.6	3546.8	3528.6	3450.4	3354.0	3320.5
7.5°	3977.0	3988.2	3974.2	3974.2	3956.1	3875.1	3816.4	3770.3	3636.2	3511.9	3454.6
10°	3785.7	3810.8	3865.3	3890.4	3926.7	3915.6	3903.0	3884.8	3794.0	3650.2	3584.5
12.5°	3365.2	3395.9	3504.9	3520.2	3644.6	3764.7	3803.8	3848.5	3856.9	3735.4	3664.1
15°	2796.6	2881.9	2981.0	3028.5	3186.4	3439.2	3542.6	3664.1	3808.0	3757.7	3701.8
17.5°	2303.5	2335.7	2441.8	2542.4	2700.3	2992.2	3183.6	3365.2	3673.9	3724.2	3689.3
20°	1895.6	1925.0	2064.7	2057.7	2267.2	2595.5	2786.9	2996.4	3451.8	3615.2	3608.3
22.5°	1592.5	1638.6	1716.8	1760.1	1911.0	2202.9	2384.5	2645.8	3199.0	3457.4	3485.3
25°	1394.1	1427.7	1475.1	1512.9	1630.2	1870.5	2061.9	2277.0	2880.5	3250.6	3320.5
27.5°	1258.6	1272.6	1320.1	1342.4	1420.7	1627.4	1775.5	1972.5	2585.7	3018.7	3116.5
30°	1152.5	1162.2	1204.1	1211.1	1272.6	1422.1	1565.9	1726.6	2297.9	2779.9	2891.6
32.5°	1078.4	1085.4	1117.5	1120.3	1166.4	1275.4	1376.0	1526.8	2025.5	2524.2	2662.5
35°	1011.4	1015.6	1039.3	1046.3	1075.6	1158.0	1240.5	1356.4	1809.0	2293.7	2446.0
37.5°	952.7	958.3	972.3	980.6	1004.4	1070.0	1125.9	1222.3	1600.9	2053.5	2222.5
40°	895.4	905.2	915.0	915.0	941.5	991.8	1037.9	1117.5	1422.1	1843.9	1993.4
42.5°	846.5	856.3	860.5	861.9	875.9	922.0	961.1	1015.6	1286.6	1658.1	1804.8
45°	799.0	803.2	807.4	810.2	820.0	860.5	889.8	941.5	1158.0	1486.3	1628.8
47.5°	755.7	755.7	758.5	762.7	769.7	799.0	824.2	861.9	1047.7	1332.7	1450.0
50°	713.8	713.8	709.6	712.4	716.6	739.0	764.1	794.8	944.3	1191.6	1296.3
52.5°	663.5	663.5	664.9	660.7	664.9	684.5	704.0	734.8	856.3	1061.7	1151.1
55°	613.2	618.8	614.6	611.9	617.4	630.0	644.0	670.5	773.9	958.3	1029.5
57.5°	563.0	565.8	564.4	568.5	565.8	576.9	589.5	607.7	699.9	842.3	909.4
60°	515.5	515.5	512.7	515.5	515.5	521.1	530.8	549.0	624.4	743.2	799.0
62.5°	462.4	463.8	465.2	463.8	462.4	469.4	477.7	490.3	558.8	646.8	688.7
65°	409.3	410.7	414.9	413.5	412.1	419.1	420.5	434.4	486.1	561.6	592.3
67.5°	361.8	359.0	360.4	363.2	364.6	366.0	368.8	382.8	419.1	480.5	505.7
70°	305.9	308.7	307.3	311.5	308.7	312.9	315.7	325.5	360.4	400.9	417.7
72.5°	255.6	257.0	257.0	261.2	259.8	264.0	266.8	271.0	296.1	332.5	339.5
75°	209.5	209.5	212.3	213.7	213.7	213.7	216.5	219.3	240.3	262.6	269.6
77.5°	159.2	166.2	164.8	166.2	167.6	171.8	169.0	174.6	187.2	199.8	204.0
80°	115.9	115.9	117.3	118.7	121.5	124.3	124.3	129.9	135.5	142.5	146.7
82.5°	74.0	75.4	79.6	81.0	82.4	86.6	86.6	86.6	93.6	96.4	96.4
85°	46.1	43.3	46.1	47.5	48.9	50.3	50.3	53.1	54.5	55.9	55.9
87.5°	22.4	22.4	22.4	22.4	23.7	23.7	23.7	23.7	25.1	25.1	25.1
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°	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4	3010.4
2.5°	3080.2	3028.5	2951.7	2888.8	2891.6	2834.4	2792.4	2738.0	2721.2	2704.4	2682.1
5°	3144.5	3025.7	2866.5	2739.4	2700.3	2605.3	2485.1	2426.5	2391.5	2330.1	2306.3
7.5°	3224.1	3006.2	2763.1	2564.7	2521.4	2363.6	2221.1	2151.3	2085.6	2042.3	1989.2
10°	3275.8	2971.3	2658.3	2395.7	2353.8	2173.6	1987.8	1937.5	1855.1	1802.0	1751.7
12.5°	3314.9	2944.7	2550.8	2244.9	2176.4	2001.8	1814.6	1746.2	1686.1	1609.3	1572.9
15°	3349.8	2894.4	2440.4	2087.0	2015.8	1827.2	1654.0	1592.5	1538.0	1471.0	1438.8
17.5°	3337.2	2833.0	2318.9	1947.3	1876.1	1690.3	1524.0	1454.2	1417.9	1359.2	1336.9
20°	3321.9	2779.9	2204.3	1814.6	1736.4	1563.2	1401.1	1350.8	1314.5	1276.8	1257.2
22.5°	3273.0	2696.1	2088.4	1693.1	1619.0	1445.8	1307.5	1265.6	1237.7	1211.1	1194.4
25°	3190.6	2622.0	1975.2	1571.5	1512.9	1350.8	1233.5	1194.4	1176.2	1149.7	1134.3
27.5°	3088.6	2524.2	1862.1	1472.4	1405.3	1261.4	1160.8	1135.7	1116.1	1095.2	1079.8
30°	2960.1	2415.3	1751.7	1376.0	1314.5	1187.4	1100.8	1078.4	1060.3	1039.3	1021.2
32.5°	2796.6	2304.9	1648.4	1286.6	1234.9	1124.5	1044.9	1026.7	1011.4	986.2	976.4
35°	2613.6	2186.2	1546.4	1201.4	1152.5	1056.1	990.4	972.3	956.9	935.9	927.6
37.5°	2427.9	2045.1	1445.8	1128.7	1085.4	998.8	935.9	917.8	903.8	885.6	881.5
40°	2230.9	1915.2	1346.6	1054.7	1017.0	942.9	881.5	867.5	853.5	842.3	839.6
42.5°	2032.5	1765.7	1260.0	993.2	952.7	884.3	828.4	813.0	804.6	799.0	800.4
45°	1845.3	1616.2	1170.6	922.0	894.0	831.2	779.5	766.9	759.9	755.7	761.3
47.5°	1642.8	1464.0	1086.8	861.9	834.0	778.1	729.2	718.0	715.2	713.8	723.6
50°	1464.0	1306.1	996.0	800.4	776.7	719.4	680.3	670.5	667.7	671.9	685.9
52.5°	1294.9	1159.4	913.6	743.2	719.4	667.7	631.4	624.4	623.0	632.8	646.8
55°	1127.3	1022.5	824.2	680.3	656.6	611.9	583.9	576.9	575.5	595.1	607.7
57.5°	984.8	889.8	740.4	620.2	602.1	560.2	535.0	529.4	533.6	551.8	564.4
60°	845.1	768.3	663.5	556.0	542.0	505.7	486.1	484.7	488.9	509.9	522.4
62.5°	719.4	660.7	581.1	497.3	487.5	455.4	437.2	440.0	444.2	465.2	476.4
65°	611.9	560.2	500.1	438.6	426.1	403.7	391.1	392.5	400.9	419.1	430.3
67.5°	507.1	465.2	431.6	382.8	373.0	353.4	343.6	349.2	353.4	371.6	382.8
70°	419.1	385.6	360.4	324.1	317.1	300.3	293.4	300.3	304.5	319.9	333.9
72.5°	336.7	315.7	296.1	269.6	262.6	251.4	250.0	252.8	259.8	275.2	280.8
75°	261.2	250.0	233.3	216.5	212.3	206.7	205.3	208.1	215.1	223.5	229.1
77.5°	198.4	188.6	176.0	169.0	163.4	160.6	162.0	166.2	169.0	177.4	181.6
80°	143.9	132.7	129.9	120.1	118.7	117.3	120.1	121.5	125.7	131.3	134.1
82.5°	95.0	86.6	83.8	82.4	81.0	79.6	83.8	85.2	88.0	92.2	93.6
85°	51.7	48.9	48.9	47.5	48.9	51.7	51.7	53.1	53.1	54.5	53.1
87.5°	23.7	21.0	22.4	22.4	22.4	23.7	23.7	25.1	25.1	25.1	23.7
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°	3010.4	3010.4	3010.4
2.5°	2680.7	2670.9	2631.8
5°	2285.4	2251.8	2240.7
7.5°	1983.6	1980.8	1922.2
10°	1728.0	1732.2	1679.1
12.5°	1567.3	1532.4	1528.2
15°	1430.4	1398.3	1392.7
17.5°	1328.5	1308.9	1303.3
20°	1251.6	1240.5	1230.7
22.5°	1190.2	1176.2	1167.8
25°	1128.7	1116.1	1113.3
27.5°	1075.6	1060.3	1060.3
30°	1021.2	1011.4	1007.2
32.5°	972.3	963.9	963.9
35°	924.8	920.6	915.0
37.5°	881.5	881.5	878.7
40°	839.6	843.7	843.7
42.5°	803.2	807.4	807.4
45°	764.1	771.1	773.9
47.5°	725.0	736.2	739.0
50°	690.1	698.5	699.9
52.5°	652.4	662.1	669.1
55°	613.2	623.0	627.2
57.5°	571.3	581.1	582.5
60°	525.2	535.0	537.8
62.5°	483.3	488.9	491.7
65°	431.6	440.0	445.6
67.5°	384.2	391.1	391.1
70°	332.5	335.3	339.5
72.5°	283.6	285.0	285.0
75°	230.5	233.3	234.7
77.5°	181.6	183.0	183.0
80°	134.1	132.7	132.7
82.5°	93.6	89.4	89.4
85°	53.1	51.7	53.1
87.5°	23.7	23.7	23.7
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	19.97	21.47	20.33	21.79	22.10	22.42	23.93	22.78	24.24	24.56
	3H	21.66	23.01	22.04	23.34	23.70	23.63	24.99	24.01	25.32	25.68
	4H	22.26	23.53	22.66	23.88	24.26	24.05	25.33	24.45	25.67	26.05
	6H	22.66	23.84	23.08	24.21	24.60	24.33	25.50	24.74	25.87	26.26
	8H	22.77	23.89	23.19	24.27	24.68	24.40	25.51	24.82	25.90	26.31
	12H	22.82	23.89	23.25	24.28	24.70	24.43	25.50	24.86	25.88	26.31
4H	2H	20.61	21.89	21.01	22.23	22.61	22.64	23.91	23.04	24.26	24.64
	3H	22.50	23.56	22.91	23.96	24.36	24.12	25.18	24.53	25.58	25.98
	4H	23.22	24.17	23.65	24.59	25.03	24.69	25.64	25.12	26.06	26.50
	6H	23.73	24.56	24.19	25.00	25.46	25.08	25.91	25.54	26.35	26.81
	8H	23.87	24.64	24.33	25.09	25.55	25.19	25.96	25.65	26.41	26.87
	12H	23.95	24.65	24.44	25.12	25.60	25.25	25.95	25.74	26.42	26.89
8H	4H	23.54	24.32	24.01	24.76	25.23	24.85	25.63	25.32	26.07	26.54
	6H	24.16	24.80	24.65	25.29	25.77	25.35	25.99	25.84	26.48	26.95
	8H	24.35	24.93	24.87	25.44	25.93	25.51	26.08	26.02	26.59	27.08
	12H	24.50	25.00	25.01	25.50	26.06	25.63	26.13	26.14	26.62	27.19
12H	4H	23.58	24.27	24.06	24.75	25.22	24.86	25.55	25.34	26.03	26.50
	6H	24.21	24.78	24.72	25.29	25.78	25.36	25.94	25.88	26.45	26.94
	8H	24.46	24.97	24.97	25.46	26.02	25.57	26.08	26.08	26.57	27.14