

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: P646626

Luminaire Tested: S123DRP-S1165D927-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646626
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-S1165D927-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

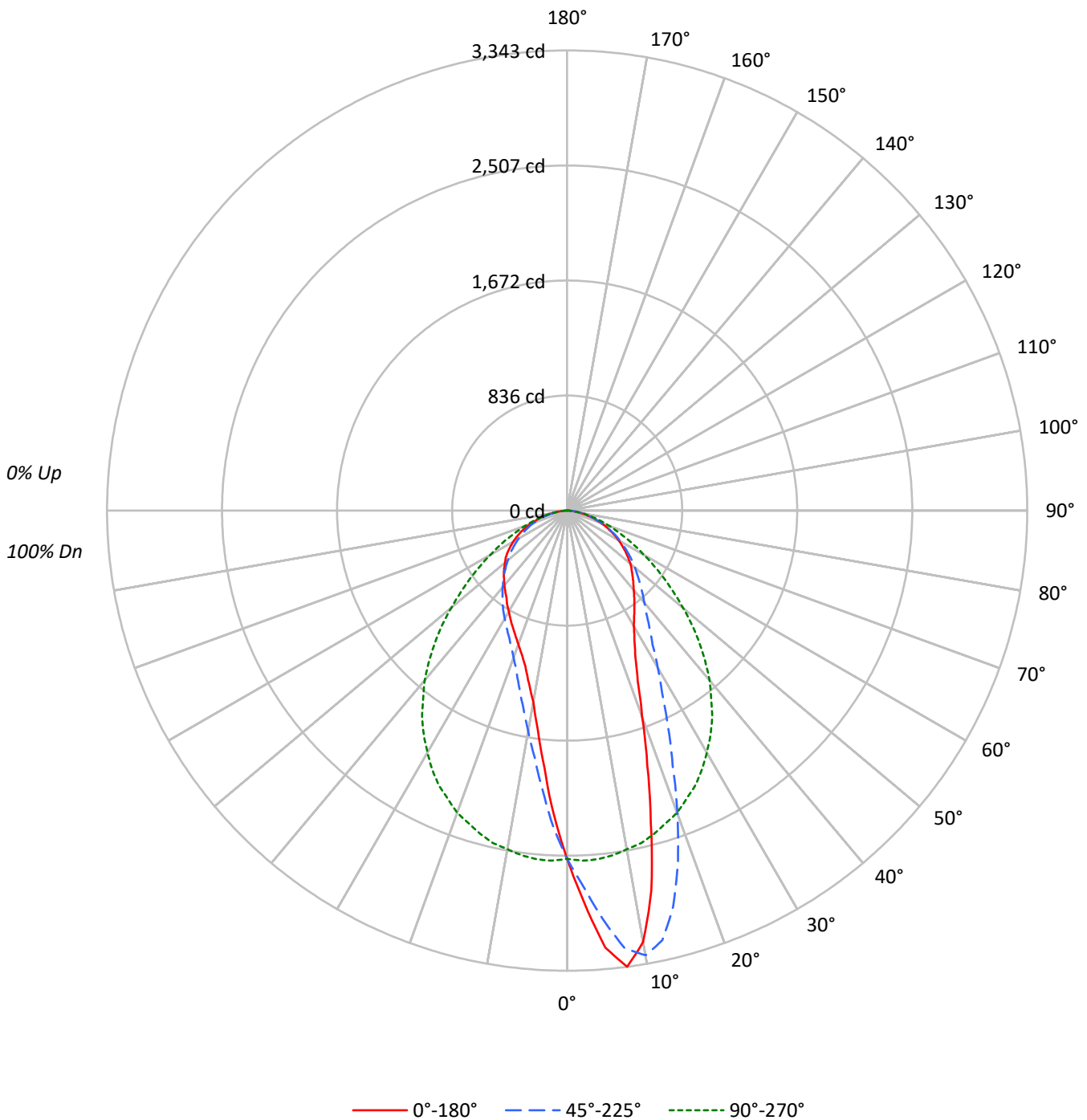
Lumens per Lamp: N/A
Luminaire Lumens: 4065.2 lumens
Efficiency: N/A
Efficacy: 101.4 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 40.1
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: P646626

CATALOG NUMBER: S123DRP-S1165D927-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	100	100	100	100	100		
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86	86	86	86	86	86	86		
2	101	94	88	82	99	92	86	82	88	84	80	85	81	78	82	79	76	74	74	74	74	74	74	74		
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64	64	64	64	64	64	64		
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58	56	56	56	56	56	56	56		
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50	50	50	50	50	50	50		
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47	45	45	45	45	45	45	45		
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40	40	40	40	40	40	40		
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39	37	37	37	37	37	37	37		
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35	34	34	34	34	34	34	34		
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31	31	31	31	31	31	31		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	30486	30486	30486	30486	30486
5°	38555	36056	30758	24667	22778
10°	38928	40136	30555	19924	17266
15°	29321	37142	30346	16696	14602
20°	20429	30034	29958	14557	13264
25°	15578	23039	29298	13345	12440
30°	13476	18311	28244	12611	11778
35°	12503	15336	27027	12020	11311
40°	11838	13720	25319	11468	11153
45°	11444	12744	23147	10984	11083
50°	11247	12038	20578	10565	11026
55°	10827	11369	18054	10186	11075
60°	10439	10750	15560	9818	10892
65°	9808	10076	13423	9406	10677
70°	9057	9346	11414	8892	10051
75°	8198	8473	9786	8142	9181
80°	6758	7251	7737	7085	7737
85°	5350	5848	5682	6166	6166

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 26429 cd/sqm



TEST NUMBER: P646626

CATALOG NUMBER: S123DRP-S1165D927-X4F0-XX-UDD-G-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	239.2	5.9
10°-20°	595.2	14.6
20°-30°	704.5	17.3
30°-40°	708.0	17.4
40°-50°	649.3	16.0
50°-60°	535.9	13.2
60°-70°	379.2	9.3
70°-80°	202.5	5.0
80°-90°	51.4	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°	1538.9	37.9
0°-40°	2246.9	55.3
0°-60°	3432.1	84.4
0°-90°	4065.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4065.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2530	2530	2530	2530	2530	
5°	3188	2981	2543	2039	1883	304
15°	2350	2978	2433	1338	1171	649
25°	1172	1733	2204	1004	936	553
35°	850	1043	1837	817	769	534
45°	672	748	1358	645	650	520
55°	515	541	859	485	527	461
65°	344	353	471	330	374	342
75°	176	182	210	175	197	185
85°	39	42	41	45	45	46
90°	0	0	0	0	0	



TEST NUMBER: P646626

CATALOG NUMBER: S123DRP-S1165D927-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	22.5°	30°	40°	45°	50°	60°	67.5°	70°
0°	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1
2.5°	2851.8	2846.0	2816.6	2797.8	2802.5	2760.3	2734.4	2713.3	2699.2	2665.2	2647.5
5°	3187.6	3204.1	3185.3	3175.9	3127.7	3051.4	2981.0	2965.7	2900.0	2819.0	2790.8
7.5°	3342.6	3352.0	3340.2	3340.2	3325.0	3256.9	3207.6	3168.8	3056.1	2951.6	2903.5
10°	3181.7	3202.9	3248.7	3269.8	3300.3	3290.9	3280.4	3265.1	3188.8	3067.9	3012.7
12.5°	2828.3	2854.2	2945.8	2958.7	3063.2	3164.1	3197.0	3234.6	3241.6	3139.5	3079.6
15°	2350.5	2422.1	2505.5	2545.4	2678.1	2890.6	2977.5	3079.6	3200.5	3158.3	3111.3
17.5°	1936.0	1963.1	2052.3	2136.8	2269.5	2514.9	2675.7	2828.3	3087.8	3130.1	3100.7
20°	1593.2	1617.9	1735.3	1729.4	1905.5	2181.4	2342.3	2518.4	2901.1	3038.5	3032.6
22.5°	1338.4	1377.2	1442.9	1479.3	1606.1	1851.5	2004.1	2223.7	2688.6	2905.8	2929.3
25°	1171.7	1199.9	1239.8	1271.5	1370.1	1572.1	1732.9	1913.7	2420.9	2732.1	2790.8
27.5°	1057.8	1069.6	1109.5	1128.3	1194.0	1367.8	1492.2	1657.8	2173.2	2537.2	2619.4
30°	968.6	976.8	1012.1	1017.9	1069.6	1195.2	1316.1	1451.2	1931.4	2336.4	2430.3
32.5°	906.4	912.3	939.3	941.6	980.4	1071.9	1156.5	1283.3	1702.4	2121.6	2237.8
35°	850.0	853.6	873.5	879.4	904.0	973.3	1042.6	1140.0	1520.4	1927.8	2055.8
37.5°	800.7	805.4	817.2	824.2	844.2	899.3	946.3	1027.3	1345.5	1725.9	1868.0
40°	752.6	760.8	769.0	769.0	791.3	833.6	872.3	939.3	1195.2	1549.8	1675.4
42.5°	711.5	719.7	723.2	724.4	736.1	774.9	807.8	853.6	1081.3	1393.6	1516.9
45°	671.6	675.1	678.6	681.0	689.2	723.2	747.9	791.3	973.3	1249.2	1369.0
47.5°	635.2	635.2	637.5	641.0	646.9	671.6	692.7	724.4	880.6	1120.1	1218.7
50°	600.0	600.0	596.4	598.8	602.3	621.1	642.2	668.0	793.7	1001.5	1089.5
52.5°	557.7	557.7	558.9	555.3	558.9	575.3	591.7	617.6	719.7	892.3	967.4
55°	515.4	520.1	516.6	514.2	518.9	529.5	541.2	563.6	650.4	805.4	865.3
57.5°	473.2	475.5	474.3	477.8	475.5	484.9	495.5	510.7	588.2	708.0	764.3
60°	433.2	433.2	430.9	433.2	433.2	437.9	446.1	461.4	524.8	624.6	671.6
62.5°	388.6	389.8	391.0	389.8	388.6	394.5	401.5	412.1	469.6	543.6	578.8
65°	344.0	345.2	348.7	347.5	346.4	352.2	353.4	365.1	408.6	472.0	497.8
67.5°	304.1	301.7	302.9	305.3	306.4	307.6	310.0	321.7	352.2	403.9	425.0
70°	257.1	259.5	258.3	261.8	259.5	263.0	265.3	273.6	302.9	337.0	351.0
72.5°	214.9	216.0	216.0	219.6	218.4	221.9	224.2	227.8	248.9	279.4	285.3
75°	176.1	176.1	178.5	179.6	179.6	179.6	182.0	184.3	201.9	220.7	226.6
77.5°	133.8	139.7	138.5	139.7	140.9	144.4	142.1	146.8	157.3	167.9	171.4
80°	97.4	97.4	98.6	99.8	102.1	104.5	104.5	109.2	113.9	119.8	123.3
82.5°	62.2	63.4	66.9	68.1	69.3	72.8	72.8	72.8	78.7	81.0	81.0
85°	38.7	36.4	38.7	39.9	41.1	42.3	42.3	44.6	45.8	47.0	47.0
87.5°	18.8	18.8	18.8	18.8	20.0	20.0	20.0	20.0	21.1	21.1	21.1
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: P646626

CATALOG NUMBER: S123DRP-S1165D927-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (continued):

	80°	90°	100°	110°	112.5°	120°	130°	135°	140°	150°	157.5°
0°	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1	2530.1
2.5°	2588.8	2545.4	2480.8	2428.0	2430.3	2382.2	2347.0	2301.2	2287.1	2273.0	2254.2
5°	2642.8	2543.0	2409.2	2302.4	2269.5	2189.7	2088.7	2039.4	2010.0	1958.4	1938.4
7.5°	2709.8	2526.6	2322.3	2155.6	2119.2	1986.5	1866.8	1808.1	1752.9	1716.5	1671.9
10°	2753.2	2497.3	2234.3	2013.5	1978.3	1826.9	1670.7	1628.4	1559.2	1514.6	1472.3
12.5°	2786.1	2475.0	2143.9	1886.7	1829.2	1682.4	1525.1	1467.6	1417.1	1352.5	1322.0
15°	2815.4	2432.7	2051.1	1754.1	1694.2	1535.7	1390.1	1338.4	1292.7	1236.3	1209.3
17.5°	2804.9	2381.0	1949.0	1636.7	1576.8	1420.6	1280.9	1222.2	1191.7	1142.4	1123.6
20°	2792.0	2336.4	1852.7	1525.1	1459.4	1313.8	1177.6	1135.3	1104.8	1073.1	1056.7
22.5°	2750.9	2266.0	1755.2	1423.0	1360.8	1215.2	1098.9	1063.7	1040.2	1017.9	1003.8
25°	2681.6	2203.7	1660.1	1320.8	1271.5	1135.3	1036.7	1003.8	988.6	966.3	953.3
27.5°	2595.9	2121.6	1565.0	1237.5	1181.1	1060.2	975.7	954.5	938.1	920.5	907.6
30°	2487.9	2030.0	1472.3	1156.5	1104.8	998.0	925.2	906.4	891.1	873.5	858.2
32.5°	2350.5	1937.2	1385.4	1081.3	1037.9	945.1	878.2	862.9	850.0	828.9	820.7
35°	2196.7	1837.4	1299.7	1009.7	968.6	887.6	832.4	817.2	804.2	786.6	779.6
37.5°	2040.5	1718.8	1215.2	948.7	912.3	839.5	786.6	771.4	759.6	744.4	740.8
40°	1875.0	1609.7	1131.8	886.4	854.7	792.5	740.8	729.1	717.4	708.0	705.6
42.5°	1708.3	1484.0	1059.0	834.8	800.7	743.2	696.2	683.3	676.3	671.6	672.7
45°	1551.0	1358.4	983.9	774.9	751.4	698.6	655.1	644.6	638.7	635.2	639.9
47.5°	1380.7	1230.4	913.4	724.4	700.9	654.0	612.9	603.5	601.1	600.0	608.2
50°	1230.4	1097.8	837.1	672.7	652.8	604.6	571.8	563.6	561.2	564.7	576.5
52.5°	1088.4	974.5	767.8	624.6	604.6	561.2	530.7	524.8	523.6	531.9	543.6
55°	947.5	859.4	692.7	571.8	551.8	514.2	490.8	484.9	483.7	500.2	510.7
57.5°	827.7	747.9	622.3	521.3	506.0	470.8	449.7	445.0	448.5	463.8	474.3
60°	710.3	645.7	557.7	467.3	455.5	425.0	408.6	407.4	410.9	428.5	439.1
62.5°	604.6	555.3	488.4	418.0	409.8	382.7	367.5	369.8	373.4	391.0	400.4
65°	514.2	470.8	420.3	368.7	358.1	339.3	328.7	329.9	337.0	352.2	361.6
67.5°	426.2	391.0	362.8	321.7	313.5	297.0	288.8	293.5	297.0	312.3	321.7
70°	352.2	324.0	302.9	272.4	266.5	252.4	246.6	252.4	255.9	268.9	280.6
72.5°	283.0	265.3	248.9	226.6	220.7	211.3	210.2	212.5	218.4	231.3	236.0
75°	219.6	210.2	196.1	182.0	178.5	173.8	172.6	174.9	180.8	187.9	192.5
77.5°	166.7	158.5	147.9	142.1	137.4	135.0	136.2	139.7	142.1	149.1	152.6
80°	120.9	111.5	109.2	101.0	99.8	98.6	101.0	102.1	105.7	110.4	112.7
82.5°	79.8	72.8	70.4	69.3	68.1	66.9	70.4	71.6	74.0	77.5	78.7
85°	43.4	41.1	41.1	39.9	41.1	43.4	43.4	44.6	44.6	45.8	44.6
87.5°	20.0	17.6	18.8	18.8	18.8	20.0	20.0	21.1	21.1	21.1	20.0
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: P646626

CATALOG NUMBER: S123DRP-S1165D927-X4F0-XX-UDD-G-W

CANDELA DISTRIBUTION (continued):

	160°	170°	180°
0°	2530.1	2530.1	2530.1
2.5°	2253.1	2244.8	2212.0
5°	1920.8	1892.6	1883.2
7.5°	1667.2	1664.8	1615.5
10°	1452.3	1455.9	1411.2
12.5°	1317.3	1288.0	1284.4
15°	1202.3	1175.2	1170.6
17.5°	1116.5	1100.1	1095.4
20°	1052.0	1042.6	1034.4
22.5°	1000.3	988.6	981.5
25°	948.7	938.1	935.7
27.5°	904.0	891.1	891.1
30°	858.2	850.0	846.5
32.5°	817.2	810.1	810.1
35°	777.2	773.7	769.0
37.5°	740.8	740.8	738.5
40°	705.6	709.1	709.1
42.5°	675.1	678.6	678.6
45°	642.2	648.1	650.4
47.5°	609.3	618.7	621.1
50°	580.0	587.0	588.2
52.5°	548.3	556.5	562.4
55°	515.4	523.6	527.2
57.5°	480.2	488.4	489.6
60°	441.5	449.7	452.0
62.5°	406.2	410.9	413.3
65°	362.8	369.8	374.5
67.5°	322.9	328.7	328.7
70°	279.4	281.8	285.3
72.5°	238.3	239.5	239.5
75°	193.7	196.1	197.2
77.5°	152.6	153.8	153.8
80°	112.7	111.5	111.5
82.5°	78.7	75.1	75.1
85°	44.6	43.4	44.6
87.5°	20.0	20.0	20.0
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	19.36	20.87	19.73	21.18	21.50	21.82	23.32	22.18	23.64	23.95
	3H	21.05	22.41	21.43	22.74	23.10	23.03	24.38	23.41	24.71	25.07
	4H	21.66	22.93	22.06	23.28	23.65	23.45	24.72	23.85	25.07	25.45
	6H	22.06	23.24	22.47	23.60	23.99	23.72	24.90	24.13	25.26	25.66
	8H	22.16	23.28	22.59	23.67	24.07	23.79	24.91	24.22	25.30	25.70
	12H	22.22	23.29	22.65	23.67	24.10	23.83	24.90	24.26	25.28	25.71
4H	2H	20.01	21.28	20.41	21.63	22.01	22.04	23.31	22.44	23.66	24.04
	3H	21.89	22.95	22.30	23.35	23.75	23.52	24.58	23.93	24.98	25.38
	4H	22.61	23.57	23.05	23.98	24.42	24.08	25.04	24.52	25.45	25.89
	6H	23.13	23.96	23.58	24.40	24.86	24.48	25.31	24.94	25.75	26.21
	8H	23.26	24.04	23.73	24.48	24.95	24.58	25.36	25.05	25.80	26.27
	12H	23.35	24.04	23.83	24.52	24.99	24.65	25.34	25.13	25.82	26.29
8H	4H	22.94	23.72	23.40	24.16	24.63	24.25	25.02	24.71	25.47	25.94
	6H	23.55	24.19	24.05	24.69	25.16	24.74	25.38	25.24	25.87	26.35
	8H	23.75	24.32	24.27	24.83	25.32	24.90	25.48	25.42	25.99	26.48
	12H	23.89	24.40	24.40	24.89	25.46	25.02	25.53	25.53	26.02	26.59
12H	4H	22.97	23.66	23.45	24.14	24.61	24.25	24.95	24.74	25.43	25.90
	6H	23.61	24.18	24.12	24.69	25.18	24.76	25.33	25.27	25.84	26.33
	8H	23.86	24.36	24.37	24.85	25.42	24.97	25.48	25.48	25.97	26.53