

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: P646674

Luminaire Tested: S123RDRP-S1165D940-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646674  
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-S1165D940-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 4000K CCT, 90 CRI LEDS  
Ballast/Driver: -

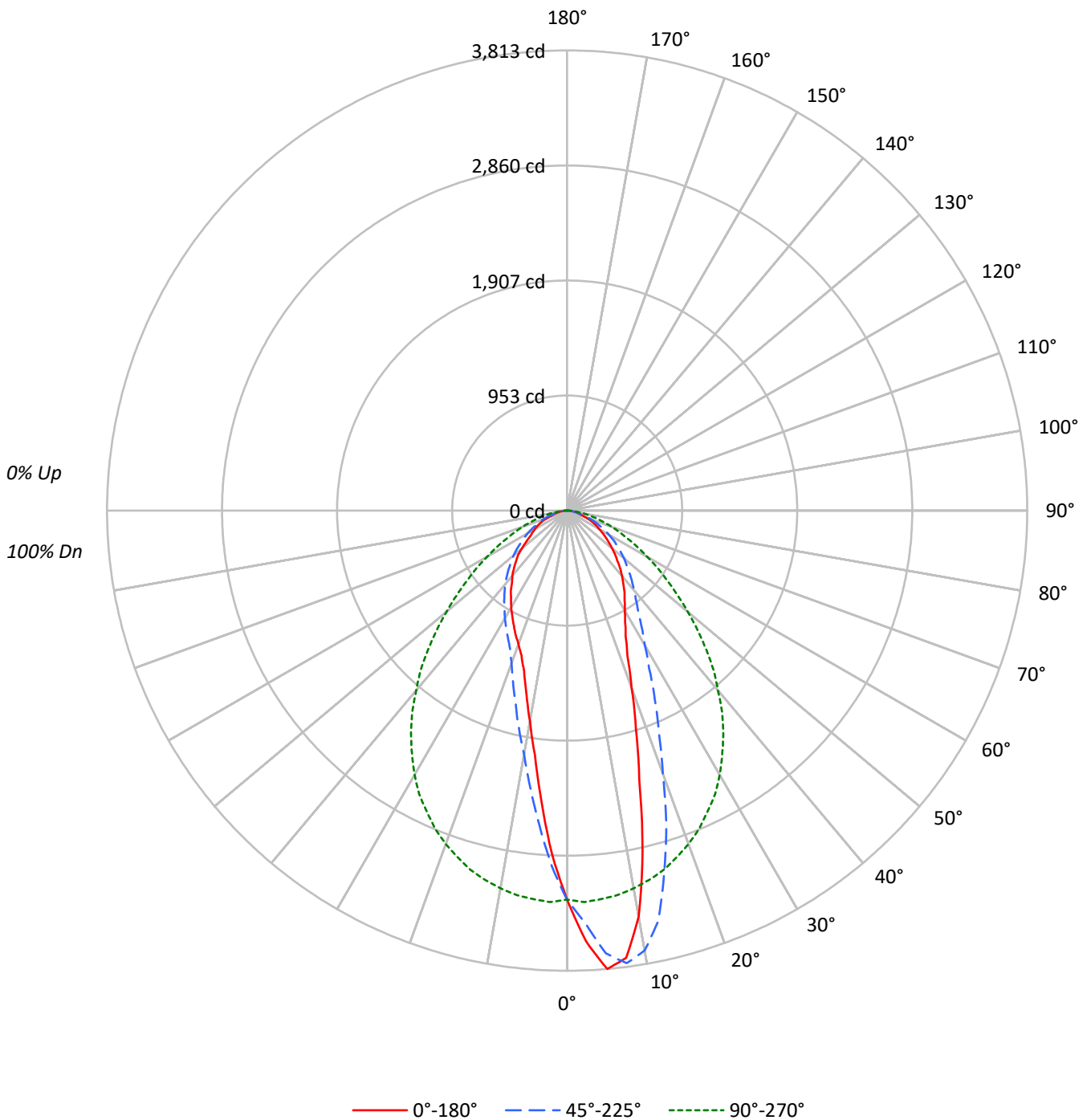
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4270.4 lumens  
Efficiency: N/A  
Efficacy: 106.5 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 (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	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°	38838	38838	38838	38838	38838
5°	46117	44550	39083	31698	29332
10°	41783	45275	38888	25095	21716
15°	28768	38775	38478	20607	17178
20°	20013	29740	37704	17268	15098
25°	15250	22823	36581	15427	13916
30°	13276	17947	35175	14342	12889
35°	12188	15105	33183	13375	11956
40°	11120	13554	30579	12555	11100
45°	10043	12409	27767	11666	10246
50°	9116	11519	24451	10852	9191
55°	8245	10577	21265	9911	7884
60°	7389	9618	18471	9078	7454
65°	6820	8553	15900	8063	7045
70°	5542	7310	13873	7310	5728
75°	4860	5908	11750	6089	5047
80°	4399	4954	9631	5135	4767
85°	4023	4203	7313	4562	4382

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 29299 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	293.8	6.9
10°-20°	679.7	15.9
20°-30°	779.8	18.3
30°-40°	768.1	18.0
40°-50°	677.0	15.9
50°-60°	521.0	12.2
60°-70°	342.6	8.0
70°-80°	166.4	3.9
80°-90°	42.0	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°	1753.3	41.1
0°-40°	2521.4	59.0
0°-60°	3719.5	87.1
0°-90°	4270.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4270.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	3223	3223	3223	3223	3223	
5°	3813	3683	3231	2621	2425	348
15°	2306	3108	3085	1652	1377	651
25°	1147	1717	2752	1160	1047	542
35°	829	1027	2256	909	813	517
45°	589	728	1630	685	601	458
55°	392	504	1012	472	375	352
65°	239	300	558	283	247	234
75°	104	127	252	131	108	112
85°	29	30	53	33	32	33
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°	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3
2.5°	3572.2	3549.8	3543.2	3535.2	3522.0	3474.4	3420.3	3425.5	3418.9	3378.0	3355.5
5°	3812.8	3815.4	3808.8	3803.5	3781.1	3722.9	3683.3	3659.5	3609.2	3532.6	3508.8
7.5°	3738.8	3781.1	3789.0	3798.2	3810.1	3796.9	3782.4	3773.1	3732.2	3648.9	3610.6
10°	3415.0	3412.3	3459.9	3498.2	3601.3	3674.0	3700.4	3738.8	3773.1	3715.0	3672.7
12.5°	2886.3	2890.3	3046.3	3046.3	3179.7	3364.8	3483.7	3564.3	3712.3	3716.3	3691.2
15°	2306.2	2370.9	2509.7	2538.8	2710.6	2959.0	3108.4	3274.9	3561.7	3651.5	3646.3
17.5°	1893.8	1921.6	2055.1	2093.4	2245.4	2526.9	2733.0	2933.9	3335.7	3524.7	3559.0
20°	1560.8	1585.9	1682.4	1711.5	1864.8	2133.0	2319.4	2536.1	3062.1	3351.5	3412.3
22.5°	1303.1	1352.0	1416.7	1461.7	1548.9	1822.5	1982.4	2189.9	2744.9	3157.3	3228.6
25°	1147.1	1169.6	1225.1	1246.3	1352.0	1533.0	1716.7	1899.1	2463.4	2914.1	3039.6
27.5°	1041.4	1048.0	1089.0	1107.5	1170.9	1338.8	1470.9	1640.1	2176.7	2664.3	2811.0
30°	954.2	966.1	997.8	1001.8	1057.3	1176.2	1289.9	1445.8	1925.5	2422.5	2573.1
32.5°	886.8	893.4	919.8	927.8	963.4	1057.3	1149.8	1263.4	1693.0	2170.0	2343.2
35°	828.6	830.0	849.8	860.4	892.1	970.0	1026.9	1122.0	1506.6	1961.2	2113.2
37.5°	762.6	771.8	786.3	795.6	823.3	886.8	938.3	1012.3	1334.8	1763.0	1904.4
40°	707.0	715.0	732.2	736.1	761.2	819.4	861.7	927.8	1186.8	1572.7	1716.7
42.5°	651.5	656.8	674.0	681.9	709.7	755.9	794.3	845.8	1069.2	1403.5	1544.9
45°	589.4	602.6	621.1	625.1	651.5	699.1	728.2	775.8	963.4	1256.8	1382.4
47.5°	537.9	544.5	560.4	567.0	597.4	639.6	670.0	711.0	872.2	1123.3	1246.3
50°	486.3	489.0	503.5	512.8	536.6	585.5	614.5	651.5	789.0	1015.0	1100.9
52.5°	437.4	444.1	458.6	465.2	481.1	531.3	557.7	596.0	709.7	904.0	989.9
55°	392.5	396.5	407.0	415.0	433.5	477.1	503.5	536.6	641.0	802.2	877.5
57.5°	350.2	355.5	363.4	370.0	387.2	425.6	452.0	485.0	576.2	709.7	767.8
60°	306.6	313.2	322.5	325.1	341.0	375.3	399.1	428.2	510.1	623.8	675.3
62.5°	274.9	276.2	284.1	288.1	297.4	325.1	350.2	378.0	450.7	540.5	582.8
65°	239.2	243.2	247.1	249.8	257.7	281.5	300.0	321.1	392.5	470.5	499.6
67.5°	202.2	206.2	212.8	215.4	222.0	237.9	253.7	274.9	334.4	400.4	426.9
70°	157.3	157.3	167.8	173.1	183.7	195.6	207.5	226.0	277.5	334.4	354.2
72.5°	128.2	129.5	130.8	130.8	140.1	159.9	166.5	178.4	219.4	273.6	290.7
75°	104.4	105.7	107.0	108.4	109.7	116.3	126.9	137.4	167.8	207.5	223.3
77.5°	83.3	84.6	85.9	85.9	88.5	91.2	93.8	99.1	120.3	149.3	162.6
80°	63.4	64.8	66.1	66.1	67.4	70.0	71.4	74.0	80.6	100.4	107.0
82.5°	46.3	46.3	46.3	47.6	48.9	48.9	51.5	51.5	55.5	60.8	64.8
85°	29.1	29.1	30.4	30.4	30.4	31.7	30.4	31.7	33.0	34.4	37.0
87.5°	13.2	11.9	13.2	13.2	13.2	14.5	14.5	14.5	14.5	15.9	15.9
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°	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3	3223.3
2.5°	3293.4	3247.1	3169.2	3120.3	3101.8	3044.9	2990.7	2945.8	2923.3	2920.7	2879.7
5°	3358.1	3231.3	3070.0	2935.2	2903.5	2804.4	2676.2	2620.7	2548.0	2518.9	2484.6
7.5°	3411.0	3212.8	2974.9	2771.4	2711.9	2562.6	2398.7	2326.0	2270.5	2183.3	2131.7
10°	3448.0	3178.4	2858.6	2595.6	2511.0	2336.6	2138.3	2051.1	1999.6	1899.1	1858.1
12.5°	3462.6	3134.8	2742.3	2413.2	2339.2	2131.7	1937.4	1847.6	1770.9	1679.7	1640.1
15°	3457.3	3084.6	2623.3	2245.4	2152.9	1942.7	1736.6	1652.0	1580.6	1489.4	1437.9
17.5°	3421.6	3013.2	2493.8	2082.8	1994.3	1777.5	1568.7	1490.7	1427.3	1338.8	1299.1
20°	3362.1	2940.5	2380.2	1934.8	1834.4	1626.9	1430.0	1346.7	1291.2	1243.6	1214.5
22.5°	3280.2	2854.6	2241.4	1788.1	1700.9	1492.1	1303.1	1235.7	1202.6	1164.3	1143.2
25°	3155.9	2751.5	2115.9	1665.2	1578.0	1370.5	1205.3	1160.4	1127.3	1102.2	1079.7
27.5°	3022.5	2652.4	1990.3	1541.0	1459.0	1260.8	1128.6	1094.3	1065.2	1033.5	1013.7
30°	2867.8	2528.2	1871.4	1431.3	1352.0	1172.2	1062.6	1030.8	1007.0	972.7	952.9
32.5°	2685.5	2392.1	1760.4	1325.5	1251.5	1095.6	1001.8	967.4	947.6	914.5	894.7
35°	2496.5	2255.9	1638.8	1227.8	1160.4	1028.2	942.3	909.3	888.1	855.1	835.2
37.5°	2311.5	2110.6	1530.4	1141.8	1081.1	960.8	880.2	852.4	832.6	798.2	774.4
40°	2115.9	1944.1	1424.7	1061.2	1004.4	901.3	823.3	798.2	771.8	741.4	717.6
42.5°	1911.0	1797.4	1326.9	989.9	937.0	843.2	766.5	740.1	717.6	681.9	671.4
45°	1719.4	1629.5	1223.8	914.5	872.2	785.0	711.0	684.6	659.5	629.1	618.5
47.5°	1548.9	1465.6	1130.0	848.5	806.2	728.2	655.5	627.8	609.3	585.5	569.6
50°	1373.1	1304.4	1026.9	783.7	744.1	667.4	597.4	578.9	557.7	528.6	516.7
52.5°	1209.3	1156.4	942.3	721.6	684.6	615.9	544.5	526.0	506.2	481.1	463.9
55°	1065.2	1012.3	845.8	651.5	623.8	559.0	495.6	471.8	455.9	426.9	405.7
57.5°	917.2	892.1	753.3	593.4	567.0	502.2	445.4	426.9	407.0	375.3	354.2
60°	795.6	766.5	667.4	530.0	504.8	450.7	395.2	376.7	358.1	327.8	318.5
62.5°	680.6	659.5	584.1	470.5	449.3	396.5	347.6	330.4	311.9	292.1	285.5
65°	576.2	557.7	500.9	409.7	392.5	346.3	301.3	282.8	270.9	261.7	255.1
67.5°	478.4	467.8	424.2	352.9	339.6	298.7	259.0	244.5	237.9	227.3	222.0
70°	389.9	393.8	354.2	301.3	286.8	253.7	219.4	207.5	199.6	190.3	179.7
72.5°	318.5	317.2	293.4	245.8	235.2	208.8	182.4	174.4	165.2	146.7	134.8
75°	247.1	252.4	230.0	203.5	193.0	166.5	141.4	130.8	121.6	115.0	111.0
77.5°	189.0	191.6	181.1	155.9	146.7	124.2	104.4	99.1	95.2	91.2	89.9
80°	134.8	138.8	128.2	112.3	104.4	85.9	75.3	74.0	72.7	70.0	68.7
82.5°	87.2	92.5	87.2	70.0	66.1	56.8	54.2	54.2	52.9	51.5	50.2
85°	47.6	52.9	50.2	41.0	38.3	35.7	34.4	33.0	33.0	33.0	33.0
87.5°	18.5	25.1	21.1	17.2	17.2	17.2	17.2	17.2	17.2	17.2	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°	3223.3	3223.3	3223.3
2.5°	2870.5	2857.3	2852.0
5°	2475.3	2434.4	2425.1
7.5°	2115.9	2098.7	2041.8
10°	1851.5	1798.7	1774.9
12.5°	1613.7	1564.8	1556.8
15°	1423.3	1389.0	1377.1
17.5°	1297.8	1274.0	1259.5
20°	1205.3	1188.1	1177.5
22.5°	1135.2	1122.0	1114.1
25°	1073.1	1053.3	1046.7
27.5°	1009.7	992.5	985.9
30°	950.2	935.7	926.4
32.5°	888.1	870.9	865.6
35°	828.6	818.1	812.8
37.5°	770.5	757.3	749.3
40°	716.3	709.7	705.7
42.5°	667.4	655.5	654.2
45°	615.9	604.0	601.3
47.5°	567.0	556.4	555.1
50°	515.4	500.9	490.3
52.5°	453.3	440.1	430.8
55°	397.8	383.3	375.3
57.5°	351.5	344.9	341.0
60°	315.9	311.9	309.3
62.5°	284.1	280.2	280.2
65°	255.1	251.1	247.1
67.5°	219.4	211.5	210.1
70°	175.8	163.9	162.6
72.5°	133.5	132.2	129.5
75°	111.0	108.4	108.4
77.5°	89.9	87.2	87.2
80°	68.7	67.4	68.7
82.5°	50.2	50.2	48.9
85°	33.0	31.7	31.7
87.5°	15.9	15.9	15.9
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	17.41	18.87	17.78	19.18	19.50	22.51	23.96	22.87	24.28	24.59
	3H	18.75	20.05	19.13	20.38	20.74	23.79	25.09	24.16	25.42	25.78
	4H	19.14	20.36	19.55	20.71	21.09	24.23	25.45	24.63	25.80	26.18
	6H	19.45	20.58	19.86	20.94	21.34	24.53	25.65	24.94	26.02	26.41
	8H	19.55	20.62	19.98	21.01	21.42	24.60	25.67	25.03	26.06	26.46
	12H	19.62	20.64	20.05	21.03	21.46	24.64	25.67	25.07	26.05	26.48
4H	2H	18.26	19.48	18.66	19.83	20.21	22.55	23.77	22.95	24.12	24.50
	3H	19.74	20.75	20.15	21.15	21.55	24.04	25.05	24.45	25.45	25.85
	4H	20.20	21.11	20.63	21.52	21.96	24.59	25.50	25.03	25.92	26.36
	6H	20.59	21.38	21.05	21.82	22.28	25.03	25.82	25.49	26.26	26.73
	8H	20.72	21.45	21.18	21.90	22.37	25.15	25.89	25.62	26.33	26.80
	12H	20.82	21.47	21.30	21.95	22.42	25.23	25.88	25.71	26.36	26.83
8H	4H	20.59	21.32	21.05	21.77	22.24	24.60	25.33	25.06	25.78	26.25
	6H	21.06	21.66	21.56	22.16	22.63	25.09	25.69	25.59	26.19	26.66
	8H	21.24	21.78	21.76	22.30	22.78	25.25	25.79	25.77	26.30	26.79
	12H	21.40	21.88	21.91	22.37	22.94	25.38	25.86	25.89	26.35	26.92
12H	4H	20.63	21.29	21.12	21.77	22.24	24.58	25.23	25.06	25.71	26.18
	6H	21.12	21.66	21.64	22.18	22.67	25.06	25.60	25.58	26.12	26.60
	8H	21.36	21.83	21.87	22.33	22.89	25.26	25.74	25.77	26.23	26.80