

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: P646627

Luminaire Tested: S123DRP-S1165D930-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646627
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-S1165D930-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

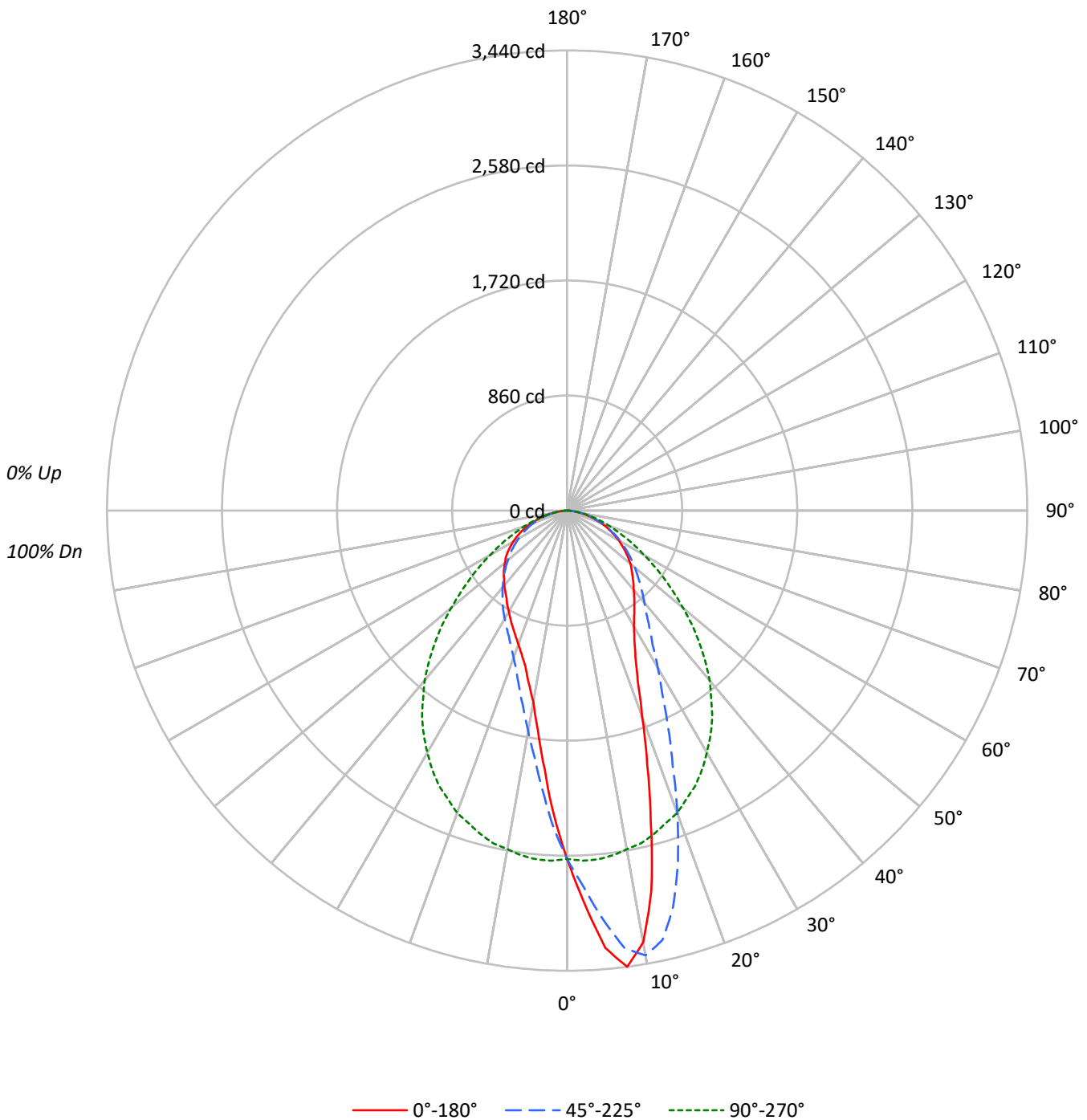
Lumens per Lamp: N/A
Luminaire Lumens: 4183.9 lumens
Efficiency: N/A
Efficacy: 104.3 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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°	31376	31376	31376	31376	31376
5°	39680	37108	31657	25387	23443
10°	40065	41307	31445	20506	17770
15°	30176	38225	31232	17183	15028
20°	21025	30910	30833	14983	13650
25°	16032	23711	30153	13735	12803
30°	13870	18845	29067	12978	12121
35°	12868	15783	27815	12371	11642
40°	12182	14122	26057	11803	11479
45°	11778	13116	23822	11304	11407
50°	11575	12391	21178	10872	11348
55°	11144	11701	18581	10483	11396
60°	10745	11066	16016	10104	11211
65°	10093	10369	13813	9679	10991
70°	9322	9621	11749	9153	10343
75°	8440	8720	10070	8380	9451
80°	6960	7459	7966	7293	7966
85°	5516	6014	5848	6346	6346

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 27199 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	246.2	5.9
10°-20°	612.5	14.6
20°-30°	725.0	17.3
30°-40°	728.7	17.4
40°-50°	668.2	16.0
50°-60°	551.6	13.2
60°-70°	390.3	9.3
70°-80°	208.4	5.0
80°-90°	52.9	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°	1583.8	37.9
0°-40°	2312.4	55.3
0°-60°	3532.2	84.4
0°-90°	4183.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4183.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2604	2604	2604	2604	2604	
5°	3281	3068	2617	2099	1938	313
15°	2419	3064	2504	1378	1205	668
25°	1206	1784	2268	1033	963	569
35°	875	1073	1891	841	792	550
45°	691	770	1398	663	669	535
55°	530	557	884	499	542	475
65°	354	364	484	340	386	352
75°	181	187	216	180	203	190
85°	40	44	42	46	46	47
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°	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0
2.5°	2935.0	2929.0	2898.8	2879.5	2884.3	2840.8	2814.2	2792.5	2778.0	2742.9	2724.8
5°	3280.6	3297.6	3278.2	3268.6	3219.0	3140.5	3068.0	3052.3	2984.6	2901.2	2872.2
7.5°	3440.1	3449.8	3437.7	3437.7	3422.0	3351.9	3301.2	3261.3	3145.3	3037.8	2988.2
10°	3274.6	3296.3	3343.5	3365.2	3396.6	3387.0	3376.1	3360.4	3281.8	3157.4	3100.6
12.5°	2910.9	2937.5	3031.7	3045.0	3152.5	3256.5	3290.3	3329.0	3336.2	3231.1	3169.5
15°	2419.1	2492.8	2578.6	2619.7	2756.2	2974.9	3064.3	3169.5	3293.9	3250.4	3202.1
17.5°	1992.5	2020.3	2112.2	2199.2	2335.7	2588.3	2753.8	2910.9	3177.9	3221.4	3191.2
20°	1639.7	1665.1	1785.9	1779.9	1961.1	2245.1	2410.6	2591.9	2985.8	3127.2	3121.1
22.5°	1377.5	1417.4	1485.0	1522.5	1653.0	1905.5	2062.6	2288.6	2767.1	2990.6	3014.8
25°	1205.9	1234.9	1276.0	1308.6	1410.1	1618.0	1783.5	1969.6	2491.6	2811.8	2872.2
27.5°	1088.7	1100.8	1141.9	1161.2	1228.9	1407.7	1535.8	1706.2	2236.6	2611.2	2695.8
30°	996.9	1005.3	1041.6	1047.6	1100.8	1230.1	1354.5	1493.5	1987.7	2404.6	2501.3
32.5°	932.8	938.9	966.7	969.1	1009.0	1103.2	1190.2	1320.7	1752.1	2183.5	2303.1
35°	874.8	878.5	899.0	905.0	930.4	1001.7	1073.0	1173.3	1564.8	1984.1	2115.8
37.5°	824.1	828.9	841.0	848.3	868.8	925.6	973.9	1057.3	1384.8	1776.3	1922.5
40°	774.5	783.0	791.5	791.5	814.4	857.9	897.8	966.7	1230.1	1595.0	1724.3
42.5°	732.3	740.7	744.3	745.5	757.6	797.5	831.3	878.5	1112.9	1434.3	1561.2
45°	691.2	694.8	698.4	700.8	709.3	744.3	769.7	814.4	1001.7	1285.7	1408.9
47.5°	653.7	653.7	656.1	659.8	665.8	691.2	712.9	745.5	906.3	1152.8	1254.3
50°	617.5	617.5	613.8	616.3	619.9	639.2	661.0	687.5	816.8	1030.7	1121.3
52.5°	574.0	574.0	575.2	571.5	575.2	592.1	609.0	635.6	740.7	918.3	995.7
55°	530.5	535.3	531.7	529.3	534.1	545.0	557.0	580.0	669.4	828.9	890.5
57.5°	487.0	489.4	488.2	491.8	489.4	499.0	509.9	525.6	605.4	728.6	786.6
60°	445.9	445.9	443.5	445.9	445.9	450.7	459.2	474.9	540.1	642.8	691.2
62.5°	400.0	401.2	402.4	401.2	400.0	406.0	413.3	424.1	483.3	559.5	595.7
65°	354.0	355.3	358.9	357.7	356.5	362.5	363.7	375.8	420.5	485.8	512.3
67.5°	313.0	310.5	311.8	314.2	315.4	316.6	319.0	331.1	362.5	415.7	437.4
70°	264.6	267.0	265.8	269.5	267.0	270.7	273.1	281.5	311.8	346.8	361.3
72.5°	221.1	222.3	222.3	226.0	224.8	228.4	230.8	234.4	256.2	287.6	293.6
75°	181.3	181.3	183.7	184.9	184.9	184.9	187.3	189.7	207.8	227.2	233.2
77.5°	137.8	143.8	142.6	143.8	145.0	148.6	146.2	151.0	161.9	172.8	176.4
80°	100.3	100.3	101.5	102.7	105.1	107.5	107.5	112.4	117.2	123.3	126.9
82.5°	64.0	65.3	68.9	70.1	71.3	74.9	74.9	74.9	81.0	83.4	83.4
85°	39.9	37.5	39.9	41.1	42.3	43.5	43.5	45.9	47.1	48.3	48.3
87.5°	19.3	19.3	19.3	19.3	20.5	20.5	20.5	20.5	21.8	21.8	21.8
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°	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0	2604.0
2.5°	2664.4	2619.7	2553.2	2498.8	2501.3	2451.7	2415.5	2368.3	2353.8	2339.3	2320.0
5°	2720.0	2617.3	2479.5	2369.5	2335.7	2253.5	2149.6	2098.9	2068.7	2015.5	1995.0
7.5°	2788.8	2600.3	2390.1	2218.5	2181.0	2044.5	1921.3	1860.8	1804.0	1766.6	1720.7
10°	2833.5	2570.1	2299.5	2072.3	2036.0	1880.2	1719.5	1676.0	1604.7	1558.8	1515.3
12.5°	2867.4	2547.2	2206.4	1941.8	1882.6	1731.5	1569.6	1510.4	1458.5	1392.0	1360.6
15°	2897.6	2503.7	2111.0	1805.3	1743.6	1580.5	1430.7	1377.5	1330.4	1272.4	1244.6
17.5°	2886.7	2450.5	2005.8	1684.4	1622.8	1462.1	1318.3	1257.9	1226.5	1175.7	1156.4
20°	2873.4	2404.6	1906.8	1569.6	1502.0	1352.1	1212.0	1168.5	1137.0	1104.4	1087.5
22.5°	2831.1	2332.1	1806.5	1464.5	1400.5	1250.6	1131.0	1094.8	1070.6	1047.6	1033.1
25°	2759.8	2268.0	1708.6	1359.4	1308.6	1168.5	1067.0	1033.1	1017.4	994.5	981.2
27.5°	2671.6	2183.5	1610.7	1273.6	1215.6	1091.1	1004.1	982.4	965.5	947.3	934.0
30°	2560.5	2089.2	1515.3	1190.2	1137.0	1027.1	952.2	932.8	917.1	899.0	883.3
32.5°	2419.1	1993.8	1425.8	1112.9	1068.2	972.7	903.8	888.1	874.8	853.1	844.6
35°	2260.8	1891.0	1337.6	1039.2	996.9	913.5	856.7	841.0	827.7	809.6	802.3
37.5°	2100.1	1769.0	1250.6	976.3	938.9	864.0	809.6	793.9	781.8	766.1	762.5
40°	1929.7	1656.6	1164.8	912.3	879.7	815.6	762.5	750.4	738.3	728.6	726.2
42.5°	1758.1	1527.3	1089.9	859.1	824.1	764.9	716.5	703.3	696.0	691.2	692.4
45°	1596.2	1398.0	1012.6	797.5	773.3	719.0	674.3	663.4	657.3	653.7	658.5
47.5°	1421.0	1266.3	940.1	745.5	721.4	673.0	630.8	621.1	618.7	617.5	625.9
50°	1266.3	1129.8	861.5	692.4	671.8	622.3	588.5	580.0	577.6	581.2	593.3
52.5°	1120.1	1002.9	790.3	642.8	622.3	577.6	546.2	540.1	538.9	547.4	559.5
55°	975.1	884.5	712.9	588.5	567.9	529.3	505.1	499.0	497.8	514.8	525.6
57.5°	851.9	769.7	640.4	536.5	520.8	484.5	462.8	458.0	461.6	477.3	488.2
60°	731.0	664.6	574.0	480.9	468.8	437.4	420.5	419.3	422.9	441.0	451.9
62.5°	622.3	571.5	502.7	430.2	421.7	393.9	378.2	380.6	384.3	402.4	412.0
65°	529.3	484.5	432.6	379.4	368.5	349.2	338.3	339.5	346.8	362.5	372.2
67.5°	438.6	402.4	373.4	331.1	322.6	305.7	297.3	302.1	305.7	321.4	331.1
70°	362.5	333.5	311.8	280.3	274.3	259.8	253.8	259.8	263.4	276.7	288.8
72.5°	291.2	273.1	256.2	233.2	227.2	217.5	216.3	218.7	224.8	238.0	242.9
75°	226.0	216.3	201.8	187.3	183.7	178.8	177.6	180.0	186.1	193.3	198.2
77.5°	171.6	163.1	152.3	146.2	141.4	139.0	140.2	143.8	146.2	153.5	157.1
80°	124.5	114.8	112.4	103.9	102.7	101.5	103.9	105.1	108.8	113.6	116.0
82.5°	82.2	74.9	72.5	71.3	70.1	68.9	72.5	73.7	76.1	79.8	81.0
85°	44.7	42.3	42.3	41.1	42.3	44.7	44.7	45.9	45.9	47.1	45.9
87.5°	20.5	18.1	19.3	19.3	19.3	20.5	20.5	21.8	21.8	21.8	20.5
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°	2604.0	2604.0	2604.0
2.5°	2318.8	2310.3	2276.5
5°	1976.8	1947.8	1938.2
7.5°	1715.8	1713.4	1662.7
10°	1494.7	1498.3	1452.4
12.5°	1355.8	1325.5	1321.9
15°	1237.3	1209.5	1204.7
17.5°	1149.1	1132.2	1127.4
20°	1082.7	1073.0	1064.5
22.5°	1029.5	1017.4	1010.2
25°	976.3	965.5	963.0
27.5°	930.4	917.1	917.1
30°	883.3	874.8	871.2
32.5°	841.0	833.8	833.8
35°	799.9	796.3	791.5
37.5°	762.5	762.5	760.0
40°	726.2	729.8	729.8
42.5°	694.8	698.4	698.4
45°	661.0	667.0	669.4
47.5°	627.1	636.8	639.2
50°	596.9	604.2	605.4
52.5°	564.3	572.8	578.8
55°	530.5	538.9	542.5
57.5°	494.2	502.7	503.9
60°	454.3	462.8	465.2
62.5°	418.1	422.9	425.3
65°	373.4	380.6	385.5
67.5°	332.3	338.3	338.3
70°	287.6	290.0	293.6
72.5°	245.3	246.5	246.5
75°	199.4	201.8	203.0
77.5°	157.1	158.3	158.3
80°	116.0	114.8	114.8
82.5°	81.0	77.3	77.3
85°	45.9	44.7	45.9
87.5°	20.5	20.5	20.5
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	19.46	20.97	19.83	21.28	21.60	21.92	23.42	22.28	23.74	24.05
	3H	21.15	22.51	21.53	22.84	23.20	23.13	24.48	23.51	24.81	25.17
	4H	21.76	23.03	22.16	23.38	23.76	23.55	24.82	23.95	25.17	25.55
	6H	22.16	23.34	22.57	23.70	24.09	23.82	25.00	24.23	25.36	25.76
	8H	22.26	23.38	22.69	23.77	24.17	23.89	25.01	24.32	25.40	25.80
	12H	22.32	23.39	22.75	23.77	24.20	23.93	25.00	24.36	25.38	25.81
4H	2H	20.11	21.38	20.51	21.73	22.11	22.14	23.41	22.54	23.76	24.14
	3H	21.99	23.05	22.41	23.45	23.85	23.62	24.68	24.03	25.08	25.48
	4H	22.72	23.67	23.15	24.08	24.52	24.18	25.14	24.62	25.55	25.99
	6H	23.23	24.06	23.69	24.50	24.96	24.58	25.41	25.04	25.85	26.31
	8H	23.36	24.14	23.83	24.58	25.05	24.68	25.46	25.15	25.90	26.37
	12H	23.45	24.14	23.93	24.62	25.09	24.75	25.44	25.23	25.92	26.39
8H	4H	23.04	23.82	23.50	24.26	24.73	24.35	25.12	24.81	25.57	26.04
	6H	23.65	24.29	24.15	24.79	25.26	24.84	25.48	25.34	25.97	26.45
	8H	23.85	24.43	24.37	24.94	25.42	25.00	25.58	25.52	26.09	26.58
	12H	24.00	24.50	24.51	24.99	25.56	25.12	25.63	25.63	26.12	26.69
12H	4H	23.07	23.76	23.55	24.24	24.71	24.35	25.05	24.84	25.53	26.00
	6H	23.71	24.28	24.22	24.79	25.28	24.86	25.43	25.37	25.94	26.43
	8H	23.96	24.46	24.47	24.96	25.52	25.07	25.58	25.58	26.07	26.63