

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: P646636

Luminaire Tested: S123DRP-S340D930-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646636
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-1)
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-S340D930-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

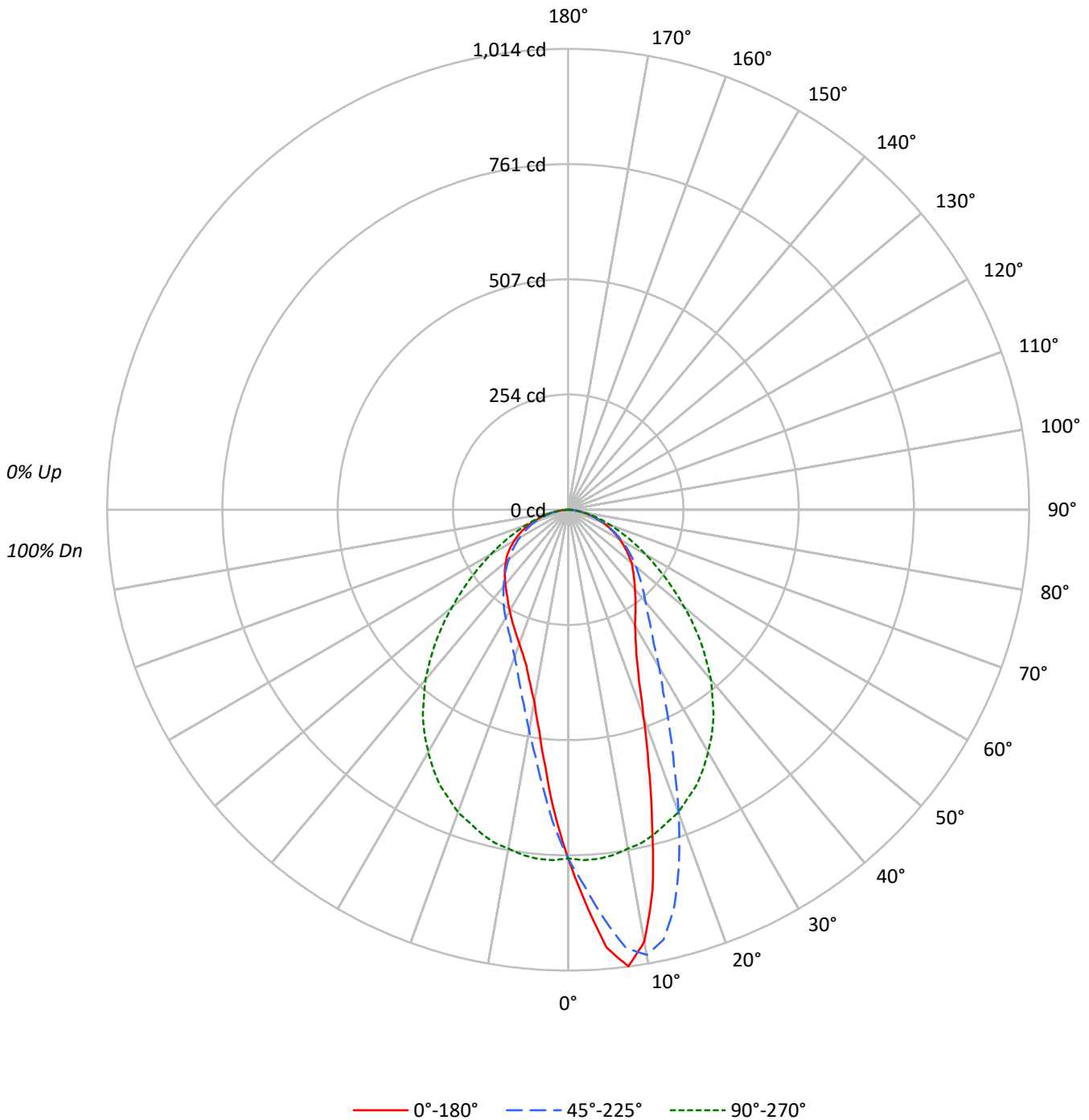
Lumens per Lamp: N/A
Luminaire Lumens: 1232.6 lumens
Efficiency: N/A
Efficacy: 103.6 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 11.9
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	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	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88					86				
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76					74				
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66					64				
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58					56				
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52					50				
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47					45				
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42					40				
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39					37				
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35					34				
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33					31				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	9243	9243	9243	9243	9243
5°	11690	10932	9327	7478	6906
10°	11803	12169	9264	6040	5235
15°	8890	11262	9201	5062	4427
20°	6195	9107	9083	4413	4021
25°	4724	6985	8884	4047	3772
30°	4086	5553	8564	3823	3572
35°	3791	4650	8195	3645	3430
40°	3589	4160	7676	3478	3382
45°	3469	3865	7019	3330	3360
50°	3410	3650	6238	3204	3342
55°	3283	3447	5474	3088	3357
60°	3167	3261	4718	2976	3304
65°	2974	3054	4068	2851	3239
70°	2748	2836	3463	2695	3047
75°	2486	2570	2966	2467	2784
80°	2047	2200	2345	2151	2345
85°	1618	1770	1728	1866	1866

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 8012 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	72.5	5.9
10°-20°	180.5	14.6
20°-30°	213.6	17.3
30°-40°	214.7	17.4
40°-50°	196.9	16.0
50°-60°	162.5	13.2
60°-70°	115.0	9.3
70°-80°	61.4	5.0
80°-90°	15.6	1.3
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°	466.6	37.9
0°-40°	681.2	55.3
0°-60°	1040.6	84.4
0°-90°	1232.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1232.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	767	767	767	767	767	
5°	966	904	771	618	571	92
15°	713	903	738	406	355	197
25°	355	525	668	304	284	168
35°	258	316	557	248	233	162
45°	204	227	412	195	197	158
55°	156	164	261	147	160	140
65°	104	107	143	100	114	104
75°	53	55	64	53	60	56
85°	12	13	12	14	14	14
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°	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1
2.5°	864.7	862.9	854.0	848.3	849.7	836.9	829.1	822.7	818.4	808.1	802.7
5°	966.5	971.5	965.8	962.9	948.3	925.2	903.8	899.2	879.3	854.7	846.2
7.5°	1013.5	1016.3	1012.8	1012.8	1008.1	987.5	972.5	960.8	926.6	894.9	880.3
10°	964.7	971.1	985.0	991.4	1000.7	997.8	994.6	990.0	966.8	930.2	913.4
12.5°	857.6	865.4	893.2	897.1	928.7	959.4	969.3	980.7	982.9	951.9	933.7
15°	712.7	734.4	759.7	771.8	812.0	876.4	902.8	933.7	970.4	957.6	943.3
17.5°	587.0	595.2	622.3	647.9	688.1	762.5	811.3	857.6	936.2	949.0	940.1
20°	483.1	490.5	526.1	524.4	577.8	661.4	710.2	763.6	879.6	921.3	919.5
22.5°	405.8	417.6	437.5	448.5	487.0	561.4	607.7	674.2	815.2	881.0	888.2
25°	355.3	363.8	375.9	385.5	415.4	476.7	525.4	580.2	734.0	828.4	846.2
27.5°	320.7	324.3	336.4	342.1	362.0	414.7	452.4	502.6	658.9	769.3	794.2
30°	293.7	296.2	306.9	308.6	324.3	362.4	399.1	440.0	585.6	708.4	736.9
32.5°	274.8	276.6	284.8	285.5	297.2	325.0	350.6	389.1	516.2	643.3	678.5
35°	257.7	258.8	264.8	266.6	274.1	295.1	316.1	345.7	461.0	584.5	623.3
37.5°	242.8	244.2	247.8	249.9	255.9	272.7	286.9	311.5	408.0	523.3	566.4
40°	228.2	230.7	233.2	233.2	239.9	252.7	264.5	284.8	362.4	469.9	508.0
42.5°	215.7	218.2	219.3	219.6	223.2	234.9	244.9	258.8	327.9	422.5	459.9
45°	203.6	204.7	205.8	206.5	209.0	219.3	226.8	239.9	295.1	378.8	415.1
47.5°	192.6	192.6	193.3	194.4	196.1	203.6	210.0	219.6	267.0	339.6	369.5
50°	181.9	181.9	180.8	181.5	182.6	188.3	194.7	202.6	240.6	303.6	330.3
52.5°	169.1	169.1	169.4	168.4	169.4	174.4	179.4	187.2	218.2	270.5	293.3
55°	156.3	157.7	156.6	155.9	157.3	160.5	164.1	170.9	197.2	244.2	262.4
57.5°	143.5	144.2	143.8	144.9	144.2	147.0	150.2	154.9	178.3	214.7	231.7
60°	131.4	131.4	130.6	131.4	131.4	132.8	135.3	139.9	159.1	189.4	203.6
62.5°	117.8	118.2	118.5	118.2	117.8	119.6	121.7	124.9	142.4	164.8	175.5
65°	104.3	104.7	105.7	105.4	105.0	106.8	107.1	110.7	123.9	143.1	150.9
67.5°	92.2	91.5	91.8	92.6	92.9	93.3	94.0	97.5	106.8	122.5	128.9
70°	78.0	78.7	78.3	79.4	78.7	79.7	80.5	82.9	91.8	102.2	106.4
72.5°	65.1	65.5	65.5	66.6	66.2	67.3	68.0	69.1	75.5	84.7	86.5
75°	53.4	53.4	54.1	54.5	54.5	54.5	55.2	55.9	61.2	66.9	68.7
77.5°	40.6	42.4	42.0	42.4	42.7	43.8	43.1	44.5	47.7	50.9	52.0
80°	29.5	29.5	29.9	30.3	31.0	31.7	31.7	33.1	34.5	36.3	37.4
82.5°	18.9	19.2	20.3	20.6	21.0	22.1	22.1	22.1	23.9	24.6	24.6
85°	11.7	11.0	11.7	12.1	12.5	12.8	12.8	13.5	13.9	14.2	14.2
87.5°	5.7	5.7	5.7	5.7	6.1	6.1	6.1	6.1	6.4	6.4	6.4
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°	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1	767.1
2.5°	784.9	771.8	752.2	736.2	736.9	722.3	711.6	697.7	693.4	689.2	683.5
5°	801.3	771.1	730.5	698.1	688.1	663.9	633.3	618.3	609.4	593.8	587.7
7.5°	821.6	766.1	704.1	653.6	642.5	602.3	566.0	548.2	531.5	520.4	506.9
10°	834.8	757.2	677.4	610.5	599.8	553.9	506.6	493.7	472.7	459.2	446.4
12.5°	844.7	750.4	650.0	572.1	554.6	510.1	462.4	445.0	429.7	410.1	400.8
15°	853.6	737.6	621.9	531.8	513.7	465.6	421.5	405.8	391.9	374.8	366.7
17.5°	850.4	721.9	590.9	496.2	478.1	430.7	388.4	370.6	361.3	346.4	340.7
20°	846.5	708.4	561.7	462.4	442.5	398.3	357.0	344.2	335.0	325.4	320.4
22.5°	834.1	687.0	532.2	431.4	412.6	368.4	333.2	322.5	315.4	308.6	304.4
25°	813.1	668.2	503.4	400.5	385.5	344.2	314.3	304.4	299.7	293.0	289.1
27.5°	787.1	643.3	474.5	375.2	358.1	321.4	295.8	289.4	284.4	279.1	275.2
30°	754.3	615.5	446.4	350.6	335.0	302.6	280.5	274.8	270.2	264.8	260.2
32.5°	712.7	587.4	420.1	327.9	314.7	286.6	266.3	261.6	257.7	251.3	248.8
35°	666.0	557.1	394.1	306.1	293.7	269.1	252.4	247.8	243.8	238.5	236.4
37.5°	618.7	521.2	368.4	287.6	276.6	254.5	238.5	233.9	230.3	225.7	224.6
40°	568.5	488.0	343.2	268.8	259.2	240.3	224.6	221.1	217.5	214.7	213.9
42.5°	517.9	450.0	321.1	253.1	242.8	225.3	211.1	207.2	205.0	203.6	204.0
45°	470.2	411.9	298.3	234.9	227.8	211.8	198.6	195.4	193.7	192.6	194.0
47.5°	418.6	373.1	277.0	219.6	212.5	198.3	185.8	183.0	182.3	181.9	184.4
50°	373.1	332.8	253.8	204.0	197.9	183.3	173.4	170.9	170.2	171.2	174.8
52.5°	330.0	295.5	232.8	189.4	183.3	170.2	160.9	159.1	158.8	161.3	164.8
55°	287.3	260.6	210.0	173.4	167.3	155.9	148.8	147.0	146.7	151.6	154.9
57.5°	251.0	226.8	188.7	158.1	153.4	142.7	136.3	134.9	136.0	140.6	143.8
60°	215.4	195.8	169.1	141.7	138.1	128.9	123.9	123.5	124.6	129.9	133.1
62.5°	183.3	168.4	148.1	126.7	124.2	116.0	111.4	112.1	113.2	118.5	121.4
65°	155.9	142.7	127.4	111.8	108.6	102.9	99.7	100.0	102.2	106.8	109.6
67.5°	129.2	118.5	110.0	97.5	95.0	90.1	87.6	89.0	90.1	94.7	97.5
70°	106.8	98.3	91.8	82.6	80.8	76.5	74.8	76.5	77.6	81.5	85.1
72.5°	85.8	80.5	75.5	68.7	66.9	64.1	63.7	64.4	66.2	70.1	71.6
75°	66.6	63.7	59.4	55.2	54.1	52.7	52.3	53.0	54.8	57.0	58.4
77.5°	50.5	48.1	44.9	43.1	41.6	40.9	41.3	42.4	43.1	45.2	46.3
80°	36.7	33.8	33.1	30.6	30.3	29.9	30.6	31.0	32.0	33.5	34.2
82.5°	24.2	22.1	21.4	21.0	20.6	20.3	21.4	21.7	22.4	23.5	23.9
85°	13.2	12.5	12.5	12.1	12.5	13.2	13.2	13.5	13.5	13.9	13.5
87.5°	6.1	5.3	5.7	5.7	5.7	6.1	6.1	6.4	6.4	6.4	6.1
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°	767.1	767.1	767.1
2.5°	683.1	680.6	670.7
5°	582.4	573.8	571.0
7.5°	505.5	504.8	489.8
10°	440.3	441.4	427.9
12.5°	399.4	390.5	389.4
15°	364.5	356.3	354.9
17.5°	338.5	333.6	332.1
20°	319.0	316.1	313.6
22.5°	303.3	299.7	297.6
25°	287.6	284.4	283.7
27.5°	274.1	270.2	270.2
30°	260.2	257.7	256.7
32.5°	247.8	245.6	245.6
35°	235.7	234.6	233.2
37.5°	224.6	224.6	223.9
40°	213.9	215.0	215.0
42.5°	204.7	205.8	205.8
45°	194.7	196.5	197.2
47.5°	184.8	187.6	188.3
50°	175.9	178.0	178.3
52.5°	166.2	168.7	170.5
55°	156.3	158.8	159.8
57.5°	145.6	148.1	148.4
60°	133.8	136.3	137.1
62.5°	123.2	124.6	125.3
65°	110.0	112.1	113.6
67.5°	97.9	99.7	99.7
70°	84.7	85.4	86.5
72.5°	72.3	72.6	72.6
75°	58.7	59.4	59.8
77.5°	46.3	46.6	46.6
80°	34.2	33.8	33.8
82.5°	23.9	22.8	22.8
85°	13.5	13.2	13.5
87.5°	6.1	6.1	6.1
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	15.22	16.72	15.58	17.04	17.35	17.67	19.18	18.03	19.49	19.81
	3H	16.91	18.26	17.29	18.59	18.95	18.88	20.24	19.26	20.57	20.93
	4H	17.51	18.78	17.91	19.13	19.51	19.30	20.58	19.70	20.93	21.30
	6H	17.91	19.09	18.33	19.46	19.85	19.58	20.75	19.99	21.12	21.51
	8H	18.02	19.14	18.44	19.53	19.93	19.65	20.76	20.07	21.15	21.56
	12H	18.07	19.14	18.50	19.53	19.95	19.68	20.75	20.11	21.13	21.56
4H	2H	15.86	17.13	16.26	17.48	17.86	17.89	19.16	18.29	19.51	19.89
	3H	17.75	18.81	18.16	19.21	19.61	19.37	20.43	19.78	20.83	21.23
	4H	18.47	19.42	18.90	19.84	20.28	19.94	20.89	20.37	21.31	21.75
	6H	18.98	19.81	19.44	20.25	20.71	20.33	21.16	20.79	21.61	22.07
	8H	19.12	19.89	19.58	20.34	20.80	20.44	21.21	20.90	21.66	22.12
	12H	19.20	19.90	19.69	20.37	20.85	20.50	21.20	20.99	21.67	22.15
8H	4H	18.79	19.57	19.26	20.01	20.48	20.10	20.88	20.57	21.32	21.79
	6H	19.41	20.05	19.91	20.54	21.02	20.60	21.24	21.09	21.73	22.20
	8H	19.61	20.18	20.12	20.69	21.18	20.76	21.33	21.27	21.84	22.33
	12H	19.75	20.25	20.26	20.75	21.31	20.88	21.38	21.39	21.88	22.44
12H	4H	18.83	19.52	19.31	20.00	20.47	20.11	20.80	20.59	21.28	21.75
	6H	19.46	20.04	19.98	20.55	21.03	20.61	21.19	21.13	21.70	22.19
	8H	19.71	20.22	20.22	20.71	21.27	20.83	21.33	21.33	21.82	22.39