

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: P646673

Luminaire Tested: S123RDRP-S1165D935-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646673  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-2)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/20/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123RDRP-S1165D935-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

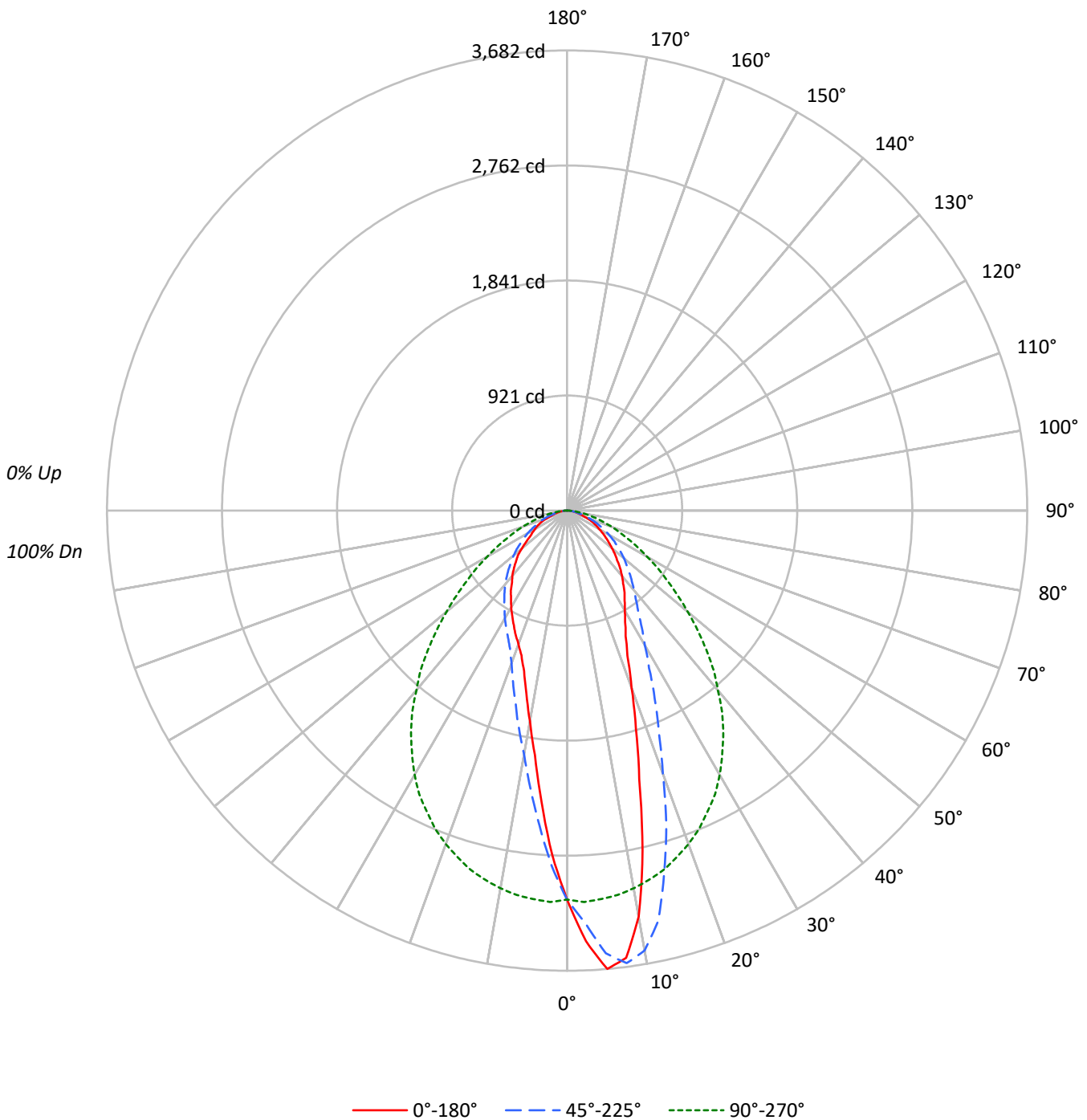
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4123.3 lumens  
Efficiency: N/A  
Efficacy: 102.8 lumens/watt  
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79  
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 (A<sub>in</sub>): 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	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89					87				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78					76				
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	69					67				
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61					59				
5	82	70	62	56	80	69	62	56	67	61	56	65	60	55	63	58	54					53				
6	76	64	56	51	74	63	56	50	62	55	50	60	54	50	59	53	49					47				
7	71	59	51	46	70	58	51	46	57	50	45	56	50	45	54	49	45					43				
8	67	55	47	42	65	54	47	42	53	46	41	52	46	41	51	45	41					39				
9	63	51	43	38	62	50	43	38	49	43	38	48	42	38	47	42	38					36				
10	60	47	40	36	58	47	40	35	46	40	35	45	39	35	44	39	35					33				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	37501	37501	37501	37501	37501
5°	44528	43015	37737	30606	28322
10°	40344	43716	37548	24232	20968
15°	27776	37439	37152	19898	16587
20°	19323	28716	36406	16673	14579
25°	14725	22037	35322	14895	13436
30°	12818	17327	33963	13848	12445
35°	11769	14584	32040	12913	11544
40°	10738	13087	29525	12122	10718
45°	9698	11981	26811	11264	9893
50°	8803	11123	23610	10477	8874
55°	7962	10214	20534	9571	7613
60°	7133	9288	17835	8765	7196
65°	6586	8260	15353	7786	6803
70°	5351	7056	13398	7056	5531
75°	4693	5703	11345	5880	4870
80°	4254	4781	9298	4961	4607
85°	3885	4051	7051	4410	4230

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 28290 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	283.6	6.9
10°-20°	656.3	15.9
20°-30°	752.9	18.3
30°-40°	741.7	18.0
40°-50°	653.7	15.9
50°-60°	503.1	12.2
60°-70°	330.8	8.0
70°-80°	160.6	3.9
80°-90°	40.5	1.0
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°	1692.9	41.1
0°-40°	2434.5	59.0
0°-60°	3591.4	87.1
0°-90°	4123.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4123.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	3112	3112	3112	3112	3112	
5°	3682	3556	3120	2530	2342	336
15°	2227	3001	2978	1595	1330	629
25°	1108	1658	2657	1120	1011	523
35°	800	992	2178	878	785	499
45°	569	703	1573	661	581	442
55°	379	486	978	456	362	340
65°	231	290	538	273	239	226
75°	101	122	244	126	105	109
85°	28	29	51	32	31	32
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°	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3
2.5°	3449.2	3427.5	3421.1	3413.5	3400.7	3354.8	3302.5	3307.6	3301.2	3261.6	3239.9
5°	3681.5	3684.0	3677.6	3672.5	3650.8	3594.7	3556.4	3533.4	3484.9	3410.9	3388.0
7.5°	3610.0	3650.8	3658.5	3667.4	3678.9	3666.1	3652.1	3643.2	3603.6	3523.2	3486.2
10°	3297.4	3294.8	3340.7	3377.7	3477.3	3547.5	3573.0	3610.0	3643.2	3587.0	3546.2
12.5°	2786.9	2790.8	2941.3	2941.3	3070.2	3248.9	3363.7	3441.6	3584.5	3588.3	3564.1
15°	2226.7	2289.3	2423.3	2451.3	2617.2	2857.1	3001.3	3162.1	3439.0	3525.8	3520.7
17.5°	1828.6	1855.4	1984.3	2021.3	2168.0	2439.8	2638.9	2832.9	3220.8	3403.3	3436.4
20°	1507.0	1531.3	1624.4	1652.5	1800.5	2059.6	2239.5	2448.8	2956.6	3236.1	3294.8
22.5°	1258.2	1305.4	1367.9	1411.3	1495.5	1759.7	1914.1	2114.4	2650.4	3048.5	3117.4
25°	1107.6	1129.3	1182.9	1203.3	1305.4	1480.2	1657.6	1833.7	2378.6	2813.7	2935.0
27.5°	1005.5	1011.9	1051.5	1069.3	1130.6	1292.7	1420.3	1583.6	2101.7	2572.5	2714.2
30°	921.3	932.8	963.4	967.3	1020.9	1135.7	1245.4	1396.0	1859.2	2339.0	2484.5
32.5°	856.2	862.6	888.1	895.8	930.3	1020.9	1110.2	1219.9	1634.6	2095.3	2262.5
35°	800.1	801.4	820.5	830.7	861.3	936.6	991.5	1083.4	1454.7	1893.7	2040.4
37.5°	736.3	745.2	759.3	768.2	795.0	856.2	906.0	977.5	1288.8	1702.3	1838.8
40°	682.7	690.4	706.9	710.8	735.0	791.2	832.0	895.8	1145.9	1518.5	1657.6
42.5°	629.1	634.2	650.8	658.5	685.2	729.9	766.9	816.7	1032.3	1355.2	1491.7
45°	569.1	581.9	599.8	603.6	629.1	675.0	703.1	749.1	930.3	1213.5	1334.8
47.5°	519.4	525.7	541.1	547.4	576.8	617.6	647.0	686.5	842.2	1084.7	1203.3
50°	469.6	472.1	486.2	495.1	518.1	565.3	593.4	629.1	761.8	980.0	1063.0
52.5°	422.4	428.8	442.8	449.2	464.5	513.0	538.5	575.5	685.2	872.8	955.8
55°	379.0	382.8	393.0	400.7	418.5	460.7	486.2	518.1	618.9	774.6	847.3
57.5°	338.2	343.3	350.9	357.3	373.9	410.9	436.4	468.3	556.4	685.2	741.4
60°	296.0	302.4	311.4	313.9	329.2	362.4	385.4	413.4	492.6	602.3	652.1
62.5°	265.4	266.7	274.4	278.2	287.1	313.9	338.2	365.0	435.1	521.9	562.7
65°	231.0	234.8	238.6	241.2	248.8	271.8	289.7	310.1	379.0	454.3	482.4
67.5°	195.2	199.1	205.4	208.0	214.4	229.7	245.0	265.4	322.8	386.6	412.2
70°	151.9	151.9	162.1	167.2	177.4	188.9	200.3	218.2	268.0	322.8	342.0
72.5°	123.8	125.1	126.3	126.3	135.3	154.4	160.8	172.3	211.8	264.1	280.7
75°	100.8	102.1	103.4	104.6	105.9	112.3	122.5	132.7	162.1	200.3	215.7
77.5°	80.4	81.7	82.9	82.9	85.5	88.0	90.6	95.7	116.1	144.2	157.0
80°	61.3	62.5	63.8	63.8	65.1	67.6	68.9	71.5	77.8	97.0	103.4
82.5°	44.7	44.7	44.7	45.9	47.2	47.2	49.8	49.8	53.6	58.7	62.5
85°	28.1	28.1	29.3	29.3	29.3	30.6	29.3	30.6	31.9	33.2	35.7
87.5°	12.8	11.5	12.8	12.8	12.8	14.0	14.0	14.0	14.0	15.3	15.3
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°	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3	3112.3
2.5°	3180.0	3135.3	3060.0	3012.8	2994.9	2940.1	2887.7	2844.4	2822.7	2820.1	2780.5
5°	3242.5	3120.0	2964.3	2834.1	2803.5	2707.8	2584.0	2530.4	2460.3	2432.2	2399.0
7.5°	3293.5	3102.1	2872.4	2675.9	2618.5	2474.3	2316.1	2245.9	2192.3	2108.1	2058.3
10°	3329.3	3068.9	2760.1	2506.2	2424.5	2256.1	2064.7	1980.5	1930.7	1833.7	1794.1
12.5°	3343.3	3026.8	2647.8	2330.1	2258.6	2058.3	1870.7	1783.9	1709.9	1621.9	1583.6
15°	3338.2	2978.3	2533.0	2168.0	2078.7	1875.8	1676.8	1595.1	1526.2	1438.1	1388.4
17.5°	3303.7	2909.4	2407.9	2011.1	1925.6	1716.3	1514.7	1439.4	1378.2	1292.7	1254.4
20°	3246.3	2839.2	2298.2	1868.2	1771.2	1570.8	1380.7	1300.3	1246.7	1200.8	1172.7
22.5°	3167.2	2756.3	2164.2	1726.5	1642.3	1440.7	1258.2	1193.1	1161.2	1124.2	1103.8
25°	3047.2	2656.8	2043.0	1607.8	1523.6	1323.3	1163.8	1120.4	1088.5	1064.2	1042.5
27.5°	2918.4	2561.1	1921.8	1487.9	1408.8	1217.4	1089.8	1056.6	1028.5	997.9	978.7
30°	2769.1	2441.1	1806.9	1382.0	1305.4	1131.9	1026.0	995.3	972.4	939.2	920.0
32.5°	2593.0	2309.7	1699.7	1279.9	1208.4	1057.9	967.3	934.1	914.9	883.0	863.9
35°	2410.5	2178.2	1582.3	1185.5	1120.4	992.8	909.8	877.9	857.5	825.6	806.5
37.5°	2231.8	2037.9	1477.7	1102.5	1043.8	927.7	849.9	823.1	803.9	770.7	747.8
40°	2043.0	1877.1	1375.6	1024.7	969.8	870.3	795.0	770.7	745.2	715.9	692.9
42.5°	1845.2	1735.5	1281.2	955.8	904.7	814.1	740.1	714.6	692.9	658.5	648.2
45°	1660.2	1573.4	1181.6	883.0	842.2	758.0	686.5	661.0	636.8	607.4	597.2
47.5°	1495.5	1415.2	1091.0	819.2	778.4	703.1	632.9	606.1	588.3	565.3	550.0
50°	1325.8	1259.5	991.5	756.7	718.4	644.4	576.8	558.9	538.5	510.4	498.9
52.5°	1167.6	1116.6	909.8	696.7	661.0	594.6	525.7	507.9	488.7	464.5	447.9
55°	1028.5	977.5	816.7	629.1	602.3	539.8	478.5	455.6	440.2	412.2	391.8
57.5°	885.6	861.3	727.4	573.0	547.4	484.9	430.0	412.2	393.0	362.4	342.0
60°	768.2	740.1	644.4	511.7	487.5	435.1	381.5	363.7	345.8	316.5	307.5
62.5°	657.2	636.8	564.0	454.3	433.9	382.8	335.6	319.0	301.2	282.0	275.6
65°	556.4	538.5	483.6	395.6	379.0	334.3	290.9	273.1	261.6	252.7	246.3
67.5°	461.9	451.7	409.6	340.7	327.9	288.4	250.1	236.1	229.7	219.5	214.4
70°	376.4	380.3	342.0	290.9	276.9	245.0	211.8	200.3	192.7	183.8	173.5
72.5°	307.5	306.3	283.3	237.3	227.1	201.6	176.1	168.4	159.5	141.6	130.2
75°	238.6	243.7	222.0	196.5	186.3	160.8	136.5	126.3	117.4	111.0	107.2
77.5°	182.5	185.0	174.8	150.6	141.6	120.0	100.8	95.7	91.9	88.0	86.8
80°	130.2	134.0	123.8	108.5	100.8	82.9	72.7	71.5	70.2	67.6	66.4
82.5°	84.2	89.3	84.2	67.6	63.8	54.9	52.3	52.3	51.0	49.8	48.5
85°	45.9	51.0	48.5	39.6	37.0	34.5	33.2	31.9	31.9	31.9	31.9
87.5°	17.9	24.2	20.4	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
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°	3112.3	3112.3	3112.3
2.5°	2771.6	2758.9	2753.8
5°	2390.1	2350.5	2341.6
7.5°	2043.0	2026.4	1971.5
10°	1787.8	1736.7	1713.8
12.5°	1558.1	1510.9	1503.2
15°	1374.3	1341.1	1329.7
17.5°	1253.1	1230.1	1216.1
20°	1163.8	1147.2	1137.0
22.5°	1096.1	1083.4	1075.7
25°	1036.2	1017.0	1010.6
27.5°	974.9	958.3	951.9
30°	917.5	903.5	894.5
32.5°	857.5	840.9	835.8
35°	800.1	789.9	784.8
37.5°	743.9	731.2	723.5
40°	691.6	685.2	681.4
42.5°	644.4	632.9	631.7
45°	594.6	583.2	580.6
47.5°	547.4	537.2	535.9
50°	497.7	483.6	473.4
52.5°	437.7	424.9	416.0
55°	384.1	370.1	362.4
57.5°	339.4	333.1	329.2
60°	305.0	301.2	298.6
62.5°	274.4	270.5	270.5
65°	246.3	242.5	238.6
67.5°	211.8	204.2	202.9
70°	169.7	158.2	157.0
72.5°	128.9	127.6	125.1
75°	107.2	104.6	104.6
77.5°	86.8	84.2	84.2
80°	66.4	65.1	66.4
82.5°	48.5	48.5	47.2
85°	31.9	30.6	30.6
87.5°	15.3	15.3	15.3
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	17.29	18.75	17.66	19.06	19.38	22.39	23.84	22.75	24.15	24.47
	3H	18.63	19.93	19.00	20.26	20.62	23.66	24.97	24.04	25.30	25.66
	4H	19.02	20.24	19.42	20.59	20.97	24.11	25.33	24.51	25.68	26.06
	6H	19.33	20.46	19.74	20.82	21.22	24.40	25.53	24.82	25.90	26.29
	8H	19.43	20.50	19.86	20.89	21.29	24.48	25.55	24.91	25.94	26.34
	12H	19.50	20.52	19.93	20.91	21.34	24.52	25.54	24.95	25.93	26.36
4H	2H	18.14	19.36	18.54	19.71	20.09	22.43	23.65	22.83	23.99	24.37
	3H	19.62	20.62	20.03	21.03	21.43	23.91	24.92	24.33	25.33	25.73
	4H	20.08	20.99	20.51	21.40	21.84	24.47	25.38	24.90	25.80	26.24
	6H	20.47	21.25	20.93	21.70	22.16	24.91	25.70	25.37	26.14	26.60
	8H	20.60	21.33	21.06	21.78	22.24	25.03	25.77	25.50	26.21	26.68
	12H	20.70	21.35	21.18	21.83	22.30	25.11	25.76	25.59	26.24	26.71
8H	4H	20.47	21.20	20.93	21.65	22.12	24.48	25.21	24.94	25.66	26.13
	6H	20.94	21.54	21.43	22.03	22.51	24.97	25.57	25.46	26.06	26.54
	8H	21.12	21.66	21.64	22.17	22.66	25.13	25.67	25.65	26.18	26.67
	12H	21.28	21.76	21.79	22.25	22.82	25.26	25.74	25.77	26.23	26.80
12H	4H	20.51	21.17	21.00	21.65	22.12	24.45	25.11	24.94	25.59	26.06
	6H	21.00	21.54	21.52	22.05	22.54	24.94	25.48	25.46	25.99	26.48
	8H	21.23	21.71	21.75	22.21	22.77	25.14	25.61	25.65	26.11	26.67