

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: P905993

Luminaire Tested: DFN2DIP-PN4F0-070D070US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905993
REPORT IS A COMBINATION OF REPORTS P901189 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D070US835-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

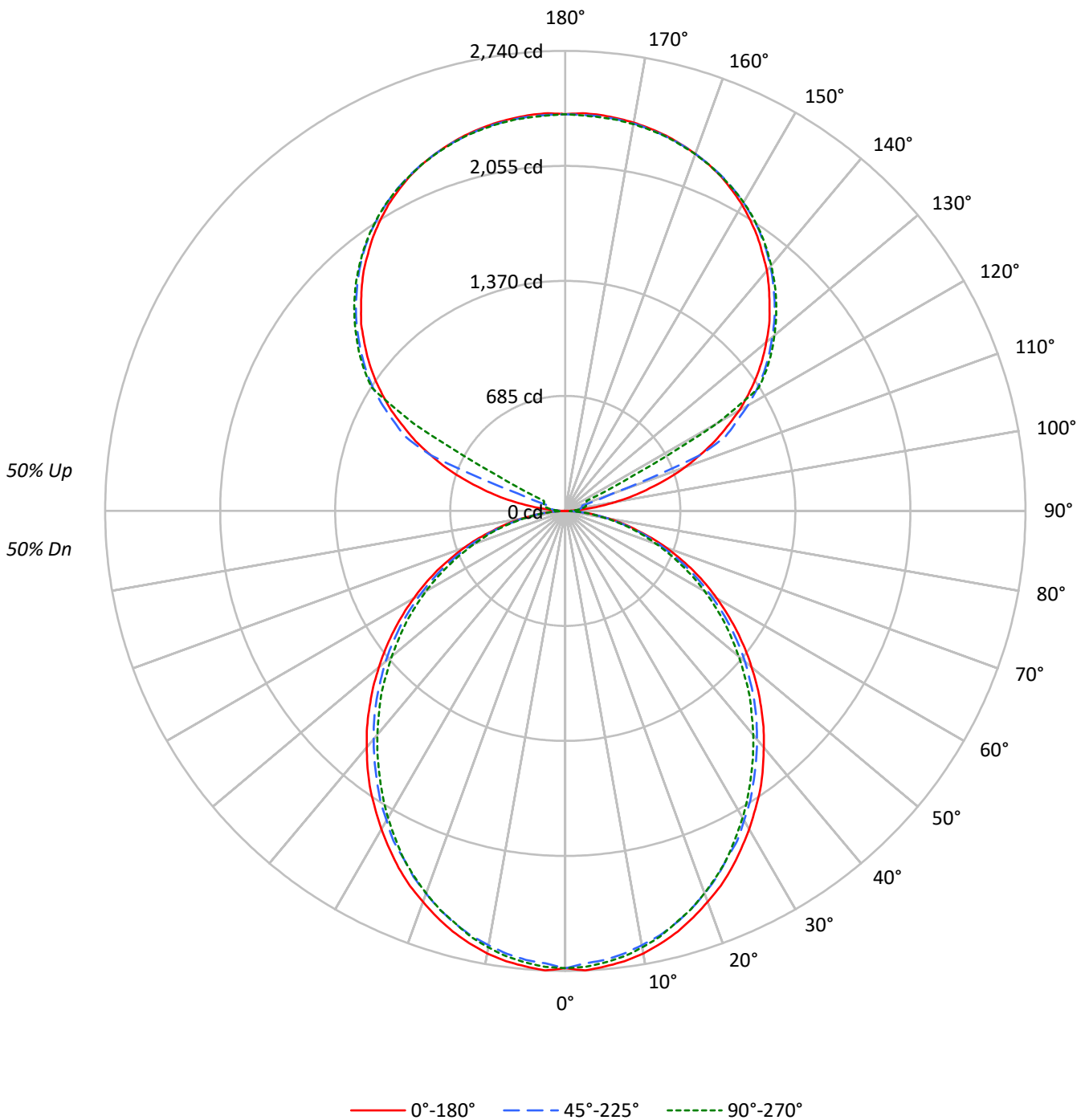
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13860.0 lumens
Efficiency: N/A
Efficacy: 116.3 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): 119.2
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	56	56	56	50
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47	50	48	47	42
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40	44	42	40	35
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34	39	36	34	30
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29	35	32	29	26
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26	31	28	26	22
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23	28	25	23	20
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20	26	23	20	17
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18	24	20	18	16
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16	22	19	16	14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15	20	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1988	1988	1988
5°	1991	1961	1974
10°	1975	1935	1948
15°	1946	1903	1906
20°	1907	1859	1864
25°	1868	1806	1815
30°	1819	1757	1752
35°	1773	1700	1686
40°	1716	1641	1623
45°	1659	1583	1559
50°	1596	1521	1484
55°	1531	1450	1416
60°	1458	1366	1338
65°	1377	1279	1245
70°	1275	1172	1146
75°	1133	1045	1055
80°	963	883	879
85°	696	603	588

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1659 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	256.4	1.8
10°-20°	721.3	5.2
20°-30°	1060.0	7.6
30°-40°	1231.1	8.9
40°-50°	1229.6	8.9
50°-60°	1072.2	7.7
60°-70°	792.6	5.7
70°-80°	448.4	3.2
80°-90°	122.5	0.9
90°-100°	77.9	0.6
100°-110°	290.4	2.1
110°-120°	770.2	5.6
120°-130°	1277.4	9.2
130°-140°	1356.9	9.8
140°-150°	1261.1	9.1
150°-160°	1013.9	7.3
160°-170°	653.3	4.7
170°-180°	224.9	1.6
0°-30°	2037.7	14.7
0°-40°	3268.8	23.6
0°-60°	5570.6	40.2
0°-90°	6934.2	50.0
90°-120°	1138.5	8.2
90°-150°	5033.8	36.3
90°-180°	6926.0	50.0
0°-180°	13860.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2724	2724	2724	2724	2724	
5°	2724	2714	2685	2705	2700	259
15°	2593	2577	2543	2554	2541	730
25°	2347	2326	2281	2286	2281	1080
35°	2025	1998	1956	1941	1928	1264
45°	1648	1629	1590	1561	1550	1271
55°	1247	1231	1200	1168	1155	1115
65°	841	825	799	775	762	831
75°	440	435	422	406	411	470
85°	107	105	102	94	92	120
90°	2	20	34	43	46	13
95°	111	55	67	75	74	131
105°	520	571	104	123	130	555
115°	983	1012	1055	263	140	968
125°	1390	1412	1444	1456	1462	1239
135°	1720	1747	1762	1780	1776	1328
145°	1995	1993	2022	2034	2026	1248
155°	2197	2181	2202	2212	2198	1012
165°	2314	2304	2309	2321	2309	654
175°	2368	2356	2359	2371	2354	225
180°	2362	2362	2362	2362	2362	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2723.7	2723.7	2723.7	2723.7	2723.7
2.5°	2739.6	2726.5	2697.6	2723.7	2718.7
5°	2723.7	2713.5	2684.6	2705.4	2700.4
7.5°	2705.4	2689.8	2660.9	2682.1	2676.8
10°	2676.8	2658.4	2627.0	2647.9	2640.1
12.5°	2637.3	2621.8	2590.4	2603.4	2598.1
15°	2592.9	2577.3	2543.1	2553.7	2540.6
17.5°	2537.8	2522.3	2488.1	2501.2	2488.1
20°	2477.5	2462.0	2425.3	2433.1	2422.8
22.5°	2417.5	2393.9	2359.7	2359.7	2354.4
25°	2346.7	2325.8	2281.4	2286.4	2281.4
27.5°	2268.0	2249.7	2215.8	2208.0	2194.9
30°	2189.7	2168.5	2129.4	2121.6	2111.0
32.5°	2105.7	2090.2	2048.2	2032.4	2021.8
35°	2024.6	1998.5	1956.5	1940.7	1927.6
37.5°	1932.9	1909.3	1867.3	1849.0	1835.9
40°	1838.7	1817.6	1775.6	1752.3	1741.7
42.5°	1747.0	1725.9	1684.2	1657.8	1642.2
45°	1647.5	1629.2	1589.7	1561.1	1550.5
47.5°	1550.5	1532.2	1490.2	1461.3	1445.8
50°	1448.3	1435.2	1398.5	1361.9	1348.8
52.5°	1348.8	1330.5	1296.6	1267.7	1249.3
55°	1246.8	1231.0	1199.6	1168.2	1155.1
57.5°	1144.6	1131.5	1097.3	1065.9	1055.4
60°	1042.3	1032.0	995.4	966.5	958.7
62.5°	942.8	924.5	898.4	872.3	861.7
65°	840.9	825.0	798.9	775.3	762.2
67.5°	736.1	722.8	699.4	681.1	670.5
70°	639.1	628.6	604.9	586.6	576.3
72.5°	539.6	529.1	516.0	497.7	489.9
75°	439.9	434.9	421.5	406.0	411.3
77.5°	351.0	340.4	335.1	327.3	319.6
80°	262.0	259.3	254.0	246.2	240.9
82.5°	178.1	178.1	175.6	165.1	165.1
85°	107.3	104.8	102.3	94.2	91.7
87.5°	47.2	42.0	36.7	28.9	26.1
90°	1.6	20.5	34.1	42.8	46.1
92.5°	42.8	35.9	41.0	44.5	46.1
95°	111.0	54.6	66.6	75.3	73.5
97.5°	199.9	59.9	87.1	92.4	94.0
100°	302.7	68.4	97.4	111.0	114.5
102.5°	415.3	412.1	100.9	119.6	124.8
105°	519.7	571.0	104.3	123.0	129.9
107.5°	641.0	683.7	107.8	126.5	133.4
110°	757.4	793.1	299.2	128.3	135.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	866.8	897.4	868.4	131.5	136.8
115°	982.9	1011.9	1054.7	263.3	140.3
117.5°	1083.8	1117.9	1147.1	902.5	454.7
120°	1196.6	1222.2	1253.1	1273.6	1042.8
122.5°	1292.2	1319.6	1354.0	1364.1	1365.9
125°	1389.7	1412.0	1444.5	1456.5	1461.5
127.5°	1478.6	1502.5	1528.3	1545.4	1547.0
130°	1562.4	1589.8	1608.5	1627.4	1625.8
132.5°	1647.9	1670.2	1688.9	1704.3	1702.7
135°	1719.7	1747.1	1762.4	1779.6	1776.2
137.5°	1794.8	1815.4	1832.6	1849.7	1844.6
140°	1868.3	1882.1	1900.8	1916.2	1907.7
142.5°	1930.0	1942.0	1964.1	1977.7	1969.2
145°	1995.0	1993.2	2022.2	2034.2	2025.7
147.5°	2051.2	2046.2	2075.2	2083.7	2077.0
150°	2106.0	2094.1	2121.5	2131.6	2123.1
152.5°	2152.1	2138.5	2164.1	2174.4	2162.5
155°	2196.6	2181.3	2201.8	2212.0	2198.4
157.5°	2232.5	2218.9	2234.3	2246.3	2232.5
160°	2263.4	2253.0	2263.4	2273.5	2261.5
162.5°	2290.6	2280.4	2288.9	2300.9	2285.5
165°	2314.5	2304.4	2309.4	2321.4	2309.4
167.5°	2333.4	2323.0	2328.3	2340.3	2324.9
170°	2348.8	2338.5	2341.9	2353.9	2338.5
172.5°	2359.0	2348.8	2352.3	2364.2	2348.8
175°	2367.5	2355.5	2359.0	2370.9	2353.9
177.5°	2370.9	2359.0	2360.8	2372.8	2357.3
180°	2362.4	2362.4	2362.4	2362.4	2362.4



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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	9.67	10.53	10.63	11.50	12.77	9.23	10.09	10.19	11.06	12.33
	3H	11.33	12.11	12.30	13.09	14.38	10.85	11.62	11.82	12.60	13.90
	4H	11.92	12.65	12.90	13.64	14.94	11.44	12.17	12.42	13.15	14.45
	6H	12.32	13.00	13.32	13.99	15.30	11.83	12.51	12.83	13.50	14.81
	8H	12.43	13.07	13.43	14.08	15.39	11.94	12.58	12.94	13.59	14.90
	12H	12.48	13.09	13.48	14.09	15.43	11.98	12.59	12.98	13.59	14.93
4H	2H	10.13	10.86	11.12	11.85	13.15	9.78	10.51	10.77	11.50	12.80
	3H	12.00	12.61	13.00	13.63	14.94	11.60	12.21	12.59	13.22	14.54
	4H	12.72	13.28	13.72	14.28	15.62	12.30	12.86	13.30	13.86	15.20
	6H	13.24	13.72	14.25	14.75	16.08	12.81	13.29	13.83	14.32	15.66
	8H	13.39	13.84	14.40	14.86	16.21	12.96	13.41	13.98	14.43	15.78
	12H	13.46	13.87	14.50	14.91	16.26	13.02	13.43	14.06	14.47	15.82
8H	4H	12.91	13.36	13.93	14.39	15.74	12.54	12.99	13.56	14.02	15.37
	6H	13.55	13.92	14.59	14.99	16.33	13.17	13.54	14.21	14.61	15.96
	8H	13.77	14.10	14.82	15.15	16.52	13.39	13.71	14.44	14.76	16.13
	12H	13.90	14.19	14.96	15.24	16.65	13.50	13.79	14.56	14.84	16.25
12H	4H	12.90	13.31	13.94	14.34	15.70	12.54	12.94	13.57	13.98	15.34
	6H	13.58	13.91	14.63	14.96	16.32	13.21	13.54	14.26	14.59	15.96
	8H	13.82	14.11	14.88	15.16	16.57	13.45	13.74	14.50	14.78	16.19