

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: P646629

Luminaire Tested: S123DRP-S1165D940-X4F0-XX-UDD-G-W

Issue Date: 3/20/2023

Test Information

Test Method: LM-79-2024
Report Number: P646629
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-S1165D940-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

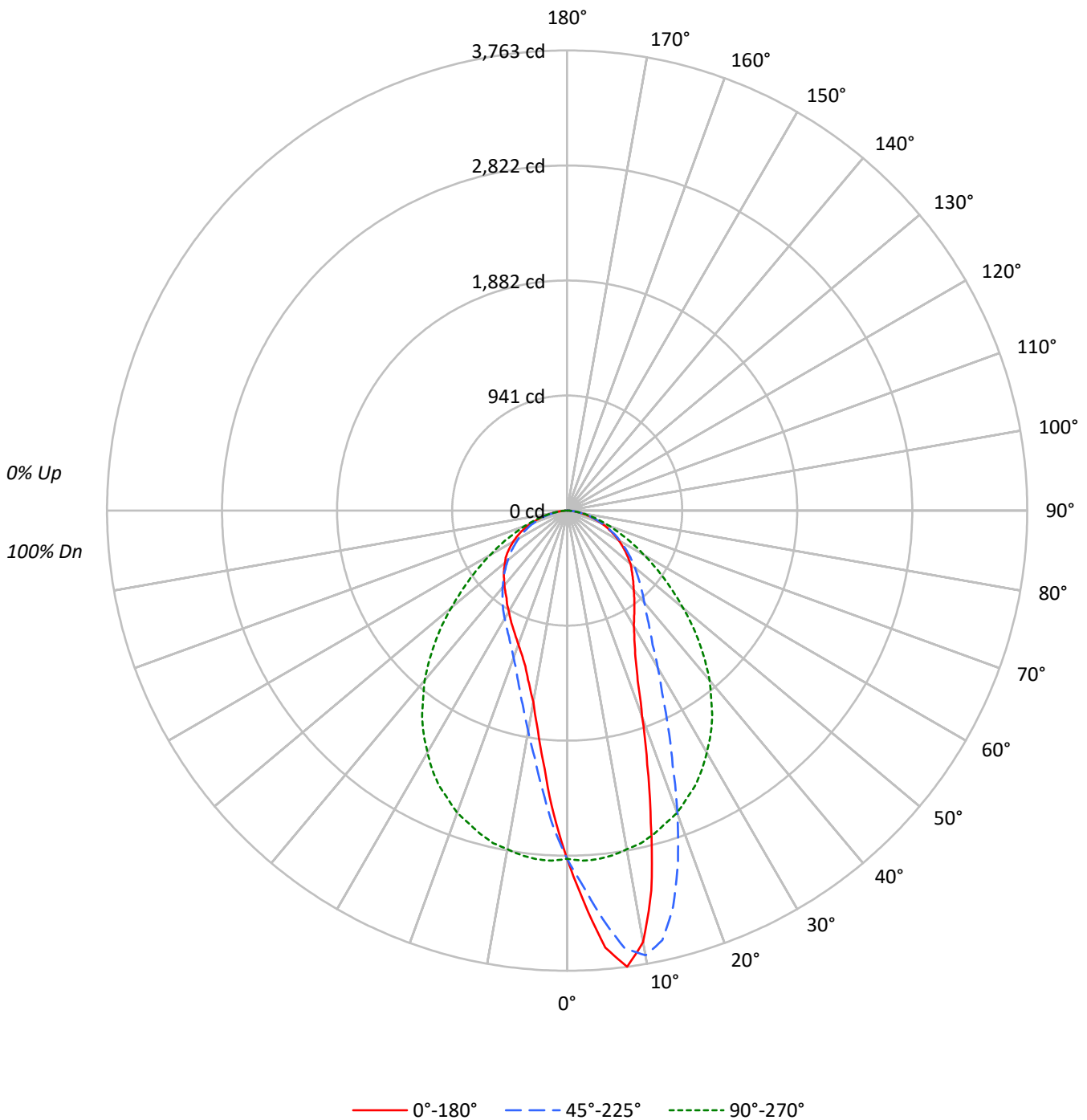
Lumens per Lamp: N/A
Luminaire Lumens: 4576.0 lumens
Efficiency: N/A
Efficacy: 114.1 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.22' x H: 0')
CIE Type: Direct

Input Watts (W): 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

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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°	34316	34316	34316	34316	34316
5°	43399	40585	34624	27766	25639
10°	43820	45178	34393	22427	19435
15°	33004	41807	34158	18794	16436
20°	22996	33808	33723	16387	14929
25°	17535	25934	32979	15023	14003
30°	15170	20612	31792	14196	13258
35°	14074	17263	30423	13530	12732
40°	13324	15444	28500	12909	12555
45°	12881	14344	26056	12364	12477
50°	12659	13551	23163	11892	12411
55°	12188	12800	20322	11466	12466
60°	11753	12102	17517	11052	12261
65°	11039	11342	15111	10589	12020
70°	10195	10523	12852	10009	11312
75°	9227	9534	11015	9167	10335
80°	7612	8160	8715	7980	8715
85°	6028	6581	6401	6940	6940

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 29749 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	269.3	5.9
10°-20°	669.9	14.6
20°-30°	793.0	17.3
30°-40°	797.0	17.4
40°-50°	730.9	16.0
50°-60°	603.3	13.2
60°-70°	426.9	9.3
70°-80°	228.0	5.0
80°-90°	57.8	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°	1732.2	37.9
0°-40°	2529.2	55.3
0°-60°	3863.3	84.4
0°-90°	4576.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4576.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	2848	2848	2848	2848	2848	
5°	3588	3356	2863	2296	2120	342
15°	2646	3352	2738	1507	1318	731
25°	1319	1951	2481	1130	1053	622
35°	957	1174	2068	920	866	601
45°	756	842	1529	726	732	585
55°	580	609	967	546	593	519
65°	387	398	530	371	422	385
75°	198	205	237	197	222	208
85°	44	48	46	50	50	52
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°	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0
2.5°	3210.1	3203.5	3170.5	3149.3	3154.6	3107.0	3078.0	3054.2	3038.3	3000.0	2980.2
5°	3588.1	3606.6	3585.5	3574.9	3520.7	3434.8	3355.5	3338.3	3264.3	3173.1	3141.4
7.5°	3762.6	3773.1	3759.9	3759.9	3742.7	3666.1	3610.6	3567.0	3440.1	3322.5	3268.3
10°	3581.5	3605.3	3656.8	3680.6	3715.0	3704.4	3692.5	3675.3	3589.4	3453.3	3391.2
12.5°	3183.7	3212.8	3315.9	3330.4	3448.0	3561.7	3598.7	3641.0	3648.9	3533.9	3466.5
15°	2645.8	2726.4	2820.3	2865.2	3014.5	3253.7	3351.5	3466.5	3602.6	3555.1	3502.2
17.5°	2179.3	2209.7	2310.1	2405.3	2554.6	2830.8	3011.9	3183.7	3475.8	3523.3	3490.3
20°	1793.4	1821.1	1953.3	1946.7	2144.9	2455.5	2636.6	2834.8	3265.6	3420.3	3413.7
22.5°	1506.6	1550.2	1624.2	1665.2	1807.9	2084.1	2255.9	2503.1	3026.4	3270.9	3297.4
25°	1318.9	1350.7	1395.6	1431.3	1542.3	1769.6	1950.7	2154.2	2725.1	3075.3	3141.4
27.5°	1190.7	1204.0	1248.9	1270.0	1344.1	1539.6	1679.7	1866.1	2446.3	2855.9	2948.5
30°	1090.3	1099.6	1139.2	1145.8	1204.0	1345.4	1481.5	1633.5	2174.0	2630.0	2735.7
32.5°	1020.3	1026.9	1057.3	1059.9	1103.5	1206.6	1301.8	1444.5	1916.3	2388.1	2518.9
35°	956.8	960.8	983.3	989.9	1017.6	1095.6	1173.6	1283.3	1711.5	2170.0	2314.1
37.5°	901.3	906.6	919.8	927.8	950.2	1012.3	1065.2	1156.4	1514.5	1942.7	2102.6
40°	847.1	856.4	865.6	865.6	890.7	938.3	981.9	1057.3	1345.4	1744.5	1885.9
42.5°	800.9	810.1	814.1	815.4	828.6	872.2	909.3	960.8	1217.2	1568.7	1707.5
45°	755.9	759.9	763.9	766.5	775.8	814.1	841.8	890.7	1095.6	1406.2	1541.0
47.5°	715.0	715.0	717.6	721.6	728.2	755.9	779.7	815.4	991.2	1260.8	1371.8
50°	675.3	675.3	671.4	674.0	678.0	699.1	722.9	752.0	893.4	1127.3	1226.4
52.5°	627.8	627.8	629.1	625.1	629.1	647.6	666.1	695.2	810.1	1004.4	1089.0
55°	580.2	585.5	581.5	578.9	584.1	596.0	609.3	634.4	732.2	906.6	974.0
57.5°	532.6	535.2	533.9	537.9	535.2	545.8	557.7	574.9	662.1	796.9	860.4
60°	487.7	487.7	485.0	487.7	487.7	493.0	502.2	519.4	590.7	703.1	755.9
62.5°	437.4	438.8	440.1	438.8	437.4	444.1	452.0	463.9	528.6	611.9	651.5
65°	387.2	388.5	392.5	391.2	389.9	396.5	397.8	411.0	459.9	531.3	560.4
67.5°	342.3	339.6	341.0	343.6	344.9	346.3	348.9	362.1	396.5	454.6	478.4
70°	289.4	292.1	290.7	294.7	292.1	296.0	298.7	307.9	341.0	379.3	395.2
72.5°	241.9	243.2	243.2	247.1	245.8	249.8	252.4	256.4	280.2	314.5	321.1
75°	198.2	198.2	200.9	202.2	202.2	202.2	204.8	207.5	227.3	248.5	255.1
77.5°	150.7	157.3	155.9	157.3	158.6	162.6	159.9	165.2	177.1	189.0	193.0
80°	109.7	109.7	111.0	112.3	115.0	117.6	117.6	122.9	128.2	134.8	138.8
82.5°	70.0	71.4	75.3	76.7	78.0	81.9	81.9	81.9	88.5	91.2	91.2
85°	43.6	41.0	43.6	44.9	46.3	47.6	47.6	50.2	51.5	52.9	52.9
87.5°	21.1	21.1	21.1	21.1	22.5	22.5	22.5	22.5	23.8	23.8	23.8
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°	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0	2848.0
2.5°	2914.1	2865.2	2792.5	2733.0	2735.7	2681.5	2641.8	2590.3	2574.4	2558.6	2537.4
5°	2974.9	2862.6	2711.9	2591.6	2554.6	2464.8	2351.1	2295.6	2262.6	2204.4	2181.9
7.5°	3050.2	2844.1	2614.1	2426.4	2385.5	2236.1	2101.3	2035.2	1973.1	1932.2	1881.9
10°	3099.1	2811.0	2515.0	2266.5	2226.9	2056.4	1880.6	1833.0	1755.1	1704.8	1657.3
12.5°	3136.1	2785.9	2413.2	2123.8	2059.0	1893.8	1716.7	1652.0	1595.2	1522.5	1488.1
15°	3169.2	2738.3	2308.8	1974.4	1907.0	1728.6	1564.8	1506.6	1455.1	1391.6	1361.2
17.5°	3157.3	2680.2	2193.8	1842.3	1774.9	1599.1	1441.8	1375.8	1341.4	1285.9	1264.8
20°	3142.7	2630.0	2085.5	1716.7	1642.7	1478.9	1325.6	1278.0	1243.6	1207.9	1189.4
22.5°	3096.5	2550.7	1975.8	1601.8	1531.7	1367.8	1237.0	1197.4	1170.9	1145.8	1130.0
25°	3018.5	2480.6	1868.7	1486.8	1431.3	1278.0	1167.0	1130.0	1112.8	1087.7	1073.1
27.5°	2922.0	2388.1	1761.7	1393.0	1329.5	1193.4	1098.2	1074.4	1055.9	1036.1	1021.6
30°	2800.4	2285.0	1657.3	1301.8	1243.6	1123.3	1041.4	1020.3	1003.1	983.3	966.1
32.5°	2645.8	2180.6	1559.5	1217.2	1168.3	1063.9	988.5	971.4	956.8	933.0	923.8
35°	2472.7	2068.3	1463.0	1136.6	1090.3	999.1	937.0	919.8	905.3	885.5	877.5
37.5°	2296.9	1934.8	1367.8	1067.8	1026.9	944.9	885.5	868.3	855.1	837.9	833.9
40°	2110.6	1811.9	1274.0	997.8	962.1	892.1	833.9	820.7	807.5	796.9	794.3
42.5°	1922.9	1670.5	1192.1	939.6	901.3	836.6	783.7	769.2	761.2	755.9	757.3
45°	1745.8	1529.1	1107.5	872.2	845.8	786.3	737.4	725.6	718.9	715.0	720.3
47.5°	1554.2	1385.0	1028.2	815.4	789.0	736.1	689.9	679.3	676.7	675.3	684.6
50°	1385.0	1235.7	942.3	757.3	734.8	680.6	643.6	634.4	631.7	635.7	648.9
52.5°	1225.1	1096.9	864.3	703.1	680.6	631.7	597.4	590.7	589.4	598.7	611.9
55°	1066.5	967.4	779.7	643.6	621.1	578.9	552.4	545.8	544.5	563.0	574.9
57.5°	931.7	841.8	700.4	586.8	569.6	530.0	506.2	500.9	504.8	522.0	533.9
60°	799.6	726.9	627.8	526.0	512.8	478.4	459.9	458.6	462.6	482.4	494.3
62.5°	680.6	625.1	549.8	470.5	461.2	430.8	413.7	416.3	420.3	440.1	450.7
65°	578.9	530.0	473.1	415.0	403.1	381.9	370.0	371.4	379.3	396.5	407.0
67.5°	479.7	440.1	408.4	362.1	352.9	334.4	325.1	330.4	334.4	351.5	362.1
70°	396.5	364.8	341.0	306.6	300.0	284.1	277.5	284.1	288.1	302.6	315.9
72.5°	318.5	298.7	280.2	255.1	248.5	237.9	236.6	239.2	245.8	260.4	265.6
75°	247.1	236.6	220.7	204.8	200.9	195.6	194.3	196.9	203.5	211.5	216.7
77.5°	187.7	178.4	166.5	159.9	154.6	152.0	153.3	157.3	159.9	167.8	171.8
80°	136.1	125.6	122.9	113.7	112.3	111.0	113.7	115.0	118.9	124.2	126.9
82.5°	89.9	81.9	79.3	78.0	76.7	75.3	79.3	80.6	83.3	87.2	88.5
85°	48.9	46.3	46.3	44.9	46.3	48.9	48.9	50.2	50.2	51.5	50.2
87.5°	22.5	19.8	21.1	21.1	21.1	22.5	22.5	23.8	23.8	23.8	22.5
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):

	160°	170°	180°
0°	2848.0	2848.0	2848.0
2.5°	2536.1	2526.9	2489.9
5°	2162.1	2130.4	2119.8
7.5°	1876.7	1874.0	1818.5
10°	1634.8	1638.8	1588.5
12.5°	1482.8	1449.8	1445.8
15°	1353.3	1322.9	1317.6
17.5°	1256.8	1238.3	1233.0
20°	1184.1	1173.6	1164.3
22.5°	1126.0	1112.8	1104.8
25°	1067.8	1055.9	1053.3
27.5°	1017.6	1003.1	1003.1
30°	966.1	956.8	952.9
32.5°	919.8	911.9	911.9
35°	874.9	870.9	865.6
37.5°	833.9	833.9	831.3
40°	794.3	798.2	798.2
42.5°	759.9	763.9	763.9
45°	722.9	729.5	732.2
47.5°	685.9	696.5	699.1
50°	652.9	660.8	662.1
52.5°	617.2	626.4	633.0
55°	580.2	589.4	593.4
57.5°	540.5	549.8	551.1
60°	496.9	506.2	508.8
62.5°	457.3	462.6	465.2
65°	408.4	416.3	421.6
67.5°	363.4	370.0	370.0
70°	314.5	317.2	321.1
72.5°	268.3	269.6	269.6
75°	218.1	220.7	222.0
77.5°	171.8	173.1	173.1
80°	126.9	125.6	125.6
82.5°	88.5	84.6	84.6
85°	50.2	48.9	50.2
87.5°	22.5	22.5	22.5
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	19.77	21.28	20.14	21.60	21.91	22.23	23.73	22.59	24.05	24.36
	3H	21.46	22.82	21.84	23.15	23.51	23.44	24.80	23.82	25.12	25.48
	4H	22.07	23.34	22.47	23.69	24.07	23.86	25.13	24.26	25.48	25.86
	6H	22.47	23.65	22.88	24.01	24.41	24.13	25.31	24.55	25.68	26.07
	8H	22.57	23.69	23.00	24.08	24.48	24.20	25.32	24.63	25.71	26.11
	12H	22.63	23.70	23.06	24.08	24.51	24.24	25.31	24.67	25.69	26.12
4H	2H	20.42	21.69	20.82	22.04	22.42	22.45	23.72	22.85	24.07	24.45
	3H	22.31	23.36	22.72	23.76	24.16	23.93	24.99	24.34	25.39	25.79
	4H	23.03	23.98	23.46	24.40	24.83	24.50	25.45	24.93	25.86	26.30
	6H	23.54	24.37	24.00	24.81	25.27	24.89	25.72	25.35	26.16	26.62
	8H	23.68	24.45	24.14	24.89	25.36	24.99	25.77	25.46	26.21	26.68
	12H	23.76	24.45	24.24	24.93	25.40	25.06	25.75	25.54	26.23	26.70
8H	4H	23.35	24.13	23.81	24.57	25.04	24.66	25.44	25.12	25.88	26.35
	6H	23.97	24.61	24.46	25.10	25.57	25.15	25.79	25.65	26.28	26.76
	8H	24.16	24.74	24.68	25.25	25.73	25.32	25.89	25.83	26.40	26.89
	12H	24.31	24.81	24.82	25.30	25.87	25.43	25.94	25.94	26.43	27.00
12H	4H	23.38	24.08	23.87	24.55	25.03	24.67	25.36	25.15	25.84	26.31
	6H	24.02	24.59	24.53	25.10	25.59	25.17	25.75	25.69	26.26	26.74
	8H	24.27	24.77	24.78	25.27	25.83	25.38	25.89	25.89	26.38	26.94