

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: P646640

Luminaire Tested: S123DRP-S560D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646640
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-S560D830-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

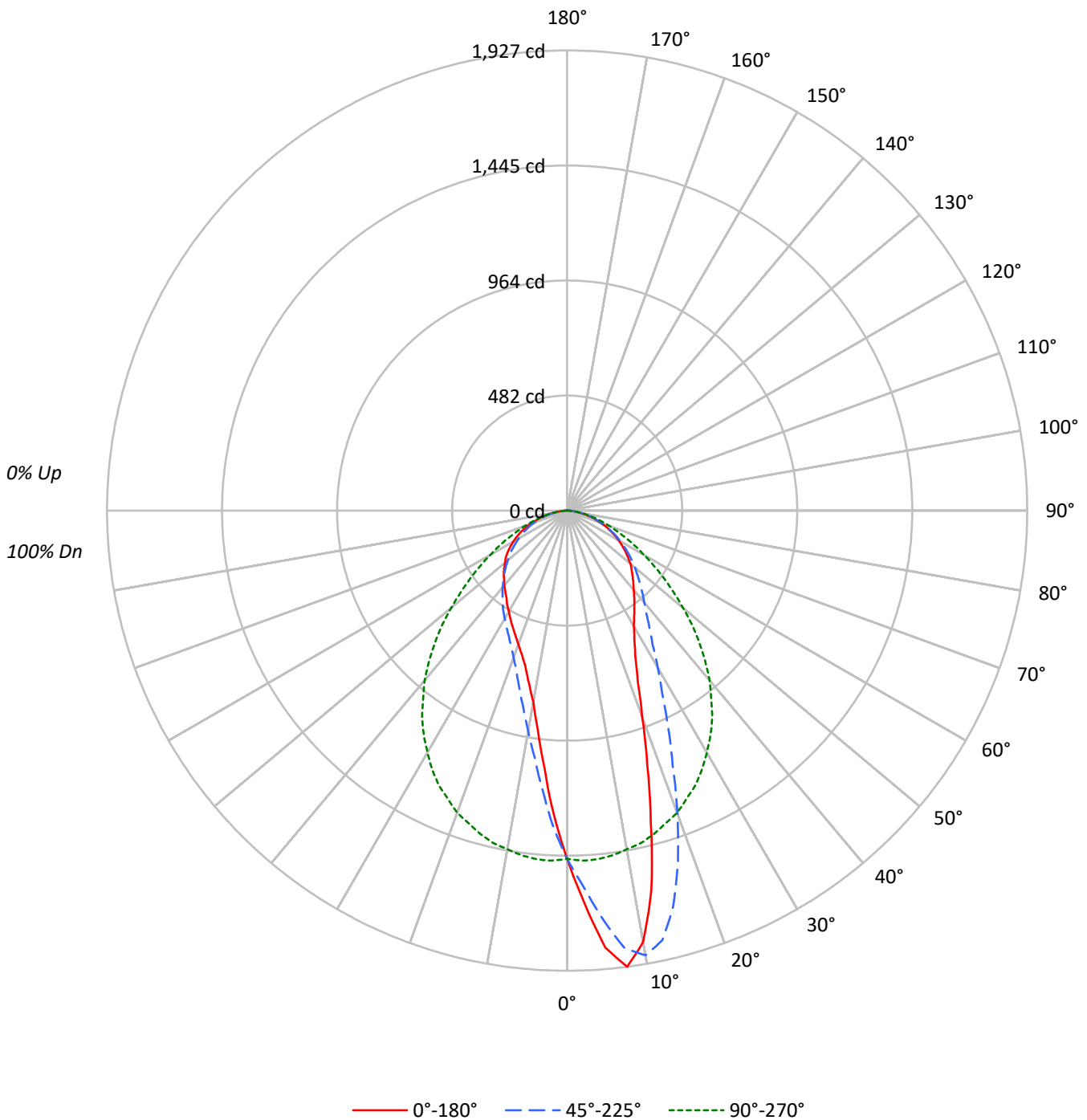
Lumens per Lamp: N/A
Luminaire Lumens: 2343.3 lumens
Efficiency: N/A
Efficacy: 126.0 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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

TEST NUMBER: P646640

CATALOG NUMBER: S123DRP-S560D830-X4F0-XX-UDD-G-W

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°	17573	17573	17573	17573	17573
5°	22224	20783	17730	14219	13129
10°	22439	23135	17612	11485	9953
15°	16901	21410	17493	9624	8416
20°	11776	17313	17269	8391	7645
25°	8979	13280	16888	7692	7171
30°	7768	10556	16280	7270	6790
35°	7208	8840	15579	6928	6521
40°	6823	7909	14595	6611	6430
45°	6596	7346	13342	6330	6388
50°	6482	6939	11862	6088	6356
55°	6241	6554	10407	5871	6384
60°	6017	6198	8969	5658	6280
65°	5654	5808	7738	5423	6155
70°	5221	5390	6581	5126	5795
75°	4725	4884	5638	4693	5293
80°	3900	4177	4462	4087	4462
85°	3083	3373	3276	3553	3553

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 15234 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	137.9	5.9
10°-20°	343.1	14.6
20°-30°	406.1	17.3
30°-40°	408.1	17.4
40°-50°	374.3	16.0
50°-60°	308.9	13.2
60°-70°	218.6	9.3
70°-80°	116.7	5.0
80°-90°	29.6	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°	887.0	37.9
0°-40°	1295.2	55.3
0°-60°	1978.3	84.4
0°-90°	2343.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2343.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1458	1458	1458	1458	1458	
5°	1837	1718	1466	1176	1086	175
15°	1355	1716	1402	772	675	374
25°	675	999	1270	579	539	319
35°	490	601	1059	471	443	308
45°	387	431	783	372	375	300
55°	297	312	495	280	304	266
65°	198	204	271	190	216	197
75°	102	105	121	101	114	107
85°	22	24	24	26	26	26
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°	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4
2.5°	1643.9	1640.5	1623.6	1612.7	1615.5	1591.1	1576.2	1564.0	1555.9	1536.3	1526.1
5°	1837.4	1846.9	1836.1	1830.7	1802.9	1758.9	1718.3	1709.5	1671.6	1624.9	1608.7
7.5°	1926.8	1932.2	1925.4	1925.4	1916.6	1877.4	1848.9	1826.6	1761.6	1701.4	1673.7
10°	1834.0	1846.2	1872.6	1884.8	1902.4	1897.0	1890.9	1882.1	1838.1	1768.4	1736.6
12.5°	1630.3	1645.2	1698.0	1705.5	1765.7	1823.9	1842.8	1864.5	1868.6	1809.7	1775.2
15°	1354.9	1396.2	1444.2	1467.2	1543.7	1666.2	1716.3	1775.2	1844.9	1820.5	1793.4
17.5°	1116.0	1131.6	1183.0	1231.7	1308.2	1449.6	1542.4	1630.3	1779.9	1804.3	1787.4
20°	918.4	932.6	1000.3	996.9	1098.4	1257.4	1350.2	1451.7	1672.3	1751.5	1748.1
22.5°	771.5	793.9	831.8	852.7	925.8	1067.3	1155.2	1281.8	1549.8	1675.0	1688.5
25°	675.4	691.7	714.7	732.9	789.8	906.2	998.9	1103.1	1395.5	1574.8	1608.7
27.5°	609.8	616.5	639.5	650.4	688.3	788.4	860.2	955.6	1252.7	1462.5	1509.9
30°	558.3	563.1	583.4	586.8	616.5	689.0	758.7	836.5	1113.3	1346.8	1400.9
32.5°	522.5	525.9	541.4	542.8	565.1	617.9	666.6	739.7	981.3	1222.9	1289.9
35°	490.0	492.0	503.5	506.9	521.1	561.0	601.0	657.1	876.4	1111.3	1185.0
37.5°	461.6	464.3	471.0	475.1	486.6	518.4	545.5	592.2	775.6	994.9	1076.7
40°	433.8	438.5	443.3	443.3	456.1	480.5	502.8	541.4	689.0	893.3	965.8
42.5°	410.1	414.9	416.9	417.6	424.3	446.7	465.6	492.0	623.3	803.3	874.4
45°	387.1	389.1	391.2	392.5	397.3	416.9	431.1	456.1	561.0	720.1	789.1
47.5°	366.1	366.1	367.5	369.5	372.9	387.1	399.3	417.6	507.6	645.6	702.5
50°	345.8	345.8	343.8	345.2	347.2	358.0	370.2	385.1	457.5	577.3	628.0
52.5°	321.5	321.5	322.1	320.1	322.1	331.6	341.1	356.0	414.9	514.3	557.7
55°	297.1	299.8	297.8	296.4	299.1	305.2	312.0	324.8	374.9	464.3	498.8
57.5°	272.7	274.1	273.4	275.4	274.1	279.5	285.6	294.4	339.1	408.1	440.6
60°	249.7	249.7	248.4	249.7	249.7	252.4	257.2	266.0	302.5	360.0	387.1
62.5°	224.0	224.7	225.4	224.7	224.0	227.4	231.5	237.5	270.7	313.3	333.6
65°	198.3	199.0	201.0	200.3	199.6	203.0	203.7	210.5	235.5	272.1	287.0
67.5°	175.3	173.9	174.6	176.0	176.6	177.3	178.7	185.4	203.0	232.8	245.0
70°	148.2	149.6	148.9	150.9	149.6	151.6	153.0	157.7	174.6	194.2	202.4
72.5°	123.8	124.5	124.5	126.6	125.9	127.9	129.3	131.3	143.5	161.1	164.5
75°	101.5	101.5	102.9	103.5	103.5	103.5	104.9	106.3	116.4	127.2	130.6
77.5°	77.2	80.5	79.9	80.5	81.2	83.2	81.9	84.6	90.7	96.8	98.8
80°	56.2	56.2	56.8	57.5	58.9	60.2	60.2	62.9	65.6	69.0	71.1
82.5°	35.9	36.5	38.6	39.3	39.9	42.0	42.0	42.0	45.3	46.7	46.7
85°	22.3	21.0	22.3	23.0	23.7	24.4	24.4	25.7	26.4	27.1	27.1
87.5°	10.8	10.8	10.8	10.8	11.5	11.5	11.5	11.5	12.2	12.2	12.2
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°	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4	1458.4
2.5°	1492.3	1467.2	1430.0	1399.6	1400.9	1373.2	1352.9	1326.5	1318.3	1310.2	1299.4
5°	1523.4	1465.9	1388.7	1327.1	1308.2	1262.2	1204.0	1175.6	1158.6	1128.9	1117.3
7.5°	1562.0	1456.4	1338.7	1242.6	1221.6	1145.1	1076.1	1042.2	1010.4	989.4	963.7
10°	1587.0	1439.5	1287.9	1160.7	1140.4	1053.1	963.0	938.7	898.8	873.0	848.7
12.5°	1606.0	1426.6	1235.8	1087.6	1054.4	969.8	879.1	846.0	816.9	779.6	762.0
15°	1622.9	1402.3	1182.3	1011.1	976.6	885.2	801.3	771.5	745.1	712.6	697.1
17.5°	1616.8	1372.5	1123.4	943.4	908.9	818.9	738.4	704.5	686.9	658.5	647.7
20°	1609.4	1346.8	1067.9	879.1	841.2	757.3	678.8	654.4	636.8	618.6	609.1
22.5°	1585.7	1306.2	1011.8	820.2	784.4	700.5	633.5	613.2	599.6	586.8	578.6
25°	1545.7	1270.3	957.0	761.4	732.9	654.4	597.6	578.6	569.8	557.0	549.5
27.5°	1496.3	1222.9	902.1	713.3	680.8	611.1	562.4	550.2	540.7	530.6	523.1
30°	1434.1	1170.1	848.7	666.6	636.8	575.3	533.3	522.5	513.7	503.5	494.7
32.5°	1354.9	1116.7	798.6	623.3	598.3	544.8	506.2	497.4	490.0	477.8	473.1
35°	1266.2	1059.1	749.2	582.0	558.3	511.6	479.8	471.0	463.6	453.4	449.4
37.5°	1176.2	990.8	700.5	546.8	525.9	483.9	453.4	444.6	437.9	429.1	427.0
40°	1080.8	927.9	652.4	511.0	492.7	456.8	427.0	420.3	413.5	408.1	406.7
42.5°	984.7	855.4	610.4	481.2	461.6	428.4	401.3	393.9	389.8	387.1	387.8
45°	894.0	783.0	567.1	446.7	433.1	402.7	377.6	371.5	368.2	366.1	368.8
47.5°	795.9	709.3	526.5	417.6	404.0	377.0	353.3	347.9	346.5	345.8	350.6
50°	709.3	632.8	482.5	387.8	376.3	348.5	329.6	324.8	323.5	325.5	332.3
52.5°	627.4	561.7	442.6	360.0	348.5	323.5	305.9	302.5	301.8	306.6	313.3
55°	546.2	495.4	399.3	329.6	318.1	296.4	282.9	279.5	278.8	288.3	294.4
57.5°	477.1	431.1	358.7	300.5	291.7	271.4	259.2	256.5	258.5	267.3	273.4
60°	409.4	372.2	321.5	269.4	262.6	245.0	235.5	234.8	236.9	247.0	253.1
62.5°	348.5	320.1	281.5	240.9	236.2	220.6	211.8	213.2	215.2	225.4	230.8
65°	296.4	271.4	242.3	212.5	206.4	195.6	189.5	190.2	194.2	203.0	208.4
67.5°	245.7	225.4	209.1	185.4	180.7	171.2	166.5	169.2	171.2	180.0	185.4
70°	203.0	186.8	174.6	157.0	153.6	145.5	142.1	145.5	147.5	155.0	161.7
72.5°	163.1	153.0	143.5	130.6	127.2	121.8	121.1	122.5	125.9	133.3	136.0
75°	126.6	121.1	113.0	104.9	102.9	100.2	99.5	100.8	104.2	108.3	111.0
77.5°	96.1	91.4	85.3	81.9	79.2	77.8	78.5	80.5	81.9	85.9	88.0
80°	69.7	64.3	62.9	58.2	57.5	56.8	58.2	58.9	60.9	63.6	65.0
82.5°	46.0	42.0	40.6	39.9	39.3	38.6	40.6	41.3	42.6	44.7	45.3
85°	25.0	23.7	23.7	23.0	23.7	25.0	25.0	25.7	25.7	26.4	25.7
87.5°	11.5	10.2	10.8	10.8	10.8	11.5	11.5	12.2	12.2	12.2	11.5
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):

	160°	170°	180°
0°	1458.4	1458.4	1458.4
2.5°	1298.7	1294.0	1275.0
5°	1107.2	1091.0	1085.5
7.5°	961.0	959.7	931.2
10°	837.2	839.2	813.5
12.5°	759.3	742.4	740.4
15°	693.0	677.4	674.7
17.5°	643.6	634.1	631.4
20°	606.4	601.0	596.2
22.5°	576.6	569.8	565.8
25°	546.8	540.7	539.4
27.5°	521.1	513.7	513.7
30°	494.7	490.0	488.0
32.5°	471.0	467.0	467.0
35°	448.0	446.0	443.3
37.5°	427.0	427.0	425.7
40°	406.7	408.8	408.8
42.5°	389.1	391.2	391.2
45°	370.2	373.6	374.9
47.5°	351.2	356.7	358.0
50°	334.3	338.4	339.1
52.5°	316.1	320.8	324.2
55°	297.1	301.8	303.9
57.5°	276.8	281.5	282.2
60°	254.5	259.2	260.6
62.5°	234.2	236.9	238.2
65°	209.1	213.2	215.9
67.5°	186.1	189.5	189.5
70°	161.1	162.4	164.5
72.5°	137.4	138.1	138.1
75°	111.7	113.0	113.7
77.5°	88.0	88.7	88.7
80°	65.0	64.3	64.3
82.5°	45.3	43.3	43.3
85°	25.7	25.0	25.7
87.5°	11.5	11.5	11.5
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	17.45	18.96	17.81	19.27	19.58	19.90	21.41	20.27	21.72	22.04
	3H	19.14	20.49	19.52	20.82	21.18	21.11	22.47	21.49	22.80	23.16
	4H	19.74	21.01	20.14	21.36	21.74	21.54	22.81	21.94	23.16	23.54
	6H	20.15	21.32	20.56	21.69	22.08	21.81	22.98	22.22	23.35	23.74
	8H	20.25	21.37	20.67	21.76	22.16	21.88	23.00	22.30	23.39	23.79
	12H	20.30	21.38	20.73	21.76	22.19	21.91	22.98	22.34	23.37	23.79
4H	2H	18.10	19.37	18.50	19.72	20.09	20.12	21.39	20.52	21.74	22.12
	3H	19.98	21.04	20.39	21.44	21.84	21.60	22.66	22.02	23.06	23.46
	4H	20.70	21.65	21.13	22.07	22.51	22.17	23.12	22.60	23.54	23.98
	6H	21.21	22.04	21.67	22.49	22.95	22.56	23.39	23.02	23.84	24.30
	8H	21.35	22.12	21.81	22.57	23.04	22.67	23.44	23.13	23.89	24.36
	12H	21.44	22.13	21.92	22.61	23.08	22.74	23.43	23.22	23.91	24.38
8H	4H	21.03	21.80	21.49	22.25	22.71	22.34	23.11	22.80	23.55	24.02
	6H	21.64	22.28	22.14	22.77	23.25	22.83	23.47	23.32	23.96	24.44
	8H	21.84	22.41	22.35	22.92	23.41	22.99	23.56	23.50	24.07	24.56
	12H	21.98	22.49	22.49	22.98	23.54	23.11	23.61	23.62	24.11	24.67
12H	4H	21.06	21.75	21.54	22.23	22.70	22.34	23.03	22.82	23.51	23.98
	6H	21.69	22.27	22.21	22.78	23.26	22.85	23.42	23.36	23.93	24.42
	8H	21.94	22.45	22.45	22.94	23.51	23.06	23.56	23.57	24.05	24.62