

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: P925097

Luminaire Tested: DFN2DIP-PN4F0-070D090US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925097
REPORT IS A COMBINATION OF REPORTS P901225 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D090US950-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

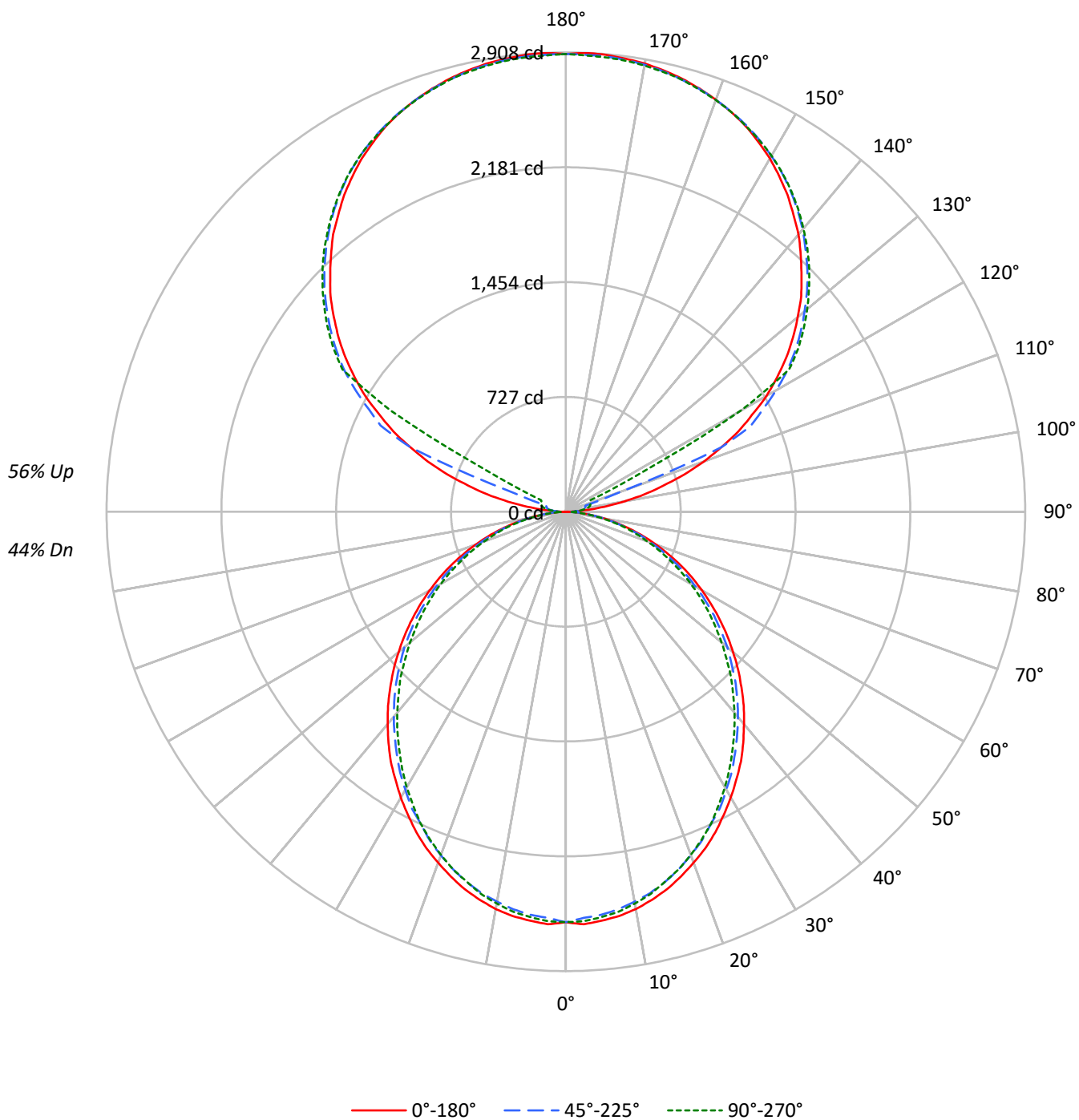
Lumens per Lamp: N/A
Luminaire Lumens: 15111.4 lumens
Efficiency: N/A
Efficacy: 113.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 133.3
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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	50	50	50
1	96	92	88	85	88	84	81	78	70	68	66	57	55	54	45	44	43
2	88	80	74	69	80	74	69	64	61	58	54	50	47	45	39	37	36
3	80	71	63	58	73	65	59	54	54	49	46	44	41	38	35	32	31
4	73	63	55	49	67	58	51	45	48	43	39	39	35	32	31	28	26
5	67	56	48	42	61	51	44	39	43	38	33	35	31	28	28	25	23
6	62	50	42	36	56	46	39	34	39	33	29	32	28	25	25	22	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	48	38	31	26	32	27	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	20	17	14
10	46	34	27	22	42	32	25	21	27	22	18	22	18	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1897	1897	1897
5°	1900	1871	1883
10°	1884	1846	1858
15°	1857	1816	1819
20°	1819	1774	1778
25°	1782	1723	1731
30°	1735	1677	1672
35°	1691	1621	1609
40°	1637	1566	1549
45°	1582	1510	1487
50°	1523	1451	1416
55°	1461	1384	1351
60°	1391	1303	1276
65°	1314	1220	1188
70°	1216	1118	1093
75°	1081	997	1006
80°	918	843	839
85°	665	575	561

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1582 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	244.6	1.6
10°-20°	688.1	4.6
20°-30°	1011.3	6.7
30°-40°	1174.5	7.8
40°-50°	1173.1	7.8
50°-60°	1022.9	6.8
60°-70°	756.1	5.0
70°-80°	427.8	2.8
80°-90°	118.0	0.8
90°-100°	95.6	0.6
100°-110°	356.2	2.4
110°-120°	944.7	6.3
120°-130°	1566.8	10.4
130°-140°	1664.3	11.0
140°-150°	1546.8	10.2
150°-160°	1243.6	8.2
160°-170°	801.3	5.3
170°-180°	275.8	1.8
0°-30°	1943.9	12.9
0°-40°	3118.5	20.6
0°-60°	5314.4	35.2
0°-90°	6616.4	43.8
90°-120°	1396.4	9.2
90°-150°	6174.3	40.9
90°-180°	8495.0	56.2
0°-180°	15111.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2598	2598	2598	2598	2598	
5°	2598	2589	2561	2581	2576	247
15°	2474	2459	2426	2436	2424	697
25°	2239	2219	2176	2181	2176	1030
35°	1932	1907	1866	1851	1839	1206
45°	1572	1554	1517	1489	1479	1213
55°	1189	1174	1144	1114	1102	1063
65°	802	787	762	740	727	793
75°	420	415	402	387	392	448
85°	102	100	98	90	88	114
90°	2	25	42	53	56	14
95°	136	67	82	92	90	161
105°	637	700	128	151	159	681
115°	1206	1241	1294	323	172	1187
125°	1704	1732	1772	1786	1793	1520
135°	2109	2143	2162	2183	2179	1629
145°	2447	2445	2480	2495	2485	1530
155°	2694	2676	2701	2713	2696	1242
165°	2839	2826	2833	2847	2833	802
175°	2904	2889	2894	2908	2887	276
180°	2898	2898	2898	2898	2898	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2598.4	2598.4	2598.4	2598.4	2598.4
2.5°	2613.6	2601.1	2573.5	2598.4	2593.6
5°	2598.4	2588.7	2561.1	2581.0	2576.2
7.5°	2581.0	2566.1	2538.5	2558.7	2553.7
10°	2553.7	2536.1	2506.2	2526.1	2518.7
12.5°	2516.0	2501.2	2471.2	2483.6	2478.6
15°	2473.6	2458.7	2426.1	2436.2	2423.7
17.5°	2421.1	2406.3	2373.6	2386.1	2373.6
20°	2363.5	2348.7	2313.7	2321.2	2311.4
22.5°	2306.3	2283.8	2251.2	2251.2	2246.1
25°	2238.8	2218.8	2176.5	2181.2	2176.5
27.5°	2163.7	2146.2	2113.9	2106.4	2093.9
30°	2089.0	2068.7	2031.4	2024.0	2013.9
32.5°	2008.8	1994.1	1954.0	1938.9	1928.8
35°	1931.5	1906.6	1866.5	1851.4	1838.9
37.5°	1844.0	1821.5	1781.4	1763.9	1751.4
40°	1754.1	1734.0	1693.9	1671.7	1661.6
42.5°	1666.6	1646.5	1606.7	1581.5	1566.7
45°	1571.7	1554.3	1516.6	1489.3	1479.2
47.5°	1479.2	1461.7	1421.7	1394.1	1379.3
50°	1381.7	1369.2	1334.2	1299.3	1286.8
52.5°	1286.8	1269.3	1237.0	1209.4	1191.8
55°	1189.4	1174.4	1144.4	1114.5	1102.0
57.5°	1091.9	1079.5	1046.8	1016.9	1006.9
60°	994.4	984.5	949.6	922.0	914.6
62.5°	899.4	882.0	857.1	832.2	822.1
65°	802.2	787.0	762.2	739.6	727.1
67.5°	702.2	689.6	667.2	649.8	639.7
70°	609.7	599.7	577.1	559.6	549.8
72.5°	514.8	504.8	492.3	474.8	467.4
75°	419.7	414.9	402.1	387.3	392.4
77.5°	334.9	324.7	319.7	312.2	304.9
80°	249.9	247.4	242.3	234.9	229.8
82.5°	169.9	169.9	167.5	157.5	157.5
85°	102.4	100.0	97.6	89.9	87.5
87.5°	45.0	40.1	35.0	27.6	24.9
90°	2.0	25.2	41.8	52.6	56.5
92.5°	52.6	44.1	50.3	54.6	56.5
95°	136.2	67.0	81.7	92.3	90.2
97.5°	245.3	73.5	106.8	113.2	115.2
100°	371.2	84.0	119.5	136.2	140.4
102.5°	509.4	505.4	123.7	146.6	153.1
105°	637.4	700.4	127.9	150.9	159.3
107.5°	786.3	838.6	132.2	155.1	163.6
110°	928.9	972.8	367.0	157.3	165.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1063.1	1100.7	1065.1	161.3	167.8
115°	1205.6	1241.2	1293.7	322.9	172.0
117.5°	1329.3	1371.2	1407.0	1107.0	557.7
120°	1467.7	1499.1	1537.0	1562.1	1279.0
122.5°	1585.1	1618.7	1660.7	1673.1	1675.4
125°	1704.5	1731.9	1771.8	1786.5	1792.7
127.5°	1813.6	1842.9	1874.6	1895.5	1897.5
130°	1916.4	1950.1	1973.0	1996.1	1994.1
132.5°	2021.2	2048.6	2071.5	2090.5	2088.5
135°	2109.4	2143.0	2161.7	2182.8	2178.6
137.5°	2201.5	2226.6	2247.8	2268.7	2262.5
140°	2291.6	2308.6	2331.5	2350.4	2340.0
142.5°	2367.4	2382.0	2409.1	2425.8	2415.4
145°	2447.0	2444.7	2480.4	2495.1	2484.6
147.5°	2516.0	2509.8	2545.4	2555.9	2547.6
150°	2583.2	2568.5	2602.1	2614.5	2604.1
152.5°	2639.7	2623.0	2654.4	2667.1	2652.4
155°	2694.3	2675.6	2700.7	2713.2	2696.5
157.5°	2738.4	2721.7	2740.6	2755.2	2738.4
160°	2776.1	2763.5	2776.1	2788.6	2773.9
162.5°	2809.5	2797.0	2807.5	2822.2	2803.3
165°	2838.9	2826.4	2832.7	2847.4	2832.7
167.5°	2862.1	2849.4	2855.8	2870.5	2851.6
170°	2881.0	2868.3	2872.5	2887.2	2868.3
172.5°	2893.5	2881.0	2885.2	2899.9	2881.0
175°	2903.9	2889.2	2893.5	2908.1	2887.2
177.5°	2908.1	2893.5	2895.7	2910.4	2891.5
180°	2897.7	2897.7	2897.7	2897.7	2897.7

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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	8.90	9.71	9.91	10.73	12.08	8.46	9.27	9.47	10.29	11.64
	3H	10.56	11.28	11.58	12.31	13.69	10.07	10.80	11.09	11.83	13.20
	4H	11.15	11.83	12.18	12.86	14.25	10.66	11.35	11.69	12.38	13.76
	6H	11.55	12.18	12.59	13.21	14.61	11.05	11.69	12.10	12.72	14.12
	8H	11.65	12.25	12.70	13.30	14.70	11.16	11.76	12.20	12.81	14.20
	12H	11.70	12.27	12.75	13.31	14.73	11.20	11.77	12.25	12.81	14.23
4H	2H	9.36	10.04	10.39	11.07	12.46	9.00	9.69	10.04	10.72	12.11
	3H	11.22	11.79	12.27	12.85	14.25	10.82	11.39	11.86	12.45	13.85
	4H	11.93	12.46	12.99	13.51	14.93	11.52	12.04	12.57	13.09	14.51
	6H	12.45	12.90	13.51	13.97	15.39	12.02	12.48	13.09	13.55	14.96
	8H	12.60	13.02	13.66	14.09	15.52	12.17	12.59	13.23	13.66	15.09
	12H	12.67	13.05	13.75	14.13	15.57	12.23	12.61	13.31	13.69	15.13
8H	4H	12.13	12.55	13.19	13.61	15.04	11.76	12.18	12.82	13.24	14.67
	6H	12.76	13.11	13.85	14.21	15.64	12.38	12.73	13.47	13.84	15.27
	8H	12.98	13.29	14.07	14.38	15.83	12.60	12.90	13.69	13.99	15.44
	12H	13.11	13.38	14.21	14.47	15.95	12.71	12.98	13.81	14.07	15.55
12H	4H	12.11	12.49	13.19	13.57	15.01	11.75	12.13	12.83	13.21	14.64
	6H	12.79	13.09	13.88	14.19	15.63	12.42	12.73	13.52	13.82	15.27
	8H	13.03	13.30	14.13	14.39	15.87	12.66	12.93	13.75	14.01	15.50