

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: P646617

Luminaire Tested: S123DRP-S1000D927-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646617  
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-S1000D927-X4F0-XX-UDD-G-W  
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 2700K CCT, 90 CRI LEDS  
Ballast/Driver: -

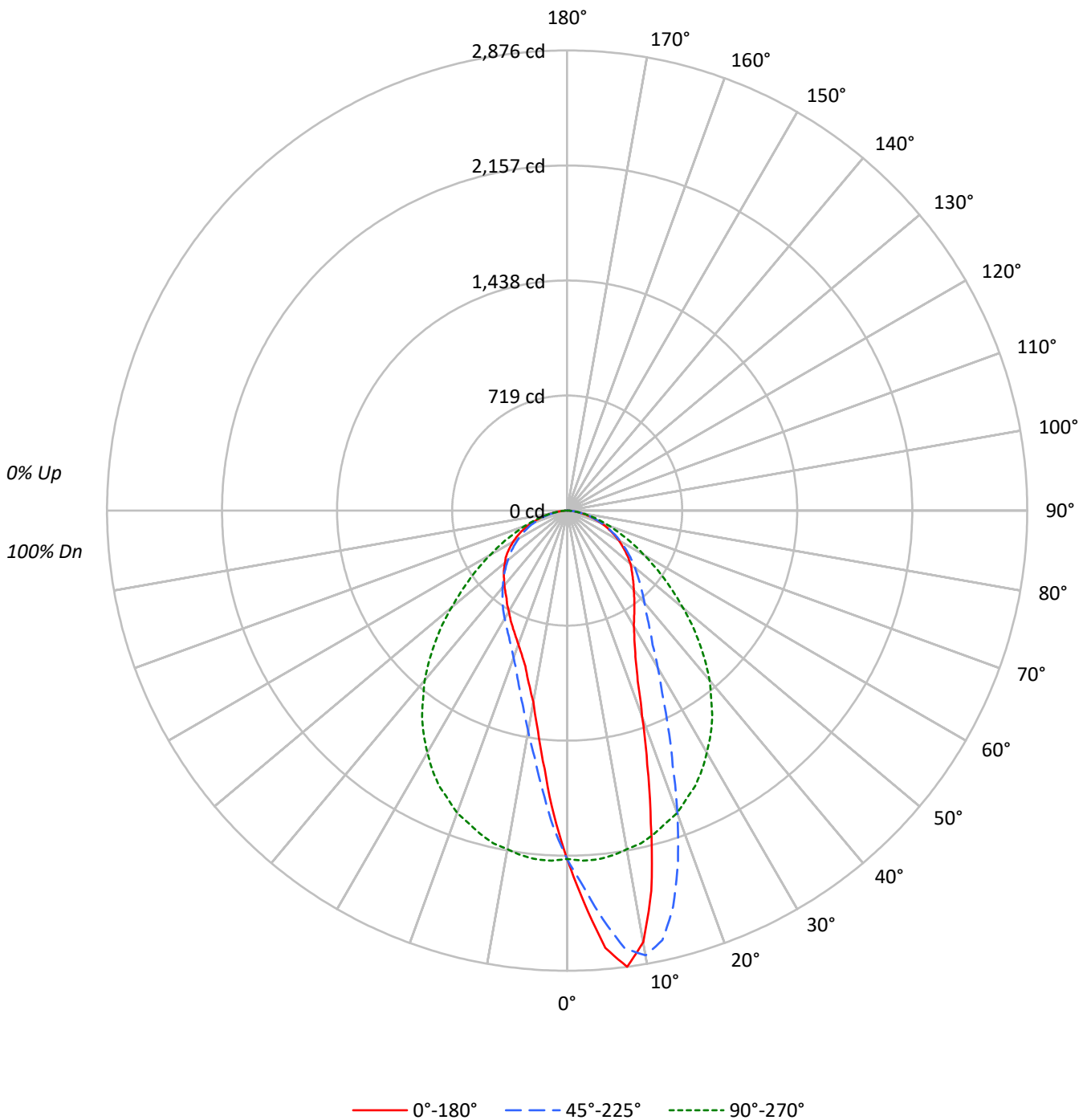
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3497.9 lumens  
Efficiency: N/A  
Efficacy: 101.4 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): 34.5  
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	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88					86				
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76					74				
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66					64				
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58					56				
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52					50				
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47					45				
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42					40				
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39					37				
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35					34				
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33					31				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	26231	26231	26231	26231	26231
5°	33175	31024	26467	21225	19599
10°	33496	34535	26291	17144	14857
15°	25229	31958	26111	14367	12564
20°	17578	25842	25778	12526	11412
25°	13404	19824	25210	11483	10705
30°	11595	15757	24302	10851	10134
35°	10758	13196	23255	10342	9733
40°	10186	11806	21785	9868	9598
45°	9846	10965	19916	9450	9537
50°	9676	10359	17707	9090	9487
55°	9317	9783	15535	8764	9529
60°	8984	9251	13389	8446	9372
65°	8439	8670	11550	8094	9189
70°	7793	8043	9822	7652	8649
75°	7053	7290	8417	7006	7900
80°	5815	6238	6661	6099	6661
85°	4604	5032	4894	5309	5309

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 22740 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	205.8	5.9
10°-20°	512.1	14.6
20°-30°	606.2	17.3
30°-40°	609.2	17.4
40°-50°	558.7	16.0
50°-60°	461.1	13.2
60°-70°	326.3	9.3
70°-80°	174.3	5.0
80°-90°	44.2	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°	1324.1	37.9
0°-40°	1933.3	55.3
0°-60°	2953.1	84.4
0°-90°	3497.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3497.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2177	2177	2177	2177	2177	
5°	2743	2565	2188	1755	1620	261
15°	2022	2562	2093	1152	1007	559
25°	1008	1491	1896	864	805	476
35°	731	897	1581	703	662	460
45°	578	644	1169	555	560	447
55°	444	466	740	417	454	397
65°	296	304	405	284	322	294
75°	152	157	181	150	170	159
85°	33	36	35	38	38	39
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°	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0
2.5°	2453.8	2448.8	2423.5	2407.4	2411.4	2375.0	2352.8	2334.6	2322.5	2293.2	2278.1
5°	2742.8	2756.9	2740.7	2732.7	2691.2	2625.6	2565.0	2551.8	2495.3	2425.6	2401.3
7.5°	2876.1	2884.2	2874.1	2874.1	2861.0	2802.4	2759.9	2726.6	2629.6	2539.7	2498.3
10°	2737.7	2755.9	2795.3	2813.5	2839.7	2831.7	2822.6	2809.4	2743.8	2639.7	2592.2
12.5°	2433.6	2455.9	2534.7	2545.8	2635.7	2722.6	2750.8	2783.2	2789.2	2701.3	2649.8
15°	2022.5	2084.1	2155.8	2190.2	2304.3	2487.2	2561.9	2649.8	2753.9	2717.5	2677.1
17.5°	1665.9	1689.1	1765.9	1838.6	1952.8	2163.9	2302.3	2433.6	2656.9	2693.3	2668.0
20°	1370.9	1392.1	1493.1	1488.1	1639.6	1877.0	2015.4	2166.9	2496.3	2614.5	2609.4
22.5°	1151.7	1185.0	1241.6	1272.9	1382.0	1593.1	1724.5	1913.4	2313.4	2500.3	2520.5
25°	1008.2	1032.5	1066.8	1094.1	1178.9	1352.7	1491.1	1646.7	2083.1	2350.8	2401.3
27.5°	910.2	920.3	954.7	970.8	1027.4	1176.9	1284.0	1426.4	1869.9	2183.1	2253.8
30°	833.4	840.5	870.8	875.9	920.3	1028.4	1132.5	1248.6	1661.8	2010.4	2091.2
32.5°	779.9	784.9	808.2	810.2	843.5	922.3	995.1	1104.2	1464.8	1825.5	1925.5
35°	731.4	734.4	751.6	756.7	777.9	837.5	897.1	980.9	1308.2	1658.8	1768.9
37.5°	689.0	693.0	703.1	709.2	726.4	773.8	814.2	883.9	1157.7	1485.0	1607.3
40°	647.6	654.6	661.7	661.7	680.9	717.3	750.6	808.2	1028.4	1333.5	1441.6
42.5°	612.2	619.3	622.3	623.3	633.4	666.7	695.0	734.4	930.4	1199.1	1305.2
45°	577.8	580.9	583.9	585.9	593.0	622.3	643.5	680.9	837.5	1074.9	1177.9
47.5°	546.5	546.5	548.6	551.6	556.6	577.8	596.0	623.3	757.7	963.8	1048.6
50°	516.2	516.2	513.2	515.2	518.2	534.4	552.6	574.8	682.9	861.7	937.5
52.5°	479.9	479.9	480.9	477.8	480.9	495.0	509.2	531.4	619.3	767.8	832.4
55°	443.5	447.5	444.5	442.5	446.5	455.6	465.7	484.9	559.7	693.0	744.5
57.5°	407.1	409.1	408.1	411.2	409.1	417.2	426.3	439.4	506.1	609.2	657.7
60°	372.8	372.8	370.8	372.8	372.8	376.8	383.9	397.0	451.6	537.4	577.8
62.5°	334.4	335.4	336.4	335.4	334.4	339.4	345.5	354.6	404.1	467.7	498.0
65°	296.0	297.0	300.0	299.0	298.0	303.1	304.1	314.2	351.6	406.1	428.3
67.5°	261.6	259.6	260.6	262.7	263.7	264.7	266.7	276.8	303.1	347.5	365.7
70°	221.2	223.3	222.2	225.3	223.3	226.3	228.3	235.4	260.6	289.9	302.1
72.5°	184.9	185.9	185.9	188.9	187.9	190.9	193.0	196.0	214.2	240.4	245.5
75°	151.5	151.5	153.6	154.6	154.6	154.6	156.6	158.6	173.8	189.9	195.0
77.5°	115.2	120.2	119.2	120.2	121.2	124.3	122.2	126.3	135.4	144.5	147.5
80°	83.8	83.8	84.9	85.9	87.9	89.9	89.9	94.0	98.0	103.0	106.1
82.5°	53.5	54.6	57.6	58.6	59.6	62.6	62.6	62.6	67.7	69.7	69.7
85°	33.3	31.3	33.3	34.3	35.4	36.4	36.4	38.4	39.4	40.4	40.4
87.5°	16.2	16.2	16.2	16.2	17.2	17.2	17.2	17.2	18.2	18.2	18.2
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°	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0	2177.0
2.5°	2227.6	2190.2	2134.6	2089.1	2091.2	2049.8	2019.4	1980.0	1967.9	1955.8	1939.6
5°	2274.0	2188.2	2073.0	1981.1	1952.8	1884.1	1797.2	1754.8	1729.5	1685.1	1667.9
7.5°	2331.6	2174.0	1998.2	1854.8	1823.5	1709.3	1606.3	1555.7	1508.3	1477.0	1438.6
10°	2369.0	2148.8	1922.5	1732.5	1702.2	1571.9	1437.6	1401.2	1341.6	1303.2	1266.8
12.5°	2397.3	2129.6	1844.7	1623.4	1573.9	1447.7	1312.3	1262.8	1219.3	1163.8	1137.5
15°	2422.5	2093.2	1764.9	1509.3	1457.8	1321.4	1196.1	1151.7	1112.3	1063.8	1040.5
17.5°	2413.4	2048.7	1677.0	1408.3	1356.7	1222.4	1102.2	1051.6	1025.4	983.0	966.8
20°	2402.3	2010.4	1594.1	1312.3	1255.7	1130.4	1013.3	976.9	950.6	923.3	909.2
22.5°	2367.0	1949.7	1510.3	1224.4	1170.9	1045.6	945.6	915.3	895.1	875.9	863.7
25°	2307.4	1896.2	1428.5	1136.5	1094.1	976.9	892.0	863.7	850.6	831.4	820.3
27.5°	2233.6	1825.5	1346.6	1064.8	1016.3	912.2	839.5	821.3	807.2	792.0	780.9
30°	2140.7	1746.7	1266.8	995.1	950.6	858.7	796.1	779.9	766.8	751.6	738.5
32.5°	2022.5	1666.9	1192.1	930.4	893.0	813.2	755.6	742.5	731.4	713.2	706.1
35°	1890.1	1581.0	1118.3	868.8	833.4	763.7	716.3	703.1	692.0	676.9	670.8
37.5°	1755.8	1479.0	1045.6	816.3	784.9	722.3	676.9	663.7	653.6	640.5	637.5
40°	1613.3	1385.0	973.9	762.7	735.4	681.9	637.5	627.4	617.2	609.2	607.1
42.5°	1469.9	1276.9	911.2	718.3	689.0	639.5	599.1	588.0	581.9	577.8	578.9
45°	1334.5	1168.8	846.6	666.7	646.5	601.1	563.7	554.6	549.6	546.5	550.6
47.5°	1188.0	1058.7	786.0	623.3	603.1	562.7	527.3	519.3	517.2	516.2	523.3
50°	1058.7	944.6	720.3	578.9	561.7	520.3	492.0	484.9	482.9	485.9	496.0
52.5°	936.5	838.5	660.7	537.4	520.3	482.9	456.6	451.6	450.6	457.6	467.7
55°	815.3	739.5	596.0	492.0	474.8	442.5	422.3	417.2	416.2	430.4	439.4
57.5°	712.2	643.5	535.4	448.5	435.4	405.1	386.9	382.9	385.9	399.0	408.1
60°	611.2	555.6	479.9	402.1	392.0	365.7	351.6	350.5	353.6	368.7	377.8
62.5°	520.3	477.8	420.3	359.6	352.6	329.3	316.2	318.2	321.3	336.4	344.5
65°	442.5	405.1	361.7	317.2	308.1	292.0	282.9	283.9	289.9	303.1	311.1
67.5°	366.7	336.4	312.2	276.8	269.7	255.6	248.5	252.6	255.6	268.7	276.8
70°	303.1	278.8	260.6	234.4	229.3	217.2	212.1	217.2	220.2	231.3	241.4
72.5°	243.5	228.3	214.2	195.0	189.9	181.8	180.8	182.9	187.9	199.0	203.1
75°	188.9	180.8	168.7	156.6	153.6	149.5	148.5	150.5	155.6	161.6	165.7
77.5°	143.5	136.4	127.3	122.2	118.2	116.2	117.2	120.2	122.2	128.3	131.3
80°	104.1	96.0	94.0	86.9	85.9	84.9	86.9	87.9	90.9	95.0	97.0
82.5°	68.7	62.6	60.6	59.6	58.6	57.6	60.6	61.6	63.6	66.7	67.7
85°	37.4	35.4	35.4	34.3	35.4	37.4	37.4	38.4	38.4	39.4	38.4
87.5°	17.2	15.2	16.2	16.2	16.2	17.2	17.2	18.2	18.2	18.2	17.2
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):**

	160°	170°	180°
0°	2177.0	2177.0	2177.0
2.5°	1938.6	1931.6	1903.3
5°	1652.7	1628.5	1620.4
7.5°	1434.5	1432.5	1390.1
10°	1249.7	1252.7	1214.3
12.5°	1133.5	1108.2	1105.2
15°	1034.5	1011.2	1007.2
17.5°	960.7	946.6	942.5
20°	905.2	897.1	890.0
22.5°	860.7	850.6	844.5
25°	816.3	807.2	805.2
27.5°	777.9	766.8	766.8
30°	738.5	731.4	728.4
32.5°	703.1	697.1	697.1
35°	668.8	665.7	661.7
37.5°	637.5	637.5	635.4
40°	607.1	610.2	610.2
42.5°	580.9	583.9	583.9
45°	552.6	557.6	559.7
47.5°	524.3	532.4	534.4
50°	499.1	505.1	506.1
52.5°	471.8	478.8	483.9
55°	443.5	450.6	453.6
57.5°	413.2	420.3	421.3
60°	379.8	386.9	388.9
62.5°	349.5	353.6	355.6
65°	312.2	318.2	322.3
67.5°	277.8	282.9	282.9
70°	240.4	242.5	245.5
72.5°	205.1	206.1	206.1
75°	166.7	168.7	169.7
77.5°	131.3	132.3	132.3
80°	97.0	96.0	96.0
82.5°	67.7	64.7	64.7
85°	38.4	37.4	38.4
87.5°	17.2	17.2	17.2
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	18.84	20.35	19.21	20.66	20.98	21.29	22.80	21.66	23.11	23.43
	3H	20.53	21.89	20.91	22.21	22.58	22.51	23.86	22.88	24.19	24.55
	4H	21.13	22.41	21.53	22.75	23.13	22.93	24.20	23.33	24.55	24.93
	6H	21.54	22.71	21.95	23.08	23.47	23.20	24.38	23.61	24.74	25.13
	8H	21.64	22.76	22.07	23.15	23.55	23.27	24.39	23.70	24.78	25.18
	12H	21.70	22.77	22.13	23.15	23.58	23.30	24.37	23.73	24.76	25.19
4H	2H	19.49	20.76	19.89	21.11	21.49	21.51	22.79	21.91	23.13	23.51
	3H	21.37	22.43	21.78	22.83	23.23	23.00	24.05	23.41	24.45	24.86
	4H	22.09	23.05	22.53	23.46	23.90	23.56	24.52	23.99	24.93	25.37
	6H	22.61	23.43	23.06	23.88	24.34	23.96	24.79	24.41	25.23	25.69
	8H	22.74	23.52	23.21	23.96	24.43	24.06	24.84	24.53	25.28	25.75
	12H	22.83	23.52	23.31	24.00	24.47	24.13	24.82	24.61	25.30	25.77
8H	4H	22.42	23.19	22.88	23.64	24.10	23.73	24.50	24.19	24.95	25.41
	6H	23.03	23.67	23.53	24.16	24.64	24.22	24.86	24.72	25.35	25.83
	8H	23.23	23.80	23.74	24.31	24.80	24.38	24.95	24.90	25.46	25.95
	12H	23.37	23.88	23.88	24.37	24.94	24.50	25.01	25.01	25.50	26.06
12H	4H	22.45	23.14	22.93	23.62	24.09	23.73	24.42	24.21	24.90	25.37
	6H	23.08	23.66	23.60	24.17	24.66	24.24	24.81	24.75	25.32	25.81
	8H	23.33	23.84	23.84	24.33	24.90	24.45	24.95	24.96	25.45	26.01