

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: P646669

Luminaire Tested: S123RDRP-S1165D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646669
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-S1165D840-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

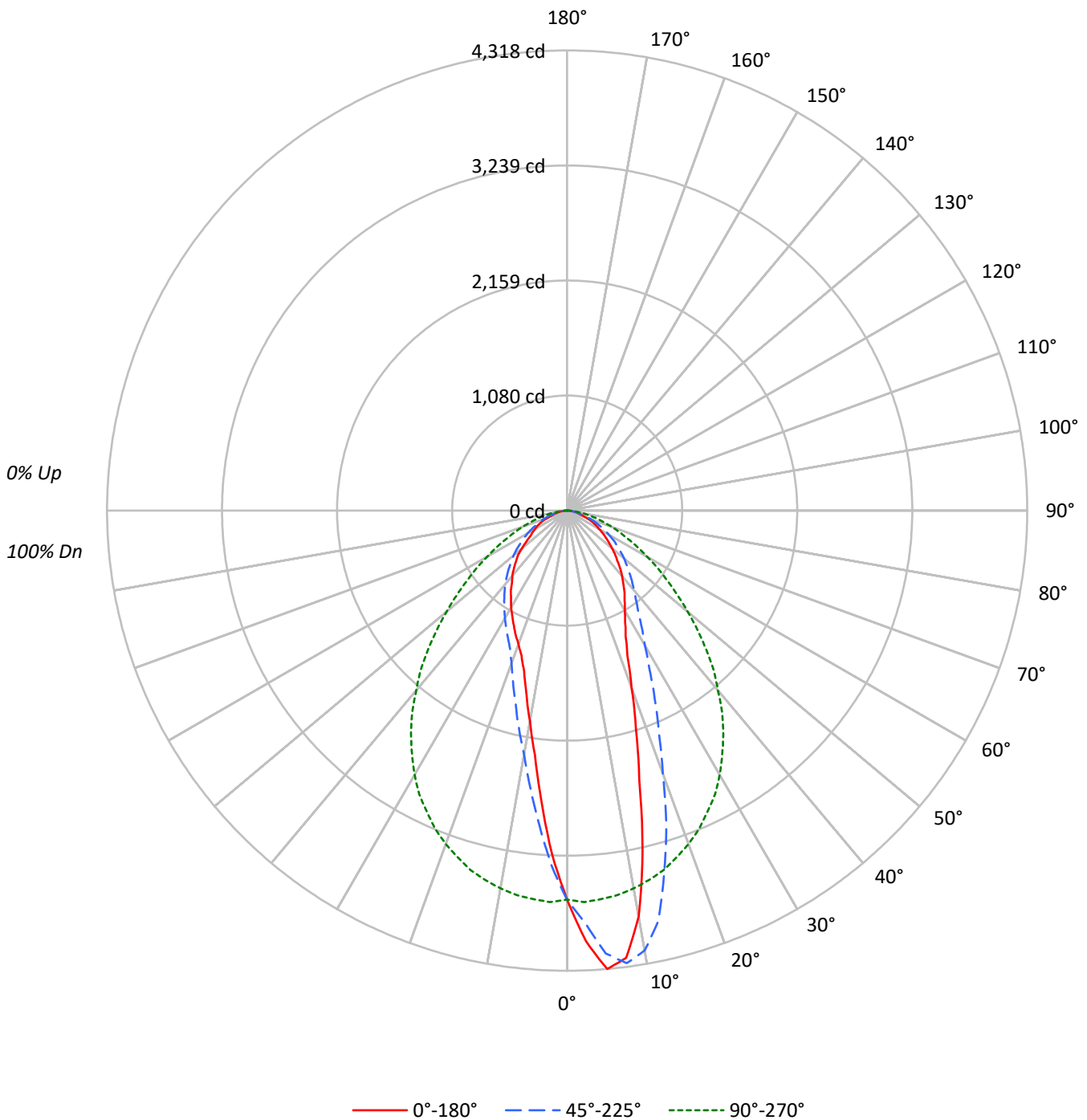
Lumens per Lamp: N/A
Luminaire Lumens: 4836.3 lumens
Efficiency: N/A
Efficacy: 120.6 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 40.1
Input Voltage (V): 120
Input Current (A_{in}): 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°	43986	43986	43986	43986	43986
5°	52227	50453	44261	35899	33218
10°	47319	51275	44041	28421	24594
15°	32579	43912	43576	23338	19455
20°	22665	33681	42701	19556	17100
25°	17271	25848	41428	17471	15760
30°	15035	20324	39836	16242	14598
35°	13803	17105	37581	15146	13540
40°	12594	15348	34629	14219	12571
45°	11374	14053	31446	13211	11604
50°	10325	13047	27690	12289	10409
55°	9338	11978	24085	11224	8930
60°	8367	10892	20920	10280	8439
65°	7724	9688	18007	9132	7980
70°	6274	8279	15712	8279	6486
75°	5503	6690	13310	6899	5712
80°	4982	5607	10908	5815	5398
85°	4548	4756	8281	5171	4963

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 33181 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.7	6.9
10°-20°	769.8	15.9
20°-30°	883.1	18.3
30°-40°	869.9	18.0
40°-50°	766.7	15.9
50°-60°	590.1	12.2
60°-70°	388.0	8.0
70°-80°	188.4	3.9
80°-90°	47.5	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°	1985.6	41.1
0°-40°	2855.5	59.0
0°-60°	4212.3	87.1
0°-90°	4836.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4836.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3650	3650	3650	3650	3650	
5°	4318	4171	3659	2968	2746	395
15°	2612	3520	3493	1871	1560	737
25°	1299	1944	3116	1314	1185	614
35°	938	1163	2555	1030	920	585
45°	668	825	1845	775	681	518
55°	444	570	1146	534	425	399
65°	271	340	632	320	280	265
75°	118	144	286	148	123	127
85°	33	34	60	37	36	37
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°	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5
2.5°	4045.6	4020.1	4012.7	4003.7	3988.7	3934.8	3873.5	3879.4	3872.0	3825.6	3800.1
5°	4318.0	4321.0	4313.5	4307.5	4282.1	4216.2	4171.3	4144.4	4087.5	4000.7	3973.7
7.5°	4234.2	4282.1	4291.0	4301.5	4315.0	4300.0	4283.6	4273.1	4226.7	4132.4	4089.0
10°	3867.5	3864.5	3918.4	3961.8	4078.5	4160.8	4190.8	4234.2	4273.1	4207.2	4159.3
12.5°	3268.8	3273.3	3449.9	3449.9	3601.1	3810.6	3945.3	4036.6	4204.2	4208.7	4180.3
15°	2611.7	2685.1	2842.2	2875.2	3069.7	3351.1	3520.2	3708.8	4033.6	4135.4	4129.4
17.5°	2144.8	2176.2	2327.4	2370.8	2542.9	2861.7	3095.2	3322.7	3777.7	3991.7	4030.6
20°	1767.6	1796.0	1905.3	1938.2	2111.8	2415.7	2626.7	2872.2	3467.9	3795.6	3864.5
22.5°	1475.7	1531.1	1604.5	1655.4	1754.1	2063.9	2245.1	2480.0	3108.6	3575.6	3656.4
25°	1299.1	1324.6	1387.4	1411.4	1531.1	1736.2	1944.2	2150.8	2789.8	3300.2	3442.4
27.5°	1179.4	1186.9	1233.3	1254.2	1326.1	1516.2	1665.8	1857.4	2465.1	3017.3	3183.5
30°	1080.6	1094.1	1130.0	1134.5	1197.4	1332.1	1460.8	1637.4	2180.7	2743.5	2914.1
32.5°	1004.3	1011.8	1041.7	1050.7	1091.1	1197.4	1302.1	1430.8	1917.3	2457.6	2653.6
35°	938.4	939.9	962.4	974.4	1010.3	1098.6	1162.9	1270.7	1706.2	2221.1	2393.2
37.5°	863.6	874.1	890.5	901.0	932.4	1004.3	1062.7	1146.5	1511.7	1996.6	2156.7
40°	800.7	809.7	829.2	833.7	862.1	928.0	975.8	1050.7	1344.0	1781.1	1944.2
42.5°	737.9	743.9	763.3	772.3	803.7	856.1	899.5	957.9	1210.8	1589.5	1749.6
45°	667.5	682.5	703.4	707.9	737.9	791.8	824.7	878.6	1091.1	1423.4	1565.5
47.5°	609.2	616.6	634.6	642.1	676.5	724.4	758.8	805.2	987.8	1272.2	1411.4
50°	550.8	553.8	570.2	580.7	607.7	663.0	696.0	737.9	893.5	1149.5	1246.8
52.5°	495.4	502.9	519.4	526.8	544.8	601.7	631.6	675.0	803.7	1023.7	1121.0
55°	444.5	449.0	461.0	470.0	490.9	540.3	570.2	607.7	725.9	908.5	993.8
57.5°	396.6	402.6	411.6	419.1	438.5	481.9	511.9	549.3	652.6	803.7	869.6
60°	347.2	354.7	365.2	368.2	386.1	425.1	452.0	484.9	577.7	706.4	764.8
62.5°	311.3	312.8	321.8	326.3	336.8	368.2	396.6	428.1	510.4	612.2	660.0
65°	270.9	275.4	279.9	282.9	291.9	318.8	339.8	363.7	444.5	532.8	565.8
67.5°	229.0	233.5	241.0	244.0	251.4	269.4	287.4	311.3	378.7	453.5	483.4
70°	178.1	178.1	190.1	196.1	208.0	221.5	235.0	255.9	314.3	378.7	401.1
72.5°	145.2	146.7	148.2	148.2	158.7	181.1	188.6	202.1	248.5	309.8	329.3
75°	118.2	119.7	121.2	122.7	124.2	131.7	143.7	155.7	190.1	235.0	252.9
77.5°	94.3	95.8	97.3	97.3	100.3	103.3	106.3	112.3	136.2	169.1	184.1
80°	71.8	73.3	74.8	74.8	76.3	79.3	80.8	83.8	91.3	113.7	121.2
82.5°	52.4	52.4	52.4	53.9	55.4	55.4	58.4	58.4	62.9	68.8	73.3
85°	32.9	32.9	34.4	34.4	34.4	35.9	34.4	35.9	37.4	38.9	41.9
87.5°	15.0	13.5	15.0	15.0	15.0	16.5	16.5	16.5	16.5	18.0	18.0
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°	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5	3650.5
2.5°	3729.8	3677.4	3589.1	3533.7	3512.8	3448.4	3387.0	3336.1	3310.7	3307.7	3261.3
5°	3803.1	3659.4	3476.8	3324.2	3288.3	3176.0	3030.8	2968.0	2885.6	2852.7	2813.8
7.5°	3863.0	3638.5	3369.1	3138.6	3071.2	2902.1	2716.5	2634.2	2571.3	2472.5	2414.2
10°	3904.9	3599.6	3237.4	2939.5	2843.7	2646.2	2421.7	2322.9	2264.5	2150.8	2104.4
12.5°	3921.4	3550.2	3105.7	2733.0	2649.2	2414.2	2194.2	2092.4	2005.6	1902.3	1857.4
15°	3915.4	3493.3	2970.9	2542.9	2438.1	2200.1	1966.7	1870.9	1790.1	1686.8	1628.4
17.5°	3875.0	3412.5	2824.3	2358.8	2258.5	2013.1	1776.6	1688.3	1616.4	1516.2	1471.3
20°	3807.6	3330.2	2695.6	2191.2	2077.4	1842.4	1619.4	1525.1	1462.3	1408.4	1375.5
22.5°	3714.8	3232.9	2538.4	2025.0	1926.3	1689.8	1475.7	1399.4	1362.0	1318.6	1294.6
25°	3574.1	3116.1	2396.2	1885.8	1787.1	1552.1	1365.0	1314.1	1276.7	1248.2	1222.8
27.5°	3423.0	3003.9	2254.0	1745.2	1652.4	1427.9	1278.2	1239.3	1206.3	1170.4	1148.0
30°	3247.8	2863.2	2119.3	1620.9	1531.1	1327.6	1203.3	1167.4	1140.5	1101.6	1079.1
32.5°	3041.3	2709.0	1993.6	1501.2	1417.4	1240.8	1134.5	1095.6	1073.1	1035.7	1013.3
35°	2827.3	2554.9	1855.9	1390.4	1314.1	1164.4	1067.1	1029.7	1005.8	968.4	945.9
37.5°	2617.7	2390.2	1733.2	1293.1	1224.3	1088.1	996.8	965.4	942.9	904.0	877.1
40°	2396.2	2201.6	1613.4	1201.9	1137.5	1020.7	932.4	904.0	874.1	839.6	812.7
42.5°	2164.2	2035.5	1502.7	1121.0	1061.2	954.9	868.1	838.2	812.7	772.3	760.3
45°	1947.2	1845.4	1385.9	1035.7	987.8	889.0	805.2	775.3	746.9	712.4	700.5
47.5°	1754.1	1659.8	1279.7	960.9	913.0	824.7	742.4	710.9	690.0	663.0	645.1
50°	1555.1	1477.2	1162.9	887.5	842.6	755.8	676.5	655.6	631.6	598.7	585.2
52.5°	1369.5	1309.6	1067.1	817.2	775.3	697.5	616.6	595.7	573.2	544.8	525.3
55°	1206.3	1146.5	957.9	737.9	706.4	633.1	561.3	534.3	516.4	483.4	459.5
57.5°	1038.7	1010.3	853.1	672.0	642.1	568.7	504.4	483.4	461.0	425.1	401.1
60°	901.0	868.1	755.8	600.2	571.7	510.4	447.5	426.6	405.6	371.2	360.7
62.5°	770.8	746.9	661.5	532.8	508.9	449.0	393.6	374.2	353.2	330.8	323.3
65°	652.6	631.6	567.2	464.0	444.5	392.1	341.2	320.3	306.8	296.3	288.9
67.5°	541.8	529.8	480.4	399.6	384.7	338.3	293.4	276.9	269.4	257.4	251.4
70°	441.5	446.0	401.1	341.2	324.8	287.4	248.5	235.0	226.0	215.5	203.6
72.5°	360.7	359.2	332.3	278.4	266.4	236.5	206.5	197.6	187.1	166.1	152.7
75°	279.9	285.9	260.4	230.5	218.5	188.6	160.1	148.2	137.7	130.2	125.7
77.5°	214.0	217.0	205.0	176.6	166.1	140.7	118.2	112.3	107.8	103.3	101.8
80°	152.7	157.2	145.2	127.2	118.2	97.3	85.3	83.8	82.3	79.3	77.8
82.5°	98.8	104.8	98.8	79.3	74.8	64.4	61.4	61.4	59.9	58.4	56.9
85°	53.9	59.9	56.9	46.4	43.4	40.4	38.9	37.4	37.4	37.4	37.4
87.5°	21.0	28.4	23.9	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
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°	3650.5	3650.5	3650.5
2.5°	3250.8	3235.9	3229.9
5°	2803.3	2756.9	2746.4
7.5°	2396.2	2376.8	2312.4
10°	2096.9	2037.0	2010.1
12.5°	1827.5	1772.1	1763.1
15°	1611.9	1573.0	1559.6
17.5°	1469.8	1442.8	1426.4
20°	1365.0	1345.5	1333.6
22.5°	1285.7	1270.7	1261.7
25°	1215.3	1192.9	1185.4
27.5°	1143.5	1124.0	1116.5
30°	1076.1	1059.7	1049.2
32.5°	1005.8	986.3	980.3
35°	938.4	926.5	920.5
37.5°	872.6	857.6	848.6
40°	811.2	803.7	799.2
42.5°	755.8	742.4	740.9
45°	697.5	684.0	681.0
47.5°	642.1	630.1	628.6
50°	583.7	567.2	555.3
52.5°	513.4	498.4	487.9
55°	450.5	434.0	425.1
57.5°	398.1	390.6	386.1
60°	357.7	353.2	350.2
62.5°	321.8	317.3	317.3
65°	288.9	284.4	279.9
67.5°	248.5	239.5	238.0
70°	199.1	185.6	184.1
72.5°	151.2	149.7	146.7
75°	125.7	122.7	122.7
77.5°	101.8	98.8	98.8
80°	77.8	76.3	77.8
82.5°	56.9	56.9	55.4
85°	37.4	35.9	35.9
87.5°	18.0	18.0	18.0
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	17.85	19.30	18.21	19.61	19.93	22.94	24.40	23.31	24.71	25.02
	3H	19.18	20.48	19.56	20.81	21.17	24.22	25.52	24.60	25.85	26.21
	4H	19.58	20.80	19.98	21.15	21.53	24.66	25.88	25.06	26.23	26.61
	6H	19.88	21.01	20.30	21.38	21.77	24.96	26.08	25.37	26.45	26.84
	8H	19.99	21.06	20.41	21.45	21.85	25.03	26.10	25.46	26.49	26.90
	12H	20.05	21.08	20.48	21.46	21.89	25.07	26.10	25.51	26.48	26.91
4H	2H	18.70	19.92	19.10	20.27	20.65	22.98	24.20	23.38	24.55	24.93
	3H	20.17	21.18	20.58	21.58	21.98	24.47	25.48	24.88	25.88	26.28
	4H	20.63	21.54	21.07	21.96	22.40	25.03	25.93	25.46	26.35	26.79
	6H	21.02	21.81	21.48	22.25	22.71	25.46	26.25	25.92	26.70	27.16
	8H	21.15	21.88	21.62	22.33	22.80	25.58	26.32	26.05	26.76	27.23
	12H	21.25	21.90	21.73	22.38	22.85	25.66	26.32	26.14	26.80	27.27
8H	4H	21.02	21.76	21.49	22.20	22.67	25.03	25.77	25.50	26.21	26.68
	6H	21.49	22.10	21.99	22.59	23.07	25.52	26.12	26.02	26.62	27.10
	8H	21.67	22.22	22.19	22.73	23.22	25.68	26.22	26.20	26.74	27.23
	12H	21.83	22.31	22.34	22.80	23.37	25.81	26.29	26.32	26.78	27.35
12H	4H	21.07	21.72	21.55	22.20	22.67	25.01	25.66	25.49	26.14	26.61
	6H	21.55	22.10	22.07	22.61	23.10	25.49	26.04	26.01	26.55	27.04
	8H	21.79	22.27	22.30	22.76	23.33	25.69	26.17	26.20	26.66	27.23