

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: P646667

Luminaire Tested: S123RDRP-S1165D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646667
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-S1165D830-X4F0-XX-UDD-G-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

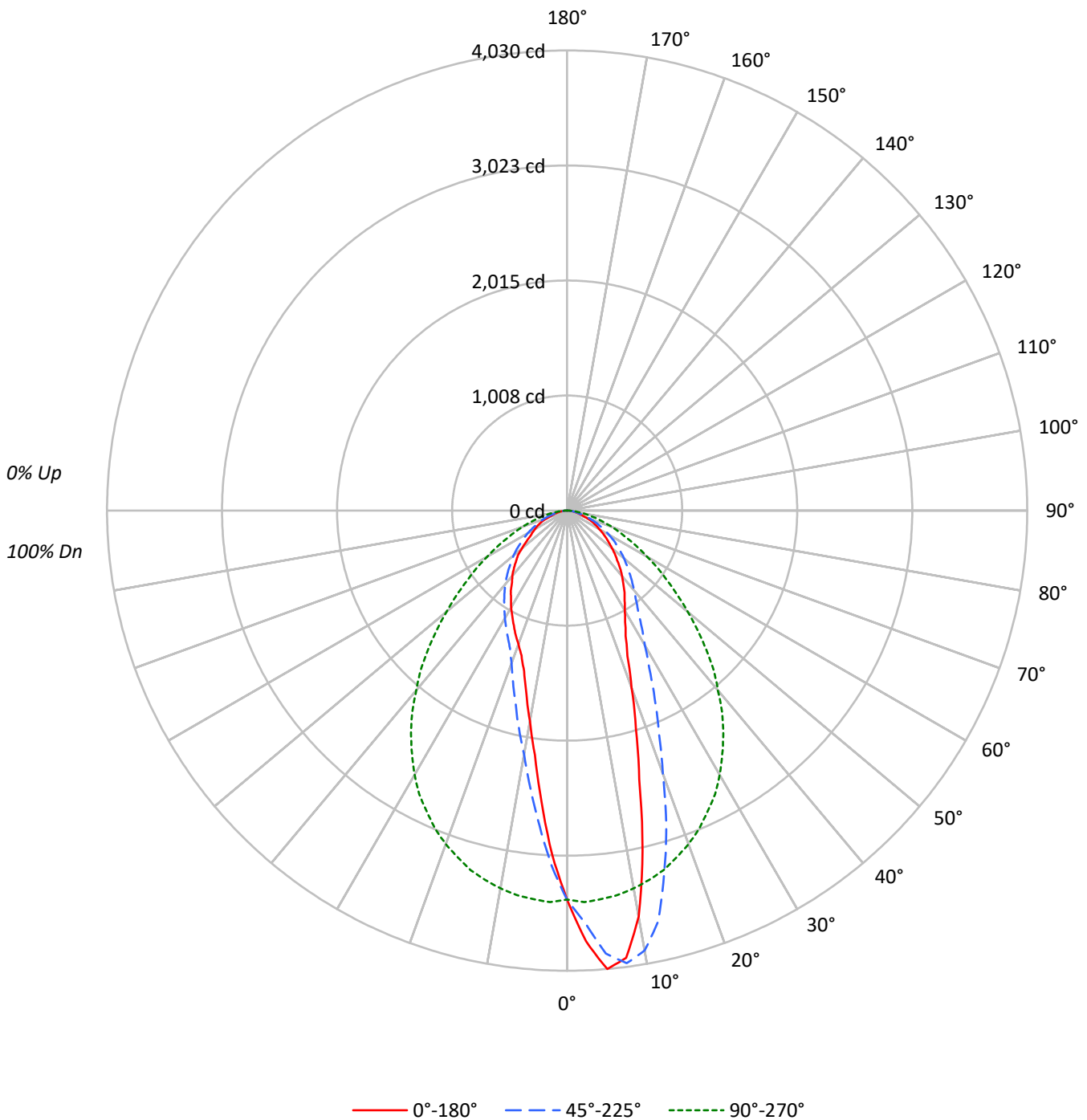
Lumens per Lamp: N/A
Luminaire Lumens: 4513.9 lumens
Efficiency: N/A
Efficacy: 112.6 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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	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°	41053	41053	41053	41053	41053
5°	48745	47089	41311	33505	31005
10°	44164	47856	41105	26526	22954
15°	30407	40985	40671	21782	18157
20°	21155	31436	39855	18253	15960
25°	16120	24125	38667	16306	14709
30°	14033	18969	37180	15160	13624
35°	12884	15966	35074	14137	12637
40°	11756	14326	32322	13271	11734
45°	10616	13116	29350	12330	10831
50°	9637	12177	25846	11470	9716
55°	8716	11180	22478	10476	8334
60°	7810	10167	19524	9594	7878
65°	7208	9041	16807	8522	7447
70°	5855	7726	14666	7726	6052
75°	5140	6243	12421	6438	5330
80°	4656	5232	10179	5426	5038
85°	4244	4438	7728	4825	4631

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 30969 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	310.5	6.9
10°-20°	718.4	15.9
20°-30°	824.3	18.3
30°-40°	811.9	18.0
40°-50°	715.6	15.9
50°-60°	550.7	12.2
60°-70°	362.2	8.0
70°-80°	175.9	3.9
80°-90°	44.4	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°	1853.2	41.1
0°-40°	2665.1	59.0
0°-60°	3931.5	87.1
0°-90°	4513.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4513.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3407	3407	3407	3407	3407	
5°	4030	3893	3416	2770	2563	368
15°	2438	3286	3260	1746	1456	688
25°	1212	1815	2908	1226	1106	573
35°	876	1085	2384	961	859	546
45°	623	770	1722	724	636	484
55°	415	532	1070	499	397	372
65°	253	317	590	299	261	248
75°	110	134	267	138	114	119
85°	31	32	56	35	34	35
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°	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1
2.5°	3775.9	3752.1	3745.1	3736.8	3722.8	3672.5	3615.2	3620.8	3613.8	3570.5	3546.8
5°	4030.1	4032.9	4025.9	4020.3	3996.6	3935.1	3893.2	3868.1	3815.0	3734.0	3708.8
7.5°	3951.9	3996.6	4005.0	4014.8	4027.3	4013.4	3998.0	3988.2	3944.9	3856.9	3816.4
10°	3609.6	3606.9	3657.1	3697.7	3806.6	3883.4	3911.4	3951.9	3988.2	3926.7	3882.0
12.5°	3050.9	3055.1	3219.9	3219.9	3361.0	3556.6	3682.3	3767.5	3924.0	3928.1	3901.6
15°	2437.6	2506.1	2652.8	2683.5	2865.1	3127.7	3285.6	3461.6	3764.7	3859.7	3854.1
17.5°	2001.8	2031.1	2172.2	2212.7	2373.4	2670.9	2888.8	3101.2	3525.8	3725.6	3761.9
20°	1649.8	1676.3	1778.3	1809.0	1971.1	2254.6	2451.6	2680.7	3236.7	3542.6	3606.9
22.5°	1377.4	1429.1	1497.5	1545.0	1637.2	1926.4	2095.4	2314.7	2901.4	3337.2	3412.7
25°	1212.5	1236.3	1294.9	1317.3	1429.1	1620.4	1814.6	2007.4	2603.9	3080.2	3212.9
27.5°	1100.8	1107.8	1151.1	1170.6	1237.7	1415.1	1554.8	1733.6	2300.7	2816.2	2971.3
30°	1008.6	1021.1	1054.7	1058.9	1117.5	1243.3	1363.4	1528.2	2035.3	2560.6	2719.8
32.5°	937.3	944.3	972.3	980.6	1018.4	1117.5	1215.3	1335.5	1789.5	2293.7	2476.7
35°	875.9	877.3	898.2	909.4	942.9	1025.3	1085.4	1186.0	1592.5	2073.0	2233.7
37.5°	806.0	815.8	831.2	840.9	870.3	937.3	991.8	1070.0	1410.9	1863.5	2013.0
40°	747.4	755.7	773.9	778.1	804.6	866.1	910.8	980.6	1254.4	1662.3	1814.6
42.5°	688.7	694.3	712.4	720.8	750.1	799.0	839.5	894.0	1130.1	1483.5	1633.0
45°	623.0	637.0	656.6	660.7	688.7	739.0	769.7	820.0	1018.4	1328.5	1461.2
47.5°	568.5	575.5	592.3	599.3	631.4	676.1	708.2	751.5	922.0	1187.4	1317.3
50°	514.1	516.9	532.2	542.0	567.2	618.8	649.6	688.7	834.0	1072.8	1163.6
52.5°	462.4	469.4	484.7	491.7	508.5	561.6	589.5	630.0	750.1	955.5	1046.3
55°	414.9	419.1	430.3	438.6	458.2	504.3	532.2	567.2	677.5	847.9	927.6
57.5°	370.2	375.8	384.2	391.1	409.3	449.8	477.7	512.7	609.1	750.1	811.6
60°	324.1	331.1	340.8	343.6	360.4	396.7	421.9	452.6	539.2	659.3	713.8
62.5°	290.6	292.0	300.3	304.5	314.3	343.6	370.2	399.5	476.4	571.3	616.0
65°	252.8	257.0	261.2	264.0	272.4	297.5	317.1	339.5	414.9	497.3	528.0
67.5°	213.7	217.9	224.9	227.7	234.7	251.4	268.2	290.6	353.4	423.3	451.2
70°	166.2	166.2	177.4	183.0	194.2	206.7	219.3	238.9	293.4	353.4	374.4
72.5°	135.5	136.9	138.3	138.3	148.1	169.0	176.0	188.6	231.9	289.2	307.3
75°	110.4	111.8	113.2	114.5	115.9	122.9	134.1	145.3	177.4	219.3	236.1
77.5°	88.0	89.4	90.8	90.8	93.6	96.4	99.2	104.8	127.1	157.9	171.8
80°	67.1	68.4	69.8	69.8	71.2	74.0	75.4	78.2	85.2	106.2	113.2
82.5°	48.9	48.9	48.9	50.3	51.7	51.7	54.5	54.5	58.7	64.3	68.4
85°	30.7	30.7	32.1	32.1	32.1	33.5	32.1	33.5	34.9	36.3	39.1
87.5°	14.0	12.6	14.0	14.0	14.0	15.4	15.4	15.4	15.4	16.8	16.8
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°	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1	3407.1
2.5°	3481.1	3432.2	3349.8	3298.1	3278.6	3218.5	3161.2	3113.7	3090.0	3087.2	3043.9
5°	3549.6	3415.5	3245.0	3102.6	3069.0	2964.3	2828.8	2770.1	2693.3	2662.5	2626.2
7.5°	3605.5	3395.9	3144.5	2929.3	2866.5	2708.6	2535.4	2458.6	2399.9	2307.7	2253.2
10°	3644.6	3359.6	3021.5	2743.6	2654.2	2469.8	2260.2	2168.0	2113.5	2007.4	1964.1
12.5°	3659.9	3313.5	2898.6	2550.8	2472.6	2253.2	2047.9	1952.9	1871.9	1775.5	1733.6
15°	3654.3	3260.4	2772.9	2373.4	2275.6	2053.5	1835.6	1746.2	1670.7	1574.3	1519.9
17.5°	3616.6	3185.0	2636.0	2201.5	2108.0	1878.9	1658.1	1575.7	1508.7	1415.1	1373.2
20°	3553.8	3108.2	2515.9	2045.1	1938.9	1719.6	1511.5	1423.5	1364.8	1314.5	1283.8
22.5°	3467.2	3017.4	2369.2	1890.0	1797.8	1577.1	1377.4	1306.1	1271.2	1230.7	1208.3
25°	3335.8	2908.4	2236.5	1760.1	1667.9	1448.6	1274.0	1226.5	1191.6	1165.0	1141.3
27.5°	3194.8	2803.6	2103.8	1628.8	1542.2	1332.7	1193.0	1156.7	1125.9	1092.4	1071.4
30°	3031.3	2672.3	1978.0	1512.9	1429.1	1239.1	1123.1	1089.6	1064.5	1028.1	1007.2
32.5°	2838.5	2528.4	1860.7	1401.1	1322.9	1158.0	1058.9	1022.5	1001.6	966.7	945.7
35°	2638.8	2384.5	1732.2	1297.7	1226.5	1086.8	996.0	961.1	938.7	903.8	882.9
37.5°	2443.2	2230.9	1617.6	1206.9	1142.7	1015.6	930.3	901.0	880.1	843.7	818.6
40°	2236.5	2054.9	1505.9	1121.7	1061.7	952.7	870.3	843.7	815.8	783.7	758.5
42.5°	2019.9	1899.8	1402.5	1046.3	990.4	891.2	810.2	782.3	758.5	720.8	709.6
45°	1817.4	1722.4	1293.5	966.7	922.0	829.8	751.5	723.6	697.1	664.9	653.8
47.5°	1637.2	1549.2	1194.4	896.8	852.1	769.7	692.9	663.5	644.0	618.8	602.1
50°	1451.4	1378.8	1085.4	828.4	786.5	705.4	631.4	611.9	589.5	558.8	546.2
52.5°	1278.2	1222.3	996.0	762.7	723.6	651.0	575.5	556.0	535.0	508.5	490.3
55°	1125.9	1070.0	894.0	688.7	659.3	590.9	523.8	498.7	481.9	451.2	428.9
57.5°	969.5	942.9	796.2	627.2	599.3	530.8	470.8	451.2	430.3	396.7	374.4
60°	840.9	810.2	705.4	560.2	533.6	476.4	417.7	398.1	378.6	346.4	336.7
62.5°	719.4	697.1	617.4	497.3	475.0	419.1	367.4	349.2	329.7	308.7	301.7
65°	609.1	589.5	529.4	433.0	414.9	366.0	318.5	298.9	286.4	276.6	269.6
67.5°	505.7	494.5	448.4	373.0	359.0	315.7	273.8	258.4	251.4	240.3	234.7
70°	412.1	416.3	374.4	318.5	303.1	268.2	231.9	219.3	210.9	201.2	190.0
72.5°	336.7	335.3	310.1	259.8	248.7	220.7	192.8	184.4	174.6	155.1	142.5
75°	261.2	266.8	243.1	215.1	204.0	176.0	149.5	138.3	128.5	121.5	117.3
77.5°	199.8	202.6	191.4	164.8	155.1	131.3	110.4	104.8	100.6	96.4	95.0
80°	142.5	146.7	135.5	118.7	110.4	90.8	79.6	78.2	76.8	74.0	72.6
82.5°	92.2	97.8	92.2	74.0	69.8	60.1	57.3	57.3	55.9	54.5	53.1
85°	50.3	55.9	53.1	43.3	40.5	37.7	36.3	34.9	34.9	34.9	34.9
87.5°	19.6	26.5	22.4	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.2
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°	3407.1	3407.1	3407.1
2.5°	3034.1	3020.1	3014.6
5°	2616.4	2573.1	2563.4
7.5°	2236.5	2218.3	2158.2
10°	1957.1	1901.2	1876.1
12.5°	1705.6	1654.0	1645.6
15°	1504.5	1468.2	1455.6
17.5°	1371.8	1346.6	1331.3
20°	1274.0	1255.8	1244.7
22.5°	1200.0	1186.0	1177.6
25°	1134.3	1113.3	1106.4
27.5°	1067.2	1049.1	1042.1
30°	1004.4	989.0	979.2
32.5°	938.7	920.6	915.0
35°	875.9	864.7	859.1
37.5°	814.4	800.4	792.1
40°	757.1	750.1	746.0
42.5°	705.4	692.9	691.5
45°	651.0	638.4	635.6
47.5°	599.3	588.1	586.7
50°	544.8	529.4	518.3
52.5°	479.1	465.2	455.4
55°	420.5	405.1	396.7
57.5°	371.6	364.6	360.4
60°	333.9	329.7	326.9
62.5°	300.3	296.1	296.1
65°	269.6	265.4	261.2
67.5°	231.9	223.5	222.1
70°	185.8	173.2	171.8
72.5°	141.1	139.7	136.9
75°	117.3	114.5	114.5
77.5°	95.0	92.2	92.2
80°	72.6	71.2	72.6
82.5°	53.1	53.1	51.7
85°	34.9	33.5	33.5
87.5°	16.8	16.8	16.8
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	17.61	19.06	17.97	19.37	19.69	22.70	24.16	23.07	24.47	24.78
	3H	18.94	20.24	19.32	20.57	20.93	23.98	25.28	24.36	25.61	25.97
	4H	19.34	20.56	19.74	20.91	21.29	24.42	25.64	24.82	25.99	26.37
	6H	19.64	20.77	20.06	21.14	21.53	24.72	25.84	25.13	26.21	26.60
	8H	19.75	20.82	20.17	21.21	21.61	24.79	25.86	25.22	26.25	26.66
	12H	19.81	20.84	20.24	21.22	21.65	24.83	25.86	25.27	26.24	26.67
4H	2H	18.46	19.68	18.86	20.03	20.41	22.74	23.96	23.14	24.31	24.69
	3H	19.93	20.94	20.34	21.34	21.74	24.23	25.24	24.64	25.64	26.04
	4H	20.39	21.30	20.83	21.72	22.16	24.79	25.69	25.22	26.11	26.55
	6H	20.78	21.57	21.24	22.01	22.47	25.23	26.01	25.68	26.46	26.92
	8H	20.91	21.65	21.38	22.09	22.56	25.34	26.08	25.81	26.53	26.99
	12H	21.01	21.66	21.49	22.14	22.62	25.42	26.08	25.90	26.56	27.03
8H	4H	20.78	21.52	21.25	21.96	22.43	24.79	25.53	25.26	25.97	26.44
	6H	21.25	21.86	21.75	22.35	22.83	25.28	25.89	25.78	26.38	26.86
	8H	21.43	21.98	21.95	22.49	22.98	25.44	25.99	25.96	26.50	26.99
	12H	21.59	22.07	22.10	22.56	23.13	25.57	26.05	26.08	26.54	27.11
12H	4H	20.83	21.48	21.31	21.96	22.43	24.77	25.42	25.25	25.90	26.38
	6H	21.31	21.86	21.83	22.37	22.86	25.25	25.80	25.77	26.31	26.80
	8H	21.55	22.03	22.06	22.52	23.09	25.45	25.93	25.96	26.42	26.99