

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: P646692

Luminaire Tested: S123RDRP-S560D940-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646692
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-S560D940-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

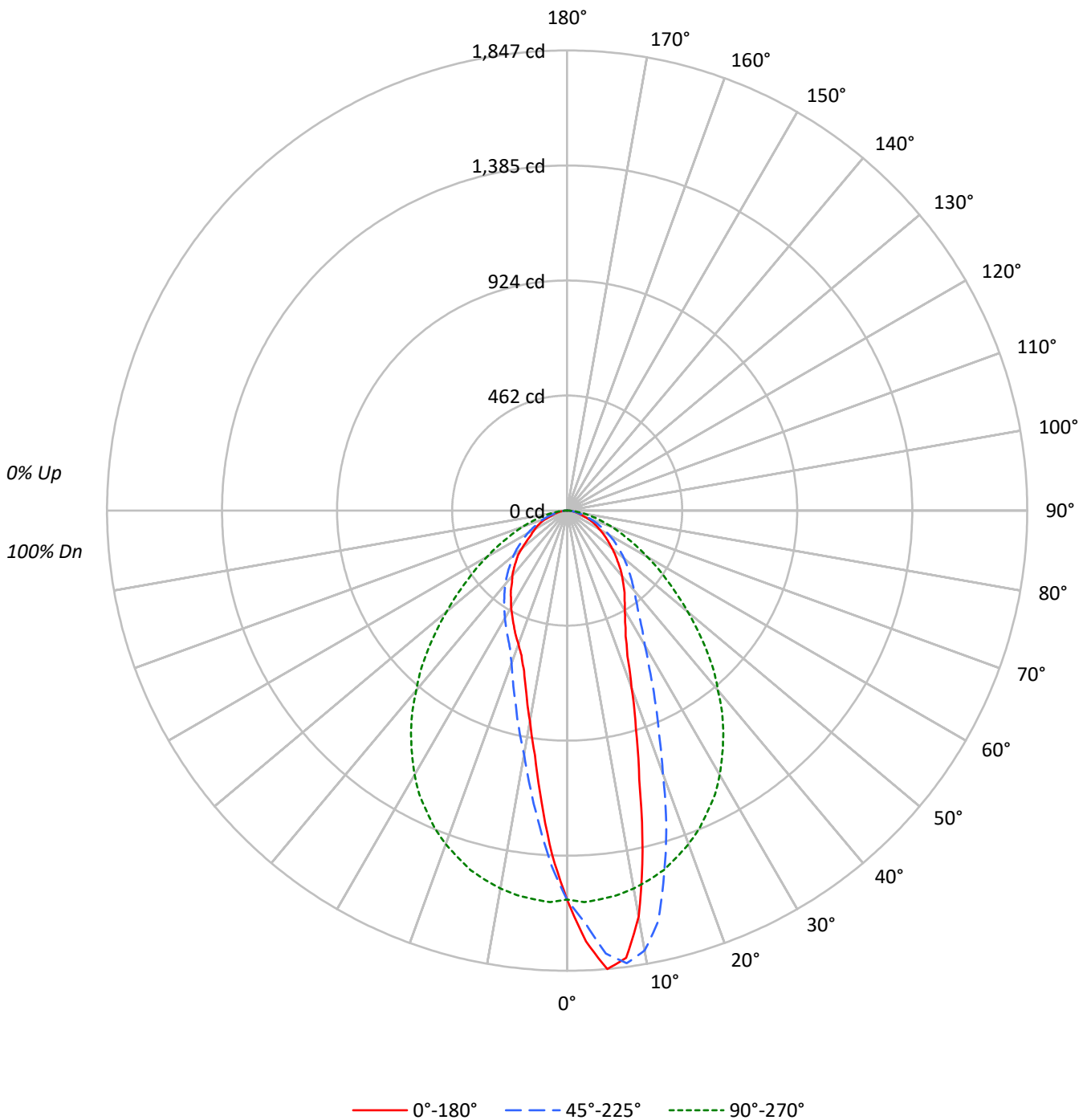
Lumens per Lamp: N/A
Luminaire Lumens: 2068.9 lumens
Efficiency: N/A
Efficacy: 111.2 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 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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CATALOG NUMBER: S123RDRP-S560D940-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	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°	18816	18816	18816	18816	18816
5°	22342	21583	18935	15357	14211
10°	20243	21935	18841	12158	10521
15°	13937	18785	18641	9983	8323
20°	9696	14409	18267	8365	7315
25°	7389	11057	17722	7474	6742
30°	6432	8694	17041	6948	6244
35°	5906	7318	16076	6479	5793
40°	5387	6567	14814	6082	5378
45°	4867	6012	13453	5652	4964
50°	4416	5580	11845	5256	4452
55°	3996	5124	10302	4802	3819
60°	3579	4661	8950	4398	3610
65°	3304	4143	7704	3906	3413
70°	2684	3541	6722	3541	2776
75°	2356	2863	5694	2952	2444
80°	2130	2401	4663	2491	2311
85°	1949	2032	3539	2212	2129

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 14194 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	142.3	6.9
10°-20°	329.3	15.9
20°-30°	377.8	18.3
30°-40°	372.1	18.0
40°-50°	328.0	15.9
50°-60°	252.4	12.2
60°-70°	166.0	8.0
70°-80°	80.6	3.9
80°-90°	20.3	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°	849.4	41.1
0°-40°	1221.5	59.0
0°-60°	1802.0	87.1
0°-90°	2068.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2068.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1562	1562	1562	1562	1562	
5°	1847	1784	1566	1270	1175	169
15°	1117	1506	1494	800	667	315
25°	556	832	1333	562	507	262
35°	402	498	1093	440	394	250
45°	286	353	790	332	291	222
55°	190	244	490	229	182	171
65°	116	145	270	137	120	114
75°	51	62	122	63	52	54
85°	14	15	26	16	15	16
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°	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6
2.5°	1730.7	1719.8	1716.6	1712.7	1706.3	1683.3	1657.0	1659.6	1656.4	1636.5	1625.7
5°	1847.2	1848.5	1845.3	1842.7	1831.8	1803.6	1784.4	1772.9	1748.6	1711.4	1699.9
7.5°	1811.3	1831.8	1835.7	1840.1	1845.9	1839.5	1832.5	1828.0	1808.1	1767.8	1749.2
10°	1654.5	1653.2	1676.2	1694.8	1744.7	1780.0	1792.8	1811.3	1828.0	1799.8	1779.3
12.5°	1398.4	1400.3	1475.8	1475.8	1540.5	1630.1	1687.8	1726.8	1798.5	1800.4	1788.3
15°	1117.3	1148.6	1215.9	1230.0	1313.2	1433.6	1505.9	1586.6	1725.5	1769.1	1766.5
17.5°	917.5	931.0	995.6	1014.2	1087.8	1224.2	1324.1	1421.4	1616.0	1707.6	1724.3
20°	756.2	768.3	815.1	829.2	903.4	1033.4	1123.7	1228.7	1483.5	1623.7	1653.2
22.5°	631.3	655.0	686.4	708.1	750.4	882.9	960.4	1060.9	1329.8	1529.6	1564.2
25°	555.8	566.6	593.5	603.8	655.0	742.7	831.7	920.1	1193.5	1411.8	1472.6
27.5°	504.5	507.7	527.6	536.5	567.3	648.6	712.6	794.6	1054.5	1290.8	1361.9
30°	462.3	468.0	483.4	485.3	512.2	569.8	624.9	700.5	932.9	1173.6	1246.6
32.5°	429.6	432.8	445.6	449.5	466.8	512.2	557.0	612.1	820.2	1051.3	1135.2
35°	401.5	402.1	411.7	416.8	432.2	470.0	497.5	543.6	729.9	950.2	1023.8
37.5°	369.4	373.9	381.0	385.4	398.9	429.6	454.6	490.4	646.7	854.1	922.6
40°	342.5	346.4	354.7	356.6	368.8	397.0	417.5	449.5	575.0	761.9	831.7
42.5°	315.7	318.2	326.5	330.4	343.8	366.2	384.8	409.8	518.0	680.0	748.5
45°	285.6	292.0	300.9	302.8	315.7	338.7	352.8	375.8	466.8	608.9	669.7
47.5°	260.6	263.8	271.5	274.7	289.4	309.9	324.6	344.5	422.6	544.2	603.8
50°	235.6	236.9	243.9	248.4	260.0	283.6	297.7	315.7	382.2	491.7	533.3
52.5°	211.9	215.1	222.2	225.4	233.1	257.4	270.2	288.8	343.8	437.9	479.6
55°	190.2	192.1	197.2	201.0	210.0	231.1	243.9	260.0	310.5	388.6	425.1
57.5°	169.7	172.2	176.1	179.3	187.6	206.2	219.0	235.0	279.2	343.8	372.0
60°	148.5	151.7	156.2	157.5	165.2	181.8	193.4	207.4	247.1	302.2	327.2
62.5°	133.2	133.8	137.7	139.6	144.1	157.5	169.7	183.1	218.3	261.9	282.4
65°	115.9	117.8	119.7	121.0	124.9	136.4	145.3	155.6	190.2	227.9	242.0
67.5°	98.0	99.9	103.1	104.4	107.6	115.2	122.9	133.2	162.0	194.0	206.8
70°	76.2	76.2	81.3	83.9	89.0	94.8	100.5	109.5	134.5	162.0	171.6
72.5°	62.1	62.7	63.4	63.4	67.9	77.5	80.7	86.4	106.3	132.5	140.9
75°	50.6	51.2	51.9	52.5	53.1	56.3	61.5	66.6	81.3	100.5	108.2
77.5°	40.3	41.0	41.6	41.6	42.9	44.2	45.5	48.0	58.3	72.4	78.8
80°	30.7	31.4	32.0	32.0	32.7	33.9	34.6	35.9	39.1	48.7	51.9
82.5°	22.4	22.4	22.4	23.0	23.7	23.7	25.0	25.0	26.9	29.5	31.4
85°	14.1	14.1	14.7	14.7	14.7	15.4	14.7	15.4	16.0	16.6	17.9
87.5°	6.4	5.8	6.4	6.4	6.4	7.0	7.0	7.0	7.0	7.7	7.7
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°	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6	1561.6
2.5°	1595.6	1573.1	1535.4	1511.7	1502.7	1475.2	1448.9	1427.2	1416.3	1415.0	1395.2
5°	1626.9	1565.5	1487.4	1422.0	1406.7	1358.7	1296.6	1269.7	1234.4	1220.4	1203.7
7.5°	1652.5	1556.5	1441.3	1342.6	1313.8	1241.5	1162.1	1126.9	1100.0	1057.7	1032.8
10°	1670.5	1539.9	1384.9	1257.5	1216.5	1132.0	1036.0	993.7	968.7	920.1	900.2
12.5°	1677.5	1518.7	1328.6	1169.1	1133.3	1032.8	938.6	895.1	858.0	813.8	794.6
15°	1675.0	1494.4	1270.9	1087.8	1043.0	941.2	841.3	800.3	765.8	721.6	696.6
17.5°	1657.7	1459.8	1208.2	1009.1	966.2	861.2	760.0	722.2	691.5	648.6	629.4
20°	1628.9	1424.6	1153.1	937.4	888.7	788.2	692.8	652.4	625.5	602.5	588.4
22.5°	1589.2	1383.0	1085.9	866.3	824.0	722.9	631.3	598.7	582.6	564.1	553.8
25°	1529.0	1333.0	1025.1	806.7	764.5	664.0	583.9	562.2	546.2	534.0	523.1
27.5°	1464.3	1285.0	964.2	746.6	706.9	610.8	546.8	530.1	516.1	500.7	491.1
30°	1389.4	1224.8	906.6	693.4	655.0	567.9	514.8	499.4	487.9	471.2	461.6
32.5°	1301.0	1158.9	852.8	642.2	606.3	530.8	485.3	468.7	459.1	443.1	433.5
35°	1209.5	1092.9	793.9	594.8	562.2	498.1	456.5	440.5	430.3	414.3	404.7
37.5°	1119.8	1022.5	741.4	553.2	523.7	465.5	426.4	413.0	403.4	386.7	375.2
40°	1025.1	941.8	690.2	514.1	486.6	436.7	398.9	386.7	373.9	359.2	347.7
42.5°	925.8	870.8	642.8	479.6	454.0	408.5	371.4	358.6	347.7	330.4	325.3
45°	833.0	789.5	592.9	443.1	422.6	380.3	344.5	331.7	319.5	304.8	299.6
47.5°	750.4	710.1	547.4	411.1	390.6	352.8	317.6	304.1	295.2	283.6	276.0
50°	665.2	631.9	497.5	379.7	360.5	323.3	289.4	280.4	270.2	256.1	250.3
52.5°	585.8	560.2	456.5	349.6	331.7	298.4	263.8	254.8	245.2	233.1	224.7
55°	516.1	490.4	409.8	315.7	302.2	270.8	240.1	228.6	220.9	206.8	196.6
57.5°	444.3	432.2	365.0	287.5	274.7	243.3	215.8	206.8	197.2	181.8	171.6
60°	385.4	371.4	323.3	256.7	244.6	218.3	191.4	182.5	173.5	158.8	154.3
62.5°	329.7	319.5	283.0	227.9	217.7	192.1	168.4	160.1	151.1	141.5	138.3
65°	279.2	270.2	242.7	198.5	190.2	167.8	146.0	137.0	131.3	126.8	123.6
67.5°	231.8	226.7	205.5	171.0	164.5	144.7	125.5	118.5	115.2	110.1	107.6
70°	188.9	190.8	171.6	146.0	138.9	122.9	106.3	100.5	96.7	92.2	87.1
72.5°	154.3	153.7	142.1	119.1	114.0	101.2	88.4	84.5	80.0	71.1	65.3
75°	119.7	122.3	111.4	98.6	93.5	80.7	68.5	63.4	58.9	55.7	53.8
77.5°	91.6	92.8	87.7	75.6	71.1	60.2	50.6	48.0	46.1	44.2	43.5
80°	65.3	67.2	62.1	54.4	50.6	41.6	36.5	35.9	35.2	33.9	33.3
82.5°	42.3	44.8	42.3	33.9	32.0	27.5	26.3	26.3	25.6	25.0	24.3
85°	23.0	25.6	24.3	19.8	18.6	17.3	16.6	16.0	16.0	16.0	16.0
87.5°	9.0	12.2	10.2	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
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°	1561.6	1561.6	1561.6
2.5°	1390.7	1384.3	1381.7
5°	1199.2	1179.4	1174.9
7.5°	1025.1	1016.8	989.2
10°	897.0	871.4	859.9
12.5°	781.8	758.1	754.2
15°	689.6	672.9	667.2
17.5°	628.7	617.2	610.2
20°	583.9	575.6	570.5
22.5°	550.0	543.6	539.7
25°	519.9	510.3	507.1
27.5°	489.2	480.8	477.6
30°	460.4	453.3	448.8
32.5°	430.3	421.9	419.4
35°	401.5	396.3	393.8
37.5°	373.3	366.9	363.0
40°	347.0	343.8	341.9
42.5°	323.3	317.6	316.9
45°	298.4	292.6	291.3
47.5°	274.7	269.6	268.9
50°	249.7	242.7	237.5
52.5°	219.6	213.2	208.7
55°	192.7	185.7	181.8
57.5°	170.3	167.1	165.2
60°	153.0	151.1	149.8
62.5°	137.7	135.7	135.7
65°	123.6	121.7	119.7
67.5°	106.3	102.4	101.8
70°	85.2	79.4	78.8
72.5°	64.7	64.0	62.7
75°	53.8	52.5	52.5
77.5°	43.5	42.3	42.3
80°	33.3	32.7	33.3
82.5°	24.3	24.3	23.7
85°	16.0	15.4	15.4
87.5°	7.7	7.7	7.7
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	14.90	16.35	15.26	16.67	16.98	19.99	21.45	20.35	21.76	22.07
	3H	16.23	17.53	16.61	17.86	18.22	21.27	22.57	21.65	22.90	23.26
	4H	16.63	17.85	17.03	18.20	18.58	21.71	22.93	22.11	23.28	23.66
	6H	16.93	18.06	17.35	18.43	18.82	22.01	23.13	22.42	23.50	23.89
	8H	17.04	18.11	17.46	18.50	18.90	22.08	23.15	22.51	23.54	23.95
	12H	17.10	18.13	17.53	18.51	18.94	22.12	23.15	22.56	23.53	23.96
4H	2H	15.75	16.97	16.15	17.32	17.70	20.03	21.25	20.43	21.60	21.98
	3H	17.22	18.23	17.63	18.63	19.03	21.52	22.53	21.93	22.93	23.33
	4H	17.68	18.59	18.12	19.01	19.45	22.08	22.98	22.51	23.40	23.84
	6H	18.07	18.86	18.53	19.30	19.76	22.52	23.30	22.97	23.75	24.21
	8H	18.20	18.93	18.66	19.38	19.85	22.63	23.37	23.10	23.81	24.28
	12H	18.30	18.95	18.78	19.43	19.90	22.71	23.37	23.19	23.84	24.32
8H	4H	18.07	18.81	18.54	19.25	19.72	22.08	22.82	22.55	23.26	23.73
	6H	18.54	19.15	19.04	19.64	20.12	22.57	23.17	23.07	23.67	24.15
	8H	18.72	19.27	19.24	19.78	20.27	22.73	23.27	23.25	23.79	24.28
	12H	18.88	19.36	19.39	19.85	20.42	22.86	23.34	23.37	23.83	24.40
12H	4H	18.12	18.77	18.60	19.25	19.72	22.06	22.71	22.54	23.19	23.66
	6H	18.60	19.15	19.12	19.66	20.15	22.54	23.09	23.06	23.60	24.09
	8H	18.84	19.32	19.35	19.81	20.38	22.74	23.22	23.25	23.71	24.28