

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: P646651

Luminaire Tested: S123DRP-S775D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646651  
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-S775D840-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: -

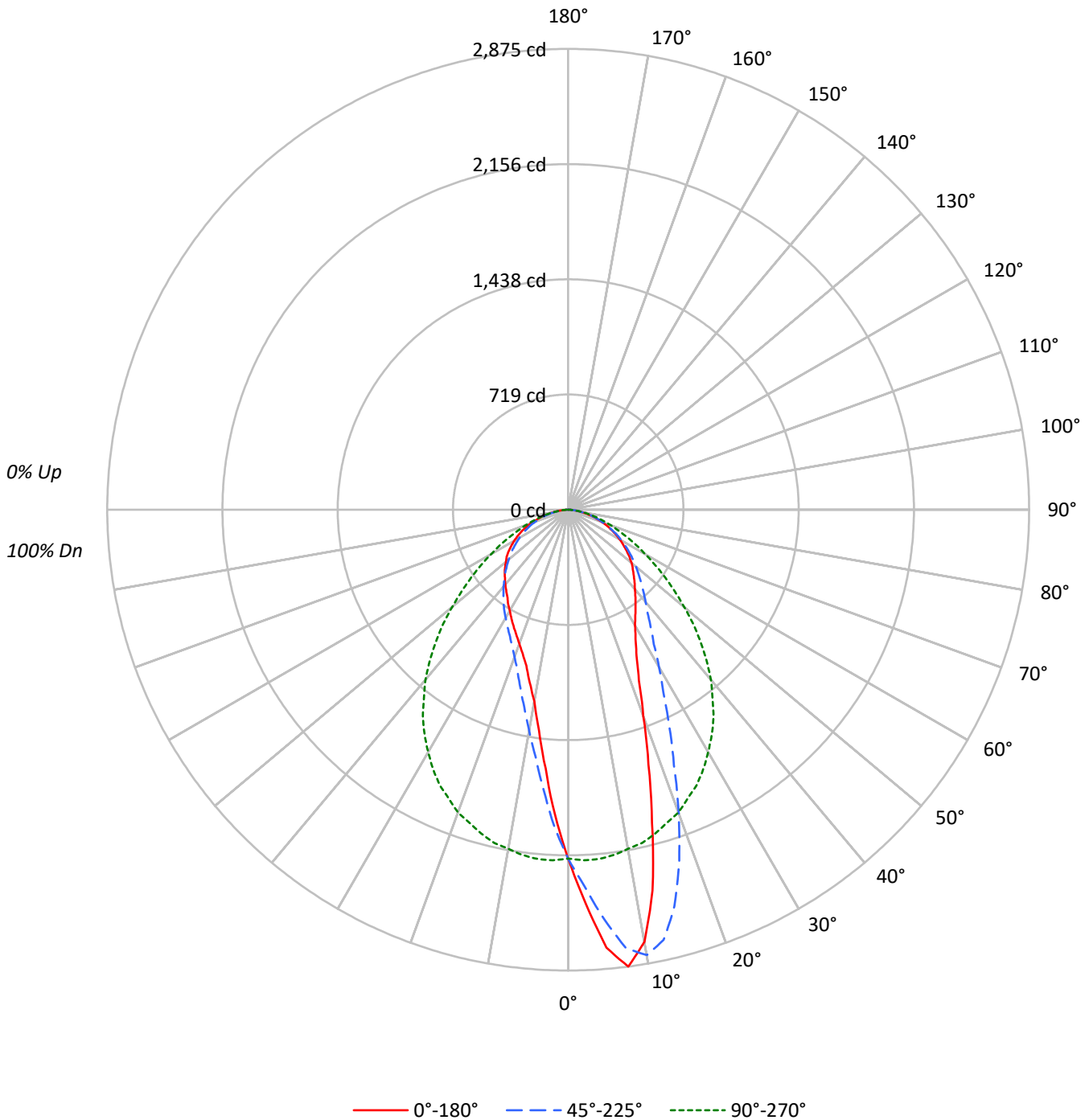
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3496.7 lumens  
Efficiency: N/A  
Efficacy: 136.1 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): 25.7  
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°	26223	26223	26223	26223	26223
5°	33163	31013	26457	21216	19592
10°	33484	34522	26281	17138	14852
15°	25220	31946	26101	14360	12559
20°	17572	25833	25768	12521	11408
25°	13398	19817	25200	11479	10701
30°	11591	15751	24294	10847	10130
35°	10754	13191	23247	10339	9730
40°	10181	11802	21777	9864	9595
45°	9842	10962	19910	9447	9534
50°	9673	10355	17699	9086	9483
55°	9312	9779	15528	8762	9525
60°	8979	9247	13384	8444	9369
65°	8436	8667	11547	8091	9183
70°	7793	8039	9818	7648	8645
75°	7053	7286	8417	7006	7900
80°	5815	6238	6654	6099	6654
85°	4604	5032	4880	5309	5309

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 22732 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	205.8	5.9
10°-20°	511.9	14.6
20°-30°	606.0	17.3
30°-40°	609.0	17.4
40°-50°	558.5	16.0
50°-60°	461.0	13.2
60°-70°	326.2	9.3
70°-80°	174.2	5.0
80°-90°	44.2	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°	1323.6	37.9
0°-40°	1932.6	55.3
0°-60°	2952.0	84.4
0°-90°	3496.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3496.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2176	2176	2176	2176	2176	
5°	2742	2564	2187	1754	1620	261
15°	2022	2561	2092	1151	1007	559
25°	1008	1491	1896	863	805	476
35°	731	897	1580	703	662	459
45°	578	643	1168	554	560	447
55°	443	466	739	417	453	397
65°	296	304	405	284	322	294
75°	152	156	181	150	170	159
85°	33	36	35	38	38	39
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°	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3
2.5°	2453.0	2447.9	2422.7	2406.5	2410.6	2374.2	2352.0	2333.8	2321.7	2292.4	2277.2
5°	2741.8	2755.9	2739.8	2731.7	2690.3	2624.6	2564.1	2550.9	2494.4	2424.7	2400.5
7.5°	2875.1	2883.2	2873.1	2873.1	2859.9	2801.4	2759.0	2725.6	2628.7	2538.8	2497.4
10°	2736.7	2754.9	2794.3	2812.5	2838.7	2830.7	2821.6	2808.4	2742.8	2638.8	2591.3
12.5°	2432.8	2455.0	2533.8	2544.9	2634.7	2721.6	2749.9	2782.2	2788.2	2700.4	2648.9
15°	2021.8	2083.4	2155.1	2189.4	2303.5	2486.3	2561.0	2648.9	2752.9	2716.5	2676.1
17.5°	1665.3	1688.5	1765.2	1838.0	1952.1	2163.1	2301.5	2432.8	2655.9	2692.3	2667.1
20°	1370.4	1391.6	1492.6	1487.5	1639.0	1876.3	2014.7	2166.2	2495.4	2613.5	2608.5
22.5°	1151.2	1184.6	1241.1	1272.4	1381.5	1592.6	1723.8	1912.7	2312.6	2499.4	2519.6
25°	1007.8	1032.1	1066.4	1093.7	1178.5	1352.2	1490.6	1646.1	2082.3	2350.0	2400.5
27.5°	909.9	920.0	954.3	970.5	1027.0	1176.5	1283.5	1425.9	1869.3	2182.3	2253.0
30°	833.1	840.2	870.5	875.6	920.0	1028.0	1132.1	1248.2	1661.2	2009.6	2090.4
32.5°	779.6	784.7	807.9	809.9	843.2	922.0	994.7	1103.8	1464.3	1824.8	1924.8
35°	731.1	734.2	751.3	756.4	777.6	837.2	896.8	980.6	1307.8	1658.2	1768.3
37.5°	688.7	692.8	702.9	708.9	726.1	773.6	814.0	883.6	1157.3	1484.5	1606.7
40°	647.3	654.4	661.5	661.5	680.7	717.0	750.3	807.9	1028.0	1333.0	1441.1
42.5°	612.0	619.0	622.1	623.1	633.2	666.5	694.8	734.2	930.1	1198.7	1304.7
45°	577.6	580.7	583.7	585.7	592.8	622.1	643.3	680.7	837.2	1074.5	1177.5
47.5°	546.3	546.3	548.4	551.4	556.4	577.6	595.8	623.1	757.4	963.4	1048.2
50°	516.0	516.0	513.0	515.0	518.1	534.2	552.4	574.6	682.7	861.4	937.2
52.5°	479.7	479.7	480.7	477.7	480.7	494.8	509.0	531.2	619.0	767.5	832.1
55°	443.3	447.4	444.3	442.3	446.4	455.4	465.5	484.7	559.5	692.8	744.3
57.5°	407.0	409.0	408.0	411.0	409.0	417.1	426.2	439.3	505.9	608.9	657.4
60°	372.6	372.6	370.6	372.6	372.6	376.7	383.7	396.9	451.4	537.2	577.6
62.5°	334.3	335.3	336.3	335.3	334.3	339.3	345.4	354.5	403.9	467.6	497.9
65°	295.9	296.9	299.9	298.9	297.9	303.0	304.0	314.1	351.4	406.0	428.2
67.5°	261.6	259.5	260.5	262.6	263.6	264.6	266.6	276.7	303.0	347.4	365.6
70°	221.2	223.2	222.2	225.2	223.2	226.2	228.2	235.3	260.5	289.8	302.0
72.5°	184.8	185.8	185.8	188.8	187.8	190.9	192.9	195.9	214.1	240.3	245.4
75°	151.5	151.5	153.5	154.5	154.5	154.5	156.5	158.5	173.7	189.9	194.9
77.5°	115.1	120.2	119.2	120.2	121.2	124.2	122.2	126.2	135.3	144.4	147.4
80°	83.8	83.8	84.8	85.8	87.9	89.9	89.9	93.9	98.0	103.0	106.0
82.5°	53.5	54.5	57.6	58.6	59.6	62.6	62.6	62.6	67.7	69.7	69.7
85°	33.3	31.3	33.3	34.3	35.3	36.4	36.4	38.4	39.4	40.4	40.4
87.5°	16.2	16.2	16.2	16.2	17.2	17.2	17.2	17.2	18.2	18.2	18.2
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°	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3	2176.3
2.5°	2226.8	2189.4	2133.8	2088.4	2090.4	2049.0	2018.7	1979.3	1967.2	1955.1	1938.9
5°	2273.2	2187.4	2072.2	1980.3	1952.1	1883.4	1796.6	1754.1	1728.9	1684.5	1667.3
7.5°	2330.8	2173.2	1997.5	1854.1	1822.8	1708.7	1605.7	1555.2	1507.7	1476.4	1438.1
10°	2368.1	2148.0	1921.8	1731.9	1701.6	1571.4	1437.0	1400.7	1341.1	1302.7	1266.4
12.5°	2396.4	2128.8	1844.0	1622.9	1573.4	1447.1	1311.8	1262.3	1218.9	1163.4	1137.1
15°	2421.7	2092.4	1764.2	1508.7	1457.2	1320.9	1195.7	1151.2	1111.9	1063.4	1040.2
17.5°	2412.6	2048.0	1676.4	1407.8	1356.3	1221.9	1101.8	1051.3	1025.0	982.6	966.4
20°	2401.5	2009.6	1593.6	1311.8	1255.3	1130.0	1012.9	976.5	950.3	923.0	908.9
22.5°	2366.1	1949.0	1509.8	1224.0	1170.4	1045.2	945.2	914.9	894.7	875.6	863.4
25°	2306.5	1895.5	1428.0	1136.1	1093.7	976.5	891.7	863.4	850.3	831.1	820.0
27.5°	2232.8	1824.8	1346.2	1064.4	1015.9	911.9	839.2	821.0	806.9	791.7	780.6
30°	2139.9	1746.1	1266.4	994.7	950.3	858.4	795.8	779.6	766.5	751.3	738.2
32.5°	2021.8	1666.3	1191.6	930.1	892.7	812.9	755.4	742.3	731.1	713.0	705.9
35°	1889.5	1580.4	1117.9	868.5	833.1	763.5	716.0	702.9	691.8	676.6	670.6
37.5°	1755.1	1478.4	1045.2	816.0	784.7	722.1	676.6	663.5	653.4	640.3	637.2
40°	1612.8	1384.5	973.5	762.4	735.2	681.7	637.2	627.1	617.0	608.9	606.9
42.5°	1469.4	1276.5	910.9	718.0	688.7	639.2	598.9	587.7	581.7	577.6	578.7
45°	1334.0	1168.4	846.3	666.5	646.3	600.9	563.5	554.4	549.4	546.3	550.4
47.5°	1187.6	1058.3	785.7	623.1	602.9	562.5	527.2	519.1	517.1	516.0	523.1
50°	1058.3	944.2	720.0	578.7	561.5	520.1	491.8	484.7	482.7	485.7	495.8
52.5°	936.1	838.2	660.5	537.2	520.1	482.7	456.5	451.4	450.4	457.5	467.6
55°	815.0	739.2	595.8	491.8	474.6	442.3	422.1	417.1	416.1	430.2	439.3
57.5°	712.0	643.3	535.2	448.4	435.3	405.0	386.8	382.7	385.8	398.9	408.0
60°	611.0	555.4	479.7	401.9	391.8	365.6	351.4	350.4	353.5	368.6	377.7
62.5°	520.1	477.7	420.1	359.5	352.4	329.2	316.1	318.1	321.1	336.3	344.4
65°	442.3	405.0	361.5	317.1	308.0	291.9	282.8	283.8	289.8	303.0	311.0
67.5°	366.6	336.3	312.0	276.7	269.6	255.5	248.4	252.5	255.5	268.6	276.7
70°	303.0	278.7	260.5	234.3	229.2	217.1	212.1	217.1	220.2	231.3	241.4
72.5°	243.4	228.2	214.1	194.9	189.9	181.8	180.8	182.8	187.8	198.9	203.0
75°	188.8	180.8	168.6	156.5	153.5	149.5	148.5	150.5	155.5	161.6	165.6
77.5°	143.4	136.3	127.2	122.2	118.2	116.1	117.1	120.2	122.2	128.3	131.3
80°	104.0	95.9	93.9	86.8	85.8	84.8	86.8	87.9	90.9	94.9	96.9
82.5°	68.7	62.6	60.6	59.6	58.6	57.6	60.6	61.6	63.6	66.7	67.7
85°	37.4	35.3	35.3	34.3	35.3	37.4	37.4	38.4	38.4	39.4	38.4
87.5°	17.2	15.1	16.2	16.2	16.2	17.2	17.2	18.2	18.2	18.2	17.2
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°	2176.3	2176.3	2176.3
2.5°	1937.9	1930.9	1902.6
5°	1652.1	1627.9	1619.8
7.5°	1434.0	1432.0	1389.6
10°	1249.2	1252.2	1213.9
12.5°	1133.1	1107.8	1104.8
15°	1034.1	1010.9	1006.8
17.5°	960.4	946.2	942.2
20°	904.8	896.8	889.7
22.5°	860.4	850.3	844.2
25°	816.0	806.9	804.9
27.5°	777.6	766.5	766.5
30°	738.2	731.1	728.1
32.5°	702.9	696.8	696.8
35°	668.5	665.5	661.5
37.5°	637.2	637.2	635.2
40°	606.9	610.0	610.0
42.5°	580.7	583.7	583.7
45°	552.4	557.4	559.5
47.5°	524.1	532.2	534.2
50°	498.9	504.9	505.9
52.5°	471.6	478.7	483.7
55°	443.3	450.4	453.4
57.5°	413.0	420.1	421.1
60°	379.7	386.8	388.8
62.5°	349.4	353.5	355.5
65°	312.0	318.1	322.1
67.5°	277.7	282.8	282.8
70°	240.3	242.4	245.4
72.5°	205.0	206.0	206.0
75°	166.6	168.6	169.7
77.5°	131.3	132.3	132.3
80°	96.9	95.9	95.9
82.5°	67.7	64.6	64.6
85°	38.4	37.4	38.4
87.5°	17.2	17.2	17.2
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	18.84	20.35	19.20	20.66	20.98	21.29	22.80	21.66	23.11	23.43
	3H	20.53	21.89	20.91	22.21	22.57	22.51	23.86	22.88	24.19	24.55
	4H	21.13	22.40	21.53	22.75	23.13	22.93	24.20	23.33	24.55	24.93
	6H	21.54	22.71	21.95	23.08	23.47	23.20	24.37	23.61	24.74	25.13
	8H	21.64	22.76	22.07	23.15	23.55	23.27	24.39	23.69	24.78	25.18
	12H	21.70	22.77	22.13	23.15	23.58	23.30	24.37	23.73	24.76	25.18
4H	2H	19.49	20.76	19.89	21.11	21.49	21.51	22.78	21.91	23.13	23.51
	3H	21.37	22.43	21.78	22.83	23.23	23.00	24.05	23.41	24.45	24.86
	4H	22.09	23.05	22.52	23.46	23.90	23.56	24.51	23.99	24.93	25.37
	6H	22.60	23.43	23.06	23.88	24.34	23.96	24.78	24.41	25.23	25.69
	8H	22.74	23.52	23.20	23.96	24.43	24.06	24.84	24.52	25.28	25.75
	12H	22.83	23.52	23.31	24.00	24.47	24.13	24.82	24.61	25.30	25.77
8H	4H	22.42	23.19	22.88	23.64	24.10	23.73	24.50	24.19	24.95	25.41
	6H	23.03	23.67	23.53	24.16	24.64	24.22	24.86	24.72	25.35	25.83
	8H	23.23	23.80	23.74	24.31	24.80	24.38	24.95	24.89	25.46	25.95
	12H	23.37	23.88	23.88	24.37	24.93	24.50	25.00	25.01	25.50	26.06
12H	4H	22.45	23.14	22.93	23.62	24.09	23.73	24.42	24.21	24.90	25.37
	6H	23.08	23.66	23.60	24.17	24.66	24.24	24.81	24.75	25.32	25.81
	8H	23.33	23.84	23.84	24.33	24.90	24.45	24.95	24.96	25.45	26.01