

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: P910573

Luminaire Tested: DFN2DIP-4P4F0-070D070US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910573
REPORT IS A COMBINATION OF REPORTS P900656 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D070US850-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open
No Lens
Light Source: -
Ballast/Driver: -

Summary

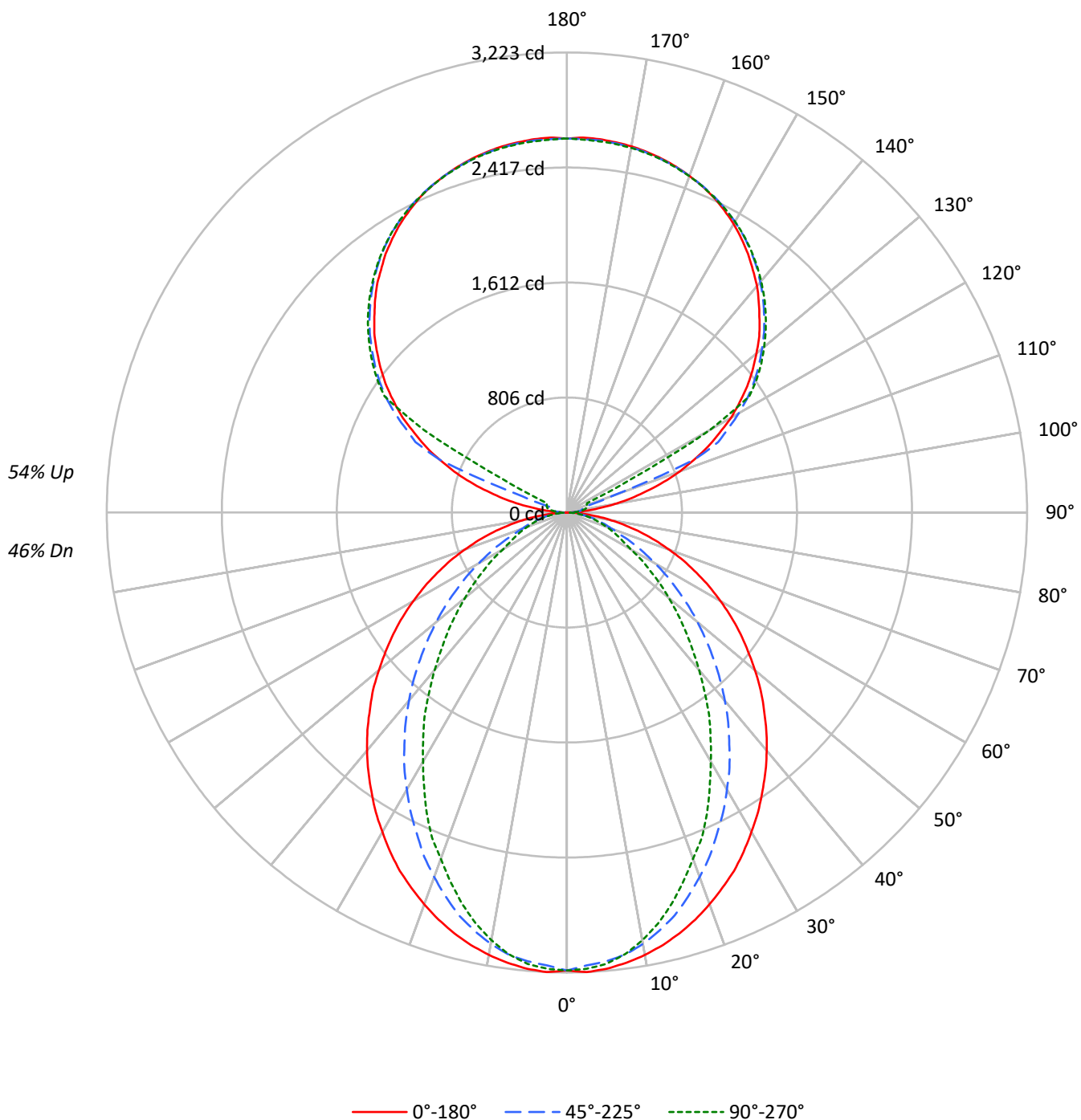
Lumens per Lamp: N/A
Luminaire Lumens: 14283.9 lumens
Efficiency: N/A
Efficacy: 105.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 135.4
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	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2081	2081	2081
5°	2085	2049	2062
10°	2064	2010	1996
15°	2036	1944	1893
20°	1999	1853	1766
25°	1960	1751	1644
30°	1909	1646	1488
35°	1858	1533	1352
40°	1807	1417	1195
45°	1747	1287	1053
50°	1686	1157	914
55°	1621	1017	781
60°	1547	871	643
65°	1461	722	580
70°	1357	583	526
75°	1227	515	480
80°	1038	435	419
85°	725	294	320

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1747 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.7	2.1
10°-20°	825.5	5.8
20°-30°	1158.9	8.1
30°-40°	1263.3	8.8
40°-50°	1161.1	8.1
50°-60°	911.9	6.4
60°-70°	593.5	4.2
70°-80°	305.5	2.1
80°-90°	82.6	0.6
90°-100°	86.4	0.6
100°-110°	322.1	2.3
110°-120°	854.1	6.0
120°-130°	1416.6	9.9
130°-140°	1504.8	10.5
140°-150°	1398.5	9.8
150°-160°	1124.4	7.9
160°-170°	724.5	5.1
170°-180°	249.4	1.7
0°-30°	2285.1	16.0
0°-40°	3548.4	24.8
0°-60°	5621.4	39.4
0°-90°	6603.1	46.2
90°-120°	1262.6	8.8
90°-150°	5582.5	39.1
90°-180°	7681.0	53.8
0°-180°	14283.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3208	3208	3208	3208	3208	
5°	3208	3194	3156	3182	3174	304
15°	3052	3020	2921	2866	2837	860
25°	2770	2677	2485	2366	2323	1274
35°	2387	2239	1983	1800	1736	1494
45°	1951	1756	1452	1246	1176	1507
55°	1484	1257	944	770	714	1326
65°	1002	766	505	407	398	993
75°	534	331	232	212	209	565
85°	125	64	55	55	55	143
90°	2	23	38	48	51	13
95°	123	61	74	84	82	146
105°	576	633	116	136	144	616
115°	1090	1122	1170	292	156	1073
125°	1541	1566	1602	1615	1621	1375
135°	1907	1938	1954	1974	1970	1473
145°	2212	2210	2243	2256	2246	1384
155°	2436	2419	2442	2453	2438	1123
165°	2567	2556	2561	2574	2561	725
175°	2626	2612	2616	2629	2610	250
180°	2620	2620	2620	2620	2620	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3208.4	3208.4	3208.4	3208.4	3208.4
2.5°	3222.9	3208.4	3176.4	3205.7	3199.8
5°	3208.4	3193.9	3156.1	3182.3	3173.6
7.5°	3182.3	3165.0	3124.4	3135.7	3121.3
10°	3147.5	3127.2	3069.2	3060.3	3043.0
12.5°	3104.0	3077.8	2999.3	2982.0	2949.9
15°	3051.6	3019.6	2921.0	2865.9	2836.9
17.5°	2990.6	2944.2	2822.2	2758.3	2711.8
20°	2921.0	2862.8	2717.7	2645.3	2581.2
22.5°	2845.6	2778.7	2610.1	2511.6	2468.2
25°	2770.1	2677.0	2485.4	2366.5	2322.8
27.5°	2680.1	2581.2	2369.3	2232.9	2166.0
30°	2584.3	2473.7	2241.4	2093.6	2015.1
32.5°	2491.3	2357.6	2119.7	1945.4	1872.7
35°	2386.8	2238.6	1983.3	1800.4	1736.3
37.5°	2285.2	2125.3	1855.5	1654.8	1582.5
40°	2177.6	2003.6	1721.7	1515.7	1440.1
42.5°	2067.4	1881.6	1588.3	1373.3	1301.0
45°	1951.3	1756.5	1451.9	1245.5	1175.9
47.5°	1840.9	1634.9	1321.3	1114.9	1051.1
50°	1719.0	1512.9	1193.4	992.9	932.2
52.5°	1599.7	1381.9	1071.4	879.8	824.7
55°	1483.6	1257.2	943.5	769.5	714.4
57.5°	1364.7	1132.4	830.5	667.8	621.4
60°	1242.7	1010.4	711.3	563.5	516.9
62.5°	1123.7	891.5	609.6	470.4	447.3
65°	1001.8	766.4	505.3	406.7	397.7
67.5°	885.6	650.3	406.7	357.0	348.4
70°	763.7	537.2	336.7	307.7	296.0
72.5°	647.5	432.5	281.6	258.5	252.6
75°	534.2	330.8	232.2	211.9	209.2
77.5°	421.1	235.0	183.0	171.2	165.5
80°	316.4	168.5	139.3	127.9	127.9
82.5°	220.6	113.3	95.8	89.9	89.9
85°	124.8	63.8	55.1	55.1	55.1
87.5°	46.5	23.1	23.1	20.3	20.3
90°	1.8	22.7	37.8	47.5	51.1
92.5°	47.5	39.8	45.5	49.4	51.1
95°	123.1	60.6	73.9	83.5	81.5
97.5°	221.7	66.4	96.6	102.5	104.2
100°	335.7	75.9	108.0	123.1	127.0
102.5°	460.6	457.0	111.9	132.6	138.4
105°	576.3	633.2	115.7	136.4	144.1
107.5°	710.9	758.2	119.6	140.3	147.9
110°	840.0	879.5	331.8	142.3	149.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	961.3	995.2	963.1	145.8	151.7
115°	1090.0	1122.2	1169.7	292.0	155.6
117.5°	1201.9	1239.8	1272.1	1000.9	504.3
120°	1327.0	1355.4	1389.7	1412.4	1156.5
122.5°	1433.0	1463.4	1501.6	1512.8	1514.8
125°	1541.2	1565.9	1602.0	1615.3	1620.8
127.5°	1639.8	1666.3	1694.9	1713.8	1715.6
130°	1732.7	1763.1	1783.8	1804.8	1803.0
132.5°	1827.5	1852.3	1873.0	1890.1	1888.3
135°	1907.1	1937.5	1954.5	1973.6	1969.8
137.5°	1990.4	2013.3	2032.4	2051.3	2045.7
140°	2071.9	2087.2	2108.0	2125.1	2115.6
142.5°	2140.4	2153.7	2178.2	2193.3	2183.8
145°	2212.5	2210.5	2242.6	2255.9	2246.5
147.5°	2274.8	2269.2	2301.4	2310.8	2303.4
150°	2335.6	2322.4	2352.7	2363.9	2354.5
152.5°	2386.7	2371.6	2400.0	2411.4	2398.2
155°	2436.0	2419.1	2441.8	2453.1	2438.0
157.5°	2475.8	2460.8	2477.8	2491.1	2475.8
160°	2510.1	2498.6	2510.1	2521.3	2508.0
162.5°	2540.3	2529.0	2538.4	2551.7	2534.6
165°	2566.8	2555.6	2561.1	2574.4	2561.1
167.5°	2587.7	2576.2	2582.1	2595.4	2578.3
170°	2604.8	2593.4	2597.2	2610.5	2593.4
172.5°	2616.1	2604.8	2608.7	2621.9	2604.8
175°	2625.6	2612.2	2616.1	2629.3	2610.5
177.5°	2629.3	2616.1	2618.1	2631.4	2614.2
180°	2619.9	2619.9	2619.9	2619.9	2619.9

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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	9.35	10.15	10.35	11.15	12.48	5.31	6.11	6.31	7.11	8.44
	3H	11.03	11.75	12.04	12.76	14.11	6.50	7.21	7.50	8.22	9.57
	4H	11.64	12.32	12.66	13.33	14.69	6.95	7.63	7.97	8.64	10.00
	6H	12.07	12.69	13.10	13.71	15.08	7.27	7.89	8.30	8.91	10.28
	8H	12.19	12.79	13.23	13.82	15.19	7.36	7.95	8.39	8.99	10.35
	12H	12.26	12.82	13.30	13.85	15.24	7.40	7.97	8.44	9.00	10.38
4H	2H	9.36	10.04	10.39	11.06	12.41	5.91	6.58	6.93	7.60	8.95
	3H	11.20	11.76	12.23	12.80	14.17	7.25	7.82	8.29	8.86	10.23
	4H	11.89	12.41	12.93	13.44	14.83	7.80	8.32	8.84	9.35	10.74
	6H	12.41	12.85	13.46	13.91	15.30	8.22	8.66	9.27	9.72	11.11
	8H	12.59	13.00	13.64	14.05	15.46	8.35	8.76	9.40	9.82	11.22
	12H	12.69	13.06	13.76	14.12	15.53	8.42	8.79	9.49	9.85	11.26
8H	4H	11.86	12.27	12.91	13.32	14.72	8.08	8.50	9.14	9.55	10.95
	6H	12.43	12.77	13.50	13.86	15.26	8.60	8.94	9.68	10.04	11.44
	8H	12.65	12.95	13.73	14.03	15.44	8.80	9.10	9.88	10.17	11.59
	12H	12.79	13.05	13.88	14.13	15.59	8.92	9.18	10.00	10.25	11.71
12H	4H	11.81	12.18	12.88	13.25	14.65	8.09	8.46	9.16	9.53	10.93
	6H	12.41	12.70	13.49	13.78	15.20	8.66	8.95	9.74	10.03	11.45
	8H	12.63	12.89	13.71	13.96	15.42	8.87	9.13	9.95	10.20	11.66