

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: P911429

Luminaire Tested: DFN2DIP-PN4F0-060D110US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911429
REPORT IS A COMBINATION OF REPORTS P901259 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-060D110US850-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

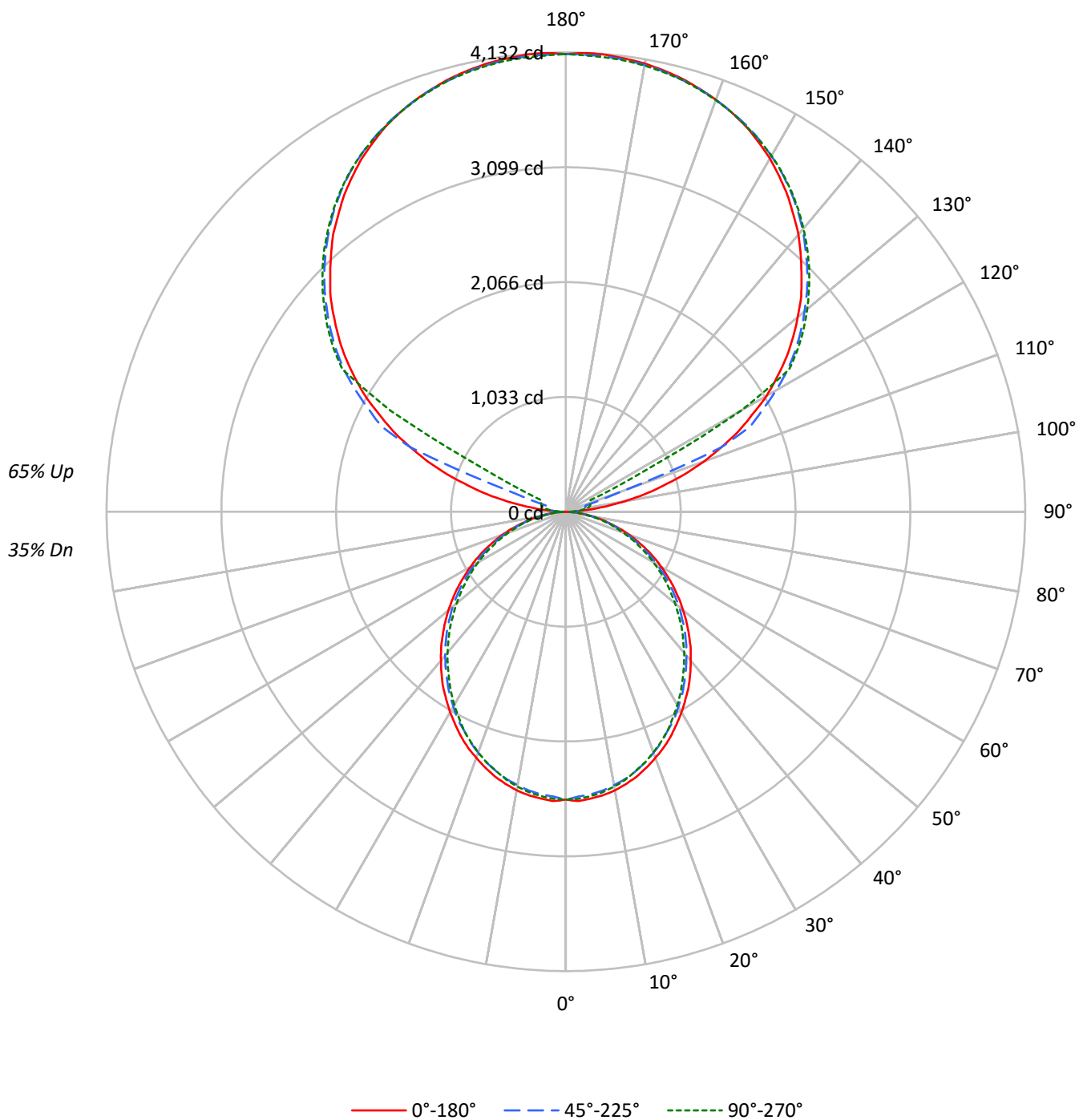
Lumens per Lamp: N/A
Luminaire Lumens: 18664.4 lumens
Efficiency: N/A
Efficacy: 127.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 146.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	75	75	75	58	58	58	43	43	43
1	95	90	86	83	85	82	79	76	66	64	62	51	50	48	38	37	36
2	86	79	73	68	78	71	66	62	58	54	51	45	43	40	33	32	30
3	78	69	62	56	71	63	57	52	51	46	43	40	37	34	29	27	26
4	72	61	53	48	65	56	49	44	45	40	36	35	32	29	26	24	22
5	66	54	46	41	59	50	43	38	40	35	31	32	28	25	24	21	19
6	60	49	41	35	54	44	37	32	36	31	27	29	25	22	21	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	19	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	15	13
9	48	36	29	24	43	33	27	22	27	22	19	22	18	15	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	16	14	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1890	1890	1890
5°	1893	1864	1877
10°	1878	1839	1851
15°	1850	1809	1812
20°	1813	1767	1772
25°	1776	1717	1725
30°	1729	1671	1666
35°	1685	1616	1603
40°	1631	1560	1543
45°	1577	1505	1482
50°	1517	1446	1411
55°	1456	1379	1346
60°	1386	1299	1272
65°	1309	1216	1184
70°	1212	1114	1089
75°	1077	994	1003
80°	915	839	836
85°	661	572	560

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2195 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	243.7	1.3
10°-20°	685.6	3.7
20°-30°	1007.6	5.4
30°-40°	1170.3	6.3
40°-50°	1168.8	6.3
50°-60°	1019.2	5.5
60°-70°	753.4	4.0
70°-80°	426.3	2.3
80°-90°	119.7	0.6
90°-100°	135.7	0.7
100°-110°	506.1	2.7
110°-120°	1342.2	7.2
120°-130°	2226.1	11.9
130°-140°	2364.7	12.7
140°-150°	2197.7	11.8
150°-160°	1766.9	9.5
160°-170°	1138.5	6.1
170°-180°	391.9	2.1
0°-30°	1937.0	10.4
0°-40°	3107.2	16.6
0°-60°	5295.3	28.4
0°-90°	6594.6	35.3
90°-120°	1984.0	10.6
90°-150°	8772.5	47.0
90°-180°	12070.0	64.7
0°-180°	18664.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2589	2589	2589	2589	2589	
5°	2589	2579	2552	2572	2567	246
15°	2465	2450	2417	2428	2415	694
25°	2231	2211	2168	2173	2168	1026
35°	1925	1900	1860	1845	1832	1202
45°	1566	1549	1511	1484	1474	1209
55°	1185	1170	1140	1110	1098	1060
65°	799	784	759	737	724	790
75°	418	413	401	386	391	446
85°	102	100	97	90	87	114
90°	3	36	59	75	80	17
95°	194	95	116	131	128	229
105°	906	995	182	214	226	968
115°	1713	1763	1838	459	244	1686
125°	2422	2461	2517	2538	2547	2160
135°	2997	3045	3071	3101	3095	2315
145°	3477	3474	3524	3545	3530	2174
155°	3828	3801	3837	3855	3831	1764
165°	4034	4016	4025	4046	4025	1140
175°	4126	4105	4111	4132	4102	393
180°	4117	4117	4117	4117	4117	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2589.1	2589.1	2589.1	2589.1	2589.1
2.5°	2604.2	2591.7	2564.2	2589.1	2584.3
5°	2589.1	2579.3	2551.8	2571.7	2566.9
7.5°	2571.7	2556.9	2529.4	2549.5	2544.5
10°	2544.5	2527.1	2497.1	2517.0	2509.6
12.5°	2507.0	2492.1	2462.3	2474.7	2469.7
15°	2464.6	2449.9	2417.4	2427.5	2415.1
17.5°	2412.4	2397.7	2365.2	2377.5	2365.2
20°	2355.1	2340.3	2305.4	2312.8	2303.1
22.5°	2298.1	2275.6	2243.1	2243.1	2238.1
25°	2230.6	2210.9	2168.5	2173.3	2168.5
27.5°	2155.9	2138.5	2106.2	2098.9	2086.5
30°	2081.5	2061.3	2024.1	2016.7	2006.6
32.5°	2001.6	1986.9	1947.0	1931.9	1921.9
35°	1924.6	1899.7	1859.8	1844.7	1832.3
37.5°	1837.4	1814.9	1775.1	1757.5	1745.1
40°	1747.8	1727.7	1687.9	1665.7	1655.6
42.5°	1660.6	1640.5	1601.0	1575.9	1561.0
45°	1566.1	1548.6	1511.1	1484.0	1473.9
47.5°	1473.9	1456.4	1416.6	1389.1	1374.3
50°	1376.7	1364.3	1329.5	1294.5	1282.1
52.5°	1282.1	1264.7	1232.4	1205.0	1187.6
55°	1185.2	1170.1	1140.3	1110.4	1098.0
57.5°	1088.0	1075.6	1043.1	1013.3	1003.2
60°	990.8	981.0	946.2	918.7	911.3
62.5°	896.2	878.8	853.9	829.1	819.1
65°	799.3	784.3	759.4	736.9	724.5
67.5°	699.7	687.0	664.8	647.4	637.3
70°	607.5	597.5	575.0	557.6	547.8
72.5°	512.9	502.9	490.5	473.1	465.7
75°	418.1	413.4	400.7	385.9	390.9
77.5°	333.6	323.6	318.5	311.2	303.8
80°	249.1	246.4	241.4	234.0	229.0
82.5°	169.3	169.3	166.9	156.9	156.9
85°	101.9	99.6	97.1	89.5	87.2
87.5°	44.9	39.9	34.8	27.5	24.8
90°	2.9	35.7	59.4	74.6	80.3
92.5°	74.6	62.7	71.4	77.5	80.3
95°	193.5	95.2	116.0	131.2	128.1
97.5°	348.4	104.4	151.7	160.9	163.8
100°	527.4	119.2	169.8	193.5	199.5
102.5°	723.7	718.1	175.8	208.4	217.6
105°	905.6	995.1	181.9	214.4	226.5
107.5°	1117.2	1191.4	187.9	220.4	232.4
110°	1319.8	1382.1	521.5	223.6	235.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1510.6	1563.9	1513.3	229.2	238.4
115°	1712.9	1763.4	1838.2	458.8	244.4
117.5°	1888.7	1948.2	1999.1	1572.8	792.4
120°	2085.4	2129.9	2183.7	2219.4	1817.2
122.5°	2252.0	2299.7	2359.5	2377.3	2380.5
125°	2421.8	2460.8	2517.3	2538.2	2547.0
127.5°	2576.8	2618.5	2663.4	2693.1	2696.0
130°	2722.8	2770.6	2803.1	2836.0	2833.3
132.5°	2871.8	2910.7	2943.3	2970.1	2967.4
135°	2997.1	3044.8	3071.3	3101.4	3095.3
137.5°	3127.9	3163.6	3193.7	3223.4	3214.5
140°	3256.0	3280.0	3312.6	3339.4	3324.6
142.5°	3363.5	3384.3	3422.9	3446.7	3431.8
145°	3476.7	3473.5	3524.1	3545.0	3530.2
147.5°	3574.8	3565.9	3616.4	3631.3	3619.7
150°	3670.2	3649.4	3697.1	3714.8	3700.0
152.5°	3750.5	3726.8	3771.4	3789.5	3768.6
155°	3828.0	3801.4	3837.1	3854.9	3831.2
157.5°	3890.6	3866.9	3893.8	3914.7	3890.6
160°	3944.4	3926.3	3944.4	3962.0	3941.2
162.5°	3991.7	3974.1	3989.0	4009.8	3983.0
165°	4033.5	4015.8	4024.7	4045.5	4024.7
167.5°	4066.4	4048.4	4057.6	4078.5	4051.6
170°	4093.3	4075.2	4081.2	4102.2	4075.2
172.5°	4111.0	4093.3	4099.3	4120.2	4093.3
175°	4125.8	4105.0	4111.0	4131.9	4102.2
177.5°	4131.9	4111.0	4114.2	4135.0	4108.2
180°	4117.1	4117.1	4117.1	4117.1	4117.1

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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	7.96	8.70	9.03	9.78	11.24	7.52	8.26	8.59	9.34	10.80
	3H	9.61	10.28	10.69	11.36	12.85	9.13	9.79	10.21	10.88	12.36
	4H	10.20	10.83	11.29	11.91	13.40	9.71	10.34	10.80	11.43	12.92
	6H	10.59	11.17	11.69	12.26	13.76	10.10	10.68	11.20	11.77	13.27
	8H	10.69	11.25	11.80	12.35	13.85	10.20	10.76	11.31	11.86	13.36
	12H	10.74	11.27	11.85	12.36	13.88	10.24	10.77	11.35	11.86	13.38
4H	2H	8.40	9.04	9.51	10.12	11.61	8.05	8.69	9.15	9.77	11.26
	3H	10.26	10.79	11.37	11.90	13.40	9.86	10.39	10.97	11.50	13.00
	4H	10.97	11.46	12.09	12.56	14.08	10.56	11.04	11.67	12.14	13.67
	6H	11.49	11.90	12.60	13.03	14.54	11.06	11.48	12.18	12.60	14.12
	8H	11.63	12.02	12.75	13.14	14.67	11.21	11.59	12.32	12.71	14.24
	12H	11.70	12.05	12.84	13.18	14.72	11.26	11.61	12.40	12.74	14.28
8H	4H	11.16	11.55	12.28	12.67	14.20	10.79	11.18	11.91	12.29	13.83
	6H	11.79	12.11	12.93	13.27	14.80	11.41	11.74	12.56	12.89	14.42
	8H	12.01	12.29	13.16	13.43	14.98	11.63	11.91	12.77	13.05	14.60
	12H	12.14	12.39	13.29	13.52	15.11	11.74	11.99	12.89	13.12	14.71
12H	4H	11.14	11.49	12.28	12.62	14.16	10.78	11.13	11.92	12.26	13.80
	6H	11.82	12.10	12.97	13.24	14.79	11.46	11.74	12.60	12.87	14.42
	8H	12.06	12.31	13.21	13.44	15.03	11.69	11.93	12.84	13.07	14.65