

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: P646644

Luminaire Tested: S123DRP-S560D927-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646644  
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-S560D927-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: -

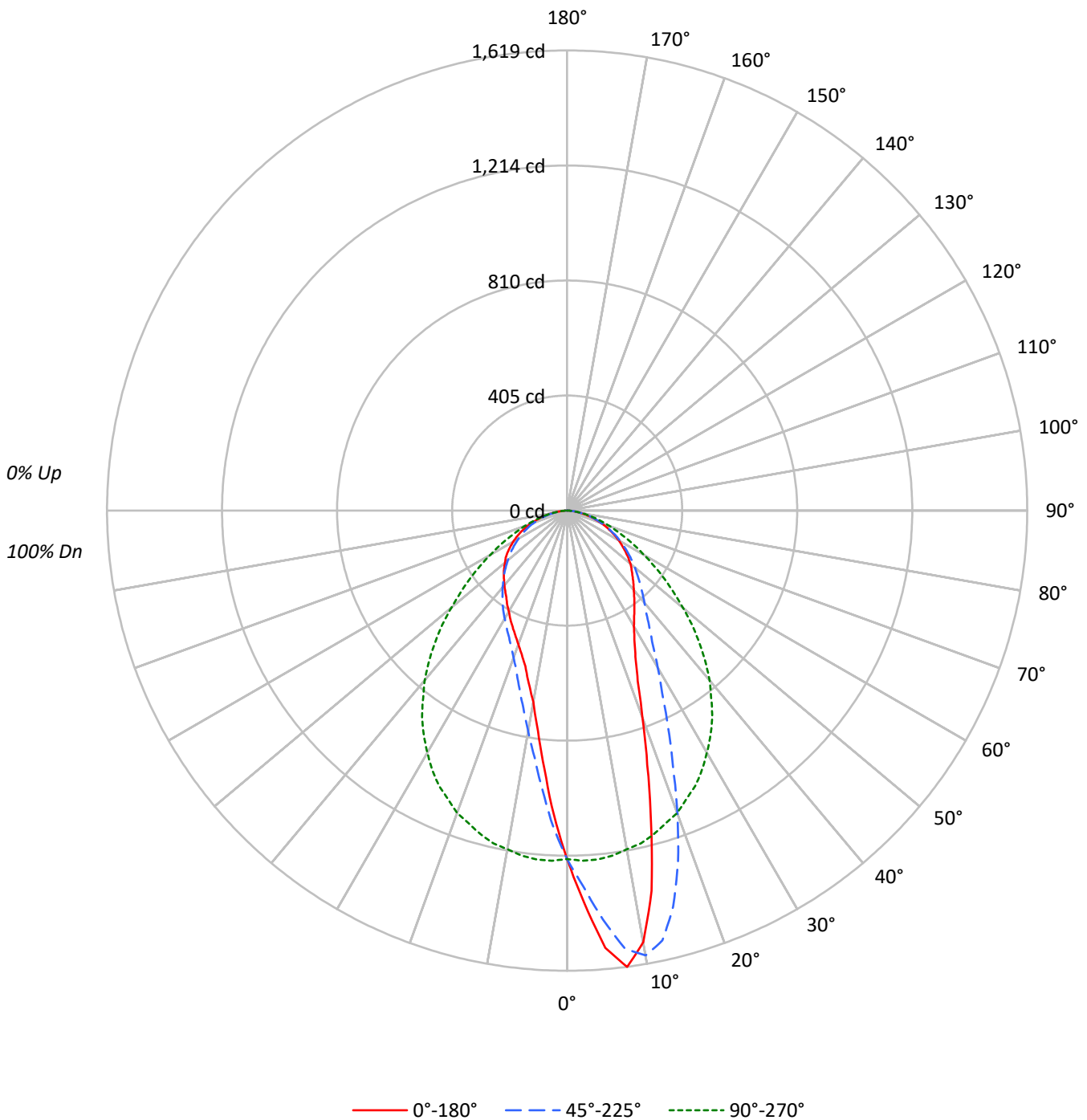
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1969.5 lumens  
Efficiency: N/A  
Efficacy: 105.9 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): 18.6  
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°	14770	14770	14770	14770	14770
5°	18679	17468	14901	11950	11036
10°	18860	19444	14803	9652	8365
15°	14206	17994	14702	8088	7074
20°	9898	14551	14514	7052	6425
25°	7547	11162	14195	6465	6027
30°	6529	8871	13684	6109	5706
35°	6057	7430	13094	5823	5481
40°	5735	6647	12266	5556	5405
45°	5545	6174	11214	5322	5369
50°	5449	5832	9969	5117	5342
55°	5245	5508	8747	4935	5365
60°	5058	5208	7538	4757	5278
65°	4753	4881	6503	4556	5172
70°	4390	4531	5531	4309	4869
75°	3971	4106	4739	3948	4451
80°	3275	3511	3747	3435	3747
85°	2599	2834	2751	2986	2986

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 12804 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	115.9	5.9
10°-20°	288.3	14.6
20°-30°	341.3	17.3
30°-40°	343.0	17.4
40°-50°	314.6	16.0
50°-60°	259.6	13.2
60°-70°	183.7	9.3
70°-80°	98.1	5.0
80°-90°	24.9	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°	745.5	37.9
0°-40°	1088.5	55.3
0°-60°	1662.7	84.4
0°-90°	1969.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1969.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1226	1226	1226	1226	1226	
5°	1544	1444	1232	988	912	147
15°	1139	1442	1179	648	567	315
25°	568	840	1068	486	453	268
35°	412	505	890	396	373	259
45°	325	362	658	312	315	252
55°	250	262	416	235	255	223
65°	167	171	228	160	181	166
75°	85	88	102	85	96	90
85°	19	20	20	22	22	22
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°	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8
2.5°	1381.6	1378.8	1364.6	1355.5	1357.7	1337.3	1324.8	1314.5	1307.7	1291.2	1282.7
5°	1544.3	1552.3	1543.2	1538.6	1515.3	1478.3	1444.2	1436.8	1405.0	1365.7	1352.1
7.5°	1619.4	1623.9	1618.3	1618.3	1610.9	1577.9	1554.0	1535.2	1480.6	1430.0	1406.7
10°	1541.5	1551.7	1573.9	1584.1	1598.9	1594.4	1589.2	1581.9	1544.9	1486.3	1459.6
12.5°	1370.3	1382.8	1427.1	1433.4	1484.0	1532.9	1548.9	1567.1	1570.5	1521.0	1492.0
15°	1138.8	1173.4	1213.8	1233.2	1297.4	1400.4	1442.5	1492.0	1550.6	1530.1	1507.3
17.5°	938.0	951.0	994.3	1035.2	1099.5	1218.4	1296.3	1370.3	1496.0	1516.4	1502.2
20°	771.9	783.8	840.7	837.9	923.2	1056.8	1134.8	1220.1	1405.5	1472.1	1469.2
22.5°	648.4	667.2	699.1	716.7	778.1	897.0	971.0	1077.3	1302.6	1407.8	1419.2
25°	567.7	581.3	600.7	616.0	663.8	761.6	839.6	927.2	1172.9	1323.6	1352.1
27.5°	512.5	518.2	537.5	546.6	578.5	662.7	723.0	803.2	1052.9	1229.2	1269.0
30°	469.3	473.2	490.3	493.2	518.2	579.0	637.6	703.0	935.7	1131.9	1177.4
32.5°	439.1	442.0	455.0	456.2	475.0	519.3	560.3	621.7	824.8	1027.8	1084.1
35°	411.8	413.5	423.2	426.0	438.0	471.5	505.1	552.3	736.6	934.0	996.0
37.5°	387.9	390.2	395.9	399.3	409.0	435.7	458.5	497.7	651.9	836.1	905.0
40°	364.6	368.6	372.6	372.6	383.4	403.9	422.6	455.0	579.0	750.8	811.7
42.5°	344.7	348.7	350.4	351.0	356.6	375.4	391.3	413.5	523.9	675.2	734.9
45°	325.4	327.1	328.8	329.9	333.9	350.4	362.3	383.4	471.5	605.2	663.2
47.5°	307.7	307.7	308.9	310.6	313.4	325.4	335.6	351.0	426.6	542.6	590.4
50°	290.7	290.7	289.0	290.1	291.8	300.9	311.1	323.7	384.5	485.2	527.9
52.5°	270.2	270.2	270.8	269.0	270.8	278.7	286.7	299.2	348.7	432.3	468.7
55°	249.7	252.0	250.3	249.1	251.4	256.5	262.2	273.0	315.1	390.2	419.2
57.5°	229.2	230.4	229.8	231.5	230.4	234.9	240.0	247.4	285.0	343.0	370.3
60°	209.9	209.9	208.8	209.9	209.9	212.2	216.1	223.5	254.3	302.6	325.4
62.5°	188.3	188.8	189.4	188.8	188.3	191.1	194.5	199.7	227.5	263.4	280.4
65°	166.7	167.2	168.9	168.4	167.8	170.6	171.2	176.9	197.9	228.7	241.2
67.5°	147.3	146.2	146.8	147.9	148.5	149.0	150.2	155.9	170.6	195.7	205.9
70°	124.6	125.7	125.1	126.8	125.7	127.4	128.6	132.5	146.8	163.2	170.1
72.5°	104.1	104.7	104.7	106.4	105.8	107.5	108.6	110.3	120.6	135.4	138.2
75°	85.3	85.3	86.5	87.0	87.0	87.0	88.2	89.3	97.8	106.9	109.8
77.5°	64.8	67.7	67.1	67.7	68.3	70.0	68.8	71.1	76.2	81.3	83.0
80°	47.2	47.2	47.8	48.3	49.5	50.6	50.6	52.9	55.2	58.0	59.7
82.5°	30.1	30.7	32.4	33.0	33.6	35.3	35.3	35.3	38.1	39.2	39.2
85°	18.8	17.6	18.8	19.3	19.9	20.5	20.5	21.6	22.2	22.8	22.8
87.5°	9.1	9.1	9.1	9.1	9.7	9.7	9.7	9.7	10.2	10.2	10.2
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°	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8	1225.8
2.5°	1254.2	1233.2	1201.9	1176.3	1177.4	1154.1	1137.0	1114.9	1108.0	1101.2	1092.1
5°	1280.4	1232.0	1167.2	1115.4	1099.5	1060.8	1011.9	988.0	973.8	948.8	939.1
7.5°	1312.8	1224.1	1125.1	1044.3	1026.7	962.4	904.4	876.0	849.2	831.6	810.0
10°	1333.9	1209.9	1082.4	975.5	958.4	885.1	809.4	788.9	755.4	733.8	713.3
12.5°	1349.8	1199.0	1038.6	914.1	886.2	815.1	738.9	711.0	686.6	655.3	640.5
15°	1364.0	1178.6	993.7	849.8	820.8	744.0	673.5	648.4	626.3	599.0	585.9
17.5°	1358.9	1153.5	944.2	792.9	763.9	688.3	620.6	592.1	577.3	553.4	544.3
20°	1352.6	1131.9	897.6	738.9	707.0	636.5	570.5	550.0	535.2	519.9	511.9
22.5°	1332.7	1097.8	850.4	689.4	659.2	588.7	532.4	515.3	504.0	493.2	486.3
25°	1299.2	1067.7	804.3	639.9	616.0	550.0	502.3	486.3	478.9	468.1	461.9
27.5°	1257.6	1027.8	758.2	599.5	572.2	513.6	472.7	462.4	454.5	445.9	439.7
30°	1205.3	983.5	713.3	560.3	535.2	483.5	448.2	439.1	431.7	423.2	415.8
32.5°	1138.8	938.5	671.2	523.9	502.8	457.9	425.5	418.1	411.8	401.6	397.6
35°	1064.2	890.2	629.7	489.2	469.3	430.0	403.3	395.9	389.6	381.1	377.7
37.5°	988.6	832.7	588.7	459.6	442.0	406.7	381.1	373.7	368.0	360.6	358.9
40°	908.4	779.8	548.3	429.4	414.1	383.9	358.9	353.2	347.5	343.0	341.9
42.5°	827.6	719.0	513.1	404.4	387.9	360.1	337.3	331.0	327.6	325.4	325.9
45°	751.4	658.1	476.7	375.4	364.0	338.4	317.4	312.3	309.4	307.7	310.0
47.5°	668.9	596.1	442.5	351.0	339.6	316.8	296.9	292.4	291.2	290.7	294.6
50°	596.1	531.8	405.6	325.9	316.3	292.9	277.0	273.0	271.9	273.6	279.3
52.5°	527.3	472.1	372.0	302.6	292.9	271.9	257.1	254.3	253.7	257.7	263.4
55°	459.0	416.4	335.6	277.0	267.3	249.1	237.8	234.9	234.3	242.3	247.4
57.5°	401.0	362.3	301.5	252.6	245.2	228.1	217.9	215.6	217.3	224.7	229.8
60°	344.1	312.8	270.2	226.4	220.7	205.9	197.9	197.4	199.1	207.6	212.7
62.5°	292.9	269.0	236.6	202.5	198.5	185.4	178.0	179.2	180.9	189.4	194.0
65°	249.1	228.1	203.6	178.6	173.5	164.4	159.3	159.8	163.2	170.6	175.2
67.5°	206.5	189.4	175.8	155.9	151.9	143.9	139.9	142.2	143.9	151.3	155.9
70°	170.6	157.0	146.8	132.0	129.1	122.3	119.4	122.3	124.0	130.3	135.9
72.5°	137.1	128.6	120.6	109.8	106.9	102.4	101.8	103.0	105.8	112.1	114.3
75°	106.4	101.8	95.0	88.2	86.5	84.2	83.6	84.8	87.6	91.0	93.3
77.5°	80.8	76.8	71.7	68.8	66.6	65.4	66.0	67.7	68.8	72.2	73.9
80°	58.6	54.0	52.9	48.9	48.3	47.8	48.9	49.5	51.2	53.5	54.6
82.5°	38.7	35.3	34.1	33.6	33.0	32.4	34.1	34.7	35.8	37.5	38.1
85°	21.0	19.9	19.9	19.3	19.9	21.0	21.0	21.6	21.6	22.2	21.6
87.5°	9.7	8.5	9.1	9.1	9.1	9.7	9.7	10.2	10.2	10.2	9.7
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):**

	160°	170°	180°
0°	1225.8	1225.8	1225.8
2.5°	1091.5	1087.6	1071.6
5°	930.6	916.9	912.4
7.5°	807.7	806.6	782.7
10°	703.6	705.3	683.7
12.5°	638.2	624.0	622.3
15°	582.5	569.4	567.1
17.5°	540.9	533.0	530.7
20°	509.7	505.1	501.1
22.5°	484.6	478.9	475.5
25°	459.6	454.5	453.3
27.5°	438.0	431.7	431.7
30°	415.8	411.8	410.1
32.5°	395.9	392.5	392.5
35°	376.6	374.8	372.6
37.5°	358.9	358.9	357.8
40°	341.9	343.6	343.6
42.5°	327.1	328.8	328.8
45°	311.1	314.0	315.1
47.5°	295.2	299.8	300.9
50°	281.0	284.4	285.0
52.5°	265.6	269.6	272.5
55°	249.7	253.7	255.4
57.5°	232.6	236.6	237.2
60°	213.9	217.9	219.0
62.5°	196.8	199.1	200.2
65°	175.8	179.2	181.4
67.5°	156.4	159.3	159.3
70°	135.4	136.5	138.2
72.5°	115.5	116.0	116.0
75°	93.9	95.0	95.6
77.5°	73.9	74.5	74.5
80°	54.6	54.0	54.0
82.5°	38.1	36.4	36.4
85°	21.6	21.0	21.6
87.5°	9.7	9.7	9.7
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	16.84	18.35	17.21	18.67	18.98	19.30	20.81	19.66	21.12	21.43
	3H	18.54	19.89	18.91	20.22	20.58	20.51	21.87	20.89	22.19	22.56
	4H	19.14	20.41	19.54	20.76	21.14	20.93	22.20	21.33	22.55	22.93
	6H	19.54	20.72	19.96	21.08	21.48	21.20	22.38	21.62	22.75	23.14
	8H	19.64	20.76	20.07	21.15	21.55	21.27	22.39	21.70	22.78	23.18
	12H	19.70	20.77	20.13	21.15	21.58	21.31	22.38	21.74	22.76	23.19
4H	2H	17.49	18.76	17.89	19.11	19.49	19.52	20.79	19.92	21.14	21.52
	3H	19.38	20.43	19.79	20.83	21.24	21.00	22.06	21.41	22.46	22.86
	4H	20.10	21.05	20.53	21.47	21.91	21.57	22.52	22.00	22.94	23.37
	6H	20.61	21.44	21.07	21.88	22.34	21.96	22.79	22.42	23.23	23.69
	8H	20.75	21.52	21.21	21.97	22.43	22.07	22.84	22.53	23.29	23.75
	12H	20.83	21.53	21.32	22.00	22.47	22.13	22.82	22.61	23.30	23.77
8H	4H	20.42	21.20	20.89	21.64	22.11	21.73	22.51	22.20	22.95	23.42
	6H	21.04	21.68	21.53	22.17	22.65	22.22	22.86	22.72	23.36	23.83
	8H	21.23	21.81	21.75	22.32	22.81	22.39	22.96	22.90	23.47	23.96
	12H	21.38	21.88	21.89	22.38	22.94	22.50	23.01	23.01	23.50	24.07
12H	4H	20.45	21.15	20.94	21.63	22.10	21.74	22.43	22.22	22.91	23.38
	6H	21.09	21.66	21.60	22.17	22.66	22.24	22.82	22.76	23.33	23.81
	8H	21.34	21.84	21.85	22.34	22.90	22.45	22.96	22.96	23.45	24.02