

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P911592

Luminaire Tested: DFN2DIP-PN4F0-110D070US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911592
REPORT IS A COMBINATION OF REPORTS P899677 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D070US850-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

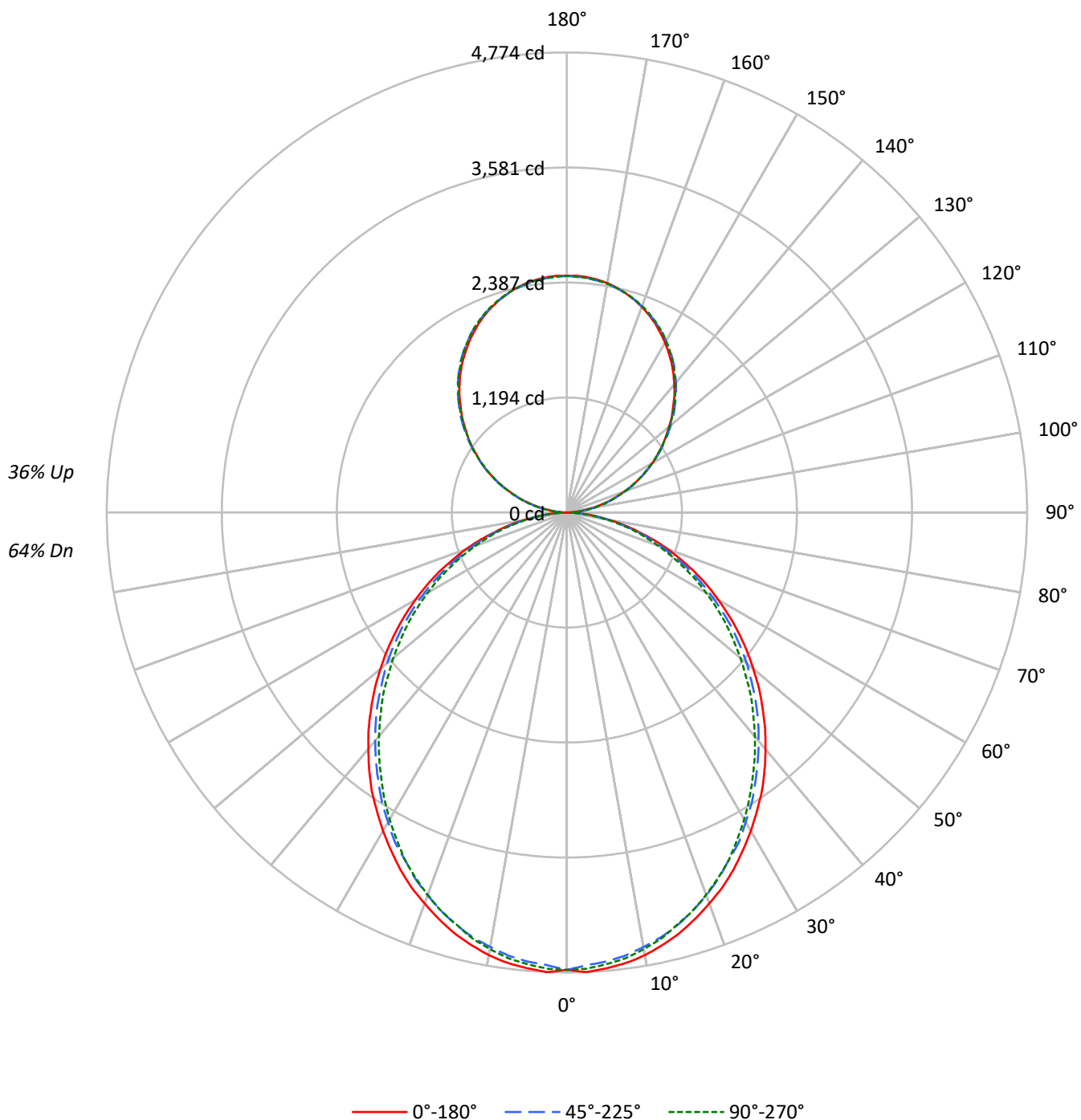
Lumens per Lamp: N/A
Luminaire Lumens: 18947.3 lumens
Efficiency: N/A
Efficacy: 113.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 166.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69
1	101	96	92	89	95	91	87	84	80	77	75	70	68	66	61	59	58
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	54	51	49
3	84	74	67	61	78	70	63	58	62	57	52	54	50	47	47	44	42
4	77	66	58	51	72	62	55	49	55	49	45	48	44	40	42	39	36
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	34	39	34	31	35	31	28
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	32	28	25
8	56	43	35	30	52	41	34	29	37	31	27	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3465	3465	3465
5°	3470	3417	3440
10°	3442	3372	3394
15°	3392	3316	3322
20°	3323	3240	3248
25°	3255	3148	3163
30°	3170	3063	3054
35°	3089	2962	2939
40°	2990	2860	2829
45°	2891	2758	2717
50°	2782	2651	2587
55°	2669	2528	2468
60°	2540	2380	2331
65°	2400	2229	2170
70°	2222	2043	1997
75°	1975	1821	1838
80°	1678	1539	1533
85°	1214	1050	1025

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2891 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	446.8	2.4
10°-20°	1257.0	6.6
20°-30°	1847.3	9.7
30°-40°	2145.5	11.3
40°-50°	2142.9	11.3
50°-60°	1868.5	9.9
60°-70°	1381.3	7.3
70°-80°	781.5	4.1
80°-90°	213.2	1.1
90°-100°	151.9	0.8
100°-110°	482.7	2.5
110°-120°	826.1	4.4
120°-130°	1086.4	5.7
130°-140°	1219.5	6.4
140°-150°	1195.8	6.3
150°-160°	1003.1	5.3
160°-170°	665.3	3.5
170°-180°	232.5	1.2
0°-30°	3551.1	18.7
0°-40°	5696.6	30.1
0°-60°	9708.0	51.2
0°-90°	12084.0	63.8
90°-120°	1460.7	7.7
90°-150°	4962.4	26.2
90°-180°	6863.0	36.2
0°-180°	18947.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4747	4747	4747	4747	4747	
5°	4747	4729	4678	4715	4706	451
15°	4519	4491	4432	4450	4428	1273
25°	4090	4053	3976	3984	3976	1882
35°	3528	3483	3410	3382	3359	2203
45°	2871	2839	2770	2721	2702	2216
55°	2173	2145	2091	2036	2013	1943
65°	1465	1438	1392	1351	1328	1449
75°	766	758	735	708	717	818
85°	187	182	178	164	160	209
90°	2	27	72	68	70	18
95°	108	129	132	132	129	120
105°	446	452	456	460	460	470
115°	829	841	837	835	829	820
125°	1206	1224	1218	1212	1210	1077
135°	1560	1582	1587	1585	1579	1205
145°	1893	1908	1920	1922	1914	1183
155°	2165	2171	2178	2188	2181	997
165°	2355	2353	2353	2368	2357	664
175°	2451	2445	2440	2455	2443	233
180°	2455	2455	2455	2455	2455	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4746.7	4746.7	4746.7	4746.7	4746.7
2.5°	4774.2	4751.5	4701.2	4746.7	4738.0
5°	4746.7	4728.8	4678.4	4714.7	4706.0
7.5°	4714.7	4687.6	4637.3	4674.1	4664.9
10°	4664.9	4632.8	4578.2	4614.4	4600.9
12.5°	4596.1	4569.0	4514.3	4537.0	4527.8
15°	4518.6	4491.4	4431.9	4450.3	4427.6
17.5°	4422.7	4395.6	4336.1	4358.8	4336.1
20°	4317.7	4290.5	4226.6	4240.2	4222.3
22.5°	4213.1	4171.8	4112.3	4112.3	4103.1
25°	4089.5	4053.3	3975.8	3984.5	3975.8
27.5°	3952.5	3920.5	3861.4	3847.9	3825.2
30°	3816.0	3779.1	3710.8	3697.3	3678.9
32.5°	3669.7	3642.6	3569.4	3541.8	3523.4
35°	3528.3	3482.8	3409.6	3382.0	3359.3
37.5°	3368.5	3327.3	3254.2	3222.2	3199.5
40°	3204.3	3167.5	3094.4	3053.7	3035.3
42.5°	3044.5	3007.7	2935.1	2889.1	2862.0
45°	2871.2	2839.2	2770.4	2720.6	2702.2
47.5°	2702.2	2670.3	2597.1	2546.7	2519.5
50°	2524.0	2501.2	2437.2	2373.4	2350.6
52.5°	2350.6	2318.6	2259.6	2209.1	2177.2
55°	2172.9	2145.2	2090.6	2035.8	2013.1
57.5°	1994.6	1971.9	1912.4	1857.6	1839.2
60°	1816.4	1798.6	1734.6	1684.2	1670.7
62.5°	1643.1	1611.2	1565.6	1520.1	1501.7
65°	1465.3	1437.7	1392.2	1351.1	1328.4
67.5°	1282.8	1259.6	1218.9	1187.0	1168.6
70°	1113.8	1095.4	1054.2	1022.3	1004.3
72.5°	940.4	922.0	899.3	867.3	853.7
75°	766.5	757.9	734.6	707.5	716.7
77.5°	611.6	593.2	584.0	570.5	556.9
80°	456.7	451.8	442.6	429.1	419.9
82.5°	310.4	310.4	306.1	287.7	287.7
85°	187.0	182.5	178.2	164.1	159.8
87.5°	82.3	73.1	63.9	50.3	45.5
90°	2.2	26.6	72.5	68.1	70.3
92.5°	45.9	62.2	64.4	66.7	66.7
95°	108.0	128.8	132.5	132.5	128.8
97.5°	179.9	199.1	207.3	207.3	207.3
100°	262.7	279.8	285.7	285.7	283.5
102.5°	350.1	362.6	370.8	373.1	370.8
105°	445.6	451.5	455.9	459.7	459.7
107.5°	540.3	549.2	549.2	550.7	540.3
110°	632.1	644.0	644.0	644.0	638.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	731.3	743.9	741.7	735.7	731.3
115°	829.0	840.8	837.2	835.0	829.0
117.5°	925.9	942.2	931.9	925.9	920.0
120°	1023.6	1039.9	1023.6	1023.6	1017.0
122.5°	1112.4	1133.2	1122.9	1116.9	1112.4
125°	1205.7	1224.2	1218.3	1211.7	1209.5
127.5°	1296.8	1319.7	1311.6	1302.7	1296.8
130°	1381.9	1408.5	1404.9	1400.4	1392.2
132.5°	1477.4	1498.1	1499.6	1489.3	1483.3
135°	1559.6	1582.4	1587.0	1584.7	1578.8
137.5°	1651.3	1669.8	1673.5	1672.0	1663.2
140°	1732.0	1750.6	1760.9	1760.9	1752.8
142.5°	1814.9	1833.4	1839.3	1841.5	1833.4
145°	1893.4	1908.1	1920.0	1922.2	1914.1
147.5°	1963.7	1982.2	1991.1	1994.8	1986.7
150°	2036.2	2048.8	2057.0	2063.6	2057.0
152.5°	2100.6	2113.2	2123.5	2131.7	2123.5
155°	2165.0	2170.9	2177.6	2187.9	2181.3
157.5°	2220.6	2225.0	2228.6	2243.5	2233.1
160°	2270.1	2274.6	2276.8	2289.3	2280.4
162.5°	2316.0	2316.0	2318.3	2332.2	2321.9
165°	2355.2	2353.0	2353.0	2367.8	2357.4
167.5°	2390.8	2384.1	2384.1	2398.9	2388.6
170°	2417.4	2411.5	2409.3	2424.1	2411.5
172.5°	2435.9	2429.9	2427.7	2442.6	2429.9
175°	2450.7	2444.8	2440.4	2455.1	2442.6
177.5°	2458.9	2452.9	2448.5	2461.1	2448.5
180°	2455.1	2455.1	2455.1	2455.1	2455.1

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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	12.78	13.78	13.61	14.63	15.69	12.34	13.34	13.17	14.19	15.25
	3H	14.45	15.35	15.29	16.21	17.30	13.97	14.87	14.81	15.73	16.81
	4H	15.05	15.90	15.91	16.76	17.86	14.56	15.41	15.42	16.28	17.37
	6H	15.46	16.24	16.33	17.11	18.23	14.96	15.75	15.84	16.62	17.73
	8H	15.57	16.31	16.45	17.21	18.32	15.07	15.82	15.95	16.71	17.82
	12H	15.62	16.33	16.51	17.22	18.36	15.12	15.83	16.01	16.72	17.86
4H	2H	13.26	14.10	14.12	14.97	16.07	12.90	13.75	13.77	14.62	15.72
	3H	15.14	15.85	16.01	16.75	17.86	14.74	15.44	15.61	16.34	17.46
	4H	15.86	16.51	16.75	17.40	18.54	15.44	16.09	16.33	16.99	18.12
	6H	16.39	16.94	17.29	17.87	19.01	15.96	16.52	16.86	17.44	18.58
	8H	16.54	17.06	17.44	17.98	19.13	16.11	16.63	17.02	17.55	18.70
	12H	16.62	17.09	17.55	18.03	19.19	16.18	16.65	17.11	17.59	18.75
8H	4H	16.07	16.59	16.97	17.51	18.66	15.70	16.22	16.60	17.13	18.29
	6H	16.71	17.14	17.64	18.10	19.25	16.33	16.76	17.26	17.72	18.88
	8H	16.93	17.32	17.87	18.26	19.44	16.55	16.93	17.49	17.88	19.05
	12H	17.07	17.41	18.02	18.35	19.57	16.67	17.01	17.61	17.95	19.17
12H	4H	16.06	16.53	16.98	17.46	18.63	15.70	16.17	16.62	17.10	18.26
	6H	16.74	17.12	17.68	18.07	19.24	16.37	16.76	17.32	17.71	18.88
	8H	16.99	17.33	17.93	18.27	19.49	16.62	16.96	17.56	17.90	19.12