

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: P646620

Luminaire Tested: S123DRP-S1000D940-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646620  
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-S1000D940-X4F0-XX-UDD-G-W  
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 4000K CCT, 90 CRI LEDS  
Ballast/Driver: -

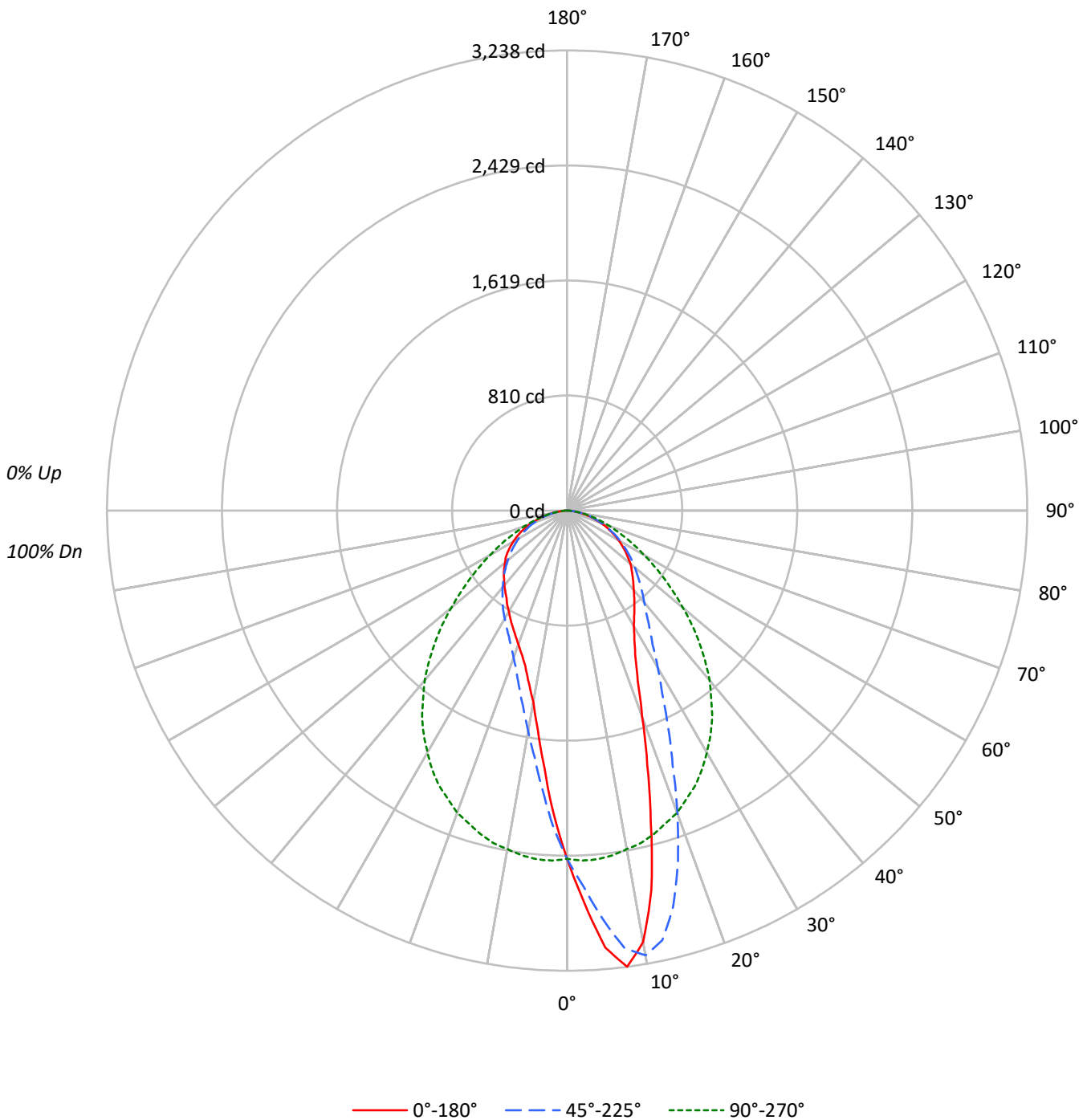
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3937.4 lumens  
Efficiency: N/A  
Efficacy: 114.1 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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CATALOG NUMBER: S123DRP-S1000D940-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°	29528	29528	29528	29528	29528
5°	37343	34921	29792	23890	22062
10°	37705	38873	29593	19297	16724
15°	28399	35973	29392	16172	14142
20°	19786	29089	29016	14100	12846
25°	15088	22314	28376	12927	12049
30°	13053	17735	27355	12214	11407
35°	12110	14853	26177	11642	10956
40°	11465	13290	24522	11108	10803
45°	11085	12344	22420	10638	10735
50°	10893	11660	19930	10231	10679
55°	10487	11012	17486	9865	10726
60°	10112	10413	15071	9509	10550
65°	9500	9759	13001	9109	10344
70°	8772	9054	11059	8614	9734
75°	7942	8208	9478	7886	8892
80°	6550	7022	7494	6863	7494
85°	5184	5654	5502	5972	5972

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 25598 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	231.7	5.9
10°-20°	576.4	14.6
20°-30°	682.3	17.3
30°-40°	685.7	17.4
40°-50°	628.9	16.0
50°-60°	519.1	13.2
60°-70°	367.3	9.3
70°-80°	196.2	5.0
80°-90°	49.8	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°	1490.5	37.9
0°-40°	2176.2	55.3
0°-60°	3324.1	84.4
0°-90°	3937.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3937.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2451	2451	2451	2451	2451	
5°	3087	2887	2463	1975	1824	294
15°	2277	2884	2356	1296	1134	629
25°	1135	1678	2134	972	906	536
35°	823	1010	1780	792	745	517
45°	650	724	1316	624	630	504
55°	499	524	832	470	511	447
65°	333	342	456	320	363	331
75°	171	176	204	169	191	179
85°	38	41	40	43	43	44
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°	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6
2.5°	2762.1	2756.5	2728.0	2709.8	2714.4	2673.4	2648.4	2628.0	2614.3	2581.3	2564.3
5°	3087.4	3103.3	3085.1	3076.0	3029.4	2955.5	2887.2	2872.4	2808.8	2730.3	2703.0
7.5°	3237.5	3246.6	3235.2	3235.2	3220.4	3154.5	3106.7	3069.2	2960.0	2858.8	2812.2
10°	3081.7	3102.1	3146.5	3167.0	3196.5	3187.4	3177.2	3162.4	3088.5	2971.4	2917.9
12.5°	2739.4	2764.4	2853.1	2865.6	2966.8	3064.6	3096.5	3132.9	3139.7	3040.7	2982.7
15°	2276.6	2345.9	2426.7	2465.3	2593.8	2799.7	2883.8	2982.7	3099.9	3058.9	3013.5
17.5°	1875.2	1901.3	1987.7	2069.6	2198.1	2435.8	2591.6	2739.4	2990.7	3031.6	3003.2
20°	1543.1	1567.0	1680.7	1675.0	1845.6	2112.8	2268.6	2439.2	2809.9	2942.9	2937.3
22.5°	1296.4	1333.9	1397.6	1432.8	1555.6	1793.3	1941.1	2153.8	2604.1	2814.5	2837.2
25°	1134.9	1162.2	1200.8	1231.5	1327.1	1522.6	1678.4	1853.6	2344.8	2646.2	2703.0
27.5°	1024.6	1035.9	1074.6	1092.8	1156.5	1324.8	1445.3	1605.7	2104.9	2457.4	2537.0
30°	938.2	946.1	980.2	985.9	1035.9	1157.6	1274.7	1405.5	1870.6	2262.9	2353.9
32.5°	877.9	883.6	909.7	912.0	949.5	1038.2	1120.1	1242.9	1648.9	2054.8	2167.4
35°	823.3	826.7	846.0	851.7	875.6	942.7	1009.8	1104.2	1472.6	1867.2	1991.2
37.5°	775.5	780.1	791.5	798.3	817.6	871.1	916.5	995.0	1303.2	1671.6	1809.2
40°	728.9	736.9	744.8	744.8	766.4	807.4	844.9	909.7	1157.6	1501.0	1622.7
42.5°	689.1	697.1	700.5	701.6	713.0	750.5	782.4	826.7	1047.3	1349.8	1469.2
45°	650.5	653.9	657.3	659.5	667.5	700.5	724.4	766.4	942.7	1209.9	1325.9
47.5°	615.2	615.2	617.5	620.9	626.6	650.5	670.9	701.6	852.9	1084.8	1180.4
50°	581.1	581.1	577.7	579.9	583.4	601.6	622.0	647.0	768.7	970.0	1055.3
52.5°	540.1	540.1	541.3	537.9	541.3	557.2	573.1	598.1	697.1	864.2	937.0
55°	499.2	503.8	500.3	498.1	502.6	512.9	524.2	545.8	630.0	780.1	838.1
57.5°	458.3	460.5	459.4	462.8	460.5	469.6	479.9	494.7	569.7	685.7	740.3
60°	419.6	419.6	417.3	419.6	419.6	424.2	432.1	446.9	508.3	605.0	650.5
62.5°	376.4	377.5	378.7	377.5	376.4	382.1	388.9	399.1	454.9	526.5	560.6
65°	333.2	334.3	337.7	336.6	335.5	341.1	342.3	353.7	395.7	457.1	482.2
67.5°	294.5	292.2	293.4	295.7	296.8	297.9	300.2	311.6	341.1	391.2	411.6
70°	249.0	251.3	250.2	253.6	251.3	254.7	257.0	265.0	293.4	326.4	340.0
72.5°	208.1	209.2	209.2	212.6	211.5	214.9	217.2	220.6	241.1	270.6	276.3
75°	170.6	170.6	172.8	174.0	174.0	174.0	176.3	178.5	195.6	213.8	219.5
77.5°	129.6	135.3	134.2	135.3	136.5	139.9	137.6	142.1	152.4	162.6	166.0
80°	94.4	94.4	95.5	96.7	98.9	101.2	101.2	105.8	110.3	116.0	119.4
82.5°	60.3	61.4	64.8	66.0	67.1	70.5	70.5	70.5	76.2	78.5	78.5
85°	37.5	35.3	37.5	38.7	39.8	40.9	40.9	43.2	44.3	45.5	45.5
87.5°	18.2	18.2	18.2	18.2	19.3	19.3	19.3	19.3	20.5	20.5	20.5
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):**

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6	2450.6
2.5°	2507.4	2465.3	2402.8	2351.6	2353.9	2307.3	2273.2	2228.8	2215.2	2201.5	2183.3
5°	2559.7	2463.1	2333.4	2230.0	2198.1	2120.8	2023.0	1975.2	1946.8	1896.8	1877.4
7.5°	2624.5	2447.2	2249.3	2087.8	2052.6	1924.1	1808.1	1751.2	1697.8	1662.5	1619.3
10°	2666.6	2418.7	2164.0	1950.2	1916.1	1769.4	1618.2	1577.2	1510.1	1466.9	1426.0
12.5°	2698.5	2397.1	2076.4	1827.4	1771.7	1629.5	1477.2	1421.4	1372.5	1310.0	1280.4
15°	2726.9	2356.2	1986.6	1698.9	1640.9	1487.4	1346.4	1296.4	1252.0	1197.4	1171.3
17.5°	2716.7	2306.1	1887.7	1585.2	1527.2	1376.0	1240.6	1183.8	1154.2	1106.4	1088.3
20°	2704.1	2262.9	1794.4	1477.2	1413.5	1272.5	1140.6	1099.6	1070.1	1039.4	1023.4
22.5°	2664.3	2194.7	1700.0	1378.2	1318.0	1177.0	1064.4	1030.3	1007.5	985.9	972.3
25°	2597.3	2134.4	1607.9	1279.3	1231.5	1099.6	1004.1	972.3	957.5	935.9	923.4
27.5°	2514.2	2054.8	1515.8	1198.6	1144.0	1026.8	945.0	924.5	908.6	891.5	879.0
30°	2409.6	1966.1	1426.0	1120.1	1070.1	966.6	896.1	877.9	863.1	846.0	831.3
32.5°	2276.6	1876.3	1341.8	1047.3	1005.2	915.4	850.6	835.8	823.3	802.8	794.9
35°	2127.6	1779.6	1258.8	978.0	938.2	859.7	806.2	791.5	778.9	761.9	755.1
37.5°	1976.4	1664.8	1177.0	918.8	883.6	813.1	761.9	747.1	735.7	721.0	717.5
40°	1816.0	1559.0	1096.2	858.5	827.8	767.6	717.5	706.2	694.8	685.7	683.4
42.5°	1654.6	1437.4	1025.7	808.5	775.5	719.8	674.3	661.8	655.0	650.5	651.6
45°	1502.2	1315.7	952.9	750.5	727.8	676.6	634.5	624.3	618.6	615.2	619.7
47.5°	1337.3	1191.7	884.7	701.6	678.9	633.4	593.6	584.5	582.2	581.1	589.0
50°	1191.7	1063.2	810.8	651.6	632.3	585.6	553.8	545.8	543.6	547.0	558.3
52.5°	1054.1	943.8	743.7	605.0	585.6	543.6	514.0	508.3	507.2	515.1	526.5
55°	917.7	832.4	670.9	553.8	534.5	498.1	475.3	469.6	468.5	484.4	494.7
57.5°	801.7	724.4	602.7	504.9	490.1	456.0	435.5	431.0	434.4	449.2	459.4
60°	688.0	625.4	540.1	452.6	441.2	411.6	395.7	394.6	398.0	415.1	425.3
62.5°	585.6	537.9	473.1	404.8	396.9	370.7	355.9	358.2	361.6	378.7	387.8
65°	498.1	456.0	407.1	357.1	346.8	328.6	318.4	319.5	326.4	341.1	350.2
67.5°	412.8	378.7	351.4	311.6	303.6	287.7	279.7	284.3	287.7	302.5	311.6
70°	341.1	313.9	293.4	263.8	258.1	244.5	238.8	244.5	247.9	260.4	271.8
72.5°	274.1	257.0	241.1	219.5	213.8	204.7	203.6	205.8	211.5	224.0	228.6
75°	212.6	203.6	189.9	176.3	172.8	168.3	167.2	169.4	175.1	181.9	186.5
77.5°	161.5	153.5	143.3	137.6	133.0	130.8	131.9	135.3	137.6	144.4	147.8
80°	117.1	108.0	105.8	97.8	96.7	95.5	97.8	98.9	102.3	106.9	109.2
82.5°	77.3	70.5	68.2	67.1	66.0	64.8	68.2	69.4	71.6	75.1	76.2
85°	42.1	39.8	39.8	38.7	39.8	42.1	42.1	43.2	43.2	44.3	43.2
87.5°	19.3	17.1	18.2	18.2	18.2	19.3	19.3	20.5	20.5	20.5	19.3
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°	2450.6	2450.6	2450.6
2.5°	2182.2	2174.2	2142.4
5°	1860.4	1833.1	1824.0
7.5°	1614.8	1612.5	1564.7
10°	1406.7	1410.1	1366.9
12.5°	1275.9	1247.5	1244.0
15°	1164.4	1138.3	1133.7
17.5°	1081.4	1065.5	1061.0
20°	1018.9	1009.8	1001.8
22.5°	968.9	957.5	950.7
25°	918.8	908.6	906.3
27.5°	875.6	863.1	863.1
30°	831.3	823.3	819.9
32.5°	791.5	784.6	784.6
35°	752.8	749.4	744.8
37.5°	717.5	717.5	715.3
40°	683.4	686.8	686.8
42.5°	653.9	657.3	657.3
45°	622.0	627.7	630.0
47.5°	590.2	599.3	601.6
50°	561.8	568.6	569.7
52.5°	531.0	539.0	544.7
55°	499.2	507.2	510.6
57.5°	465.1	473.1	474.2
60°	427.6	435.5	437.8
62.5°	393.5	398.0	400.3
65°	351.4	358.2	362.8
67.5°	312.7	318.4	318.4
70°	270.6	272.9	276.3
72.5°	230.8	232.0	232.0
75°	187.6	189.9	191.0
77.5°	147.8	149.0	149.0
80°	109.2	108.0	108.0
82.5°	76.2	72.8	72.8
85°	43.2	42.1	43.2
87.5°	19.3	19.3	19.3
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	19.25	20.76	19.62	21.07	21.39	21.70	23.21	22.07	23.53	23.84
	3H	20.94	22.30	21.32	22.63	22.99	22.92	24.27	23.30	24.60	24.96
	4H	21.54	22.82	21.94	23.17	23.54	23.34	24.61	23.74	24.96	25.34
	6H	21.95	23.12	22.36	23.49	23.88	23.61	24.79	24.02	25.15	25.55
	8H	22.05	23.17	22.48	23.56	23.96	23.68	24.80	24.11	25.19	25.59
	12H	22.11	23.18	22.54	23.56	23.99	23.72	24.79	24.15	25.17	25.60
4H	2H	19.90	21.17	20.30	21.52	21.90	21.93	23.20	22.32	23.55	23.92
	3H	21.78	22.84	22.19	23.24	23.64	23.41	24.47	23.82	24.87	25.27
	4H	22.50	23.46	22.94	23.87	24.31	23.97	24.93	24.41	25.34	25.78
	6H	23.02	23.85	23.47	24.29	24.75	24.37	25.20	24.83	25.64	26.10
	8H	23.15	23.93	23.62	24.37	24.84	24.47	25.25	24.94	25.69	26.16
	12H	23.24	23.93	23.72	24.41	24.88	24.54	25.23	25.02	25.71	26.18
8H	4H	22.83	23.60	23.29	24.05	24.52	24.14	24.91	24.60	25.36	25.83
	6H	23.44	24.08	23.94	24.57	25.05	24.63	25.27	25.13	25.76	26.24
	8H	23.64	24.21	24.15	24.72	25.21	24.79	25.37	25.31	25.88	26.36
	12H	23.78	24.29	24.29	24.78	25.35	24.91	25.42	25.42	25.91	26.47
12H	4H	22.86	23.55	23.34	24.03	24.50	24.14	24.84	24.63	25.31	25.79
	6H	23.50	24.07	24.01	24.58	25.07	24.65	25.22	25.16	25.73	26.22
	8H	23.75	24.25	24.26	24.74	25.31	24.86	25.37	25.37	25.86	26.42