

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: P646645

Luminaire Tested: S123DRP-S560D930-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646645
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-S560D930-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

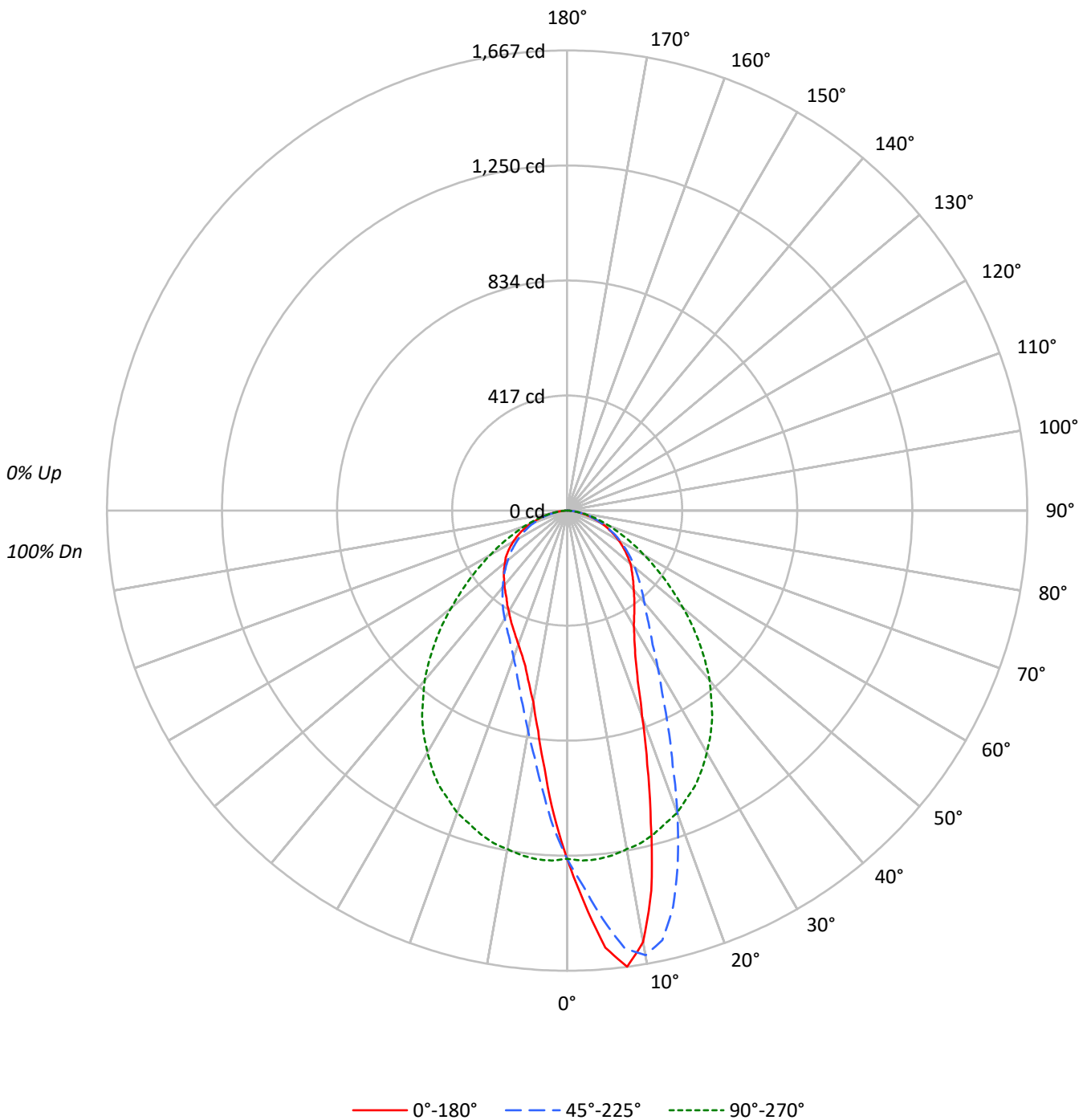
Lumens per Lamp: N/A
Luminaire Lumens: 2027.0 lumens
Efficiency: N/A
Efficacy: 109.0 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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	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°	15201	15201	15201	15201	15201
5°	19224	17977	15337	12300	11357
10°	19411	20012	15235	9935	8610
15°	14620	18519	15131	8325	7280
20°	10186	14975	14938	7259	6613
25°	7767	11488	14608	6654	6203
30°	6720	9130	14083	6287	5873
35°	6234	7646	13477	5993	5640
40°	5902	6842	12624	5718	5562
45°	5707	6354	11541	5477	5526
50°	5607	6002	10261	5267	5498
55°	5399	5670	9002	5080	5521
60°	5205	5362	7760	4894	5432
65°	4890	5024	6691	4690	5323
70°	4516	4661	5693	4435	5013
75°	4087	4222	4879	4060	4576
80°	3372	3615	3858	3532	3858
85°	2668	2917	2834	3069	3069

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 13177 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.3	5.9
10°-20°	296.8	14.6
20°-30°	351.3	17.3
30°-40°	353.0	17.4
40°-50°	323.7	16.0
50°-60°	267.2	13.2
60°-70°	189.1	9.3
70°-80°	101.0	5.0
80°-90°	25.6	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°	767.3	37.9
0°-40°	1120.3	55.3
0°-60°	1711.3	84.4
0°-90°	2027.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2027.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1262	1262	1262	1262	1262	
5°	1589	1486	1268	1017	939	151
15°	1172	1485	1213	667	584	324
25°	584	864	1099	500	467	276
35°	424	520	916	407	383	266
45°	335	373	677	321	324	259
55°	257	270	428	242	263	230
65°	172	176	235	164	187	170
75°	88	91	105	87	98	92
85°	19	21	20	22	22	23
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°	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6
2.5°	1422.0	1419.0	1404.4	1395.0	1397.4	1376.3	1363.4	1352.9	1345.8	1328.9	1320.1
5°	1589.4	1597.6	1588.2	1583.5	1559.5	1521.5	1486.3	1478.7	1446.0	1405.6	1391.5
7.5°	1666.7	1671.3	1665.5	1665.5	1657.9	1623.9	1599.3	1580.0	1523.8	1471.7	1447.7
10°	1586.5	1597.0	1619.8	1630.4	1645.6	1640.9	1635.6	1628.0	1590.0	1529.7	1502.2
12.5°	1410.2	1423.1	1468.8	1475.2	1527.3	1577.7	1594.1	1612.8	1616.3	1565.4	1535.5
15°	1172.0	1207.7	1249.3	1269.2	1335.3	1441.3	1484.6	1535.5	1595.8	1574.7	1551.3
17.5°	965.3	978.8	1023.3	1065.4	1131.6	1253.9	1334.1	1410.2	1539.6	1560.7	1546.1
20°	794.4	806.7	865.2	862.3	950.1	1087.7	1167.9	1255.7	1446.5	1515.0	1512.1
22.5°	667.4	686.7	719.5	737.6	800.8	923.2	999.3	1108.8	1340.6	1448.9	1460.6
25°	584.2	598.3	618.2	634.0	683.2	783.9	864.1	954.2	1207.1	1362.2	1391.5
27.5°	527.5	533.3	553.2	562.6	595.4	682.0	744.1	826.6	1083.6	1265.1	1306.0
30°	483.0	487.1	504.6	507.5	533.3	595.9	656.2	723.6	963.0	1165.0	1211.8
32.5°	451.9	454.9	468.3	469.5	488.8	534.5	576.6	639.8	848.8	1057.8	1115.8
35°	423.8	425.6	435.5	438.5	450.8	485.3	519.8	568.4	758.1	961.2	1025.0
37.5°	399.2	401.6	407.4	411.0	420.9	448.4	471.8	512.2	670.9	860.5	931.4
40°	375.2	379.3	383.4	383.4	394.6	415.6	435.0	468.3	595.9	772.7	835.4
42.5°	354.8	358.9	360.6	361.2	367.0	386.4	402.8	425.6	539.2	694.9	756.3
45°	334.9	336.6	338.4	339.5	343.6	360.6	372.9	394.6	485.3	622.9	682.6
47.5°	316.7	316.7	317.9	319.6	322.6	334.9	345.4	361.2	439.1	558.5	607.7
50°	299.1	299.1	297.4	298.6	300.3	309.7	320.2	333.1	395.7	499.4	543.3
52.5°	278.1	278.1	278.7	276.9	278.7	286.8	295.0	307.9	358.9	444.9	482.4
55°	257.0	259.3	257.6	256.4	258.7	264.0	269.9	281.0	324.3	401.6	431.4
57.5°	235.9	237.1	236.5	238.3	237.1	241.8	247.0	254.7	293.3	353.0	381.1
60°	216.0	216.0	214.8	216.0	216.0	218.4	222.5	230.1	261.7	311.4	334.9
62.5°	193.8	194.4	194.9	194.4	193.8	196.7	200.2	205.5	234.2	271.0	288.6
65°	171.5	172.1	173.9	173.3	172.7	175.6	176.2	182.1	203.7	235.3	248.2
67.5°	151.6	150.4	151.0	152.2	152.8	153.4	154.5	160.4	175.6	201.4	211.9
70°	128.2	129.4	128.8	130.5	129.4	131.1	132.3	136.4	151.0	168.0	175.0
72.5°	107.1	107.7	107.7	109.5	108.9	110.6	111.8	113.6	124.1	139.3	142.3
75°	87.8	87.8	89.0	89.6	89.6	89.6	90.7	91.9	100.7	110.1	113.0
77.5°	66.7	69.7	69.1	69.7	70.2	72.0	70.8	73.2	78.4	83.7	85.5
80°	48.6	48.6	49.2	49.8	50.9	52.1	52.1	54.4	56.8	59.7	61.5
82.5°	31.0	31.6	33.4	34.0	34.5	36.3	36.3	36.3	39.2	40.4	40.4
85°	19.3	18.1	19.3	19.9	20.5	21.1	21.1	22.2	22.8	23.4	23.4
87.5°	9.4	9.4	9.4	9.4	10.0	10.0	10.0	10.0	10.5	10.5	10.5
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°	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6	1261.6
2.5°	1290.8	1269.2	1237.0	1210.6	1211.8	1187.8	1170.2	1147.4	1140.4	1133.3	1124.0
5°	1317.7	1268.0	1201.3	1148.0	1131.6	1091.8	1041.4	1016.9	1002.2	976.5	966.5
7.5°	1351.1	1259.8	1157.9	1074.8	1056.7	990.5	930.8	901.5	874.0	855.9	833.6
10°	1372.8	1245.2	1114.0	1004.0	986.4	910.9	833.0	812.0	777.4	755.2	734.1
12.5°	1389.2	1234.0	1069.0	940.7	912.1	838.9	760.4	731.8	706.6	674.4	659.2
15°	1403.8	1213.0	1022.7	874.6	844.7	765.7	693.1	667.4	644.5	616.4	603.0
17.5°	1398.5	1187.2	971.8	816.1	786.2	708.3	638.7	609.4	594.2	569.6	560.2
20°	1392.1	1165.0	923.8	760.4	727.7	655.1	587.2	566.1	550.9	535.1	526.9
22.5°	1371.6	1129.8	875.2	709.5	678.5	605.9	547.9	530.4	518.7	507.5	500.5
25°	1337.1	1098.8	827.8	658.6	634.0	566.1	516.9	500.5	492.9	481.8	475.3
27.5°	1294.3	1057.8	780.3	617.0	588.9	528.6	486.5	475.9	467.7	459.0	452.5
30°	1240.5	1012.2	734.1	576.6	550.9	497.6	461.3	451.9	444.3	435.5	427.9
32.5°	1172.0	965.9	690.8	539.2	517.5	471.3	437.9	430.3	423.8	413.3	409.2
35°	1095.3	916.2	648.0	503.4	483.0	442.6	415.1	407.4	401.0	392.2	388.7
37.5°	1017.4	857.0	605.9	473.0	454.9	418.6	392.2	384.6	378.8	371.1	369.4
40°	934.9	802.6	564.3	442.0	426.2	395.1	369.4	363.5	357.7	353.0	351.8
42.5°	851.8	740.0	528.0	416.2	399.2	370.6	347.1	340.7	337.2	334.9	335.4
45°	773.3	677.3	490.6	386.4	374.7	348.3	326.7	321.4	318.5	316.7	319.0
47.5°	688.4	613.5	455.4	361.2	349.5	326.1	305.6	300.9	299.7	299.1	303.2
50°	613.5	547.4	417.4	335.4	325.5	301.5	285.1	281.0	279.8	281.6	287.4
52.5°	542.7	485.9	382.9	311.4	301.5	279.8	264.6	261.7	261.1	265.2	271.0
55°	472.4	428.5	345.4	285.1	275.1	256.4	244.7	241.8	241.2	249.4	254.7
57.5°	412.7	372.9	310.3	259.9	252.3	234.7	224.2	221.9	223.6	231.2	236.5
60°	354.2	322.0	278.1	233.0	227.1	211.9	203.7	203.1	204.9	213.7	218.9
62.5°	301.5	276.9	243.5	208.4	204.3	190.8	183.2	184.4	186.2	194.9	199.6
65°	256.4	234.7	209.6	183.8	178.5	169.2	163.9	164.5	168.0	175.6	180.3
67.5°	212.5	194.9	180.9	160.4	156.3	148.1	144.0	146.4	148.1	155.7	160.4
70°	175.6	161.6	151.0	135.8	132.9	125.9	122.9	125.9	127.6	134.1	139.9
72.5°	141.1	132.3	124.1	113.0	110.1	105.4	104.8	106.0	108.9	115.3	117.7
75°	109.5	104.8	97.8	90.7	89.0	86.6	86.1	87.2	90.2	93.7	96.0
77.5°	83.1	79.0	73.8	70.8	68.5	67.3	67.9	69.7	70.8	74.3	76.1
80°	60.3	55.6	54.4	50.3	49.8	49.2	50.3	50.9	52.7	55.0	56.2
82.5°	39.8	36.3	35.1	34.5	34.0	33.4	35.1	35.7	36.9	38.6	39.2
85°	21.7	20.5	20.5	19.9	20.5	21.7	21.7	22.2	22.2	22.8	22.2
87.5°	10.0	8.8	9.4	9.4	9.4	10.0	10.0	10.5	10.5	10.5	10.0
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°	1261.6	1261.6	1261.6
2.5°	1123.4	1119.3	1102.9
5°	957.7	943.7	939.0
7.5°	831.3	830.1	805.5
10°	724.1	725.9	703.7
12.5°	656.8	642.2	640.4
15°	599.5	586.0	583.6
17.5°	556.7	548.5	546.2
20°	524.5	519.8	515.7
22.5°	498.8	492.9	489.4
25°	473.0	467.7	466.6
27.5°	450.8	444.3	444.3
30°	427.9	423.8	422.1
32.5°	407.4	403.9	403.9
35°	387.5	385.8	383.4
37.5°	369.4	369.4	368.2
40°	351.8	353.6	353.6
42.5°	336.6	338.4	338.4
45°	320.2	323.1	324.3
47.5°	303.8	308.5	309.7
50°	289.2	292.7	293.3
52.5°	273.4	277.5	280.4
55°	257.0	261.1	262.8
57.5°	239.4	243.5	244.1
60°	220.1	224.2	225.4
62.5°	202.6	204.9	206.1
65°	180.9	184.4	186.7
67.5°	161.0	163.9	163.9
70°	139.3	140.5	142.3
72.5°	118.8	119.4	119.4
75°	96.6	97.8	98.3
77.5°	76.1	76.7	76.7
80°	56.2	55.6	55.6
82.5°	39.2	37.5	37.5
85°	22.2	21.7	22.2
87.5°	10.0	10.0	10.0
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	16.94	18.45	17.31	18.77	19.08	19.40	20.91	19.76	21.22	21.53
	3H	18.64	19.99	19.01	20.32	20.68	20.61	21.97	20.99	22.29	22.66
	4H	19.24	20.51	19.64	20.86	21.24	21.03	22.30	21.43	22.65	23.03
	6H	19.64	20.82	20.06	21.18	21.58	21.30	22.48	21.72	22.85	23.24
	8H	19.74	20.86	20.17	21.25	21.65	21.37	22.49	21.80	22.88	23.28
	12H	19.80	20.87	20.23	21.25	21.68	21.41	22.48	21.84	22.86	23.29
4H	2H	17.59	18.86	17.99	19.21	19.59	19.62	20.89	20.02	21.24	21.62
	3H	19.48	20.53	19.89	20.93	21.34	21.10	22.16	21.51	22.56	22.96
	4H	20.20	21.15	20.63	21.57	22.01	21.67	22.62	22.10	23.04	23.47
	6H	20.71	21.54	21.17	21.98	22.44	22.06	22.89	22.52	23.33	23.79
	8H	20.85	21.62	21.31	22.07	22.53	22.17	22.94	22.63	23.38	23.85
	12H	20.93	21.63	21.42	22.10	22.58	22.23	22.92	22.71	23.40	23.87
8H	4H	20.52	21.30	20.99	21.74	22.21	21.83	22.61	22.29	23.05	23.52
	6H	21.14	21.78	21.63	22.27	22.75	22.32	22.96	22.82	23.45	23.93
	8H	21.33	21.91	21.85	22.42	22.91	22.49	23.06	23.00	23.57	24.06
	12H	21.48	21.98	21.99	22.48	23.04	22.60	23.11	23.11	23.60	24.17
12H	4H	20.55	21.25	21.04	21.73	22.20	21.84	22.53	22.32	23.01	23.48
	6H	21.19	21.76	21.70	22.27	22.76	22.34	22.92	22.86	23.43	23.91
	8H	21.44	21.95	21.95	22.44	23.00	22.55	23.06	23.06	23.55	24.12