

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: P646686

Luminaire Tested: S123RDRP-S560D835-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646686  
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-S560D835-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: -

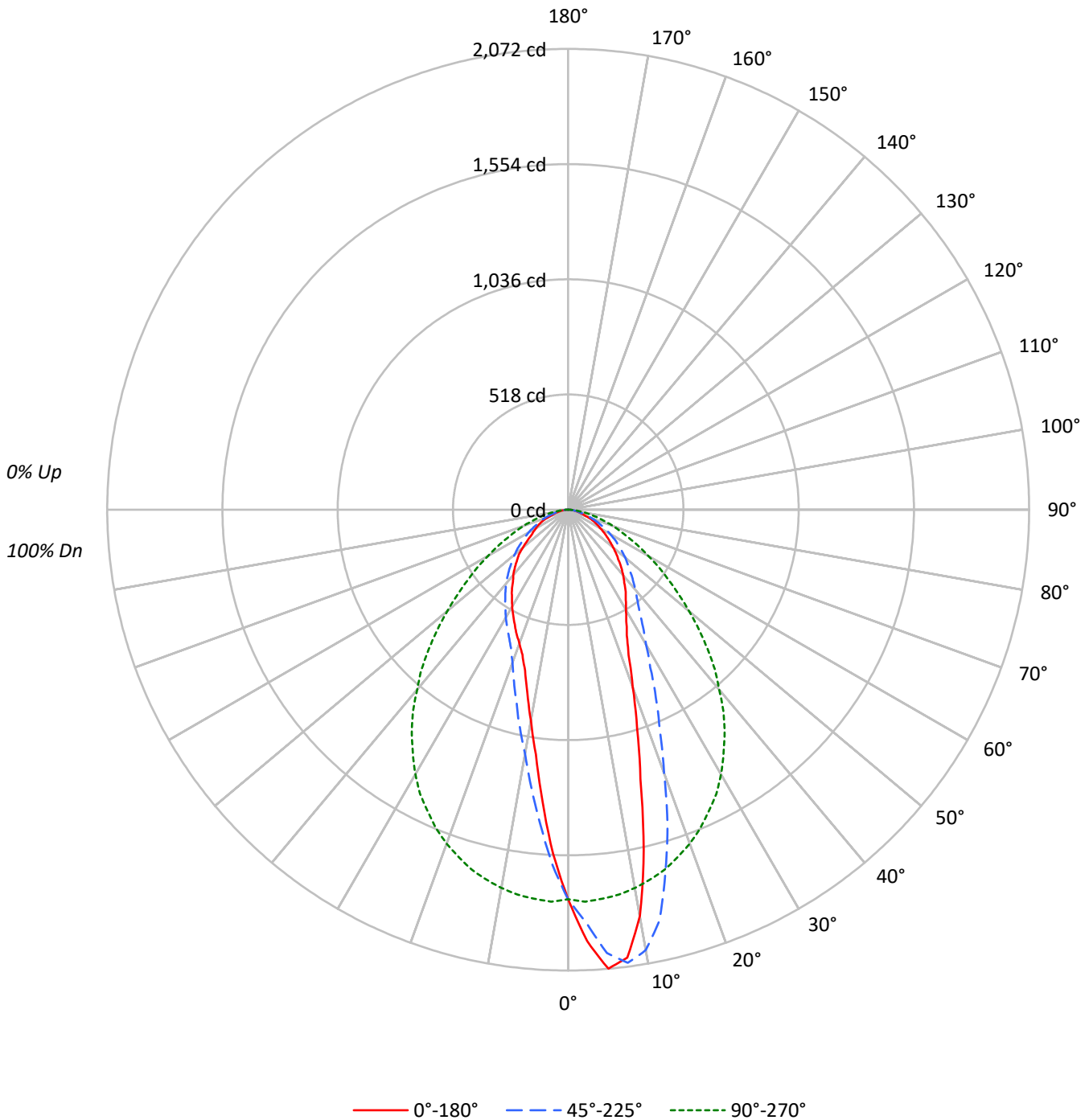
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2320.2 lumens  
Efficiency: N/A  
Efficacy: 124.7 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): 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-S560D835-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	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°	21102	21102	21102	21102	21102
5°	25055	24204	21234	17221	15937
10°	22701	24599	21129	13635	11798
15°	15630	21066	20906	11196	9333
20°	10873	16158	20485	9382	8204
25°	8285	12400	19874	8381	7561
30°	7213	9750	19111	7793	7003
35°	6622	8206	18029	7266	6496
40°	6042	7364	16613	6822	6031
45°	5456	6741	15086	6337	5567
50°	4952	6259	13285	5895	4994
55°	4481	5748	11554	5384	4283
60°	4015	5225	10037	4931	4049
65°	3706	4647	8639	4382	3829
70°	3009	3970	7539	3970	3111
75°	2640	3208	6383	3310	2742
80°	2394	2692	5232	2789	2588
85°	2184	2281	3968	2488	2378

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 15919 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	159.6	6.9
10°-20°	369.3	15.9
20°-30°	423.7	18.3
30°-40°	417.3	18.0
40°-50°	367.8	15.9
50°-60°	283.1	12.2
60°-70°	186.2	8.0
70°-80°	90.4	3.9
80°-90°	22.8	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°	952.6	41.1
0°-40°	1369.9	59.0
0°-60°	2020.8	87.1
0°-90°	2320.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2320.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1751	1751	1751	1751	1751	
5°	2072	2001	1756	1424	1318	189
15°	1253	1689	1676	898	748	354
25°	623	933	1495	630	569	294
35°	450	558	1226	494	442	281
45°	320	396	885	372	327	249
55°	213	274	550	256	204	191
65°	130	163	303	154	134	127
75°	57	69	137	71	59	61
85°	16	16	29	18	17	18
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°	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3
2.5°	1940.8	1928.6	1925.0	1920.7	1913.5	1887.7	1858.3	1861.1	1857.5	1835.3	1823.1
5°	2071.5	2072.9	2069.4	2066.5	2054.3	2022.7	2001.1	1988.2	1960.9	1919.3	1906.4
7.5°	2031.3	2054.3	2058.6	2063.6	2070.1	2062.9	2055.0	2050.0	2027.7	1982.5	1961.6
10°	1855.4	1853.9	1879.8	1900.6	1956.6	1996.1	2010.5	2031.3	2050.0	2018.4	1995.4
12.5°	1568.2	1570.3	1655.1	1655.1	1727.6	1828.1	1892.7	1936.5	2016.9	2019.1	2005.4
15°	1253.0	1288.1	1363.5	1379.3	1472.7	1607.7	1688.8	1779.3	1935.1	1983.9	1981.0
17.5°	1028.9	1044.0	1116.5	1137.4	1219.9	1372.9	1484.9	1594.0	1812.3	1915.0	1933.6
20°	848.0	861.6	914.0	929.8	1013.1	1158.9	1260.1	1377.9	1663.7	1820.9	1853.9
22.5°	708.0	734.5	769.7	794.1	841.5	990.2	1077.0	1189.8	1491.3	1715.4	1754.1
25°	623.2	635.5	665.6	677.1	734.5	832.9	932.7	1031.8	1338.4	1583.2	1651.5
27.5°	565.8	569.4	591.7	601.7	636.2	727.4	799.2	891.1	1182.6	1447.5	1527.2
30°	518.4	524.9	542.1	544.3	574.4	639.0	700.8	785.5	1046.2	1316.1	1398.0
32.5°	481.8	485.4	499.7	504.1	523.4	574.4	624.7	686.4	919.8	1179.0	1273.1
35°	450.2	450.9	461.7	467.4	484.7	527.0	557.9	609.6	818.6	1065.6	1148.1
37.5°	414.3	419.3	427.2	432.3	447.3	481.8	509.8	550.0	725.2	957.8	1034.7
40°	384.1	388.5	397.8	399.9	413.6	445.2	468.2	504.1	644.8	854.5	932.7
42.5°	354.0	356.9	366.2	370.5	385.6	410.7	431.5	459.5	580.9	762.5	839.4
45°	320.2	327.4	337.5	339.6	354.0	379.8	395.6	421.5	523.4	682.8	751.1
47.5°	292.2	295.8	304.4	308.0	324.5	347.5	364.0	386.3	473.9	610.3	677.1
50°	264.2	265.7	273.6	278.6	291.5	318.1	333.9	354.0	428.7	551.4	598.1
52.5°	237.7	241.3	249.2	252.7	261.4	288.6	303.0	323.8	385.6	491.1	537.8
55°	213.3	215.4	221.2	225.5	235.5	259.2	273.6	291.5	348.2	435.8	476.8
57.5°	190.3	193.1	197.5	201.0	210.4	231.2	245.6	263.5	313.1	385.6	417.2
60°	166.6	170.2	175.2	176.6	185.3	203.9	216.8	232.6	277.2	338.9	366.9
62.5°	149.3	150.1	154.4	156.5	161.6	176.6	190.3	205.4	244.8	293.7	316.6
65°	130.0	132.1	134.3	135.7	140.0	152.9	163.0	174.5	213.3	255.6	271.4
67.5°	109.9	112.0	115.6	117.0	120.6	129.2	137.9	149.3	181.7	217.6	231.9
70°	85.4	85.4	91.2	94.1	99.8	106.3	112.7	122.8	150.8	181.7	192.4
72.5°	69.6	70.4	71.1	71.1	76.1	86.9	90.5	96.9	119.2	148.6	158.0
75°	56.7	57.4	58.2	58.9	59.6	63.2	68.9	74.7	91.2	112.7	121.3
77.5°	45.2	46.0	46.7	46.7	48.1	49.5	51.0	53.9	65.3	81.1	88.3
80°	34.5	35.2	35.9	35.9	36.6	38.1	38.8	40.2	43.8	54.6	58.2
82.5°	25.1	25.1	25.1	25.8	26.6	26.6	28.0	28.0	30.2	33.0	35.2
85°	15.8	15.8	16.5	16.5	16.5	17.2	16.5	17.2	18.0	18.7	20.1
87.5°	7.2	6.5	7.2	7.2	7.2	7.9	7.9	7.9	7.9	8.6	8.6
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°	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3	1751.3
2.5°	1789.3	1764.2	1721.8	1695.3	1685.2	1654.3	1624.9	1600.5	1588.3	1586.8	1564.6
5°	1824.5	1755.6	1668.0	1594.7	1577.5	1523.7	1454.0	1423.8	1384.4	1368.6	1349.9
7.5°	1853.2	1745.5	1616.3	1505.7	1473.4	1392.3	1303.2	1263.7	1233.6	1186.2	1158.2
10°	1873.3	1726.9	1553.1	1410.2	1364.3	1269.5	1161.8	1114.4	1086.4	1031.8	1009.5
12.5°	1881.2	1703.2	1489.9	1311.1	1270.9	1158.2	1052.6	1003.8	962.2	912.6	891.1
15°	1878.4	1675.9	1425.3	1219.9	1169.7	1055.5	943.5	897.5	858.8	809.2	781.2
17.5°	1859.0	1637.1	1354.9	1131.6	1083.5	965.7	852.3	809.9	775.5	727.4	705.8
20°	1826.7	1597.6	1293.2	1051.2	996.6	883.9	776.9	731.7	701.5	675.7	659.9
22.5°	1782.1	1550.9	1217.8	971.5	924.1	810.7	708.0	671.4	653.4	632.6	621.1
25°	1714.6	1494.9	1149.6	904.7	857.3	744.6	654.8	630.4	612.5	598.8	586.6
27.5°	1642.1	1441.1	1081.3	837.2	792.7	685.0	613.2	594.5	578.7	561.5	550.7
30°	1558.1	1373.6	1016.7	777.6	734.5	636.9	577.3	560.1	547.1	528.5	517.7
32.5°	1459.0	1299.6	956.4	720.2	680.0	595.2	544.3	525.6	514.8	496.9	486.1
35°	1356.4	1225.7	890.4	667.0	630.4	558.6	512.0	494.0	482.5	464.6	453.8
37.5°	1255.8	1146.7	831.5	620.4	587.3	522.0	478.2	463.1	452.4	433.7	420.8
40°	1149.6	1056.2	774.0	576.6	545.7	489.7	447.3	433.7	419.3	402.8	389.9
42.5°	1038.3	976.5	720.9	537.8	509.1	458.1	416.5	402.1	389.9	370.5	364.8
45°	934.2	885.3	664.9	496.9	473.9	426.5	386.3	371.9	358.3	341.8	336.0
47.5°	841.5	796.3	613.9	461.0	438.0	395.6	356.1	341.1	331.0	318.1	309.5
50°	746.0	708.7	557.9	425.8	404.2	362.6	324.5	314.5	303.0	287.2	280.7
52.5°	657.0	628.3	512.0	392.0	371.9	334.6	295.8	285.8	275.0	261.4	252.0
55°	578.7	550.0	459.5	354.0	338.9	303.7	269.3	256.3	247.7	231.9	220.4
57.5°	498.3	484.7	409.3	322.4	308.0	272.9	242.0	231.9	221.2	203.9	192.4
60°	432.3	416.5	362.6	287.9	274.3	244.8	214.7	204.6	194.6	178.1	173.0
62.5°	369.8	358.3	317.4	255.6	244.1	215.4	188.8	179.5	169.5	158.7	155.1
65°	313.1	303.0	272.1	222.6	213.3	188.1	163.7	153.7	147.2	142.2	138.6
67.5°	259.9	254.2	230.5	191.7	184.5	162.3	140.7	132.8	129.2	123.5	120.6
70°	211.8	214.0	192.4	163.7	155.8	137.9	119.2	112.7	108.4	103.4	97.7
72.5°	173.0	172.3	159.4	133.6	127.8	113.4	99.1	94.8	89.8	79.7	73.2
75°	134.3	137.1	124.9	110.6	104.8	90.5	76.8	71.1	66.1	62.5	60.3
77.5°	102.7	104.1	98.4	84.7	79.7	67.5	56.7	53.9	51.7	49.5	48.8
80°	73.2	75.4	69.6	61.0	56.7	46.7	40.9	40.2	39.5	38.1	37.3
82.5°	47.4	50.3	47.4	38.1	35.9	30.9	29.4	29.4	28.7	28.0	27.3
85°	25.8	28.7	27.3	22.3	20.8	19.4	18.7	18.0	18.0	18.0	18.0
87.5°	10.1	13.6	11.5	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
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°	1751.3	1751.3	1751.3
2.5°	1559.6	1552.4	1549.5
5°	1344.9	1322.6	1317.6
7.5°	1149.6	1140.2	1109.4
10°	1006.0	977.2	964.3
12.5°	876.7	850.1	845.8
15°	773.3	754.6	748.2
17.5°	705.1	692.2	684.3
20°	654.8	645.5	639.8
22.5°	616.8	609.6	605.3
25°	583.0	572.3	568.7
27.5°	548.6	539.2	535.6
30°	516.3	508.4	503.3
32.5°	482.5	473.2	470.3
35°	450.2	444.5	441.6
37.5°	418.6	411.4	407.1
40°	389.2	385.6	383.4
42.5°	362.6	356.1	355.4
45°	334.6	328.1	326.7
47.5°	308.0	302.3	301.6
50°	280.0	272.1	266.4
52.5°	246.3	239.1	234.1
55°	216.1	208.2	203.9
57.5°	191.0	187.4	185.3
60°	171.6	169.5	168.0
62.5°	154.4	152.2	152.2
65°	138.6	136.4	134.3
67.5°	119.2	114.9	114.2
70°	95.5	89.0	88.3
72.5°	72.5	71.8	70.4
75°	60.3	58.9	58.9
77.5°	48.8	47.4	47.4
80°	37.3	36.6	37.3
82.5°	27.3	27.3	26.6
85°	18.0	17.2	17.2
87.5°	8.6	8.6	8.6
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	15.29	16.75	15.66	17.06	17.38	20.39	21.84	20.75	22.16	22.47
	3H	16.63	17.93	17.01	18.26	18.62	21.67	22.97	22.04	23.30	23.66
	4H	17.03	18.25	17.43	18.59	18.97	22.11	23.33	22.51	23.68	24.06
	6H	17.33	18.46	17.75	18.83	19.22	22.41	23.53	22.82	23.90	24.29
	8H	17.43	18.50	17.86	18.89	19.30	22.48	23.55	22.91	23.94	24.34
	12H	17.50	18.53	17.93	18.91	19.34	22.52	23.55	22.95	23.93	24.36
4H	2H	16.14	17.36	16.55	17.71	18.09	20.43	21.65	20.83	22.00	22.38
	3H	17.62	18.63	18.03	19.03	19.43	21.92	22.93	22.33	23.33	23.73
	4H	18.08	18.99	18.51	19.40	19.84	22.47	23.38	22.91	23.80	24.24
	6H	18.47	19.26	18.93	19.70	20.16	22.91	23.70	23.37	24.14	24.61
	8H	18.60	19.33	19.06	19.78	20.25	23.03	23.77	23.50	24.21	24.68
	12H	18.70	19.35	19.18	19.83	20.30	23.11	23.76	23.59	24.24	24.72
8H	4H	18.47	19.20	18.93	19.65	20.12	22.48	23.21	22.94	23.66	24.13
	6H	18.94	19.54	19.44	20.04	20.52	22.97	23.57	23.47	24.07	24.54
	8H	19.12	19.66	19.64	20.18	20.66	23.13	23.67	23.65	24.18	24.67
	12H	19.28	19.76	19.79	20.25	20.82	23.26	23.74	23.77	24.23	24.80
12H	4H	18.52	19.17	19.00	19.65	20.12	22.46	23.11	22.94	23.59	24.06
	6H	19.00	19.55	19.52	20.06	20.55	22.94	23.48	23.46	24.00	24.49
	8H	19.24	19.71	19.75	20.21	20.77	23.14	23.62	23.65	24.11	24.68