

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: P646696

Luminaire Tested: S123RDRP-S775D840-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

**Test Information**

Test Method: LM-79-2024  
Report Number: P646696  
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-S775D840-X4F0-XX-UDD-G-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH WALL GRAZE FLUSH OPTIC  
STANDARD LIGHT ENGINE  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: -

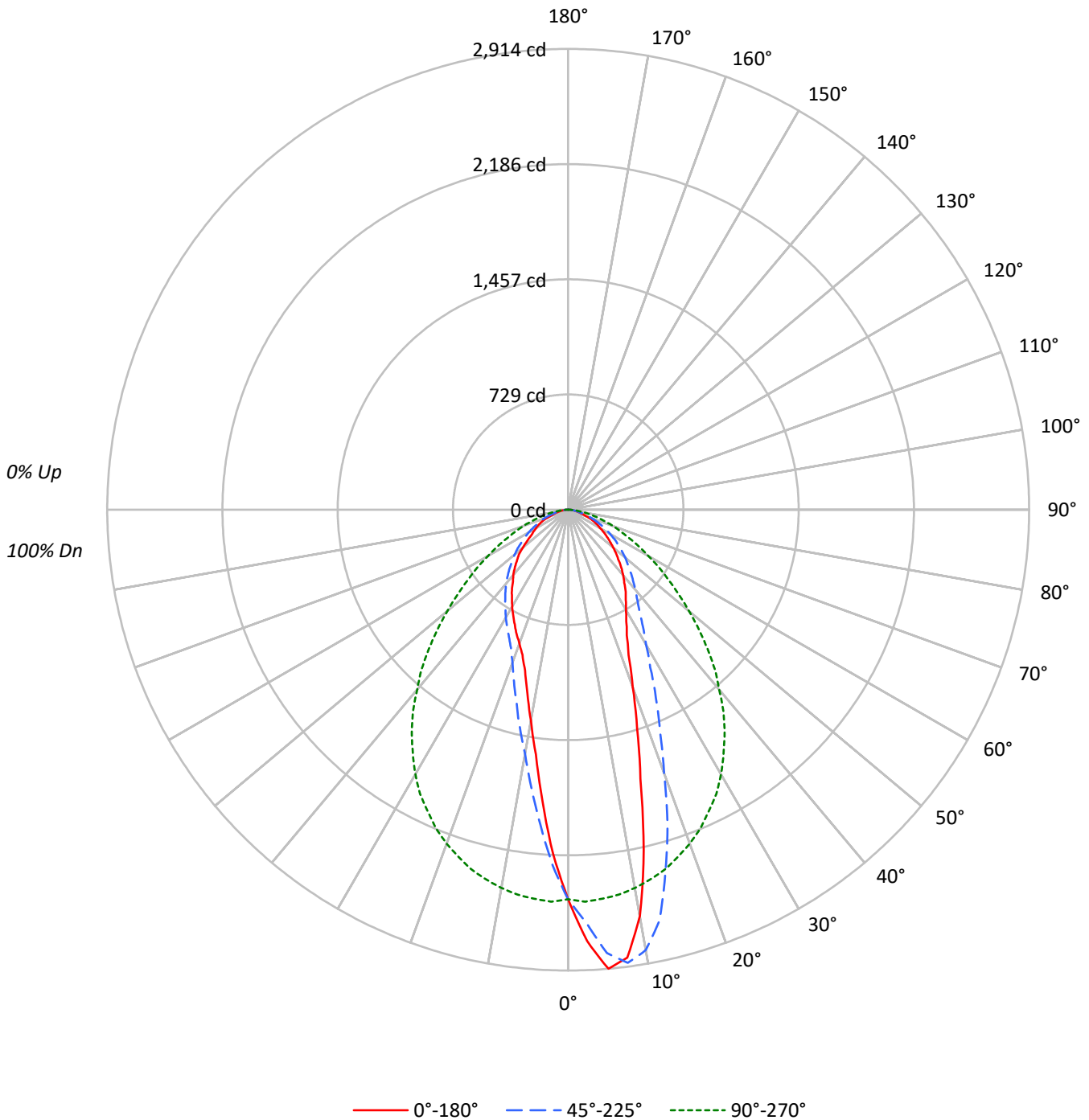
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3263.2 lumens  
Efficiency: N/A  
Efficacy: 125.5 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): 26  
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

TEST NUMBER: P646696

CATALOG NUMBER: S123RDRP-S775D840-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°	29678	29678	29678	29678	29678
5°	35239	34042	29864	24222	22414
10°	31927	34596	29715	19176	16594
15°	21982	29629	29402	15746	13127
20°	15293	22725	28812	13196	11538
25°	11654	17440	27952	11788	10633
30°	10144	13713	26879	10959	9849
35°	9314	11542	25356	10220	9136
40°	8498	10356	23366	9595	8483
45°	7675	9481	21218	8914	7830
50°	6966	8803	18683	8291	7024
55°	6300	8084	16251	7573	6025
60°	5646	7350	14114	6936	5694
65°	5212	6535	12151	6161	5383
70°	4235	5584	10601	5584	4375
75°	3715	4511	8980	4655	3855
80°	3365	3782	7355	3927	3643
85°	3069	3207	5585	3484	3346

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 22387 cd/sqm



TEST NUMBER: P646696

CATALOG NUMBER: S123RDRP-S775D840-X4F0-XX-UDD-G-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	224.5	6.9
10°-20°	519.4	15.9
20°-30°	595.9	18.3
30°-40°	586.9	18.0
40°-50°	517.3	15.9
50°-60°	398.1	12.2
60°-70°	261.8	8.0
70°-80°	127.1	3.9
80°-90°	32.1	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°	1339.7	41.1
0°-40°	1926.7	59.0
0°-60°	2842.2	87.1
0°-90°	3263.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3263.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	2463	2463	2463	2463	2463	
5°	2914	2814	2469	2003	1853	266
15°	1762	2375	2357	1262	1052	497
25°	877	1312	2102	887	800	414
35°	633	785	1724	695	621	395
45°	450	556	1245	523	460	350
55°	300	385	774	360	287	269
65°	183	229	426	216	189	179
75°	80	97	193	100	83	86
85°	22	23	40	25	24	25
90°	0	0	0	0	0	



TEST NUMBER: P646696

CATALOG NUMBER: S123RDRP-S775D840-X4F0-XX-UDD-G-W

**CANDELA DISTRIBUTION (FULL):**

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1
2.5°	2729.7	2712.5	2707.5	2701.4	2691.3	2654.9	2613.5	2617.6	2612.5	2581.2	2564.1
5°	2913.5	2915.5	2910.4	2906.4	2889.2	2844.8	2814.5	2796.3	2757.9	2699.4	2681.2
7.5°	2856.9	2889.2	2895.3	2902.4	2911.4	2901.3	2890.2	2883.2	2851.9	2788.2	2759.0
10°	2609.5	2607.5	2643.8	2673.1	2751.9	2807.4	2827.6	2856.9	2883.2	2838.7	2806.4
12.5°	2205.5	2208.6	2327.7	2327.7	2429.7	2571.1	2662.0	2723.6	2836.7	2839.7	2820.6
15°	1762.2	1811.7	1917.7	1940.0	2071.2	2261.1	2375.2	2502.4	2721.6	2790.3	2786.2
17.5°	1447.1	1468.3	1570.3	1599.6	1715.8	1930.9	2088.4	2241.9	2548.9	2693.3	2719.6
20°	1192.7	1211.8	1285.6	1307.8	1424.9	1629.9	1772.3	1937.9	2339.9	2561.0	2607.5
22.5°	995.7	1033.1	1082.6	1116.9	1183.6	1392.6	1514.8	1673.3	2097.5	2412.6	2467.1
25°	876.6	893.7	936.1	952.3	1033.1	1171.4	1311.8	1451.2	1882.4	2226.8	2322.7
27.5°	795.8	800.8	832.1	846.3	894.7	1023.0	1124.0	1253.2	1663.2	2035.9	2148.0
30°	729.1	738.2	762.4	765.5	807.9	898.8	985.6	1104.8	1471.4	1851.1	1966.2
32.5°	677.6	682.7	702.9	708.9	736.2	807.9	878.6	965.4	1293.6	1658.2	1790.5
35°	633.2	634.2	649.3	657.4	681.7	741.2	784.7	857.4	1151.2	1498.6	1614.8
37.5°	582.7	589.8	600.9	607.9	629.1	677.6	717.0	773.6	1020.0	1347.2	1455.2
40°	540.3	546.3	559.5	562.5	581.7	626.1	658.4	708.9	906.9	1201.7	1311.8
42.5°	497.9	501.9	515.0	521.1	542.3	577.6	606.9	646.3	817.0	1072.5	1180.5
45°	450.4	460.5	474.6	477.7	497.9	534.2	556.4	592.8	736.2	960.4	1056.3
47.5°	411.0	416.1	428.2	433.2	456.5	488.8	512.0	543.3	666.5	858.4	952.3
50°	371.6	373.7	384.8	391.8	410.0	447.4	469.6	497.9	602.9	775.6	841.2
52.5°	334.3	339.3	350.4	355.5	367.6	406.0	426.2	455.4	542.3	690.7	756.4
55°	299.9	303.0	311.0	317.1	331.2	364.6	384.8	410.0	489.8	613.0	670.6
57.5°	267.6	271.7	277.7	282.8	295.9	325.2	345.4	370.6	440.3	542.3	586.7
60°	234.3	239.3	246.4	248.4	260.5	286.8	305.0	327.2	389.8	476.7	516.0
62.5°	210.1	211.1	217.1	220.2	227.2	248.4	267.6	288.8	344.4	413.0	445.4
65°	182.8	185.8	188.8	190.9	196.9	215.1	229.2	245.4	299.9	359.5	381.7
67.5°	154.5	157.5	162.6	164.6	169.7	181.8	193.9	210.1	255.5	306.0	326.2
70°	120.2	120.2	128.3	132.3	140.4	149.5	158.5	172.7	212.1	255.5	270.6
72.5°	98.0	99.0	100.0	100.0	107.0	122.2	127.2	136.3	167.6	209.0	222.2
75°	79.8	80.8	81.8	82.8	83.8	88.9	96.9	105.0	128.3	158.5	170.7
77.5°	63.6	64.6	65.6	65.6	67.7	69.7	71.7	75.7	91.9	114.1	124.2
80°	48.5	49.5	50.5	50.5	51.5	53.5	54.5	56.6	61.6	76.7	81.8
82.5°	35.3	35.3	35.3	36.4	37.4	37.4	39.4	39.4	42.4	46.5	49.5
85°	22.2	22.2	23.2	23.2	23.2	24.2	23.2	24.2	25.2	26.3	28.3
87.5°	10.1	9.1	10.1	10.1	10.1	11.1	11.1	11.1	11.1	12.1	12.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P646696

CATALOG NUMBER: S123RDRP-S775D840-X4F0-XX-UDD-G-W

**CANDELA DISTRIBUTION (continued):**

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1	2463.1
2.5°	2516.6	2481.2	2421.7	2384.3	2370.2	2326.7	2285.3	2251.0	2233.8	2231.8	2200.5
5°	2566.1	2469.1	2345.9	2242.9	2218.7	2142.9	2045.0	2002.6	1947.0	1924.8	1898.5
7.5°	2606.5	2455.0	2273.2	2117.7	2072.2	1958.1	1832.9	1777.4	1735.0	1668.3	1628.9
10°	2634.7	2428.7	2184.3	1983.4	1918.7	1785.4	1634.0	1567.3	1527.9	1451.2	1419.9
12.5°	2645.8	2395.4	2095.5	1844.0	1787.5	1628.9	1480.5	1411.8	1353.2	1283.5	1253.2
15°	2641.8	2357.0	2004.6	1715.8	1645.1	1484.5	1327.0	1262.3	1207.8	1138.1	1098.7
17.5°	2614.5	2302.5	1905.6	1591.5	1523.9	1358.3	1198.7	1139.1	1090.7	1023.0	992.7
20°	2569.1	2247.0	1818.8	1478.4	1401.7	1243.1	1092.7	1029.1	986.6	950.3	928.1
22.5°	2506.5	2181.3	1712.7	1366.3	1299.7	1140.1	995.7	944.2	919.0	889.7	873.5
25°	2411.6	2102.5	1616.8	1272.4	1205.8	1047.2	921.0	886.7	861.4	842.2	825.1
27.5°	2309.6	2026.8	1520.9	1177.5	1114.9	963.4	862.4	836.2	814.0	789.7	774.6
30°	2191.4	1931.9	1430.0	1093.7	1033.1	895.8	811.9	787.7	769.5	743.3	728.1
32.5°	2052.0	1827.9	1345.1	1012.9	956.3	837.2	765.5	739.2	724.1	698.8	683.7
35°	1907.6	1723.8	1252.2	938.2	886.7	785.7	720.0	694.8	678.6	653.4	638.2
37.5°	1766.3	1612.8	1169.4	872.5	826.1	734.2	672.6	651.4	636.2	610.0	591.8
40°	1616.8	1485.5	1088.6	810.9	767.5	688.7	629.1	610.0	589.8	566.5	548.4
42.5°	1460.3	1373.4	1013.9	756.4	716.0	644.3	585.7	565.5	548.4	521.1	513.0
45°	1313.8	1245.2	935.1	698.8	666.5	599.9	543.3	523.1	503.9	480.7	472.6
47.5°	1183.6	1119.9	863.4	648.3	616.0	556.4	500.9	479.7	465.5	447.4	435.3
50°	1049.3	996.7	784.7	598.9	568.6	510.0	456.5	442.3	426.2	403.9	394.9
52.5°	924.0	883.6	720.0	551.4	523.1	470.6	416.1	401.9	386.8	367.6	354.5
55°	814.0	773.6	646.3	497.9	476.7	427.2	378.7	360.5	348.4	326.2	310.0
57.5°	700.8	681.7	575.6	453.4	433.2	383.7	340.3	326.2	311.0	286.8	270.6
60°	607.9	585.7	510.0	405.0	385.8	344.4	302.0	287.8	273.7	250.4	243.4
62.5°	520.1	503.9	446.4	359.5	343.4	303.0	265.6	252.5	238.3	223.2	218.1
65°	440.3	426.2	382.7	313.1	299.9	264.6	230.2	216.1	207.0	200.0	194.9
67.5°	365.6	357.5	324.2	269.6	259.5	228.2	197.9	186.8	181.8	173.7	169.7
70°	297.9	300.9	270.6	230.2	219.1	193.9	167.6	158.5	152.5	145.4	137.3
72.5°	243.4	242.4	224.2	187.8	179.8	159.6	139.4	133.3	126.2	112.1	103.0
75°	188.8	192.9	175.7	155.5	147.4	127.2	108.1	100.0	92.9	87.9	84.8
77.5°	144.4	146.4	138.4	119.2	112.1	94.9	79.8	75.7	72.7	69.7	68.7
80°	103.0	106.0	98.0	85.8	79.8	65.6	57.6	56.6	55.5	53.5	52.5
82.5°	66.7	70.7	66.7	53.5	50.5	43.4	41.4	41.4	40.4	39.4	38.4
85°	36.4	40.4	38.4	31.3	29.3	27.3	26.3	25.2	25.2	25.2	25.2
87.5°	14.1	19.2	16.2	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NUMBER: P646696

CATALOG NUMBER: S123RDRP-S775D840-X4F0-XX-UDD-G-W

**CANDELA DISTRIBUTION (continued):**

	160°	170°	180°
0°	2463.1	2463.1	2463.1
2.5°	2193.4	2183.3	2179.3
5°	1891.5	1860.2	1853.1
7.5°	1616.8	1603.7	1560.2
10°	1414.8	1374.4	1356.3
12.5°	1233.0	1195.7	1189.6
15°	1087.6	1061.4	1052.3
17.5°	991.7	973.5	962.4
20°	921.0	907.9	899.8
22.5°	867.5	857.4	851.3
25°	820.0	804.9	799.8
27.5°	771.5	758.4	753.4
30°	726.1	715.0	707.9
32.5°	678.6	665.5	661.5
35°	633.2	625.1	621.1
37.5°	588.8	578.7	572.6
40°	547.3	542.3	539.3
42.5°	510.0	500.9	499.9
45°	470.6	461.5	459.5
47.5°	433.2	425.2	424.1
50°	393.8	382.7	374.7
52.5°	346.4	336.3	329.2
55°	304.0	292.9	286.8
57.5°	268.6	263.6	260.5
60°	241.4	238.3	236.3
62.5°	217.1	214.1	214.1
65°	194.9	191.9	188.8
67.5°	167.6	161.6	160.6
70°	134.3	125.2	124.2
72.5°	102.0	101.0	99.0
75°	84.8	82.8	82.8
77.5°	68.7	66.7	66.7
80°	52.5	51.5	52.5
82.5°	38.4	38.4	37.4
85°	25.2	24.2	24.2
87.5°	12.1	12.1	12.1
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	16.48	17.93	16.84	18.25	18.56	21.57	23.03	21.94	23.34	23.66
	3H	17.81	19.12	18.19	19.44	19.81	22.85	24.15	23.23	24.48	24.84
	4H	18.21	19.43	18.61	19.78	20.16	23.30	24.52	23.70	24.86	25.24
	6H	18.52	19.64	18.93	20.01	20.40	23.59	24.72	24.00	25.08	25.48
	8H	18.62	19.69	19.05	20.08	20.48	23.67	24.74	24.09	25.13	25.53
	12H	18.69	19.71	19.12	20.09	20.52	23.71	24.73	24.14	25.11	25.54
4H	2H	17.33	18.55	17.73	18.90	19.28	21.61	22.83	22.01	23.18	23.56
	3H	18.80	19.81	19.21	20.21	20.61	23.10	24.11	23.51	24.51	24.91
	4H	19.27	20.17	19.70	20.59	21.03	23.66	24.57	24.09	24.98	25.42
	6H	19.65	20.44	20.11	20.88	21.35	24.10	24.88	24.56	25.33	25.79
	8H	19.78	20.52	20.25	20.96	21.43	24.22	24.95	24.68	25.40	25.87
	12H	19.88	20.54	20.36	21.02	21.49	24.29	24.95	24.78	25.43	25.90
8H	4H	19.65	20.39	20.12	20.83	21.30	23.66	24.40	24.13	24.84	25.31
	6H	20.12	20.73	20.62	21.22	21.70	24.15	24.76	24.65	25.25	25.73
	8H	20.31	20.85	20.82	21.36	21.85	24.32	24.86	24.83	25.37	25.86
	12H	20.47	20.94	20.98	21.44	22.00	24.45	24.92	24.96	25.42	25.98
12H	4H	19.70	20.35	20.18	20.83	21.31	23.64	24.30	24.12	24.78	25.25
	6H	20.19	20.73	20.70	21.24	21.73	24.13	24.67	24.64	25.18	25.67
	8H	20.42	20.90	20.93	21.39	21.96	24.32	24.80	24.83	25.29	25.86