

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: P646660

Luminaire Tested: S123RDRP-S1000D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646660
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-S1000D840-X4F0-XX-UDD-G-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

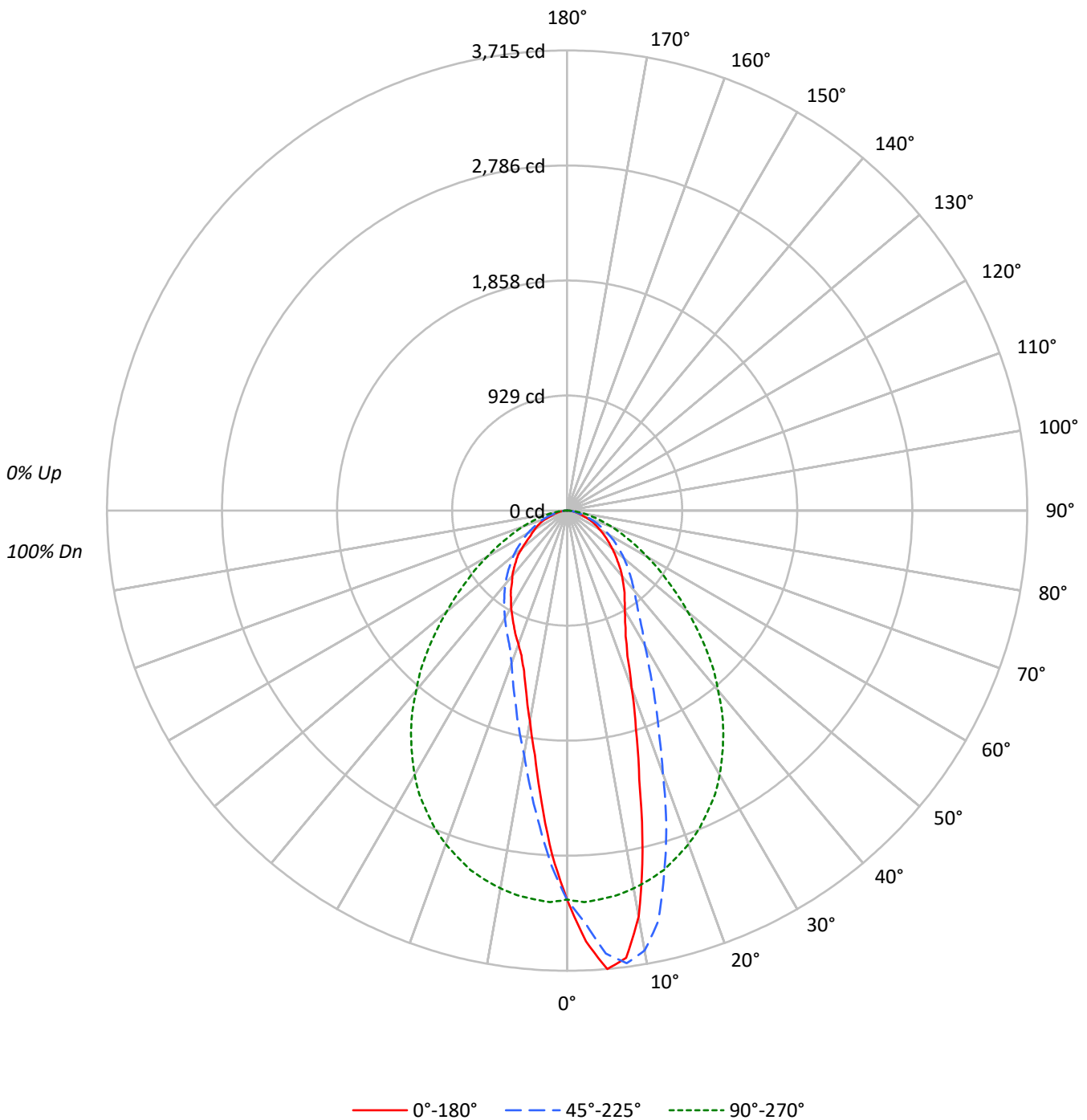
Lumens per Lamp: N/A
Luminaire Lumens: 4161.4 lumens
Efficiency: N/A
Efficacy: 120.6 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 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

TEST NUMBER: P646660

CATALOG NUMBER: S123RDRP-S1000D840-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	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°	37846	37846	37846	37846	37846
5°	44939	43412	38084	30889	28583
10°	40715	44118	37894	24454	21162
15°	28033	37784	37495	20081	16739
20°	19502	28980	36741	16827	14714
25°	14861	22241	35647	15032	13561
30°	12936	17487	34277	13976	12561
35°	11878	14718	32336	13032	11650
40°	10837	13208	29797	12234	10817
45°	9788	12092	27058	11367	9986
50°	8883	11225	23827	10574	8956
55°	8035	10308	20724	9659	7682
60°	7201	9372	17999	8844	7263
65°	6646	8334	15496	7858	6865
70°	5401	7123	13521	7123	5580
75°	4735	5754	11452	5936	4916
80°	4288	4822	9381	5003	4649
85°	3912	4092	7120	4452	4272

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 28551 cd/sqm



TEST NUMBER: P646660

CATALOG NUMBER: S123RDRP-S1000D840-X4F0-XX-UDD-G-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	286.3	6.9
10°-20°	662.3	15.9
20°-30°	759.9	18.3
30°-40°	748.5	18.0
40°-50°	659.7	15.9
50°-60°	507.7	12.2
60°-70°	333.9	8.0
70°-80°	162.1	3.9
80°-90°	40.9	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°	1708.5	41.1
0°-40°	2457.0	59.0
0°-60°	3624.5	87.1
0°-90°	4161.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4161.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3141	3141	3141	3141	3141	
5°	3715	3589	3149	2554	2363	339
15°	2247	3029	3006	1610	1342	634
25°	1118	1673	2681	1131	1020	528
35°	808	1001	2198	886	792	503
45°	574	710	1588	667	586	446
55°	382	491	986	460	366	343
65°	233	292	544	276	241	228
75°	102	124	246	128	106	109
85°	28	30	52	32	31	32
90°	0	0	0	0	0	



TEST NUMBER: P646660

CATALOG NUMBER: S123RDRP-S1000D840-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0
2.5°	3481.0	3459.1	3452.7	3444.9	3432.1	3385.7	3332.9	3338.1	3331.6	3291.7	3269.8
5°	3715.4	3718.0	3711.5	3706.4	3684.5	3627.8	3589.2	3566.0	3517.1	3442.4	3419.2
7.5°	3643.3	3684.5	3692.2	3701.2	3712.8	3699.9	3685.8	3676.7	3636.8	3555.7	3518.3
10°	3327.7	3325.2	3371.5	3408.9	3509.3	3580.2	3605.9	3643.3	3676.7	3620.1	3578.9
12.5°	2812.6	2816.5	2968.4	2968.4	3098.5	3278.8	3394.7	3473.3	3617.5	3621.4	3596.9
15°	2247.3	2310.4	2445.6	2473.9	2641.3	2883.4	3029.0	3191.2	3470.7	3558.3	3553.1
17.5°	1845.5	1872.5	2002.6	2039.9	2188.0	2462.3	2663.2	2859.0	3250.5	3434.6	3468.1
20°	1520.9	1545.4	1639.4	1667.7	1817.1	2078.6	2260.1	2471.3	2983.9	3265.9	3325.2
22.5°	1269.8	1317.4	1380.6	1424.3	1509.3	1775.9	1931.7	2133.9	2674.8	3076.6	3146.2
25°	1117.8	1139.7	1193.8	1214.4	1317.4	1493.9	1672.9	1850.6	2400.5	2839.7	2962.0
27.5°	1014.8	1021.2	1061.2	1079.2	1141.0	1304.6	1433.4	1598.2	2121.1	2596.3	2739.2
30°	929.8	941.4	972.3	976.2	1030.3	1146.2	1256.9	1408.9	1876.4	2360.6	2507.4
32.5°	864.1	870.6	896.3	904.1	938.8	1030.3	1120.4	1231.2	1649.7	2114.6	2283.3
35°	807.5	808.8	828.1	838.4	869.3	945.3	1000.6	1093.4	1468.1	1911.1	2059.2
37.5°	743.1	752.1	766.3	775.3	802.3	864.1	914.4	986.5	1300.7	1718.0	1855.8
40°	689.0	696.7	713.5	717.3	741.8	798.5	839.7	904.1	1156.5	1532.5	1672.9
42.5°	634.9	640.1	656.8	664.5	691.6	736.6	774.0	824.2	1041.9	1367.7	1505.5
45°	574.4	587.2	605.3	609.1	634.9	681.3	709.6	756.0	938.8	1224.7	1347.1
47.5°	524.1	530.6	546.0	552.5	582.1	623.3	652.9	692.9	850.0	1094.7	1214.4
50°	473.9	476.5	490.7	499.7	522.9	570.5	598.8	634.9	768.8	989.1	1072.8
52.5°	426.3	432.7	446.9	453.3	468.8	517.7	543.5	580.8	691.6	880.9	964.6
55°	382.5	386.3	396.7	404.4	422.4	464.9	490.7	522.9	624.6	781.7	855.1
57.5°	341.3	346.4	354.2	360.6	377.3	414.7	440.4	472.6	561.5	691.6	748.2
60°	298.8	305.2	314.2	316.8	332.3	365.7	388.9	417.3	497.1	607.9	658.1
62.5°	267.9	269.2	276.9	280.7	289.8	316.8	341.3	368.3	439.1	526.7	567.9
65°	233.1	237.0	240.8	243.4	251.1	274.3	292.3	312.9	382.5	458.5	486.8
67.5°	197.0	200.9	207.3	209.9	216.4	231.8	247.3	267.9	325.8	390.2	416.0
70°	153.3	153.3	163.6	168.7	179.0	190.6	202.2	220.2	270.4	325.8	345.1
72.5°	124.9	126.2	127.5	127.5	136.5	155.8	162.3	173.9	213.8	266.6	283.3
75°	101.7	103.0	104.3	105.6	106.9	113.3	123.6	133.9	163.6	202.2	217.6
77.5°	81.1	82.4	83.7	83.7	86.3	88.9	91.4	96.6	117.2	145.5	158.4
80°	61.8	63.1	64.4	64.4	65.7	68.3	69.5	72.1	78.6	97.9	104.3
82.5°	45.1	45.1	45.1	46.4	47.6	47.6	50.2	50.2	54.1	59.2	63.1
85°	28.3	28.3	29.6	29.6	29.6	30.9	29.6	30.9	32.2	33.5	36.1
87.5°	12.9	11.6	12.9	12.9	12.9	14.2	14.2	14.2	14.2	15.5	15.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P646660

CATALOG NUMBER: S123RDRP-S1000D840-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (continued):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0	3141.0
2.5°	3209.3	3164.2	3088.2	3040.6	3022.5	2967.2	2914.4	2870.6	2848.7	2846.1	2806.2
5°	3272.4	3148.7	2991.6	2860.3	2829.4	2732.8	2607.9	2553.8	2482.9	2454.6	2421.1
7.5°	3323.9	3130.7	2898.9	2700.6	2642.6	2497.1	2337.4	2266.6	2212.5	2127.5	2077.3
10°	3359.9	3097.2	2785.6	2529.3	2446.9	2276.9	2083.7	1998.7	1948.5	1850.6	1810.7
12.5°	3374.1	3054.7	2672.2	2351.6	2279.5	2077.3	1888.0	1800.4	1725.7	1636.8	1598.2
15°	3369.0	3005.8	2556.3	2188.0	2097.9	1893.1	1692.2	1609.8	1540.2	1451.4	1401.2
17.5°	3334.2	2936.2	2430.1	2029.6	1943.3	1732.1	1528.7	1452.7	1390.9	1304.6	1265.9
20°	3276.2	2865.4	2319.4	1885.4	1787.5	1585.3	1393.4	1312.3	1258.2	1211.8	1183.5
22.5°	3196.4	2781.7	2184.2	1742.4	1657.4	1454.0	1269.8	1204.1	1171.9	1134.6	1114.0
25°	3075.3	2681.3	2061.8	1622.7	1537.7	1335.5	1174.5	1130.7	1098.5	1074.0	1052.2
27.5°	2945.3	2584.7	1939.5	1501.6	1421.8	1228.6	1099.8	1066.3	1038.0	1007.1	987.8
30°	2794.6	2463.6	1823.6	1394.7	1317.4	1142.3	1035.4	1004.5	981.3	947.8	928.5
32.5°	2616.9	2331.0	1715.4	1291.7	1219.6	1067.6	976.2	942.7	923.4	891.2	871.9
35°	2432.7	2198.3	1596.9	1196.4	1130.7	1001.9	918.2	886.0	865.4	833.2	813.9
37.5°	2252.4	2056.7	1491.3	1112.7	1053.4	936.3	857.7	830.6	811.3	777.8	754.7
40°	2061.8	1894.4	1388.3	1034.1	978.7	878.3	802.3	777.8	752.1	722.5	699.3
42.5°	1862.2	1751.4	1293.0	964.6	913.1	821.6	746.9	721.2	699.3	664.5	654.2
45°	1675.5	1587.9	1192.5	891.2	850.0	765.0	692.9	667.1	642.6	613.0	602.7
47.5°	1509.3	1428.2	1101.1	826.8	785.6	709.6	638.8	611.7	593.7	570.5	555.1
50°	1338.1	1271.1	1000.6	763.7	725.0	650.4	582.1	564.1	543.5	515.1	503.5
52.5°	1178.4	1126.8	918.2	703.2	667.1	600.1	530.6	512.6	493.2	468.8	452.0
55°	1038.0	986.5	824.2	634.9	607.9	544.8	482.9	459.8	444.3	416.0	395.4
57.5°	893.8	869.3	734.1	578.2	552.5	489.4	434.0	416.0	396.7	365.7	345.1
60°	775.3	746.9	650.4	516.4	492.0	439.1	385.1	367.0	349.0	319.4	310.4
62.5°	663.2	642.6	569.2	458.5	437.9	386.3	338.7	322.0	303.9	284.6	278.2
65°	561.5	543.5	488.1	399.2	382.5	337.4	293.6	275.6	264.0	255.0	248.6
67.5°	466.2	455.9	413.4	343.9	331.0	291.0	252.4	238.2	231.8	221.5	216.4
70°	379.9	383.8	345.1	293.6	279.5	247.3	213.8	202.2	194.5	185.4	175.1
72.5°	310.4	309.1	285.9	239.5	229.2	203.5	177.7	170.0	161.0	142.9	131.4
75°	240.8	246.0	224.1	198.3	188.0	162.3	137.8	127.5	118.5	112.0	108.2
77.5°	184.2	186.7	176.4	152.0	142.9	121.1	101.7	96.6	92.7	88.9	87.6
80°	131.4	135.2	124.9	109.5	101.7	83.7	73.4	72.1	70.8	68.3	67.0
82.5°	85.0	90.1	85.0	68.3	64.4	55.4	52.8	52.8	51.5	50.2	48.9
85°	46.4	51.5	48.9	39.9	37.3	34.8	33.5	32.2	32.2	32.2	32.2
87.5°	18.0	24.5	20.6	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NUMBER: P646660

CATALOG NUMBER: S123RDRP-S1000D840-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (continued):

	160°	170°	180°
0°	3141.0	3141.0	3141.0
2.5°	2797.2	2784.3	2779.1
5°	2412.1	2372.2	2363.2
7.5°	2061.8	2045.1	1989.7
10°	1804.2	1752.7	1729.6
12.5°	1572.4	1524.8	1517.1
15°	1387.0	1353.5	1341.9
17.5°	1264.6	1241.5	1227.3
20°	1174.5	1157.8	1147.5
22.5°	1106.2	1093.4	1085.6
25°	1045.7	1026.4	1020.0
27.5°	983.9	967.2	960.7
30°	925.9	911.8	902.8
32.5°	865.4	848.7	843.5
35°	807.5	797.2	792.0
37.5°	750.8	737.9	730.2
40°	698.0	691.6	687.7
42.5°	650.4	638.8	637.5
45°	600.1	588.5	586.0
47.5°	552.5	542.2	540.9
50°	502.3	488.1	477.8
52.5°	441.7	428.8	419.8
55°	387.6	373.5	365.7
57.5°	342.6	336.1	332.3
60°	307.8	303.9	301.4
62.5°	276.9	273.0	273.0
65°	248.6	244.7	240.8
67.5°	213.8	206.1	204.8
70°	171.3	159.7	158.4
72.5°	130.1	128.8	126.2
75°	108.2	105.6	105.6
77.5°	87.6	85.0	85.0
80°	67.0	65.7	67.0
82.5°	48.9	48.9	47.6
85°	32.2	30.9	30.9
87.5°	15.5	15.5	15.5
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	17.32	18.78	17.69	19.09	19.41	22.42	23.87	22.78	24.19	24.50
	3H	18.66	19.96	19.04	20.29	20.65	23.70	25.00	24.07	25.33	25.69
	4H	19.06	20.28	19.46	20.62	21.00	24.14	25.36	24.54	25.71	26.09
	6H	19.36	20.49	19.77	20.85	21.25	24.44	25.56	24.85	25.93	26.32
	8H	19.46	20.53	19.89	20.92	21.33	24.51	25.58	24.94	25.97	26.37
	12H	19.53	20.55	19.96	20.94	21.37	24.55	25.58	24.98	25.96	26.39
4H	2H	18.17	19.39	18.57	19.74	20.12	22.46	23.68	22.86	24.03	24.41
	3H	19.65	20.66	20.06	21.06	21.46	23.95	24.96	24.36	25.36	25.76
	4H	20.11	21.02	20.54	21.43	21.87	24.50	25.41	24.94	25.83	26.27
	6H	20.50	21.29	20.96	21.73	22.19	24.94	25.73	25.40	26.17	26.64
	8H	20.63	21.36	21.09	21.81	22.28	25.06	25.80	25.53	26.24	26.71
	12H	20.73	21.38	21.21	21.86	22.33	25.14	25.79	25.62	26.27	26.74
8H	4H	20.50	21.23	20.96	21.68	22.15	24.51	25.24	24.97	25.69	26.16
	6H	20.97	21.57	21.47	22.07	22.54	25.00	25.60	25.50	26.10	26.57
	8H	21.15	21.69	21.67	22.21	22.69	25.16	25.70	25.68	26.21	26.70
	12H	21.31	21.79	21.82	22.28	22.85	25.29	25.77	25.80	26.26	26.83
12H	4H	20.54	21.20	21.03	21.68	22.15	24.49	25.14	24.97	25.62	26.09
	6H	21.03	21.57	21.55	22.09	22.58	24.97	25.51	25.49	26.03	26.52
	8H	21.27	21.74	21.78	22.24	22.80	25.17	25.65	25.68	26.14	26.71