

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: P646618

Luminaire Tested: S123DRP-S1000D930-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646618  
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-S1000D930-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: -

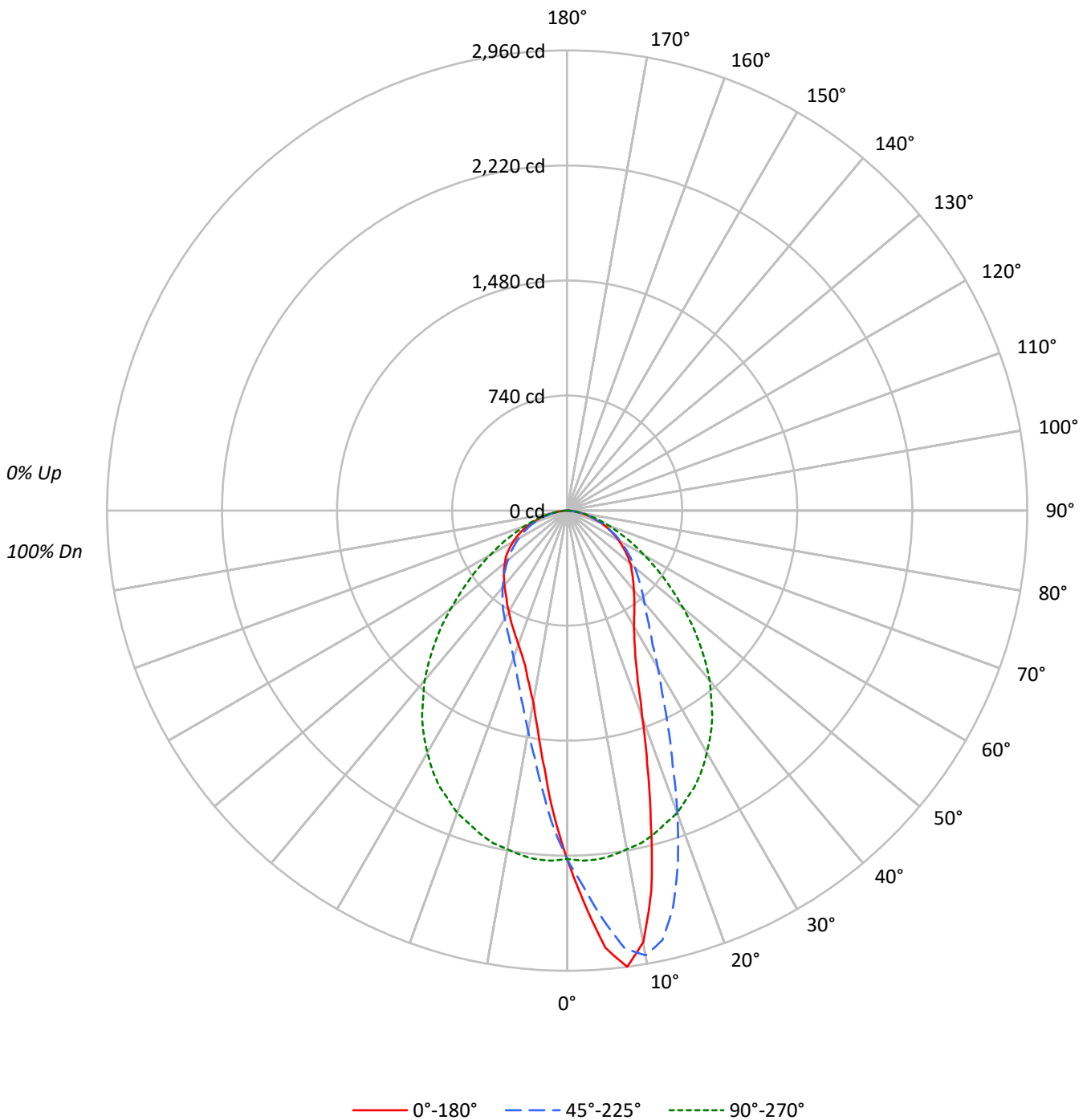
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3600.0 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): 34.5  
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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CATALOG NUMBER: S123DRP-S1000D930-X4F0-XX-UDD-G-W

### 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°	26997	26997	26997	26997	26997
5°	34142	31929	27238	21844	20171
10°	34473	35542	27058	17644	15290
15°	25965	32891	26873	14786	12931
20°	18091	26596	26530	12892	11745
25°	13795	20402	25945	11818	11016
30°	11935	16216	25012	11168	10429
35°	11072	13581	23934	10644	10017
40°	10483	12151	22420	10156	9878
45°	10134	11286	20498	9726	9815
50°	9959	10660	18222	9356	9764
55°	9588	10069	15989	9020	9806
60°	9247	9521	13779	8695	9647
65°	8684	8924	11886	8331	9457
70°	8022	8279	10111	7874	8899
75°	7262	7505	8664	7211	8133
80°	5988	6418	6856	6280	6856
85°	4742	5171	5032	5461	5461

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 23405 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	211.8	5.9
10°-20°	527.1	14.6
20°-30°	623.9	17.3
30°-40°	627.0	17.4
40°-50°	575.0	16.0
50°-60°	474.6	13.2
60°-70°	335.8	9.3
70°-80°	179.4	5.0
80°-90°	45.5	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°	1362.7	37.9
0°-40°	1989.7	55.3
0°-60°	3039.3	84.4
0°-90°	3600.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3600.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2241	2241	2241	2241	2241	
5°	2823	2640	2252	1806	1668	269
15°	2082	2637	2154	1185	1037	575
25°	1038	1535	1952	889	829	490
35°	753	923	1627	724	681	473
45°	595	662	1203	571	576	461
55°	456	479	761	429	467	408
65°	305	313	417	292	332	303
75°	156	161	186	155	175	164
85°	34	37	36	40	40	41
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°	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6
2.5°	2525.4	2520.3	2494.3	2477.6	2481.8	2444.4	2421.5	2402.8	2390.3	2360.1	2344.5
5°	2822.8	2837.4	2820.7	2812.4	2769.8	2702.2	2639.8	2626.3	2568.1	2496.3	2471.4
7.5°	2960.0	2968.4	2958.0	2958.0	2944.5	2884.1	2840.5	2806.2	2706.4	2613.8	2571.2
10°	2817.6	2836.3	2876.9	2895.6	2922.6	2914.3	2904.9	2891.4	2823.8	2716.8	2667.9
12.5°	2504.7	2527.5	2608.6	2620.1	2712.6	2802.0	2831.1	2864.4	2870.6	2780.2	2727.2
15°	2081.5	2144.9	2218.7	2254.1	2371.6	2559.8	2636.7	2727.2	2834.2	2796.8	2755.2
17.5°	1714.5	1738.4	1817.4	1892.3	2009.8	2227.1	2369.5	2504.7	2734.4	2771.9	2745.9
20°	1410.9	1432.7	1536.7	1531.5	1687.4	1931.8	2074.2	2230.2	2569.1	2690.8	2685.6
22.5°	1185.3	1219.6	1277.8	1310.0	1422.3	1639.6	1774.8	1969.2	2380.9	2573.3	2594.1
25°	1037.6	1062.6	1097.9	1126.0	1213.3	1392.2	1534.6	1694.7	2143.9	2419.4	2471.4
27.5°	936.8	947.2	982.5	999.2	1057.4	1211.3	1321.5	1468.1	1924.5	2246.8	2319.6
30°	857.8	865.0	896.2	901.4	947.2	1058.4	1165.5	1285.1	1710.3	2069.0	2152.2
32.5°	802.7	807.9	831.8	833.8	868.2	949.3	1024.1	1136.4	1507.6	1878.8	1981.7
35°	752.7	755.9	773.5	778.7	800.6	861.9	923.3	1009.6	1346.4	1707.2	1820.5
37.5°	709.1	713.2	723.6	729.9	747.5	796.4	838.0	909.7	1191.5	1528.4	1654.2
40°	666.5	673.7	681.0	681.0	700.8	738.2	772.5	831.8	1058.4	1372.4	1483.7
42.5°	630.1	637.3	640.5	641.5	651.9	686.2	715.3	755.9	957.6	1234.1	1343.3
45°	594.7	597.8	601.0	603.0	610.3	640.5	662.3	700.8	861.9	1106.2	1212.3
47.5°	562.5	562.5	564.6	567.7	572.9	594.7	613.4	641.5	779.8	991.9	1079.2
50°	531.3	531.3	528.2	530.3	533.4	550.0	568.7	591.6	702.8	886.9	964.8
52.5°	493.9	493.9	494.9	491.8	494.9	509.5	524.0	546.9	637.3	790.2	856.7
55°	456.4	460.6	457.5	455.4	459.6	468.9	479.3	499.1	576.0	713.2	766.3
57.5°	419.0	421.1	420.0	423.2	421.1	429.4	438.8	452.3	520.9	626.9	676.8
60°	383.7	383.7	381.6	383.7	383.7	387.8	395.1	408.6	464.7	553.1	594.7
62.5°	344.1	345.2	346.2	345.2	344.1	349.3	355.6	364.9	415.9	481.4	512.6
65°	304.6	305.7	308.8	307.8	306.7	311.9	313.0	323.3	361.8	418.0	440.8
67.5°	269.3	267.2	268.2	270.3	271.4	272.4	274.5	284.9	311.9	357.7	376.4
70°	227.7	229.8	228.7	231.9	229.8	232.9	235.0	242.3	268.2	298.4	310.9
72.5°	190.3	191.3	191.3	194.4	193.4	196.5	198.6	201.7	220.4	247.5	252.6
75°	156.0	156.0	158.0	159.1	159.1	159.1	161.2	163.2	178.8	195.5	200.7
77.5°	118.5	123.7	122.7	123.7	124.8	127.9	125.8	130.0	139.3	148.7	151.8
80°	86.3	86.3	87.3	88.4	90.5	92.5	92.5	96.7	100.9	106.1	109.2
82.5°	55.1	56.1	59.3	60.3	61.3	64.5	64.5	64.5	69.7	71.7	71.7
85°	34.3	32.2	34.3	35.4	36.4	37.4	37.4	39.5	40.5	41.6	41.6
87.5°	16.6	16.6	16.6	16.6	17.7	17.7	17.7	17.7	18.7	18.7	18.7
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):**

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6	2240.6
2.5°	2292.6	2254.1	2196.9	2150.1	2152.2	2109.6	2078.4	2037.8	2025.3	2012.9	1996.2
5°	2340.4	2252.0	2133.5	2038.9	2009.8	1939.1	1849.6	1806.0	1780.0	1734.2	1716.6
7.5°	2399.6	2237.4	2056.5	1908.9	1876.7	1759.2	1653.1	1601.1	1552.3	1520.1	1480.5
10°	2438.1	2211.5	1978.6	1783.1	1751.9	1617.8	1479.5	1442.1	1380.7	1341.2	1303.8
12.5°	2467.2	2191.7	1898.5	1670.8	1619.9	1489.9	1350.6	1299.6	1254.9	1197.7	1170.7
15°	2493.2	2154.3	1816.4	1553.3	1500.3	1359.9	1231.0	1185.3	1144.7	1094.8	1070.9
17.5°	2483.9	2108.5	1725.9	1449.4	1396.3	1258.0	1134.3	1082.3	1055.3	1011.6	995.0
20°	2472.4	2069.0	1640.7	1350.6	1292.4	1163.4	1042.8	1005.4	978.4	950.3	935.7
22.5°	2436.0	2006.6	1554.4	1260.1	1205.0	1076.1	973.2	942.0	921.2	901.4	888.9
25°	2374.7	1951.5	1470.1	1169.7	1126.0	1005.4	918.1	888.9	875.4	855.7	844.2
27.5°	2298.8	1878.8	1385.9	1095.9	1045.9	938.9	864.0	845.3	830.7	815.1	803.7
30°	2203.1	1797.7	1303.8	1024.1	978.4	883.8	819.3	802.7	789.1	773.5	760.0
32.5°	2081.5	1715.5	1226.9	957.6	919.1	837.0	777.7	764.2	752.7	734.0	726.8
35°	1945.3	1627.1	1151.0	894.1	857.8	786.0	737.2	723.6	712.2	696.6	690.4
37.5°	1807.0	1522.1	1076.1	840.1	807.9	743.4	696.6	683.1	672.7	659.2	656.1
40°	1660.4	1425.4	1002.3	785.0	756.9	701.8	656.1	645.7	635.3	626.9	624.9
42.5°	1512.8	1314.2	937.8	739.2	709.1	658.1	616.5	605.1	598.9	594.7	595.8
45°	1373.5	1202.9	871.3	686.2	665.4	618.6	580.2	570.8	565.6	562.5	566.6
47.5°	1222.7	1089.6	808.9	641.5	620.7	579.1	542.7	534.4	532.3	531.3	538.6
50°	1089.6	972.1	741.3	595.8	578.1	535.4	506.3	499.1	497.0	500.1	510.5
52.5°	963.8	863.0	680.0	553.1	535.4	497.0	469.9	464.7	463.7	471.0	481.4
55°	839.0	761.1	613.4	506.3	488.7	455.4	434.6	429.4	428.4	442.9	452.3
57.5°	733.0	662.3	551.0	461.6	448.1	416.9	398.2	394.0	397.2	410.7	420.0
60°	629.0	571.8	493.9	413.8	403.4	376.4	361.8	360.8	363.9	379.5	388.9
62.5°	535.4	491.8	432.5	370.1	362.9	338.9	325.4	327.5	330.6	346.2	354.5
65°	455.4	416.9	372.2	326.5	317.1	300.5	291.1	292.2	298.4	311.9	320.2
67.5°	377.4	346.2	321.3	284.9	277.6	263.0	255.8	259.9	263.0	276.6	284.9
70°	311.9	287.0	268.2	241.2	236.0	223.5	218.3	223.5	226.7	238.1	248.5
72.5°	250.6	235.0	220.4	200.7	195.5	187.1	186.1	188.2	193.4	204.8	209.0
75°	194.4	186.1	173.6	161.2	158.0	153.9	152.8	154.9	160.1	166.4	170.5
77.5°	147.6	140.4	131.0	125.8	121.6	119.6	120.6	123.7	125.8	132.0	135.2
80°	107.1	98.8	96.7	89.4	88.4	87.3	89.4	90.5	93.6	97.7	99.8
82.5°	70.7	64.5	62.4	61.3	60.3	59.3	62.4	63.4	65.5	68.6	69.7
85°	38.5	36.4	36.4	35.4	36.4	38.5	38.5	39.5	39.5	40.5	39.5
87.5°	17.7	15.6	16.6	16.6	16.6	17.7	17.7	18.7	18.7	18.7	17.7
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°	2240.6	2240.6	2240.6
2.5°	1995.2	1987.9	1958.8
5°	1701.0	1676.0	1667.7
7.5°	1476.4	1474.3	1430.6
10°	1286.1	1289.2	1249.7
12.5°	1166.6	1140.6	1137.4
15°	1064.7	1040.7	1036.6
17.5°	988.8	974.2	970.0
20°	931.6	923.3	916.0
22.5°	885.8	875.4	869.2
25°	840.1	830.7	828.6
27.5°	800.6	789.1	789.1
30°	760.0	752.7	749.6
32.5°	723.6	717.4	717.4
35°	688.3	685.2	681.0
37.5°	656.1	656.1	654.0
40°	624.9	628.0	628.0
42.5°	597.8	601.0	601.0
45°	568.7	573.9	576.0
47.5°	539.6	547.9	550.0
50°	513.6	519.9	520.9
52.5°	485.5	492.8	498.0
55°	456.4	463.7	466.8
57.5°	425.2	432.5	433.6
60°	390.9	398.2	400.3
62.5°	359.7	363.9	366.0
65°	321.3	327.5	331.7
67.5°	285.9	291.1	291.1
70°	247.5	249.5	252.6
72.5°	211.1	212.1	212.1
75°	171.6	173.6	174.7
77.5°	135.2	136.2	136.2
80°	99.8	98.8	98.8
82.5°	69.7	66.5	66.5
85°	39.5	38.5	39.5
87.5°	17.7	17.7	17.7
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	18.94	20.45	19.31	20.76	21.08	21.39	22.90	21.76	23.21	23.53
	3H	20.63	21.99	21.01	22.31	22.68	22.61	23.96	22.98	24.29	24.65
	4H	21.23	22.51	21.63	22.85	23.23	23.03	24.30	23.43	24.65	25.03
	6H	21.64	22.81	22.05	23.18	23.57	23.30	24.48	23.71	24.84	25.23
	8H	21.74	22.86	22.17	23.25	23.65	23.37	24.49	23.80	24.88	25.28
	12H	21.80	22.87	22.23	23.25	23.68	23.40	24.47	23.83	24.86	25.29
4H	2H	19.59	20.86	19.99	21.21	21.59	21.61	22.89	22.01	23.23	23.61
	3H	21.47	22.53	21.88	22.93	23.33	23.10	24.15	23.51	24.55	24.96
	4H	22.19	23.15	22.63	23.56	24.00	23.66	24.62	24.09	25.03	25.47
	6H	22.71	23.53	23.16	23.98	24.44	24.06	24.89	24.51	25.33	25.79
	8H	22.84	23.62	23.31	24.06	24.53	24.16	24.94	24.63	25.38	25.85
	12H	22.93	23.62	23.41	24.10	24.57	24.23	24.92	24.71	25.40	25.87
8H	4H	22.52	23.29	22.98	23.74	24.20	23.83	24.60	24.29	25.05	25.51
	6H	23.13	23.77	23.63	24.26	24.74	24.32	24.96	24.82	25.45	25.93
	8H	23.33	23.90	23.84	24.41	24.90	24.48	25.06	25.00	25.56	26.05
	12H	23.47	23.98	23.98	24.47	25.04	24.60	25.11	25.11	25.60	26.16
12H	4H	22.55	23.24	23.03	23.72	24.19	23.83	24.52	24.31	25.00	25.47
	6H	23.18	23.76	23.70	24.27	24.76	24.34	24.91	24.85	25.42	25.91
	8H	23.43	23.94	23.94	24.43	25.00	24.55	25.05	25.06	25.55	26.11