

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: P911469

Luminaire Tested: DFN2DIP-PN4F0-070D120US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911469
REPORT IS A COMBINATION OF REPORTS P901279 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D120US850-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

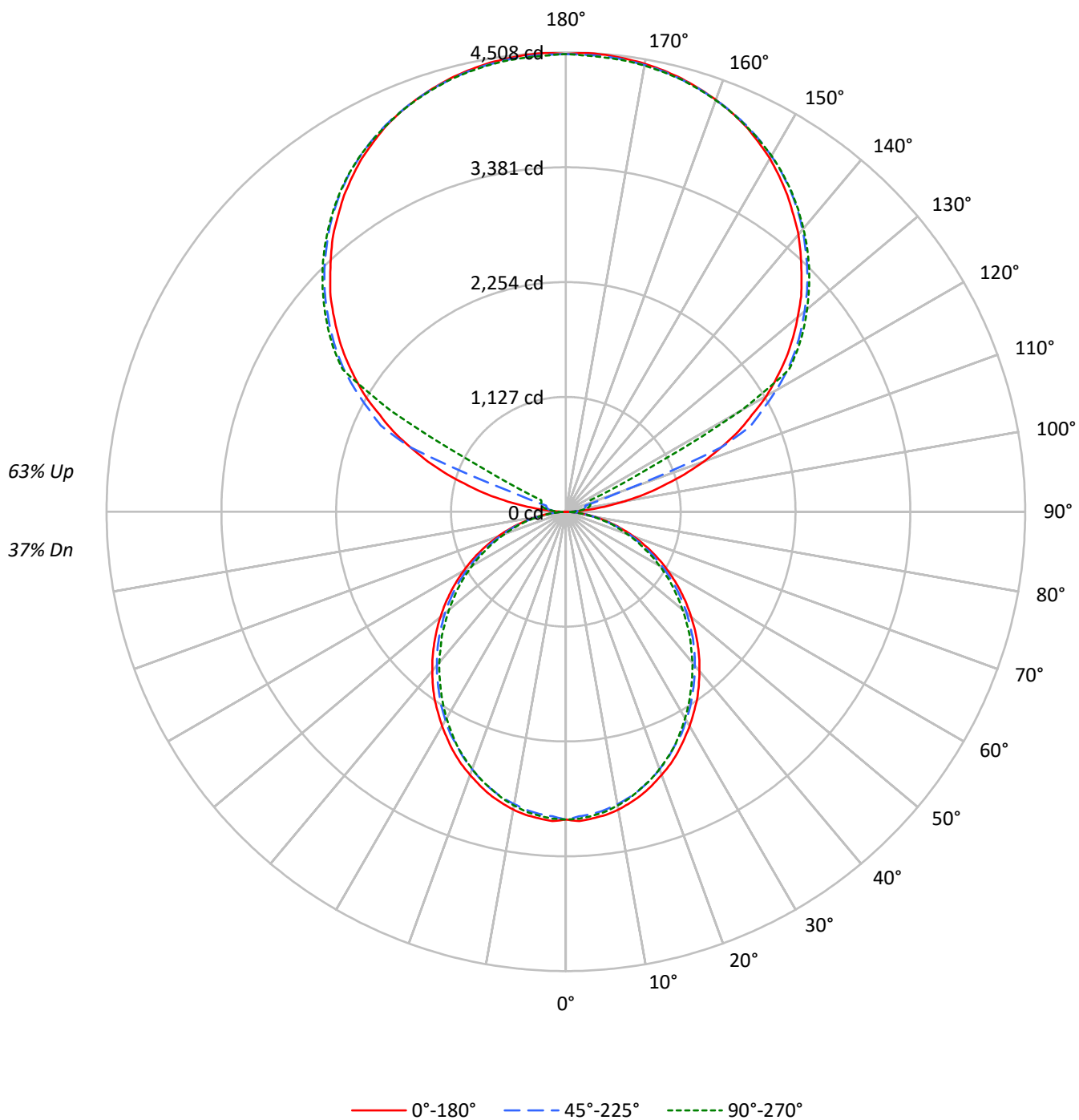
Lumens per Lamp: N/A
Luminaire Lumens: 20860.3 lumens
Efficiency: N/A
Efficacy: 122.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 170.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	91	87	83	86	82	79	76	67	64	62	52	51	49	39	38	37
2	86	79	73	68	78	72	67	62	58	55	52	46	43	41	34	33	31
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	27
4	72	61	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20
6	61	49	41	35	55	45	38	33	37	31	28	29	25	23	22	20	18
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	18	16
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	19	16	14
9	48	36	29	24	44	33	27	22	28	23	19	22	19	16	17	15	13
10	45	33	26	22	41	31	24	20	25	21	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2205	2205	2205
5°	2208	2175	2189
10°	2191	2145	2160
15°	2158	2110	2114
20°	2115	2062	2067
25°	2072	2003	2013
30°	2017	1949	1943
35°	1966	1885	1870
40°	1902	1820	1800
45°	1839	1755	1729
50°	1770	1687	1646
55°	1698	1608	1570
60°	1616	1515	1484
65°	1528	1418	1381
70°	1414	1300	1271
75°	1257	1159	1170
80°	1068	980	975
85°	772	669	653

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2395 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.3	1.4
10°-20°	799.9	3.8
20°-30°	1175.6	5.6
30°-40°	1365.3	6.5
40°-50°	1363.6	6.5
50°-60°	1189.1	5.7
60°-70°	879.0	4.2
70°-80°	497.3	2.4
80°-90°	139.2	0.7
90°-100°	148.1	0.7
100°-110°	552.1	2.6
110°-120°	1464.2	7.0
120°-130°	2428.5	11.6
130°-140°	2579.6	12.4
140°-150°	2397.5	11.5
150°-160°	1927.5	9.2
160°-170°	1242.0	6.0
170°-180°	427.5	2.0
0°-30°	2259.8	10.8
0°-40°	3625.1	17.4
0°-60°	6177.8	29.6
0°-90°	7693.3	36.9
90°-120°	2164.4	10.4
90°-150°	9570.0	45.9
90°-180°	13167.0	63.1
0°-180°	20860.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3021	3021	3021	3021	3021	
5°	3021	3009	2977	3000	2995	287
15°	2876	2858	2820	2832	2818	810
25°	2602	2579	2530	2536	2530	1198
35°	2245	2216	2170	2152	2138	1402
45°	1827	1807	1763	1731	1720	1410
55°	1383	1365	1330	1296	1281	1236
65°	933	915	886	860	845	922
75°	488	482	467	450	456	521
85°	119	116	114	104	102	133
90°	3	39	65	81	88	19
95°	211	104	126	143	140	250
105°	988	1086	198	234	247	1056
115°	1869	1924	2005	500	267	1840
125°	2642	2684	2746	2769	2779	2356
135°	3269	3322	3350	3383	3377	2526
145°	3793	3789	3844	3867	3851	2372
155°	4176	4147	4186	4205	4180	1924
165°	4400	4381	4390	4413	4390	1243
175°	4501	4478	4485	4508	4475	428
180°	4491	4491	4491	4491	4491	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3020.6	3020.6	3020.6	3020.6	3020.6
2.5°	3038.2	3023.7	2991.6	3020.6	3015.0
5°	3020.6	3009.3	2977.2	3000.3	2994.7
7.5°	3000.3	2983.0	2950.9	2974.4	2968.6
10°	2968.6	2948.2	2913.3	2936.5	2927.9
12.5°	2924.8	2907.6	2872.8	2887.2	2881.3
15°	2875.5	2858.2	2820.3	2832.1	2817.5
17.5°	2814.4	2797.2	2759.3	2773.8	2759.3
20°	2747.5	2730.4	2689.7	2698.3	2686.9
22.5°	2681.0	2654.8	2616.9	2616.9	2611.0
25°	2602.5	2579.3	2530.1	2535.6	2530.1
27.5°	2515.2	2494.9	2457.3	2448.7	2434.1
30°	2428.4	2404.9	2361.5	2352.9	2341.1
32.5°	2335.2	2318.0	2271.5	2253.9	2242.2
35°	2245.3	2216.3	2169.8	2152.2	2137.7
37.5°	2143.6	2117.4	2070.8	2050.5	2036.0
40°	2039.1	2015.7	1969.1	1943.3	1931.5
42.5°	1937.4	1914.0	1867.8	1838.5	1821.2
45°	1827.1	1806.8	1763.0	1731.3	1719.5
47.5°	1719.5	1699.2	1652.6	1620.6	1603.4
50°	1606.2	1591.6	1550.9	1510.3	1495.8
52.5°	1495.8	1475.5	1437.9	1405.9	1385.5
55°	1382.7	1365.2	1330.4	1295.5	1281.0
57.5°	1269.4	1254.8	1216.9	1182.1	1170.4
60°	1155.9	1144.5	1103.9	1071.8	1063.2
62.5°	1045.6	1025.3	996.3	967.4	955.6
65°	932.6	914.9	886.0	859.8	845.3
67.5°	816.3	801.6	775.6	755.3	743.6
70°	708.8	697.1	670.8	650.5	639.1
72.5°	598.4	586.8	572.2	551.9	543.3
75°	487.8	482.3	467.4	450.3	456.1
77.5°	389.3	377.5	371.6	363.0	354.4
80°	290.6	287.6	281.7	273.0	267.2
82.5°	197.5	197.5	194.7	183.1	183.1
85°	119.0	116.2	113.5	104.5	101.7
87.5°	52.3	46.6	40.7	32.1	28.9
90°	3.1	38.9	64.9	81.4	87.6
92.5°	81.4	68.3	78.0	84.5	87.6
95°	211.0	103.8	126.5	143.2	139.7
97.5°	380.2	113.9	165.6	175.6	178.7
100°	575.3	130.1	185.2	211.0	217.7
102.5°	789.6	783.4	191.7	227.3	237.3
105°	987.9	1085.6	198.4	233.9	247.0
107.5°	1218.7	1299.7	204.9	240.4	253.5
110°	1439.8	1507.8	568.8	243.9	256.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1647.9	1706.1	1651.0	250.1	260.1
115°	1868.6	1923.8	2005.2	500.5	266.7
117.5°	2060.4	2125.3	2180.8	1715.7	864.5
120°	2275.0	2323.6	2382.2	2421.3	1982.4
122.5°	2456.8	2508.9	2574.1	2593.4	2596.8
125°	2642.0	2684.4	2746.2	2769.0	2778.6
127.5°	2811.0	2856.6	2905.6	2938.0	2941.1
130°	2970.3	3022.5	3058.0	3093.9	3090.8
132.5°	3132.8	3175.3	3210.8	3240.2	3237.1
135°	3269.4	3321.6	3350.5	3383.3	3376.8
137.5°	3412.3	3451.2	3484.0	3516.4	3506.8
140°	3552.0	3578.2	3613.7	3643.1	3626.9
142.5°	3669.2	3692.1	3734.1	3760.0	3743.8
145°	3792.8	3789.3	3844.5	3867.3	3851.0
147.5°	3899.7	3890.0	3945.3	3961.5	3948.7
150°	4003.8	3981.1	4033.2	4052.5	4036.3
152.5°	4091.4	4065.6	4114.3	4133.9	4111.2
155°	4175.9	4147.0	4186.0	4205.3	4179.5
157.5°	4244.3	4218.4	4247.8	4270.5	4244.3
160°	4302.9	4283.3	4302.9	4322.2	4299.5
162.5°	4354.7	4335.4	4351.6	4374.3	4345.1
165°	4400.2	4380.9	4390.5	4413.4	4390.5
167.5°	4436.1	4416.4	4426.5	4449.2	4419.9
170°	4465.4	4445.8	4452.3	4475.0	4445.8
172.5°	4484.7	4465.4	4472.0	4494.8	4465.4
175°	4500.9	4478.1	4484.7	4507.5	4475.0
177.5°	4507.5	4484.7	4488.2	4511.0	4481.7
180°	4491.3	4491.3	4491.3	4491.3	4491.3

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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	8.67	9.43	9.74	10.49	11.94	8.23	8.99	9.30	10.05	11.50
	3H	10.33	11.01	11.40	12.08	13.55	9.85	10.52	10.92	11.60	13.06
	4H	10.91	11.56	12.00	12.63	14.10	10.43	11.07	11.51	12.14	13.62
	6H	11.31	11.90	12.40	12.98	14.46	10.82	11.41	11.91	12.49	13.97
	8H	11.41	11.98	12.51	13.07	14.55	10.92	11.48	12.02	12.58	14.06
	12H	11.46	11.99	12.56	13.08	14.58	10.96	11.49	12.06	12.58	14.08
4H	2H	9.12	9.76	10.21	10.84	12.31	8.77	9.41	9.86	10.49	11.96
	3H	10.98	11.52	12.08	12.62	14.10	10.58	11.12	11.68	12.22	13.70
	4H	11.70	12.19	12.80	13.28	14.78	11.28	11.77	12.38	12.86	14.37
	6H	12.21	12.63	13.32	13.74	15.24	11.78	12.20	12.89	13.32	14.82
	8H	12.36	12.75	13.46	13.86	15.37	11.93	12.32	13.04	13.43	14.94
	12H	12.42	12.78	13.55	13.90	15.42	11.98	12.34	13.11	13.46	14.98
8H	4H	11.88	12.28	12.99	13.38	14.90	11.51	11.91	12.62	13.01	14.53
	6H	12.51	12.84	13.64	13.99	15.50	12.14	12.46	13.27	13.61	15.12
	8H	12.74	13.02	13.87	14.15	15.68	12.35	12.63	13.49	13.77	15.30
	12H	12.86	13.11	14.00	14.24	15.81	12.46	12.71	13.60	13.84	15.41
12H	4H	11.86	12.22	12.99	13.34	14.86	11.50	11.86	12.63	12.98	14.50
	6H	12.54	12.83	13.68	13.96	15.49	12.18	12.46	13.31	13.59	15.12
	8H	12.78	13.03	13.92	14.16	15.73	12.41	12.66	13.55	13.79	15.35