

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: P646635

Luminaire Tested: S123DRP-S340D927-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646635
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-S340D927-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

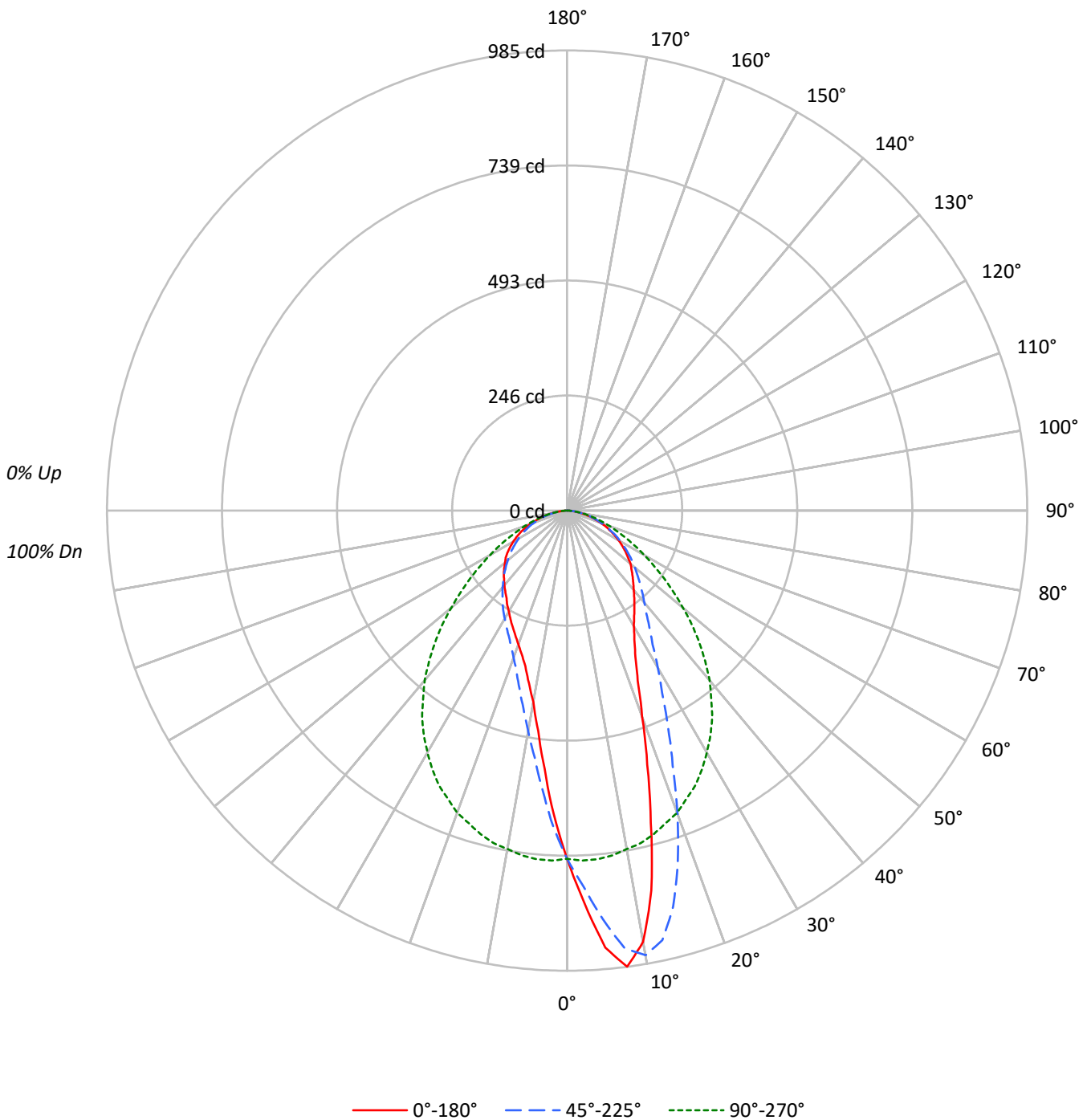
Lumens per Lamp: N/A
Luminaire Lumens: 1197.6 lumens
Efficiency: N/A
Efficacy: 100.6 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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					86			
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76	74					74			
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64					64			
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58	56					56			
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50					50			
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47	45					45			
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40					40			
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39	37					37			
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35	34					34			
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31					31			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	8981	8981	8981	8981	8981
5°	11359	10622	9062	7267	6710
10°	11468	11824	9001	5869	5087
15°	8638	10942	8940	4919	4301
20°	6019	8848	8826	4289	3907
25°	4589	6787	8631	3931	3665
30°	3971	5394	8320	3715	3470
35°	3683	4517	7962	3541	3333
40°	3487	4042	7459	3379	3286
45°	3371	3754	6819	3236	3265
50°	3312	3547	6062	3112	3249
55°	3189	3351	5319	3002	3262
60°	3075	3167	4584	2892	3210
65°	2888	2968	3954	2771	3145
70°	2667	2755	3364	2621	2963
75°	2416	2495	2882	2398	2705
80°	1991	2137	2283	2089	2283
85°	1576	1728	1673	1811	1811

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 7786 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	70.5	5.9
10°-20°	175.3	14.6
20°-30°	207.5	17.3
30°-40°	208.6	17.4
40°-50°	191.3	16.0
50°-60°	157.9	13.2
60°-70°	111.7	9.3
70°-80°	59.7	5.0
80°-90°	15.1	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°	453.4	37.9
0°-40°	661.9	55.3
0°-60°	1011.1	84.4
0°-90°	1197.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1197.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	745	745	745	745	745	
5°	939	878	749	601	555	89
15°	692	877	717	394	345	191
25°	345	510	649	296	276	163
35°	250	307	541	241	227	157
45°	198	220	400	190	192	153
55°	152	160	253	143	155	136
65°	101	104	139	97	110	101
75°	52	54	62	52	58	55
85°	11	12	12	13	13	13
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°	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4
2.5°	840.2	838.4	829.8	824.2	825.6	813.2	805.6	799.3	795.2	785.2	780.0
5°	939.1	943.9	938.4	935.6	921.4	899.0	878.2	873.7	854.3	830.5	822.2
7.5°	984.7	987.5	984.0	984.0	979.5	959.5	945.0	933.5	900.3	869.6	855.4
10°	937.3	943.6	957.1	963.3	972.3	969.5	966.4	961.9	939.4	903.8	887.5
12.5°	833.2	840.8	867.8	871.6	902.4	932.2	941.8	952.9	955.0	924.9	907.3
15°	692.5	713.6	738.1	749.9	789.0	851.6	877.2	907.3	942.9	930.4	916.6
17.5°	570.4	578.3	604.6	629.5	668.6	740.9	788.3	833.2	909.7	922.1	913.5
20°	469.4	476.6	511.2	509.5	561.4	642.7	690.0	741.9	854.7	895.2	893.4
22.5°	394.3	405.7	425.1	435.8	473.2	545.5	590.4	655.1	792.1	856.1	863.0
25°	345.2	353.5	365.3	374.6	403.6	463.1	510.5	563.8	713.2	804.9	822.2
27.5°	311.6	315.1	326.9	332.4	351.8	403.0	439.6	488.4	640.2	747.5	771.7
30°	285.4	287.8	298.2	299.9	315.1	352.1	387.7	427.5	569.0	688.3	716.0
32.5°	267.0	268.8	276.7	277.4	288.8	315.8	340.7	378.1	501.5	625.0	659.3
35°	250.4	251.5	257.3	259.1	266.3	286.7	307.1	335.9	447.9	567.9	605.6
37.5°	235.9	237.3	240.7	242.8	248.7	264.9	278.8	302.6	396.4	508.5	550.3
40°	221.7	224.1	226.6	226.6	233.1	245.6	257.0	276.7	352.1	456.6	493.6
42.5°	209.6	212.0	213.1	213.4	216.9	228.3	238.0	251.5	318.6	410.6	446.9
45°	197.8	198.9	199.9	200.6	203.0	213.1	220.3	233.1	286.7	368.0	403.3
47.5°	187.1	187.1	187.8	188.9	190.6	197.8	204.1	213.4	259.4	330.0	359.0
50°	176.7	176.7	175.7	176.4	177.4	183.0	189.2	196.8	233.8	295.0	321.0
52.5°	164.3	164.3	164.6	163.6	164.6	169.5	174.3	181.9	212.0	262.9	285.0
55°	151.8	153.2	152.2	151.5	152.9	156.0	159.5	166.0	191.6	237.3	254.9
57.5°	139.4	140.1	139.7	140.8	140.1	142.9	146.0	150.5	173.3	208.6	225.2
60°	127.6	127.6	126.9	127.6	127.6	129.0	131.4	135.9	154.6	184.0	197.8
62.5°	114.5	114.8	115.2	114.8	114.5	116.2	118.3	121.4	138.4	160.1	170.5
65°	101.3	101.7	102.7	102.4	102.0	103.8	104.1	107.6	120.4	139.0	146.7
67.5°	89.6	88.9	89.2	89.9	90.3	90.6	91.3	94.8	103.8	119.0	125.2
70°	75.7	76.4	76.1	77.1	76.4	77.5	78.2	80.6	89.2	99.3	103.4
72.5°	63.3	63.6	63.6	64.7	64.3	65.4	66.1	67.1	73.3	82.3	84.1
75°	51.9	51.9	52.6	52.9	52.9	52.9	53.6	54.3	59.5	65.0	66.8
77.5°	39.4	41.2	40.8	41.2	41.5	42.5	41.9	43.2	46.3	49.5	50.5
80°	28.7	28.7	29.1	29.4	30.1	30.8	30.8	32.2	33.6	35.3	36.3
82.5°	18.3	18.7	19.7	20.1	20.4	21.4	21.4	21.4	23.2	23.9	23.9
85°	11.4	10.7	11.4	11.8	12.1	12.5	12.5	13.1	13.5	13.8	13.8
87.5°	5.5	5.5	5.5	5.5	5.9	5.9	5.9	5.9	6.2	6.2	6.2
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):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4	745.4
2.5°	762.7	749.9	730.9	715.3	716.0	701.8	691.4	677.9	673.8	669.6	664.1
5°	778.6	749.2	709.8	678.3	668.6	645.1	615.3	600.8	592.2	576.9	571.1
7.5°	798.3	744.3	684.2	635.0	624.3	585.2	550.0	532.7	516.4	505.7	492.5
10°	811.1	735.7	658.2	593.2	582.8	538.2	492.2	479.7	459.3	446.2	433.7
12.5°	820.8	729.1	631.6	555.8	538.9	495.7	449.3	432.4	417.5	398.5	389.5
15°	829.4	716.7	604.3	516.8	499.1	452.4	409.5	394.3	380.8	364.2	356.3
17.5°	826.3	701.5	574.2	482.2	464.5	418.5	377.4	360.1	351.1	336.5	331.0
20°	822.5	688.3	545.8	449.3	429.9	387.0	346.9	334.5	325.5	316.1	311.3
22.5°	810.4	667.6	517.1	419.2	400.9	358.0	323.7	313.4	306.5	299.9	295.7
25°	790.0	649.2	489.1	389.1	374.6	334.5	305.4	295.7	291.2	284.7	280.9
27.5°	764.8	625.0	461.1	364.6	348.0	312.3	287.4	281.2	276.4	271.2	267.4
30°	732.9	598.0	433.7	340.7	325.5	294.0	272.6	267.0	262.5	257.3	252.8
32.5°	692.5	570.7	408.1	318.6	305.8	278.4	258.7	254.2	250.4	244.2	241.8
35°	647.2	541.3	382.9	297.5	285.4	261.5	245.2	240.7	236.9	231.7	229.7
37.5°	601.1	506.4	358.0	279.5	268.8	247.3	231.7	227.2	223.8	219.3	218.3
40°	552.4	474.2	333.4	261.1	251.8	233.5	218.3	214.8	211.3	208.6	207.9
42.5°	503.3	437.2	312.0	245.9	235.9	218.9	205.1	201.3	199.2	197.8	198.2
45°	456.9	400.2	289.9	228.3	221.4	205.8	193.0	189.9	188.2	187.1	188.5
47.5°	406.8	362.5	269.1	213.4	206.5	192.7	180.6	177.8	177.1	176.7	179.2
50°	362.5	323.4	246.6	198.2	192.3	178.1	168.4	166.0	165.3	166.4	169.8
52.5°	320.6	287.1	226.2	184.0	178.1	165.3	156.3	154.6	154.3	156.7	160.1
55°	279.1	253.2	204.1	168.4	162.6	151.5	144.6	142.9	142.5	147.3	150.5
57.5°	243.8	220.3	183.3	153.6	149.1	138.7	132.5	131.1	132.1	136.6	139.7
60°	209.3	190.2	164.3	137.7	134.2	125.2	120.4	120.0	121.1	126.2	129.4
62.5°	178.1	163.6	143.9	123.1	120.7	112.8	108.3	109.0	110.0	115.2	117.9
65°	151.5	138.7	123.8	108.6	105.5	100.0	96.8	97.2	99.3	103.8	106.5
67.5°	125.6	115.2	106.9	94.8	92.4	87.5	85.1	86.5	87.5	92.0	94.8
70°	103.8	95.5	89.2	80.2	78.5	74.4	72.6	74.4	75.4	79.2	82.7
72.5°	83.4	78.2	73.3	66.8	65.0	62.3	61.9	62.6	64.3	68.1	69.5
75°	64.7	61.9	57.8	53.6	52.6	51.2	50.8	51.5	53.3	55.3	56.7
77.5°	49.1	46.7	43.6	41.9	40.5	39.8	40.1	41.2	41.9	43.9	45.0
80°	35.6	32.9	32.2	29.7	29.4	29.1	29.7	30.1	31.1	32.5	33.2
82.5°	23.5	21.4	20.8	20.4	20.1	19.7	20.8	21.1	21.8	22.8	23.2
85°	12.8	12.1	12.1	11.8	12.1	12.8	12.8	13.1	13.1	13.5	13.1
87.5°	5.9	5.2	5.5	5.5	5.5	5.9	5.9	6.2	6.2	6.2	5.9
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):

	160°	170°	180°
0°	745.4	745.4	745.4
2.5°	663.8	661.3	651.6
5°	565.9	557.6	554.8
7.5°	491.2	490.5	475.9
10°	427.9	428.9	415.8
12.5°	388.1	379.4	378.4
15°	354.2	346.2	344.8
17.5°	328.9	324.1	322.7
20°	309.9	307.1	304.7
22.5°	294.7	291.2	289.2
25°	279.5	276.4	275.7
27.5°	266.3	262.5	262.5
30°	252.8	250.4	249.4
32.5°	240.7	238.7	238.7
35°	229.0	227.9	226.6
37.5°	218.3	218.3	217.6
40°	207.9	208.9	208.9
42.5°	198.9	199.9	199.9
45°	189.2	190.9	191.6
47.5°	179.5	182.3	183.0
50°	170.9	172.9	173.3
52.5°	161.5	163.9	165.7
55°	151.8	154.3	155.3
57.5°	141.5	143.9	144.2
60°	130.1	132.5	133.2
62.5°	119.7	121.1	121.8
65°	106.9	109.0	110.3
67.5°	95.1	96.8	96.8
70°	82.3	83.0	84.1
72.5°	70.2	70.6	70.6
75°	57.1	57.8	58.1
77.5°	45.0	45.3	45.3
80°	33.2	32.9	32.9
82.5°	23.2	22.1	22.1
85°	13.1	12.8	13.1
87.5°	5.9	5.9	5.9
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	15.12	16.62	15.48	16.94	17.25	17.57	19.08	17.93	19.39	19.71
	3H	16.81	18.16	17.18	18.49	18.85	18.78	20.14	19.16	20.47	20.83
	4H	17.41	18.68	17.81	19.03	19.41	19.20	20.48	19.60	20.83	21.20
	6H	17.81	18.99	18.23	19.36	19.75	19.48	20.65	19.89	21.02	21.41
	8H	17.92	19.04	18.34	19.43	19.83	19.55	20.66	19.97	21.05	21.46
	12H	17.97	19.04	18.40	19.43	19.85	19.58	20.65	20.01	21.03	21.46
4H	2H	15.76	17.04	16.16	17.38	17.76	17.79	19.06	18.19	19.41	19.79
	3H	17.65	18.71	18.06	19.11	19.51	19.27	20.33	19.68	20.73	21.13
	4H	18.37	19.32	18.80	19.74	20.18	19.84	20.79	20.27	21.21	21.65
	6H	18.88	19.71	19.34	20.15	20.61	20.23	21.06	20.69	21.51	21.97
	8H	19.02	19.79	19.48	20.24	20.70	20.34	21.11	20.80	21.56	22.02
	12H	19.10	19.80	19.59	20.28	20.75	20.40	21.10	20.89	21.57	22.05
8H	4H	18.69	19.47	19.16	19.91	20.38	20.00	20.78	20.47	21.22	21.69
	6H	19.31	19.95	19.81	20.44	20.92	20.50	21.14	20.99	21.63	22.10
	8H	19.51	20.08	20.02	20.59	21.08	20.66	21.23	21.17	21.74	22.23
	12H	19.65	20.15	20.16	20.65	21.21	20.78	21.28	21.29	21.77	22.34
12H	4H	18.73	19.42	19.21	19.90	20.37	20.01	20.70	20.49	21.18	21.65
	6H	19.36	19.93	19.87	20.44	20.93	20.51	21.09	21.03	21.60	22.09
	8H	19.61	20.12	20.12	20.61	21.17	20.73	21.23	21.23	21.72	22.29