

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: P911441

Luminaire Tested: DFN2DIP-PN4F0-070D050US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911441
REPORT IS A COMBINATION OF REPORTS P901153 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D050US850-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

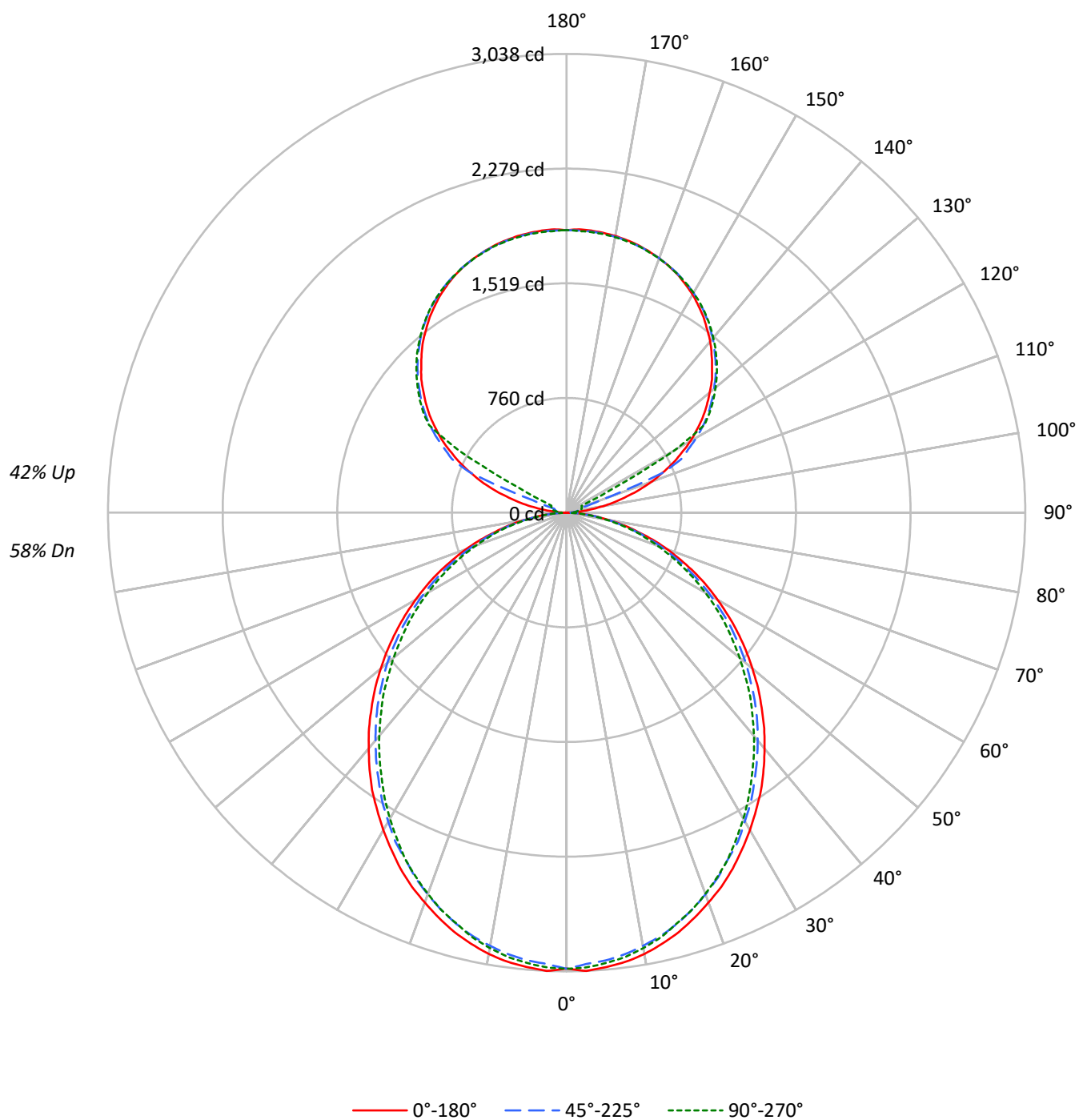
Lumens per Lamp: N/A
Luminaire Lumens: 13175.0 lumens
Efficiency: N/A
Efficacy: 126.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 104.3
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	109	109	109	109		102	102	102	102		88	88	88		75	75	75		64	64	64
1	100	95	91	88		93	89	86	82		77	75	72		66	65	63		56	55	54
2	91	83	77	72		84	78	72	68		68	64	60		58	55	53		50	47	45
3	83	73	66	60		77	69	62	57		60	55	50		52	48	44		44	41	39
4	76	65	57	51		70	61	54	48		53	47	43		46	42	38		39	36	33
5	70	58	50	43		65	54	47	41		48	42	37		41	37	33		35	32	29
6	64	52	44	38		60	49	41	36		43	37	32		37	33	29		32	29	26
7	59	47	39	33		55	44	37	32		39	33	29		34	29	26		29	26	23
8	55	43	35	29		51	40	33	28		36	30	26		31	26	23		27	23	20
9	51	39	31	26		48	37	30	25		33	27	23		29	24	21		25	21	18
10	48	36	29	24		45	34	27	23		30	25	21		27	22	19		23	19	17

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

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.3	2.2
10°-20°	799.9	6.1
20°-30°	1175.6	8.9
30°-40°	1365.3	10.4
40°-50°	1363.6	10.4
50°-60°	1189.1	9.0
60°-70°	879.0	6.7
70°-80°	497.3	3.8
80°-90°	134.6	1.0
90°-100°	61.7	0.5
100°-110°	230.0	1.7
110°-120°	610.1	4.6
120°-130°	1011.9	7.7
130°-140°	1074.8	8.2
140°-150°	999.0	7.6
150°-160°	803.1	6.1
160°-170°	517.5	3.9
170°-180°	178.1	1.4
0°-30°	2259.8	17.2
0°-40°	3625.1	27.5
0°-60°	6177.8	46.9
0°-90°	7688.7	58.4
90°-120°	901.9	6.8
90°-150°	3987.5	30.3
90°-180°	5486.0	41.6
0°-180°	13175.0	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°	1	16	27	34	36	12
95°	88	43	53	60	58	104
105°	412	452	83	98	103	440
115°	779	802	836	209	111	767
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1611	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1833	1825	1829	1839	1829	518
175°	1875	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	

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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°	1.3	16.2	27.1	33.9	36.5
92.5°	33.9	28.5	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.4
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.4	80.0	94.7	98.9
105°	411.7	452.4	82.6	97.5	102.9
107.5°	507.8	541.5	85.4	100.1	105.7
110°	600.0	628.2	237.0	101.6	106.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.6	710.9	687.9	104.2	108.3
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.5	885.5	908.7	714.9	360.2
120°	947.9	968.2	992.6	1008.9	826.0
122.5°	1023.6	1045.3	1072.5	1080.6	1082.1
125°	1100.8	1118.5	1144.3	1153.7	1157.8
127.5°	1171.2	1190.2	1210.7	1224.1	1225.4
130°	1237.6	1259.4	1274.1	1289.1	1287.9
132.5°	1305.4	1323.0	1337.8	1350.1	1348.8
135°	1362.3	1384.0	1396.0	1409.8	1407.0
137.5°	1421.7	1438.0	1451.7	1465.2	1461.2
140°	1480.0	1490.9	1505.7	1517.9	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1559.9
145°	1580.3	1578.9	1601.8	1611.4	1604.6
147.5°	1624.9	1620.8	1643.9	1650.6	1645.3
150°	1668.3	1658.8	1680.5	1688.6	1681.8
152.5°	1704.8	1694.0	1714.3	1722.5	1713.0
155°	1740.0	1727.9	1744.1	1752.2	1741.5
157.5°	1768.4	1757.7	1769.9	1779.4	1768.4
160°	1792.9	1784.7	1792.9	1800.9	1791.5
162.5°	1814.4	1806.5	1813.1	1822.6	1810.4
165°	1833.4	1825.4	1829.4	1838.8	1829.4
167.5°	1848.4	1840.2	1844.4	1853.8	1841.6
170°	1860.6	1852.4	1855.1	1864.6	1852.4
172.5°	1868.7	1860.6	1863.3	1872.8	1860.6
175°	1875.4	1865.9	1868.7	1878.1	1864.6
177.5°	1878.1	1868.7	1870.1	1879.5	1867.3
180°	1871.3	1871.3	1871.3	1871.3	1871.3

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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	10.76	11.71	11.65	12.61	13.75	10.32	11.27	11.21	12.17	13.31
	3H	12.43	13.28	13.33	14.19	15.36	11.95	12.79	12.84	13.71	14.88
	4H	13.03	13.83	13.94	14.74	15.92	12.54	13.34	13.45	14.26	15.44
	6H	13.43	14.17	14.35	15.09	16.29	12.94	13.68	13.86	14.60	15.80
	8H	13.54	14.24	14.47	15.18	16.38	13.05	13.75	13.98	14.69	15.88
	12H	13.59	14.26	14.53	15.20	16.42	13.09	13.76	14.03	14.70	15.92
4H	2H	11.23	12.03	12.15	12.95	14.13	10.88	11.68	11.80	12.60	13.78
	3H	13.11	13.78	14.04	14.73	15.92	12.71	13.38	13.63	14.32	15.52
	4H	13.83	14.44	14.77	15.38	16.61	13.41	14.02	14.35	14.97	16.19
	6H	14.35	14.88	15.30	15.85	17.07	13.93	14.45	14.88	15.42	16.64
	8H	14.51	15.00	15.46	15.96	17.19	14.08	14.57	15.03	15.53	16.77
	12H	14.59	15.03	15.56	16.01	17.25	14.15	14.59	15.12	15.57	16.81
8H	4H	14.03	14.53	14.99	15.49	16.72	13.66	14.15	14.62	15.12	16.35
	6H	14.67	15.08	15.65	16.08	17.32	14.30	14.70	15.27	15.71	16.94
	8H	14.90	15.26	15.88	16.25	17.50	14.51	14.87	15.50	15.86	17.11
	12H	15.03	15.35	16.02	16.33	17.63	14.63	14.95	15.62	15.93	17.23
12H	4H	14.02	14.47	15.00	15.45	16.69	13.66	14.10	14.63	15.08	16.32
	6H	14.70	15.06	15.69	16.05	17.31	14.34	14.70	15.32	15.69	16.94
	8H	14.95	15.27	15.94	16.25	17.55	14.58	14.90	15.57	15.88	17.18