

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: P646613

Luminaire Tested: S123DRP-S1000D830-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646613
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-S1000D830-X4F0-XX-UDD-G-W
Description: DEFINE 3 DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC
STANDARD LIGHT ENGINE
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

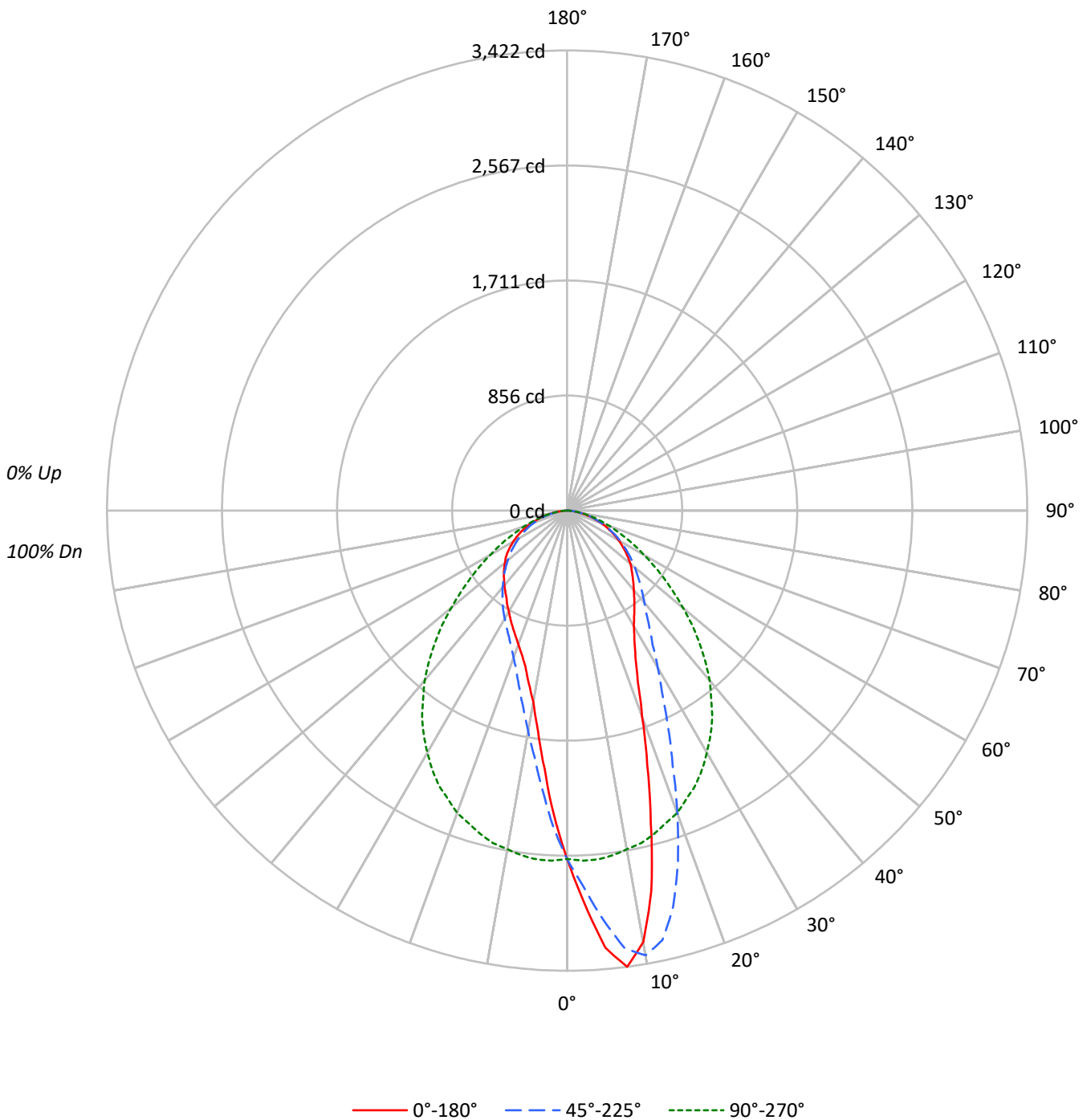
Lumens per Lamp: N/A
Luminaire Lumens: 4161.8 lumens
Efficiency: N/A
Efficacy: 120.6 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

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					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°	31211	31211	31211	31211	31211
5°	39471	36912	31490	25252	23320
10°	39854	41089	31280	20397	17677
15°	30018	38024	31067	17093	14949
20°	20915	30747	30670	14904	13578
25°	15948	23586	29994	13663	12736
30°	13796	18747	28914	12910	12057
35°	12800	15701	27670	12306	11581
40°	12119	14048	25920	11740	11419
45°	11715	13048	23698	11245	11347
50°	11513	12325	21066	10814	11288
55°	11085	11640	18482	10428	11338
60°	10688	11008	15931	10051	11153
65°	10041	10315	13742	9631	10931
70°	9272	9568	11686	9103	10291
75°	8394	8673	10019	8338	9399
80°	6925	7425	7924	7258	7924
85°	5488	5986	5820	6318	6318

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 27056 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	244.9	5.9
10°-20°	609.3	14.6
20°-30°	721.2	17.3
30°-40°	724.8	17.4
40°-50°	664.7	16.0
50°-60°	548.7	13.2
60°-70°	388.2	9.3
70°-80°	207.3	5.0
80°-90°	52.6	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°	1575.4	37.9
0°-40°	2300.3	55.3
0°-60°	3513.6	84.4
0°-90°	4161.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4161.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2590	2590	2590	2590	2590	
5°	3263	3052	2604	2088	1928	311
15°	2406	3048	2490	1370	1198	665
25°	1200	1774	2256	1028	958	566
35°	870	1067	1881	837	787	547
45°	688	766	1391	660	666	532
55°	528	554	880	496	540	472
65°	352	362	482	338	383	350
75°	180	186	215	179	202	189
85°	40	43	42	46	46	47
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°	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3
2.5°	2919.6	2913.6	2883.5	2864.3	2869.1	2825.8	2799.4	2777.8	2763.3	2728.5	2710.5
5°	3263.4	3280.2	3261.0	3251.3	3202.1	3123.9	3051.8	3036.2	2968.9	2885.9	2857.1
7.5°	3422.0	3431.6	3419.6	3419.6	3404.0	3334.3	3283.8	3244.1	3128.7	3021.8	2972.5
10°	3257.4	3279.0	3325.9	3347.5	3378.8	3369.1	3358.3	3342.7	3264.6	3140.8	3084.3
12.5°	2895.6	2922.0	3015.8	3029.0	3136.0	3239.3	3273.0	3311.4	3318.7	3214.1	3152.8
15°	2406.4	2479.7	2565.0	2605.9	2741.7	2959.3	3048.2	3152.8	3276.6	3233.3	3185.2
17.5°	1982.1	2009.7	2101.1	2187.6	2323.4	2574.6	2739.3	2895.6	3161.2	3204.5	3174.4
20°	1631.1	1656.3	1776.5	1770.5	1950.8	2233.3	2397.9	2578.2	2970.1	3110.7	3104.7
22.5°	1370.3	1409.9	1477.2	1514.5	1644.3	1895.5	2051.8	2276.5	2752.5	2974.9	2998.9
25°	1199.6	1228.4	1269.3	1301.7	1402.7	1609.4	1774.1	1959.2	2478.5	2797.0	2857.1
27.5°	1083.0	1095.0	1135.9	1155.1	1222.4	1400.3	1527.7	1697.2	2224.9	2597.5	2681.6
30°	991.6	1000.0	1036.1	1042.1	1095.0	1223.6	1347.4	1485.6	1977.2	2391.9	2488.1
32.5°	927.9	933.9	961.6	964.0	1003.6	1097.4	1183.9	1313.8	1742.9	2172.0	2291.0
35°	870.2	873.8	894.3	900.3	925.5	996.4	1067.4	1167.1	1556.6	1973.6	2104.7
37.5°	819.7	824.6	836.6	843.8	864.2	920.7	968.8	1051.7	1377.5	1766.9	1912.3
40°	770.5	778.9	787.3	787.3	810.1	853.4	893.1	961.6	1223.6	1586.6	1715.2
42.5°	728.4	736.8	740.4	741.6	753.6	793.3	827.0	873.8	1107.0	1426.7	1553.0
45°	687.5	691.1	694.7	697.1	705.6	740.4	765.7	810.1	996.4	1278.9	1401.5
47.5°	650.3	650.3	652.7	656.3	662.3	687.5	709.2	741.6	901.5	1146.7	1247.6
50°	614.2	614.2	610.6	613.0	616.6	635.8	657.5	683.9	812.5	1025.3	1115.4
52.5°	570.9	570.9	572.1	568.5	572.1	589.0	605.8	632.2	736.8	913.5	990.4
55°	527.7	532.5	528.9	526.5	531.3	542.1	554.1	576.9	665.9	824.6	885.9
57.5°	484.4	486.8	485.6	489.2	486.8	496.4	507.2	522.9	602.2	724.8	782.5
60°	443.5	443.5	441.1	443.5	443.5	448.3	456.8	472.4	537.3	639.5	687.5
62.5°	397.9	399.1	400.3	399.1	397.9	403.9	411.1	421.9	480.8	556.5	592.6
65°	352.2	353.4	357.0	355.8	354.6	360.6	361.8	373.8	418.3	483.2	509.6
67.5°	311.3	308.9	310.1	312.5	313.7	314.9	317.3	329.3	360.6	413.5	435.1
70°	263.2	265.6	264.4	268.0	265.6	269.2	271.6	280.1	310.1	345.0	359.4
72.5°	220.0	221.2	221.2	224.8	223.6	227.2	229.6	233.2	254.8	286.1	292.1
75°	180.3	180.3	182.7	183.9	183.9	183.9	186.3	188.7	206.7	226.0	232.0
77.5°	137.0	143.0	141.8	143.0	144.2	147.8	145.4	150.2	161.1	171.9	175.5
80°	99.8	99.8	101.0	102.2	104.6	107.0	107.0	111.8	116.6	122.6	126.2
82.5°	63.7	64.9	68.5	69.7	70.9	74.5	74.5	74.5	80.5	82.9	82.9
85°	39.7	37.3	39.7	40.9	42.1	43.3	43.3	45.7	46.9	48.1	48.1
87.5°	19.2	19.2	19.2	19.2	20.4	20.4	20.4	20.4	21.6	21.6	21.6
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°	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3	2590.3
2.5°	2650.4	2605.9	2539.8	2485.7	2488.1	2438.8	2402.7	2355.9	2341.4	2327.0	2307.8
5°	2705.6	2603.5	2466.5	2357.1	2323.4	2241.7	2138.3	2087.8	2057.8	2004.9	1984.5
7.5°	2774.2	2586.6	2377.5	2206.8	2169.6	2033.7	1911.1	1851.0	1794.5	1757.3	1711.6
10°	2818.6	2556.6	2287.4	2061.4	2025.3	1870.3	1710.4	1667.1	1596.2	1550.5	1507.3
12.5°	2852.3	2533.8	2194.8	1931.6	1872.7	1722.4	1561.4	1502.5	1450.8	1384.7	1353.4
15°	2882.3	2490.5	2099.9	1795.8	1734.4	1572.2	1423.1	1370.3	1323.4	1265.7	1238.0
17.5°	2871.5	2437.6	1995.3	1675.6	1614.3	1454.4	1311.4	1251.3	1220.0	1169.5	1150.3
20°	2858.3	2391.9	1896.7	1561.4	1494.1	1345.0	1205.6	1162.3	1131.1	1098.6	1081.8
22.5°	2816.2	2319.8	1797.0	1456.8	1393.1	1244.0	1125.0	1089.0	1064.9	1042.1	1027.7
25°	2745.3	2256.1	1699.6	1352.2	1301.7	1162.3	1061.3	1027.7	1012.1	989.2	976.0
27.5°	2657.6	2172.0	1602.2	1266.9	1209.2	1085.4	998.8	977.2	960.4	942.3	929.1
30°	2547.0	2078.2	1507.3	1183.9	1131.1	1021.7	947.2	927.9	912.3	894.3	878.6
32.5°	2406.4	1983.3	1418.3	1107.0	1062.5	967.6	899.1	883.5	870.2	848.6	840.2
35°	2248.9	1881.1	1330.6	1033.7	991.6	908.7	852.2	836.6	823.4	805.3	798.1
37.5°	2089.0	1759.7	1244.0	971.2	933.9	859.4	805.3	789.7	777.7	762.1	758.4
40°	1919.6	1647.9	1158.7	907.5	875.0	811.3	758.4	746.4	734.4	724.8	722.4
42.5°	1748.9	1519.3	1084.2	854.6	819.7	760.9	712.8	699.5	692.3	687.5	688.7
45°	1587.8	1390.7	1007.3	793.3	769.3	715.2	670.7	659.9	653.9	650.3	655.1
47.5°	1413.5	1259.7	935.1	741.6	717.6	669.5	627.4	617.8	615.4	614.2	622.6
50°	1259.7	1123.8	857.0	688.7	668.3	619.0	585.4	576.9	574.5	578.1	590.2
52.5°	1114.2	997.6	786.1	639.5	619.0	574.5	543.3	537.3	536.1	544.5	556.5
55°	970.0	879.8	709.2	585.4	564.9	526.5	502.4	496.4	495.2	512.0	522.9
57.5°	847.4	765.7	637.0	533.7	518.1	482.0	460.4	455.5	459.2	474.8	485.6
60°	727.2	661.1	570.9	478.4	466.4	435.1	418.3	417.1	420.7	438.7	449.5
62.5°	619.0	568.5	500.0	427.9	419.5	391.8	376.2	378.6	382.2	400.3	409.9
65°	526.5	482.0	430.3	377.4	366.6	347.4	336.6	337.8	345.0	360.6	370.2
67.5°	436.3	400.3	371.4	329.3	320.9	304.1	295.7	300.5	304.1	319.7	329.3
70°	360.6	331.7	310.1	278.9	272.8	258.4	252.4	258.4	262.0	275.3	287.3
72.5°	289.7	271.6	254.8	232.0	226.0	216.4	215.2	217.6	223.6	236.8	241.6
75°	224.8	215.2	200.7	186.3	182.7	177.9	176.7	179.1	185.1	192.3	197.1
77.5°	170.7	162.3	151.4	145.4	140.6	138.2	139.4	143.0	145.4	152.7	156.3
80°	123.8	114.2	111.8	103.4	102.2	101.0	103.4	104.6	108.2	113.0	115.4
82.5°	81.7	74.5	72.1	70.9	69.7	68.5	72.1	73.3	75.7	79.3	80.5
85°	44.5	42.1	42.1	40.9	42.1	44.5	44.5	45.7	45.7	46.9	45.7
87.5°	20.4	18.0	19.2	19.2	19.2	20.4	20.4	21.6	21.6	21.6	20.4
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°	2590.3	2590.3	2590.3
2.5°	2306.6	2298.2	2264.5
5°	1966.4	1937.6	1928.0
7.5°	1706.8	1704.4	1653.9
10°	1486.8	1490.4	1444.8
12.5°	1348.6	1318.6	1315.0
15°	1230.8	1203.2	1198.4
17.5°	1143.1	1126.3	1121.4
20°	1077.0	1067.4	1058.9
22.5°	1024.1	1012.1	1004.9
25°	971.2	960.4	958.0
27.5°	925.5	912.3	912.3
30°	878.6	870.2	866.6
32.5°	836.6	829.4	829.4
35°	795.7	792.1	787.3
37.5°	758.4	758.4	756.0
40°	722.4	726.0	726.0
42.5°	691.1	694.7	694.7
45°	657.5	663.5	665.9
47.5°	623.8	633.4	635.8
50°	593.8	601.0	602.2
52.5°	561.3	569.7	575.7
55°	527.7	536.1	539.7
57.5°	491.6	500.0	501.2
60°	451.9	460.4	462.8
62.5°	415.9	420.7	423.1
65°	371.4	378.6	383.4
67.5°	330.5	336.6	336.6
70°	286.1	288.5	292.1
72.5°	244.0	245.2	245.2
75°	198.3	200.7	201.9
77.5°	156.3	157.5	157.5
80°	115.4	114.2	114.2
82.5°	80.5	76.9	76.9
85°	45.7	44.5	45.7
87.5°	20.4	20.4	20.4
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	19.44	20.95	19.81	21.27	21.58	21.90	23.41	22.26	23.72	24.03
	3H	21.14	22.49	21.51	22.82	23.18	23.11	24.47	23.49	24.79	25.16
	4H	21.74	23.01	22.14	23.36	23.74	23.53	24.80	23.93	25.15	25.53
	6H	22.14	23.32	22.55	23.68	24.08	23.80	24.98	24.22	25.35	25.74
	8H	22.24	23.36	22.67	23.75	24.15	23.87	24.99	24.30	25.38	25.78
	12H	22.30	23.37	22.73	23.75	24.18	23.91	24.98	24.34	25.36	25.79
4H	2H	20.09	21.36	20.49	21.71	22.09	22.12	23.39	22.52	23.74	24.12
	3H	21.98	23.03	22.39	23.43	23.84	23.60	24.66	24.01	25.06	25.46
	4H	22.70	23.65	23.13	24.07	24.50	24.17	25.12	24.60	25.54	25.97
	6H	23.21	24.04	23.67	24.48	24.94	24.56	25.39	25.02	25.83	26.29
	8H	23.35	24.12	23.81	24.56	25.03	24.67	25.44	25.13	25.88	26.35
	12H	23.43	24.12	23.91	24.60	25.07	24.73	25.42	25.21	25.90	26.37
8H	4H	23.02	23.80	23.49	24.24	24.71	24.33	25.11	24.79	25.55	26.02
	6H	23.64	24.28	24.13	24.77	25.24	24.82	25.46	25.32	25.95	26.43
	8H	23.83	24.41	24.35	24.92	25.40	24.99	25.56	25.50	26.07	26.56
	12H	23.98	24.48	24.49	24.98	25.54	25.10	25.61	25.61	26.10	26.67
12H	4H	23.05	23.75	23.54	24.22	24.70	24.34	25.03	24.82	25.51	25.98
	6H	23.69	24.26	24.20	24.77	25.26	24.84	25.42	25.36	25.93	26.41
	8H	23.94	24.44	24.45	24.94	25.50	25.05	25.56	25.56	26.05	26.62