

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: P646628

Luminaire Tested: S123DRP-S1165D935-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646628
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-S1165D935-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

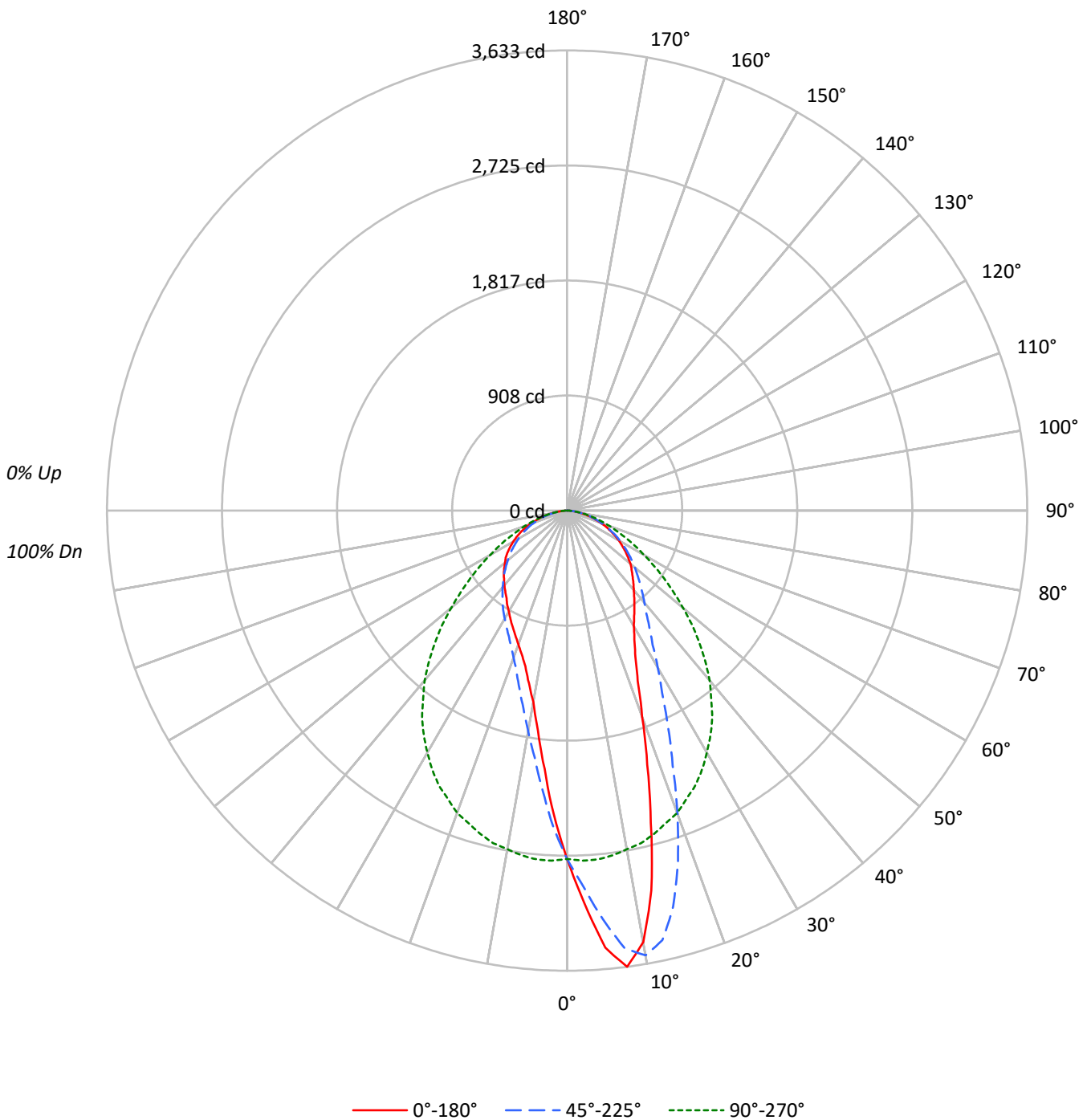
Lumens per Lamp: N/A
Luminaire Lumens: 4418.4 lumens
Efficiency: N/A
Efficacy: 110.2 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 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				
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76					74				
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66					64				
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58					56				
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52					50				
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47					45				
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42					40				
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39					37				
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35					34				
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33					31				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	33134	33134	33134	33134	33134
5°	41904	39187	33431	26809	24756
10°	42310	43622	33208	21655	18766
15°	31868	40368	32982	18146	15870
20°	22203	32643	32561	15823	14415
25°	16931	25041	31844	14505	13521
30°	14648	19903	30697	13706	12800
35°	13590	16667	29375	13063	12294
40°	12866	14913	27518	12464	12122
45°	12438	13852	25158	11938	12046
50°	12224	13084	22365	11481	11984
55°	11768	12358	19623	11071	12037
60°	11348	11685	16912	10671	11840
65°	10660	10951	14589	10224	11607
70°	9847	10160	12408	9667	10925
75°	8911	9208	10633	8850	9981
80°	7348	7883	8410	7702	8410
85°	5820	6346	6180	6705	6705

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 28725 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	260.0	5.9
10°-20°	646.9	14.6
20°-30°	765.7	17.3
30°-40°	769.5	17.4
40°-50°	705.7	16.0
50°-60°	582.5	13.2
60°-70°	412.2	9.3
70°-80°	220.1	5.0
80°-90°	55.9	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°	1672.5	37.9
0°-40°	2442.0	55.3
0°-60°	3730.2	84.4
0°-90°	4418.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4418.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2750	2750	2750	2750	2750	
5°	3464	3240	2764	2216	2047	330
15°	2555	3236	2644	1455	1272	706
25°	1274	1884	2395	1091	1017	601
35°	924	1133	1997	888	836	581
45°	730	813	1476	701	707	565
55°	560	588	934	527	573	501
65°	374	384	512	359	407	372
75°	191	198	228	190	214	201
85°	42	46	45	48	48	50
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°	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9
2.5°	3099.6	3093.2	3061.3	3040.9	3046.0	3000.0	2972.0	2949.0	2933.7	2896.7	2877.5
5°	3464.5	3482.4	3462.0	3451.8	3399.4	3316.5	3239.9	3223.3	3151.9	3063.8	3033.2
7.5°	3633.0	3643.2	3630.4	3630.4	3613.8	3539.8	3486.2	3444.1	3321.6	3208.0	3155.7
10°	3458.1	3481.1	3530.9	3553.8	3587.0	3576.8	3565.3	3548.7	3465.8	3334.4	3274.4
12.5°	3074.0	3102.1	3201.7	3215.7	3329.3	3439.0	3474.7	3515.6	3523.2	3412.2	3347.1
15°	2554.7	2632.5	2723.1	2766.5	2910.7	3141.7	3236.1	3347.1	3478.6	3432.6	3381.6
17.5°	2104.2	2133.6	2230.6	2322.4	2466.6	2733.3	2908.2	3074.0	3356.1	3402.0	3370.1
20°	1731.6	1758.4	1886.0	1879.6	2071.1	2370.9	2545.8	2737.2	3153.2	3302.5	3296.1
22.5°	1454.7	1496.8	1568.3	1607.8	1745.7	2012.4	2178.2	2416.9	2922.2	3158.3	3183.8
25°	1273.5	1304.1	1347.5	1382.0	1489.2	1708.7	1883.5	2080.0	2631.2	2969.4	3033.2
27.5°	1149.7	1162.5	1205.9	1226.3	1297.8	1486.6	1621.9	1801.8	2362.0	2757.6	2846.9
30°	1052.8	1061.7	1100.0	1106.3	1162.5	1299.0	1430.5	1577.2	2099.1	2539.4	2641.5
32.5°	985.1	991.5	1020.9	1023.4	1065.5	1165.0	1256.9	1394.7	1850.3	2305.9	2432.2
35°	923.9	927.7	949.4	955.8	982.6	1057.9	1133.1	1239.1	1652.5	2095.3	2234.4
37.5°	870.3	875.4	888.1	895.8	917.5	977.5	1028.5	1116.6	1462.4	1875.8	2030.2
40°	818.0	826.9	835.8	835.8	860.1	906.0	948.1	1020.9	1299.0	1684.4	1820.9
42.5°	773.3	782.2	786.1	787.3	800.1	842.2	877.9	927.7	1175.3	1514.7	1648.7
45°	729.9	733.7	737.6	740.1	749.1	786.1	812.9	860.1	1057.9	1357.7	1487.9
47.5°	690.4	690.4	692.9	696.7	703.1	729.9	752.9	787.3	957.1	1217.4	1324.6
50°	652.1	652.1	648.2	650.8	654.6	675.0	698.0	726.1	862.6	1088.5	1184.2
52.5°	606.1	606.1	607.4	603.6	607.4	625.3	643.1	671.2	782.2	969.8	1051.5
55°	560.2	565.3	561.5	558.9	564.0	575.5	588.3	612.5	706.9	875.4	940.5
57.5°	514.3	516.8	515.5	519.4	516.8	527.0	538.5	555.1	639.3	769.5	830.7
60°	470.9	470.9	468.3	470.9	470.9	476.0	484.9	501.5	570.4	678.9	729.9
62.5°	422.4	423.7	424.9	423.7	422.4	428.8	436.4	447.9	510.4	590.8	629.1
65°	373.9	375.2	379.0	377.7	376.4	382.8	384.1	396.9	444.1	513.0	541.1
67.5°	330.5	327.9	329.2	331.8	333.1	334.3	336.9	349.6	382.8	439.0	461.9
70°	279.5	282.0	280.7	284.6	282.0	285.8	288.4	297.3	329.2	366.2	381.5
72.5°	233.5	234.8	234.8	238.6	237.3	241.2	243.7	247.6	270.5	303.7	310.1
75°	191.4	191.4	194.0	195.2	195.2	195.2	197.8	200.3	219.5	239.9	246.3
77.5°	145.5	151.9	150.6	151.9	153.1	157.0	154.4	159.5	171.0	182.5	186.3
80°	105.9	105.9	107.2	108.5	111.0	113.6	113.6	118.7	123.8	130.2	134.0
82.5°	67.6	68.9	72.7	74.0	75.3	79.1	79.1	79.1	85.5	88.0	88.0
85°	42.1	39.6	42.1	43.4	44.7	45.9	45.9	48.5	49.8	51.0	51.0
87.5°	20.4	20.4	20.4	20.4	21.7	21.7	21.7	21.7	23.0	23.0	23.0
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°	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9	2749.9
2.5°	2813.7	2766.5	2696.3	2638.9	2641.5	2589.1	2550.9	2501.1	2485.8	2470.5	2450.0
5°	2872.4	2764.0	2618.5	2502.4	2466.6	2379.9	2270.1	2216.5	2184.6	2128.5	2106.8
7.5°	2945.2	2746.1	2524.1	2342.9	2303.3	2159.1	2028.9	1965.1	1905.2	1865.6	1817.1
10°	2992.4	2714.2	2428.4	2188.5	2150.2	1985.6	1815.8	1769.9	1694.6	1646.1	1600.2
12.5°	3028.1	2689.9	2330.1	2050.6	1988.1	1828.6	1657.6	1595.1	1540.2	1470.0	1436.9
15°	3060.0	2644.0	2229.3	1906.4	1841.4	1669.1	1510.9	1454.7	1404.9	1343.7	1314.3
17.5°	3048.5	2587.9	2118.3	1778.8	1713.8	1544.0	1392.2	1328.4	1295.2	1241.6	1221.2
20°	3034.5	2539.4	2013.6	1657.6	1586.2	1427.9	1279.9	1234.0	1200.8	1166.3	1148.5
22.5°	2989.8	2462.8	1907.7	1546.6	1479.0	1320.7	1194.4	1156.1	1130.6	1106.3	1091.0
25°	2914.5	2395.2	1804.4	1435.6	1382.0	1234.0	1126.8	1091.0	1074.4	1050.2	1036.2
27.5°	2821.4	2305.9	1701.0	1345.0	1283.7	1152.3	1060.4	1037.4	1019.6	1000.4	986.4
30°	2704.0	2206.3	1600.2	1256.9	1200.8	1084.7	1005.5	985.1	968.5	949.4	932.8
32.5°	2554.7	2105.5	1505.8	1175.3	1128.0	1027.2	954.5	937.9	923.9	900.9	892.0
35°	2387.5	1997.0	1412.6	1097.4	1052.8	964.7	904.7	888.1	874.1	855.0	847.3
37.5°	2217.8	1868.2	1320.7	1031.1	991.5	912.4	855.0	838.4	825.6	809.0	805.2
40°	2037.9	1749.5	1230.1	963.4	929.0	861.3	805.2	792.4	779.7	769.5	766.9
42.5°	1856.7	1612.9	1151.0	907.3	870.3	807.8	756.7	742.7	735.0	729.9	731.2
45°	1685.7	1476.4	1069.3	842.2	816.7	759.3	712.0	700.6	694.2	690.4	695.5
47.5°	1500.7	1337.3	992.8	787.3	761.8	710.8	666.1	655.9	653.3	652.1	661.0
50°	1337.3	1193.1	909.8	731.2	709.5	657.2	621.4	612.5	610.0	613.8	626.5
52.5°	1182.9	1059.1	834.5	678.9	657.2	610.0	576.8	570.4	569.1	578.1	590.8
55°	1029.8	934.1	752.9	621.4	599.8	558.9	533.4	527.0	525.7	543.6	555.1
57.5°	899.6	812.9	676.3	566.6	550.0	511.7	488.7	483.6	487.5	504.0	515.5
60°	772.0	701.8	606.1	507.9	495.1	461.9	444.1	442.8	446.6	465.8	477.2
62.5°	657.2	603.6	530.8	454.3	445.3	416.0	399.4	402.0	405.8	424.9	435.1
65°	558.9	511.7	456.8	400.7	389.2	368.8	357.3	358.6	366.2	382.8	393.0
67.5°	463.2	424.9	394.3	349.6	340.7	322.8	313.9	319.0	322.8	339.4	349.6
70°	382.8	352.2	329.2	296.0	289.7	274.4	268.0	274.4	278.2	292.2	305.0
72.5°	307.5	288.4	270.5	246.3	239.9	229.7	228.4	231.0	237.3	251.4	256.5
75°	238.6	228.4	213.1	197.8	194.0	188.9	187.6	190.1	196.5	204.2	209.3
77.5°	181.2	172.3	160.8	154.4	149.3	146.7	148.0	151.9	154.4	162.1	165.9
80°	131.4	121.2	118.7	109.7	108.5	107.2	109.7	111.0	114.8	120.0	122.5
82.5°	86.8	79.1	76.6	75.3	74.0	72.7	76.6	77.8	80.4	84.2	85.5
85°	47.2	44.7	44.7	43.4	44.7	47.2	47.2	48.5	48.5	49.8	48.5
87.5°	21.7	19.1	20.4	20.4	20.4	21.7	21.7	23.0	23.0	23.0	21.7
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°	2749.9	2749.9	2749.9
2.5°	2448.8	2439.8	2404.1
5°	2087.6	2057.0	2046.8
7.5°	1812.0	1809.5	1755.9
10°	1578.5	1582.3	1533.8
12.5°	1431.7	1399.8	1396.0
15°	1306.7	1277.3	1272.2
17.5°	1213.5	1195.7	1190.6
20°	1143.4	1133.1	1124.2
22.5°	1087.2	1074.4	1066.8
25°	1031.1	1019.6	1017.0
27.5°	982.6	968.5	968.5
30°	932.8	923.9	920.0
32.5°	888.1	880.5	880.5
35°	844.8	840.9	835.8
37.5°	805.2	805.2	802.6
40°	766.9	770.7	770.7
42.5°	733.7	737.6	737.6
45°	698.0	704.4	706.9
47.5°	662.3	672.5	675.0
50°	630.4	638.0	639.3
52.5°	595.9	604.9	611.2
55°	560.2	569.1	573.0
57.5°	521.9	530.8	532.1
60°	479.8	488.7	491.3
62.5°	441.5	446.6	449.2
65°	394.3	402.0	407.1
67.5°	350.9	357.3	357.3
70°	303.7	306.3	310.1
72.5°	259.0	260.3	260.3
75°	210.6	213.1	214.4
77.5°	165.9	167.2	167.2
80°	122.5	121.2	121.2
82.5°	85.5	81.7	81.7
85°	48.5	47.2	48.5
87.5°	21.7	21.7	21.7
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	19.65	21.16	20.02	21.47	21.79	22.11	23.61	22.47	23.93	24.24
	3H	21.34	22.70	21.72	23.03	23.39	23.32	24.67	23.70	25.00	25.36
	4H	21.94	23.22	22.34	23.57	23.94	23.74	25.01	24.14	25.36	25.74
	6H	22.35	23.53	22.76	23.89	24.28	24.01	25.19	24.42	25.55	25.95
	8H	22.45	23.57	22.88	23.96	24.36	24.08	25.20	24.51	25.59	25.99
	12H	22.51	23.58	22.94	23.96	24.39	24.12	25.19	24.55	25.57	26.00
4H	2H	20.30	21.57	20.70	21.92	22.30	22.33	23.60	22.73	23.95	24.32
	3H	22.18	23.24	22.59	23.64	24.04	23.81	24.87	24.22	25.27	25.67
	4H	22.90	23.86	23.34	24.27	24.71	24.37	25.33	24.81	25.74	26.18
	6H	23.42	24.25	23.87	24.69	25.15	24.77	25.60	25.23	26.04	26.50
	8H	23.55	24.33	24.02	24.77	25.24	24.87	25.65	25.34	26.09	26.56
	12H	23.64	24.33	24.12	24.81	25.28	24.94	25.63	25.42	26.11	26.58
8H	4H	23.23	24.00	23.69	24.45	24.92	24.54	25.31	25.00	25.76	26.23
	6H	23.84	24.48	24.34	24.98	25.45	25.03	25.67	25.53	26.16	26.64
	8H	24.04	24.61	24.56	25.12	25.61	25.19	25.77	25.71	26.28	26.76
	12H	24.18	24.69	24.69	25.18	25.75	25.31	25.82	25.82	26.31	26.87
12H	4H	23.26	23.95	23.74	24.43	24.90	24.54	25.24	25.03	25.71	26.19
	6H	23.90	24.47	24.41	24.98	25.47	25.05	25.62	25.56	26.13	26.62
	8H	24.15	24.65	24.66	25.14	25.71	25.26	25.77	25.77	26.26	26.82