

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: P646685

Luminaire Tested: S123RDRP-S560D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646685
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-S560D830-X4F0-XX-UDD-G-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

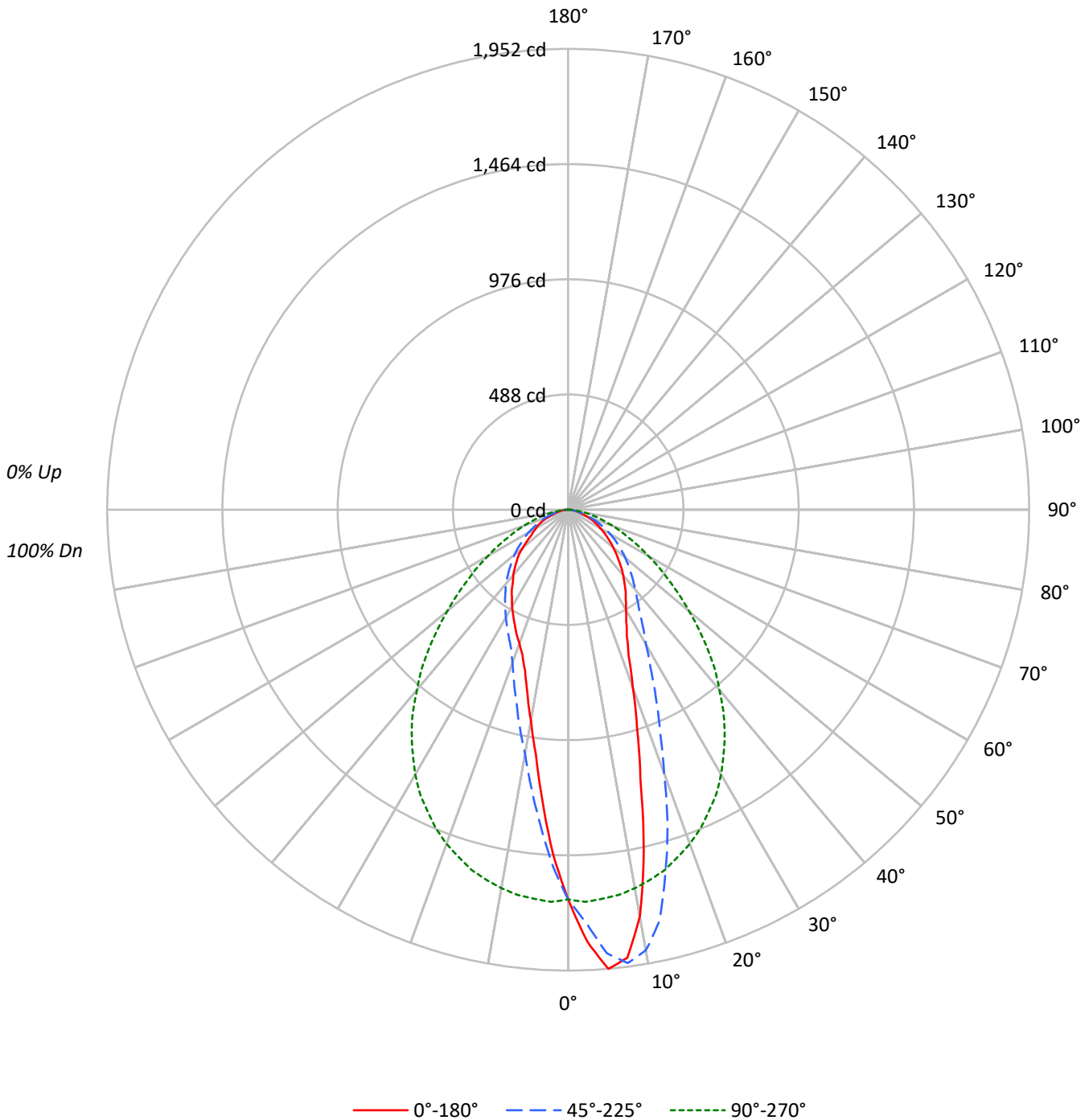
Lumens per Lamp: N/A
Luminaire Lumens: 2186.8 lumens
Efficiency: N/A
Efficacy: 117.6 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.79
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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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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°	19888	19888	19888	19888	19888
5°	23616	22814	20014	16232	15021
10°	21397	23185	19914	12850	11120
15°	14732	19856	19704	10553	8797
20°	10249	15229	19308	8842	7732
25°	7809	11687	18732	7900	7126
30°	6798	9190	18013	7345	6600
35°	6241	7736	16992	6849	6122
40°	5696	6941	15658	6430	5684
45°	5143	6354	14220	5974	5247
50°	4669	5899	12522	5556	4707
55°	4222	5416	10890	5075	4038
60°	3783	4926	9459	4649	3817
65°	3493	4379	8143	4128	3609
70°	2836	3745	7106	3745	2931
75°	2491	3026	6019	3119	2584
80°	2255	2533	4934	2630	2442
85°	2060	2157	3747	2336	2240

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 15004 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	150.4	6.9
10°-20°	348.1	15.9
20°-30°	399.3	18.3
30°-40°	393.3	18.0
40°-50°	346.7	15.9
50°-60°	266.8	12.2
60°-70°	175.5	8.0
70°-80°	85.2	3.9
80°-90°	21.5	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°	897.8	41.1
0°-40°	1291.2	59.0
0°-60°	1904.7	87.1
0°-90°	2186.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2186.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1651	1651	1651	1651	1651	
5°	1952	1886	1655	1342	1242	178
15°	1181	1592	1580	846	705	333
25°	587	879	1409	594	536	277
35°	424	526	1155	466	416	265
45°	302	373	834	351	308	234
55°	201	258	518	242	192	180
65°	122	154	286	145	127	120
75°	54	65	129	67	56	58
85°	15	16	27	17	16	17
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°	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6
2.5°	1829.3	1817.8	1814.4	1810.4	1803.6	1779.2	1751.5	1754.2	1750.8	1729.8	1718.3
5°	1952.5	1953.8	1950.5	1947.7	1936.2	1906.5	1886.2	1874.0	1848.3	1809.0	1796.8
7.5°	1914.6	1936.2	1940.3	1945.0	1951.1	1944.4	1936.9	1932.2	1911.2	1868.6	1848.9
10°	1748.8	1747.4	1771.8	1791.4	1844.2	1881.4	1895.0	1914.6	1932.2	1902.4	1880.7
12.5°	1478.1	1480.1	1560.0	1560.0	1628.3	1723.1	1784.0	1825.2	1901.0	1903.1	1890.2
15°	1181.0	1214.1	1285.2	1300.1	1388.1	1515.3	1591.8	1677.0	1823.9	1869.9	1867.2
17.5°	969.8	984.0	1052.4	1072.0	1149.8	1294.0	1399.6	1502.4	1708.2	1804.9	1822.5
20°	799.3	812.1	861.5	876.4	954.9	1092.3	1187.7	1298.7	1568.1	1716.3	1747.4
22.5°	667.3	692.3	725.5	748.5	793.2	933.3	1015.2	1121.4	1405.7	1616.8	1653.4
25°	587.4	598.9	627.4	638.2	692.3	785.1	879.1	972.5	1261.5	1492.3	1556.6
27.5°	533.3	536.7	557.7	567.1	599.6	685.6	753.2	839.9	1114.6	1364.4	1439.5
30°	488.6	494.7	511.0	513.0	541.4	602.3	660.5	740.4	986.1	1240.5	1317.7
32.5°	454.1	457.5	471.0	475.1	493.4	541.4	588.8	647.0	866.9	1111.3	1199.9
35°	424.3	425.0	435.2	440.6	456.8	496.7	525.9	574.6	771.5	1004.3	1082.2
37.5°	390.5	395.2	402.7	407.4	421.6	454.1	480.5	518.4	683.5	902.8	975.2
40°	362.1	366.1	374.9	377.0	389.8	419.6	441.3	475.1	607.7	805.4	879.1
42.5°	333.6	336.4	345.2	349.2	363.4	387.1	406.7	433.1	547.5	718.7	791.1
45°	301.8	308.6	318.1	320.1	333.6	358.0	372.9	397.3	493.4	643.6	707.9
47.5°	275.4	278.8	287.0	290.3	305.9	327.6	343.1	364.1	446.7	575.3	638.2
50°	249.1	250.4	257.8	262.6	274.8	299.8	314.7	333.6	404.0	519.8	563.7
52.5°	224.0	227.4	234.8	238.2	246.3	272.1	285.6	305.2	363.4	462.9	506.9
55°	201.0	203.0	208.4	212.5	222.0	244.3	257.8	274.8	328.2	410.8	449.4
57.5°	179.3	182.1	186.1	189.5	198.3	217.9	231.5	248.4	295.1	363.4	393.2
60°	157.0	160.4	165.1	166.5	174.6	192.2	204.4	219.3	261.2	319.4	345.8
62.5°	140.8	141.4	145.5	147.5	152.3	166.5	179.3	193.6	230.8	276.8	298.5
65°	122.5	124.5	126.6	127.9	132.0	144.2	153.6	164.5	201.0	240.9	255.8
67.5°	103.5	105.6	109.0	110.3	113.7	121.8	129.9	140.8	171.2	205.1	218.6
70°	80.5	80.5	85.9	88.7	94.1	100.2	106.3	115.7	142.1	171.2	181.4
72.5°	65.6	66.3	67.0	67.0	71.7	81.9	85.3	91.4	112.3	140.1	148.9
75°	53.5	54.1	54.8	55.5	56.2	59.6	65.0	70.4	85.9	106.3	114.4
77.5°	42.6	43.3	44.0	44.0	45.3	46.7	48.1	50.8	61.6	76.5	83.2
80°	32.5	33.2	33.8	33.8	34.5	35.9	36.5	37.9	41.3	51.4	54.8
82.5°	23.7	23.7	23.7	24.4	25.0	25.0	26.4	26.4	28.4	31.1	33.2
85°	14.9	14.9	15.6	15.6	15.6	16.2	15.6	16.2	16.9	17.6	18.9
87.5°	6.8	6.1	6.8	6.8	6.8	7.4	7.4	7.4	7.4	8.1	8.1
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°	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6
2.5°	1686.5	1662.8	1622.9	1597.9	1588.4	1559.3	1531.5	1508.5	1497.0	1495.7	1474.7
5°	1719.7	1654.7	1572.1	1503.1	1486.9	1436.1	1370.5	1342.0	1304.8	1289.9	1272.3
7.5°	1746.7	1645.2	1523.4	1419.2	1388.7	1312.3	1228.3	1191.1	1162.7	1118.0	1091.6
10°	1765.7	1627.6	1463.9	1329.2	1285.9	1196.5	1095.0	1050.3	1024.0	972.5	951.5
12.5°	1773.1	1605.3	1404.3	1235.8	1197.9	1091.6	992.1	946.1	906.9	860.2	839.9
15°	1770.4	1579.6	1343.4	1149.8	1102.5	994.9	889.3	846.0	809.4	762.7	736.3
17.5°	1752.2	1543.0	1277.1	1066.6	1021.2	910.3	803.3	763.4	730.9	685.6	665.3
20°	1721.7	1505.8	1218.9	990.8	939.4	833.1	732.3	689.6	661.2	636.8	622.0
22.5°	1679.7	1461.8	1147.8	915.7	871.0	764.1	667.3	632.8	615.9	596.2	585.4
25°	1616.1	1409.0	1083.5	852.7	808.1	701.8	617.2	594.2	577.3	564.4	552.9
27.5°	1547.8	1358.3	1019.2	789.1	747.2	645.6	578.0	560.4	545.5	529.2	519.1
30°	1468.6	1294.7	958.3	732.9	692.3	600.3	544.1	527.9	515.7	498.1	488.0
32.5°	1375.2	1225.0	901.5	678.8	640.9	561.0	513.0	495.4	485.2	468.3	458.2
35°	1278.4	1155.2	839.2	628.7	594.2	526.5	482.5	465.6	454.8	437.9	427.7
37.5°	1183.7	1080.8	783.7	584.7	553.6	492.0	450.7	436.5	426.4	408.8	396.6
40°	1083.5	995.5	729.6	543.4	514.3	461.6	421.6	408.8	395.2	379.7	367.5
42.5°	978.6	920.4	679.5	506.9	479.8	431.8	392.5	379.0	367.5	349.2	343.8
45°	880.5	834.5	626.7	468.3	446.7	402.0	364.1	350.6	337.7	322.1	316.7
47.5°	793.2	750.5	578.6	434.5	412.8	372.9	335.7	321.5	312.0	299.8	291.7
50°	703.2	668.0	525.9	401.3	381.0	341.8	305.9	296.4	285.6	270.7	264.6
52.5°	619.2	592.2	482.5	369.5	350.6	315.4	278.8	269.4	259.2	246.3	237.5
55°	545.5	518.4	433.1	333.6	319.4	286.3	253.8	241.6	233.5	218.6	207.8
57.5°	469.7	456.8	385.8	303.9	290.3	257.2	228.1	218.6	208.4	192.2	181.4
60°	407.4	392.5	341.8	271.4	258.5	230.8	202.4	192.9	183.4	167.8	163.1
62.5°	348.5	337.7	299.1	240.9	230.1	203.0	178.0	169.2	159.7	149.6	146.2
65°	295.1	285.6	256.5	209.8	201.0	177.3	154.3	144.8	138.7	134.0	130.6
67.5°	245.0	239.6	217.2	180.7	173.9	153.0	132.6	125.2	121.8	116.4	113.7
70°	199.6	201.7	181.4	154.3	146.9	129.9	112.3	106.3	102.2	97.5	92.0
72.5°	163.1	162.4	150.2	125.9	120.5	106.9	93.4	89.3	84.6	75.1	69.0
75°	126.6	129.3	117.8	104.2	98.8	85.3	72.4	67.0	62.3	58.9	56.8
77.5°	96.8	98.1	92.7	79.9	75.1	63.6	53.5	50.8	48.7	46.7	46.0
80°	69.0	71.1	65.6	57.5	53.5	44.0	38.6	37.9	37.2	35.9	35.2
82.5°	44.7	47.4	44.7	35.9	33.8	29.1	27.7	27.7	27.1	26.4	25.7
85°	24.4	27.1	25.7	21.0	19.6	18.3	17.6	16.9	16.9	16.9	16.9
87.5°	9.5	12.9	10.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
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°	1650.6	1650.6	1650.6
2.5°	1469.9	1463.2	1460.5
5°	1267.6	1246.6	1241.9
7.5°	1083.5	1074.7	1045.6
10°	948.2	921.1	908.9
12.5°	826.3	801.3	797.2
15°	728.9	711.3	705.2
17.5°	664.6	652.4	645.0
20°	617.2	608.4	603.0
22.5°	581.3	574.6	570.5
25°	549.5	539.4	536.0
27.5°	517.1	508.3	504.9
30°	486.6	479.2	474.4
32.5°	454.8	446.0	443.3
35°	424.3	418.9	416.2
37.5°	394.6	387.8	383.7
40°	366.8	363.4	361.4
42.5°	341.8	335.7	335.0
45°	315.4	309.3	307.9
47.5°	290.3	284.9	284.2
50°	263.9	256.5	251.1
52.5°	232.1	225.4	220.6
55°	203.7	196.3	192.2
57.5°	180.0	176.6	174.6
60°	161.7	159.7	158.4
62.5°	145.5	143.5	143.5
65°	130.6	128.6	126.6
67.5°	112.3	108.3	107.6
70°	90.0	83.9	83.2
72.5°	68.4	67.7	66.3
75°	56.8	55.5	55.5
77.5°	46.0	44.7	44.7
80°	35.2	34.5	35.2
82.5°	25.7	25.7	25.0
85°	16.9	16.2	16.2
87.5°	8.1	8.1	8.1
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	15.09	16.54	15.45	16.86	17.17	20.18	21.64	20.55	21.95	22.27
	3H	16.42	17.72	16.80	18.05	18.42	21.46	22.76	21.84	23.09	23.45
	4H	16.82	18.04	17.22	18.39	18.77	21.91	23.13	22.31	23.47	23.85
	6H	17.13	18.25	17.54	18.62	19.01	22.20	23.33	22.61	23.69	24.09
	8H	17.23	18.30	17.66	18.69	19.09	22.28	23.35	22.70	23.74	24.14
	12H	17.30	18.32	17.73	18.70	19.13	22.32	23.34	22.75	23.72	24.15
4H	2H	15.94	17.16	16.34	17.51	17.89	20.22	21.44	20.62	21.79	22.17
	3H	17.41	18.42	17.82	18.82	19.22	21.71	22.72	22.12	23.12	23.52
	4H	17.88	18.78	18.31	19.20	19.64	22.27	23.18	22.70	23.59	24.03
	6H	18.26	19.05	18.72	19.49	19.96	22.71	23.49	23.17	23.94	24.40
	8H	18.39	19.13	18.86	19.57	20.04	22.83	23.56	23.29	24.01	24.48
	12H	18.49	19.15	18.98	19.63	20.10	22.90	23.56	23.39	24.04	24.51
8H	4H	18.26	19.00	18.73	19.44	19.91	22.27	23.01	22.74	23.45	23.92
	6H	18.73	19.34	19.23	19.83	20.31	22.76	23.37	23.26	23.86	24.34
	8H	18.92	19.46	19.43	19.97	20.46	22.93	23.47	23.44	23.98	24.47
	12H	19.08	19.55	19.59	20.05	20.61	23.06	23.53	23.57	24.03	24.59
12H	4H	18.31	18.96	18.79	19.44	19.92	22.25	22.91	22.73	23.39	23.86
	6H	18.80	19.34	19.31	19.85	20.34	22.74	23.28	23.25	23.79	24.28
	8H	19.03	19.51	19.54	20.00	20.57	22.93	23.41	23.44	23.90	24.47