

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: P911453

Luminaire Tested: DFN2DIP-PN4F0-070D080US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911453
REPORT IS A COMBINATION OF REPORTS P901207 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D080US850-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

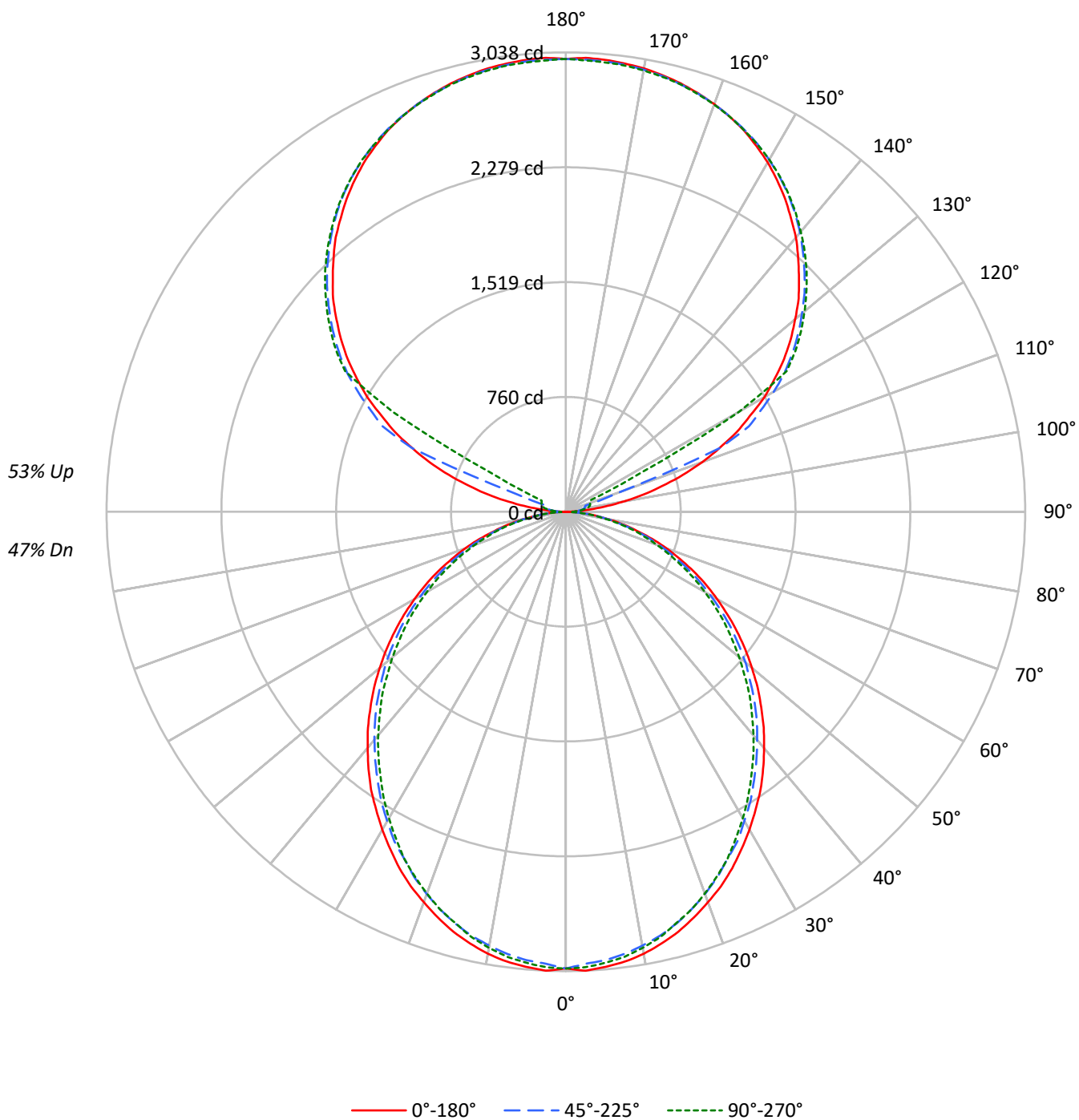
Lumens per Lamp: N/A
Luminaire Lumens: 16468.7 lumens
Efficiency: N/A
Efficacy: 132.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 124.6
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

TEST NUMBER: P911453

CATALOG NUMBER: DFN2DIP-PN4F0-070D080US850-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P911453

CATALOG NUMBER: DFN2DIP-PN4F0-070D080US850-FLLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	67	67	67	53	53	53	47	47	47
1	97	93	89	85	89	85	82	79	71	69	67	59	57	56	47	46	45	39	39	39
2	88	81	75	70	81	75	69	65	63	59	55	52	49	46	41	39	38	33	33	33
3	81	71	64	58	74	66	59	54	55	50	47	46	42	39	37	34	32	28	28	28
4	74	63	55	49	67	58	51	46	49	44	40	41	37	34	33	30	28	24	24	24
5	68	56	48	42	62	52	45	39	44	38	34	36	32	29	29	27	24	21	21	21
6	62	50	42	36	57	47	39	34	40	34	30	33	29	25	27	24	21	18	18	18
7	58	45	37	32	53	42	35	30	36	30	26	30	26	23	24	21	19	16	16	16
8	53	41	33	28	49	38	31	27	33	27	23	27	23	20	22	19	17	15	15	15
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15	13	13	13
10	46	34	27	22	43	32	26	21	28	22	19	23	19	16	19	16	14	12	12	12

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: 0°

Vertical Angle: 45°

Luminance: 1839 cd/sqm

TEST NUMBER: P911453

CATALOG NUMBER: DFN2DIP-PN4F0-070D080US850-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.3	1.7
10°-20°	799.9	4.9
20°-30°	1175.6	7.1
30°-40°	1365.3	8.3
40°-50°	1363.6	8.3
50°-60°	1189.1	7.2
60°-70°	879.0	5.3
70°-80°	497.3	3.0
80°-90°	136.5	0.8
90°-100°	98.7	0.6
100°-110°	368.1	2.2
110°-120°	976.2	5.9
120°-130°	1619.0	9.8
130°-140°	1719.8	10.4
140°-150°	1598.3	9.7
150°-160°	1285.0	7.8
160°-170°	828.0	5.0
170°-180°	285.0	1.7
0°-30°	2259.8	13.7
0°-40°	3625.1	22.0
0°-60°	6177.8	37.5
0°-90°	7690.6	46.7
90°-120°	1442.9	8.8
90°-150°	6380.0	38.7
90°-180°	8778.0	53.3
0°-180°	16468.7	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°	2	26	43	54	58	15
95°	141	69	84	96	93	167
105°	659	724	132	156	165	704
115°	1246	1283	1337	334	178	1226
125°	1761	1790	1831	1846	1852	1571
135°	2180	2214	2234	2256	2251	1684
145°	2528	2526	2563	2578	2567	1581
155°	2784	2765	2791	2804	2786	1283
165°	2934	2921	2927	2942	2927	829
175°	3001	2985	2990	3005	2983	286
180°	2994	2994	2994	2994	2994	

TEST NUMBER: P911453

CATALOG NUMBER: DFN2DIP-PN4F0-070D080US850-FLLONL

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°	2.1	26.0	43.3	54.2	58.4
92.5°	54.2	45.6	52.0	56.3	58.4
95°	140.7	69.2	84.4	95.5	93.2
97.5°	253.4	75.9	110.3	117.1	119.1
100°	383.6	86.7	123.5	140.7	145.1
102.5°	526.4	522.2	127.9	151.5	158.3
105°	658.6	723.7	132.2	155.9	164.7
107.5°	812.5	866.5	136.6	160.3	169.0
110°	960.0	1005.2	379.3	162.6	171.1

TEST NUMBER: P911453

CATALOG NUMBER: DFN2DIP-PN4F0-070D080US850-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1098.6	1137.4	1100.7	166.7	173.4
115°	1245.7	1282.6	1336.8	333.7	177.8
117.5°	1373.6	1416.9	1453.9	1143.8	576.3
120°	1516.7	1549.1	1588.2	1614.1	1321.6
122.5°	1637.8	1672.6	1716.1	1728.9	1731.3
125°	1761.3	1789.6	1830.7	1845.9	1852.4
127.5°	1874.0	1904.4	1937.1	1958.6	1960.7
130°	1980.2	2014.9	2038.7	2062.6	2060.5
132.5°	2088.6	2116.9	2140.6	2160.1	2158.0
135°	2179.6	2214.3	2233.6	2255.6	2251.2
137.5°	2274.9	2300.8	2322.7	2344.3	2337.9
140°	2367.9	2385.5	2409.2	2428.7	2417.8
142.5°	2446.2	2461.3	2489.4	2506.7	2495.8
145°	2528.5	2526.2	2563.0	2578.2	2567.3
147.5°	2599.8	2593.4	2630.1	2641.0	2632.4
150°	2669.3	2654.1	2688.8	2701.6	2690.9
152.5°	2727.7	2710.4	2742.8	2756.0	2740.8
155°	2784.0	2764.7	2790.7	2803.6	2786.4
157.5°	2829.5	2812.3	2831.8	2847.0	2829.5
160°	2868.7	2855.6	2868.7	2881.5	2866.3
162.5°	2903.1	2890.3	2901.0	2916.2	2896.7
165°	2933.5	2920.7	2927.1	2942.2	2927.1
167.5°	2957.4	2944.3	2950.9	2966.1	2946.6
170°	2977.0	2963.8	2968.2	2983.4	2963.8
172.5°	2989.9	2977.0	2981.3	2996.5	2977.0
175°	3000.6	2985.4	2989.9	3004.9	2983.4
177.5°	3004.9	2989.9	2992.1	3007.3	2987.8
180°	2994.2	2994.2	2994.2	2994.2	2994.2

TEST NUMBER: P911453

CATALOG NUMBER: DFN2DIP-PN4F0-070D080US850-FLLONL

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	9.71	10.54	10.70	11.54	12.86	9.27	10.10	10.26	11.10	12.42
	3H	11.37	12.12	12.37	13.13	14.47	10.89	11.64	11.88	12.64	13.98
	4H	11.96	12.67	12.97	13.68	15.03	11.47	12.18	12.48	13.19	14.54
	6H	12.36	13.01	13.38	14.03	15.39	11.87	12.52	12.89	13.54	14.90
	8H	12.47	13.09	13.49	14.12	15.47	11.98	12.59	13.00	13.63	14.98
	12H	12.52	13.11	13.55	14.13	15.51	12.02	12.61	13.05	13.63	15.01
4H	2H	10.17	10.88	11.19	11.89	13.23	9.82	10.53	10.83	11.54	12.88
	3H	12.04	12.63	13.06	13.67	15.03	11.63	12.22	12.66	13.26	14.62
	4H	12.75	13.29	13.78	14.32	15.71	12.34	12.88	13.37	13.91	15.29
	6H	13.27	13.73	14.31	14.79	16.17	12.84	13.31	13.89	14.36	15.74
	8H	13.42	13.85	14.46	14.90	16.29	12.99	13.42	14.03	14.47	15.87
	12H	13.49	13.89	14.55	14.95	16.35	13.05	13.44	14.11	14.51	15.91
8H	4H	12.95	13.38	13.99	14.43	15.82	12.58	13.01	13.62	14.06	15.45
	6H	13.58	13.94	14.65	15.03	16.42	13.20	13.56	14.27	14.65	16.04
	8H	13.80	14.12	14.88	15.19	16.60	13.42	13.73	14.49	14.81	16.22
	12H	13.94	14.21	15.01	15.28	16.73	13.53	13.81	14.61	14.88	16.33
12H	4H	12.93	13.32	13.99	14.39	15.78	12.57	12.96	13.63	14.02	15.42
	6H	13.61	13.93	14.68	15.00	16.41	13.25	13.56	14.32	14.63	16.04
	8H	13.85	14.13	14.93	15.20	16.65	13.48	13.76	14.56	14.83	16.28