

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: P646683

Luminaire Tested: S123RDRP-S340D940-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646683
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-S340D940-X4F0-XX-UDD-G-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

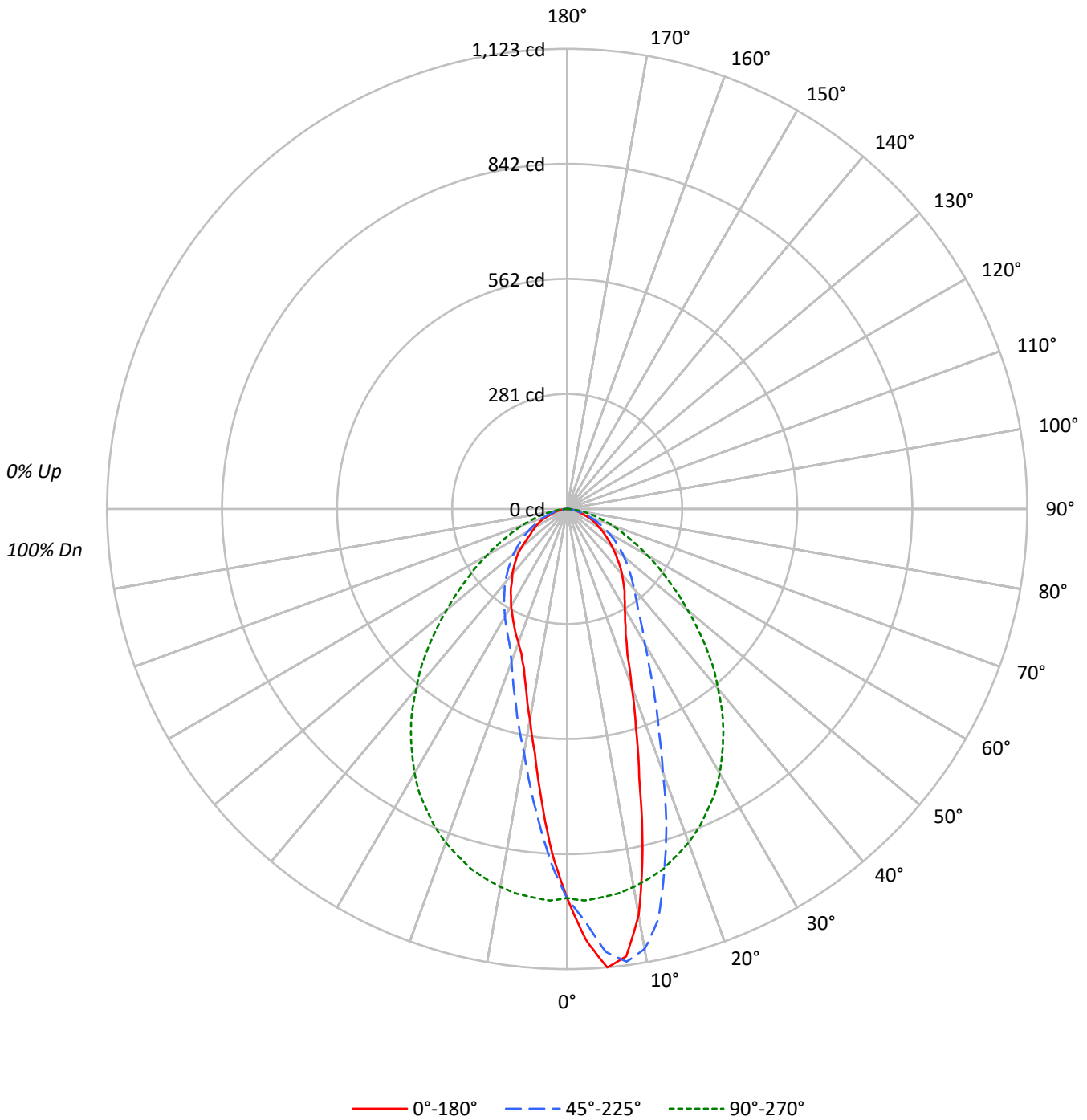
Lumens per Lamp: N/A
Luminaire Lumens: 1258.1 lumens
Efficiency: N/A
Efficacy: 105.7 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 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	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°	11442	11442	11442	11442	11442
5°	13587	13125	11513	9339	8641
10°	12310	13339	11457	7394	6398
15°	8475	11423	11335	6071	5061
20°	5896	8762	11108	5087	4448
25°	4492	6725	10777	4544	4100
30°	3911	5287	10363	4225	3797
35°	3591	4450	9776	3941	3521
40°	3276	3994	9008	3699	3270
45°	2958	3655	8181	3437	3020
50°	2686	3393	7204	3196	2707
55°	2428	3115	6264	2920	2323
60°	2176	2834	5441	2675	2195
65°	2010	2520	4684	2375	2076
70°	1631	2153	4087	2153	1687
75°	1434	1741	3464	1792	1485
80°	1298	1457	2838	1513	1402
85°	1189	1244	2157	1341	1286

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 8631 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	86.5	6.9
10°-20°	200.2	15.9
20°-30°	229.7	18.3
30°-40°	226.3	18.0
40°-50°	199.5	15.9
50°-60°	153.5	12.2
60°-70°	100.9	8.0
70°-80°	49.0	3.9
80°-90°	12.4	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°	516.5	41.1
0°-40°	742.8	59.0
0°-60°	1095.8	87.1
0°-90°	1258.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1258.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	950	950	950	950	950	
5°	1123	1085	952	772	714	103
15°	679	916	909	487	406	192
25°	338	506	811	342	308	160
35°	244	302	665	268	239	152
45°	174	214	480	202	177	135
55°	116	148	298	139	111	104
65°	70	88	164	83	73	69
75°	31	37	74	38	32	33
85°	9	9	16	10	9	10
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°	949.6	949.6	949.6	949.6	949.6	949.6	949.6	949.6	949.6	949.6	949.6
2.5°	1052.4	1045.8	1043.8	1041.5	1037.6	1023.6	1007.6	1009.2	1007.2	995.2	988.5
5°	1123.3	1124.0	1122.1	1120.5	1113.9	1096.8	1085.1	1078.1	1063.3	1040.7	1033.7
7.5°	1101.4	1113.9	1116.2	1119.0	1122.5	1118.6	1114.3	1111.6	1099.5	1075.0	1063.7
10°	1006.1	1005.3	1019.3	1030.6	1061.0	1082.4	1090.2	1101.4	1111.6	1094.4	1082.0
12.5°	850.3	851.5	897.4	897.4	936.8	991.3	1026.3	1050.1	1093.7	1094.8	1087.4
15°	679.4	698.5	739.4	747.9	798.5	871.7	915.7	964.8	1049.3	1075.8	1074.2
17.5°	557.9	566.1	605.4	616.7	661.5	744.4	805.2	864.3	982.7	1038.4	1048.5
20°	459.8	467.2	495.6	504.2	549.4	628.4	683.3	747.1	902.1	987.4	1005.3
22.5°	383.9	398.3	417.4	430.6	456.3	536.9	584.0	645.1	808.7	930.1	951.2
25°	337.9	344.6	360.9	367.1	398.3	451.6	505.8	559.5	725.7	858.5	895.5
27.5°	306.8	308.7	320.8	326.3	345.0	394.4	433.3	483.2	641.2	784.9	828.1
30°	281.1	284.6	294.0	295.1	311.5	346.5	380.0	425.9	567.3	713.7	758.0
32.5°	261.2	263.2	271.0	273.3	283.8	311.5	338.7	372.2	498.7	639.3	690.3
35°	244.1	244.5	250.3	253.5	262.8	285.8	302.5	330.6	443.8	577.8	622.6
37.5°	224.7	227.4	231.7	234.4	242.6	261.2	276.4	298.2	393.2	519.4	561.0
40°	208.3	210.6	215.7	216.9	224.3	241.4	253.9	273.3	349.6	463.3	505.8
42.5°	191.9	193.5	198.6	200.9	209.1	222.7	234.0	249.2	315.0	413.5	455.1
45°	173.6	177.5	183.0	184.2	191.9	206.0	214.5	228.5	283.8	370.3	407.3
47.5°	158.5	160.4	165.1	167.0	176.0	188.4	197.4	209.5	257.0	330.9	367.1
50°	143.3	144.1	148.3	151.1	158.1	172.5	181.0	191.9	232.4	299.0	324.3
52.5°	128.9	130.8	135.1	137.0	141.7	156.5	164.3	175.6	209.1	266.3	291.6
55°	115.6	116.8	119.9	122.3	127.7	140.6	148.3	158.1	188.8	236.3	258.5
57.5°	103.2	104.7	107.1	109.0	114.1	125.4	133.2	142.9	169.8	209.1	226.2
60°	90.3	92.3	95.0	95.8	100.5	110.6	117.6	126.1	150.3	183.8	199.0
62.5°	81.0	81.4	83.7	84.9	87.6	95.8	103.2	111.4	132.8	159.2	171.7
65°	70.5	71.6	72.8	73.6	75.9	82.9	88.4	94.6	115.6	138.6	147.2
67.5°	59.6	60.7	62.7	63.5	65.4	70.1	74.8	81.0	98.5	118.0	125.8
70°	46.3	46.3	49.4	51.0	54.1	57.6	61.1	66.6	81.8	98.5	104.3
72.5°	37.8	38.2	38.5	38.5	41.3	47.1	49.1	52.6	64.6	80.6	85.7
75°	30.8	31.1	31.5	31.9	32.3	34.3	37.4	40.5	49.4	61.1	65.8
77.5°	24.5	24.9	25.3	25.3	26.1	26.9	27.6	29.2	35.4	44.0	47.9
80°	18.7	19.1	19.5	19.5	19.9	20.6	21.0	21.8	23.7	29.6	31.5
82.5°	13.6	13.6	13.6	14.0	14.4	14.4	15.2	15.2	16.4	17.9	19.1
85°	8.6	8.6	9.0	9.0	9.0	9.3	9.0	9.3	9.7	10.1	10.9
87.5°	3.9	3.5	3.9	3.9	3.9	4.3	4.3	4.3	4.3	4.7	4.7
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°	949.6	949.6	949.6	949.6	949.6	949.6	949.6	949.6	949.6	949.6	949.6
2.5°	970.2	956.6	933.6	919.2	913.8	897.0	881.1	867.8	861.2	860.4	848.4
5°	989.3	951.9	904.4	864.7	855.4	826.2	788.4	772.1	750.7	742.1	732.0
7.5°	1004.9	946.5	876.4	816.5	798.9	754.9	706.7	685.2	668.9	643.2	628.0
10°	1015.8	936.4	842.1	764.7	739.7	688.4	630.0	604.3	589.1	559.5	547.4
12.5°	1020.1	923.5	807.9	710.9	689.1	628.0	570.8	544.3	521.7	494.9	483.2
15°	1018.5	908.7	772.8	661.5	634.2	572.3	511.6	486.7	465.7	438.8	423.6
17.5°	1008.0	887.7	734.7	613.6	587.5	523.7	462.1	439.2	420.5	394.4	382.7
20°	990.5	866.3	701.2	570.0	540.4	479.3	421.3	396.7	380.4	366.4	357.8
22.5°	966.3	841.0	660.3	526.8	501.1	439.6	383.9	364.0	354.3	343.0	336.8
25°	929.7	810.6	623.3	490.6	464.9	403.7	355.1	341.8	332.1	324.7	318.1
27.5°	890.4	781.4	586.3	454.0	429.8	371.4	332.5	322.4	313.8	304.5	298.6
30°	844.9	744.8	551.3	421.7	398.3	345.3	313.0	303.7	296.7	286.6	280.7
32.5°	791.1	704.7	518.6	390.5	368.7	322.8	295.1	285.0	279.2	269.4	263.6
35°	735.5	664.6	482.8	361.7	341.8	302.9	277.6	267.9	261.6	251.9	246.1
37.5°	681.0	621.8	450.9	336.4	318.5	283.1	259.3	251.1	245.3	235.2	228.2
40°	623.3	572.7	419.7	312.6	295.9	265.5	242.6	235.2	227.4	218.4	211.4
42.5°	563.0	529.5	390.9	291.6	276.0	248.4	225.8	218.0	211.4	200.9	197.8
45°	506.5	480.1	360.5	269.4	257.0	231.3	209.5	201.7	194.3	185.3	182.2
47.5°	456.3	431.8	332.9	250.0	237.5	214.5	193.1	184.9	179.5	172.5	167.8
50°	404.5	384.3	302.5	230.9	219.2	196.6	176.0	170.5	164.3	155.7	152.2
52.5°	356.2	340.7	277.6	212.6	201.7	181.4	160.4	155.0	149.1	141.7	136.7
55°	313.8	298.2	249.2	191.9	183.8	164.7	146.0	139.0	134.3	125.8	119.5
57.5°	270.2	262.8	221.9	174.8	167.0	147.9	131.2	125.8	119.9	110.6	104.3
60°	234.4	225.8	196.6	156.1	148.7	132.8	116.4	111.0	105.5	96.6	93.8
62.5°	200.5	194.3	172.1	138.6	132.4	116.8	102.4	97.3	91.9	86.0	84.1
65°	169.8	164.3	147.6	120.7	115.6	102.0	88.8	83.3	79.8	77.1	75.1
67.5°	140.9	137.8	125.0	104.0	100.1	88.0	76.3	72.0	70.1	67.0	65.4
70°	114.9	116.0	104.3	88.8	84.5	74.8	64.6	61.1	58.8	56.1	53.0
72.5°	93.8	93.4	86.4	72.4	69.3	61.5	53.7	51.4	48.7	43.2	39.7
75°	72.8	74.4	67.7	60.0	56.8	49.1	41.7	38.5	35.8	33.9	32.7
77.5°	55.7	56.5	53.3	45.9	43.2	36.6	30.8	29.2	28.0	26.9	26.5
80°	39.7	40.9	37.8	33.1	30.8	25.3	22.2	21.8	21.4	20.6	20.2
82.5°	25.7	27.3	25.7	20.6	19.5	16.7	16.0	16.0	15.6	15.2	14.8
85°	14.0	15.6	14.8	12.1	11.3	10.5	10.1	9.7	9.7	9.7	9.7
87.5°	5.5	7.4	6.2	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
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°	949.6	949.6	949.6
2.5°	845.7	841.8	840.2
5°	729.2	717.2	714.4
7.5°	623.3	618.3	601.5
10°	545.5	529.9	522.9
12.5°	475.4	461.0	458.6
15°	419.3	409.2	405.7
17.5°	382.3	375.3	371.0
20°	355.1	350.0	346.9
22.5°	334.4	330.6	328.2
25°	316.1	310.3	308.4
27.5°	297.5	292.4	290.4
30°	279.9	275.7	272.9
32.5°	261.6	256.6	255.0
35°	244.1	241.0	239.4
37.5°	227.0	223.1	220.8
40°	211.0	209.1	207.9
42.5°	196.6	193.1	192.7
45°	181.4	177.9	177.2
47.5°	167.0	163.9	163.5
50°	151.8	147.6	144.4
52.5°	133.5	129.7	126.9
55°	117.2	112.9	110.6
57.5°	103.6	101.6	100.5
60°	93.1	91.9	91.1
62.5°	83.7	82.5	82.5
65°	75.1	74.0	72.8
67.5°	64.6	62.3	61.9
70°	51.8	48.3	47.9
72.5°	39.3	38.9	38.2
75°	32.7	31.9	31.9
77.5°	26.5	25.7	25.7
80°	20.2	19.9	20.2
82.5°	14.8	14.8	14.4
85°	9.7	9.3	9.3
87.5°	4.7	4.7	4.7
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	13.17	14.62	13.53	14.94	15.25	18.26	19.72	18.63	20.03	20.34
	3H	14.50	15.80	14.88	16.13	16.49	19.54	20.84	19.92	21.17	21.53
	4H	14.90	16.12	15.30	16.47	16.85	19.98	21.20	20.38	21.55	21.93
	6H	15.20	16.33	15.62	16.70	17.09	20.28	21.40	20.69	21.77	22.16
	8H	15.31	16.38	15.73	16.77	17.17	20.36	21.43	20.78	21.82	22.22
	12H	15.37	16.40	15.81	16.78	17.21	20.40	21.42	20.83	21.80	22.23
4H	2H	14.02	15.24	14.42	15.59	15.97	18.30	19.52	18.70	19.87	20.25
	3H	15.49	16.50	15.90	16.90	17.30	19.79	20.80	20.20	21.20	21.60
	4H	15.95	16.86	16.39	17.28	17.72	20.35	21.25	20.78	21.67	22.11
	6H	16.34	17.13	16.80	17.57	18.03	20.79	21.57	21.25	22.02	22.48
	8H	16.47	17.21	16.94	17.65	18.12	20.91	21.64	21.37	22.09	22.55
	12H	16.57	17.22	17.05	17.70	18.18	20.98	21.64	21.47	22.12	22.59
8H	4H	16.34	17.08	16.81	17.52	17.99	20.35	21.09	20.82	21.53	22.00
	6H	16.81	17.42	17.31	17.91	18.39	20.84	21.45	21.34	21.94	22.42
	8H	16.99	17.54	17.51	18.05	18.54	21.00	21.55	21.52	22.06	22.55
	12H	17.15	17.63	17.67	18.13	18.69	21.13	21.61	21.65	22.11	22.67
12H	4H	16.39	17.04	16.87	17.52	17.99	20.33	20.98	20.81	21.46	21.94
	6H	16.88	17.42	17.39	17.93	18.42	20.82	21.36	21.33	21.87	22.36
	8H	17.11	17.59	17.62	18.08	18.65	21.01	21.49	21.52	21.98	22.55