

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: P925061

Luminaire Tested: DFN2DIP-PN4F0-060D090US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925061
REPORT IS A COMBINATION OF REPORTS P901223 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-060D090US950-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

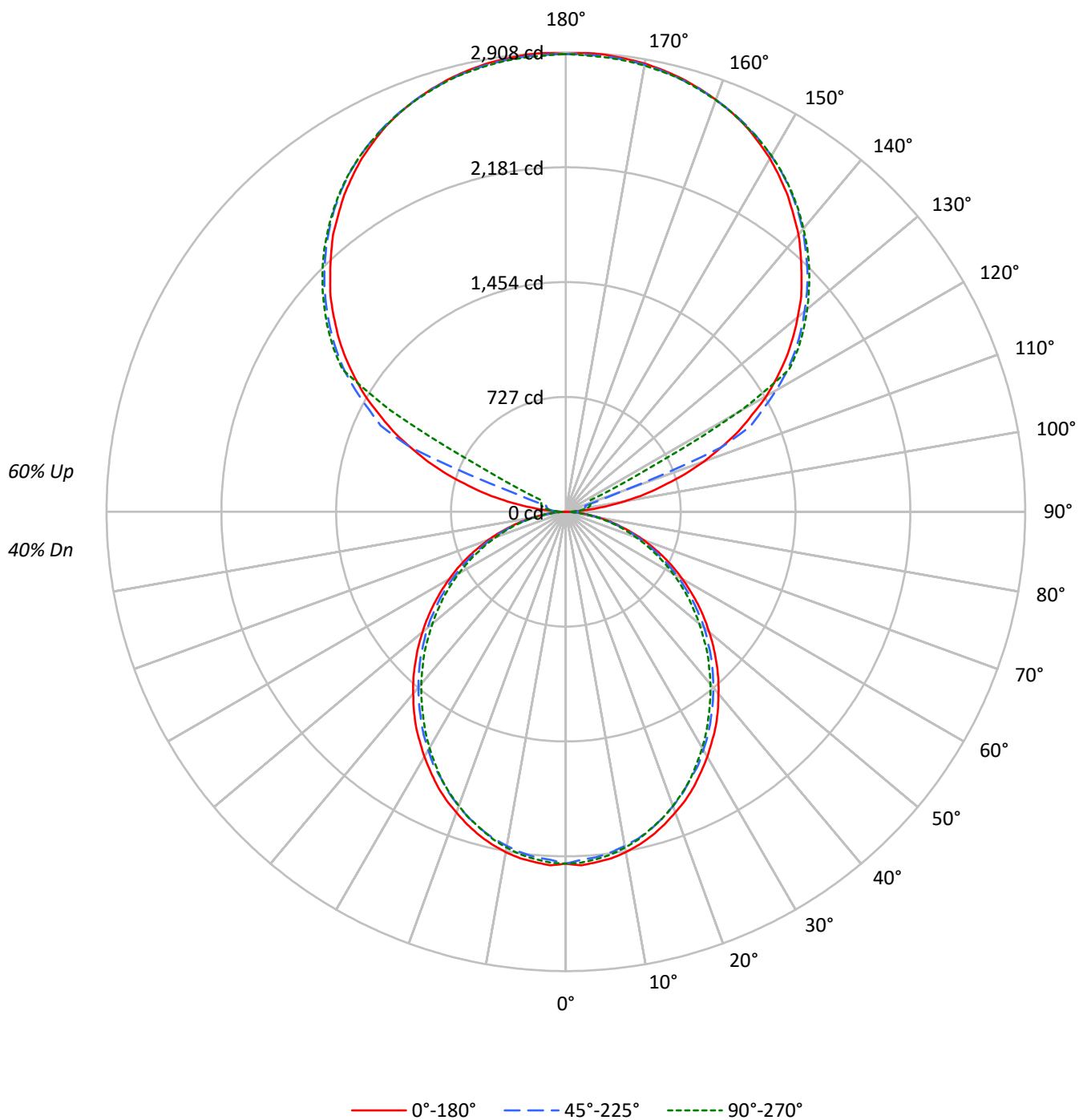
Lumens per Lamp: N/A
Luminaire Lumens: 14166.9 lumens
Efficiency: N/A
Efficacy: 116.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 121.2
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

TEST NUMBER: P925061

CATALOG NUMBER: DFN2DIP-PN4F0-060D090US950-FLLONL

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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1626	1626	1626
5°	1628	1603	1614
10°	1615	1582	1593
15°	1591	1556	1559
20°	1559	1520	1524
25°	1527	1477	1484
30°	1487	1437	1433
35°	1450	1390	1379
40°	1403	1342	1327
45°	1356	1294	1275
50°	1305	1244	1214
55°	1252	1186	1158
60°	1192	1117	1094
65°	1126	1046	1018
70°	1043	959	937
75°	927	855	863
80°	787	722	719
85°	569	493	481

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1545 cd/sqm

TEST NUMBER: P925061

CATALOG NUMBER: DFN2DIP-PN4F0-060D090US950-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.6	1.5
10°-20°	589.8	4.2
20°-30°	866.8	6.1
30°-40°	1006.7	7.1
40°-50°	1005.5	7.1
50°-60°	876.7	6.2
60°-70°	648.1	4.6
70°-80°	366.7	2.6
80°-90°	101.9	0.7
90°-100°	95.6	0.7
100°-110°	356.2	2.5
110°-120°	944.7	6.7
120°-130°	1566.8	11.1
130°-140°	1664.3	11.7
140°-150°	1546.8	10.9
150°-160°	1243.6	8.8
160°-170°	801.3	5.7
170°-180°	275.8	1.9
0°-30°	1666.2	11.8
0°-40°	2673.0	18.9
0°-60°	4555.2	32.2
0°-90°	5671.9	40.0
90°-120°	1396.4	9.9
90°-150°	6174.3	43.6
90°-180°	8495.0	60.0
0°-180°	14166.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2227	2227	2227	2227	2227	
5°	2227	2219	2195	2212	2208	211
15°	2120	2108	2080	2088	2078	597
25°	1919	1902	1866	1870	1866	883
35°	1656	1634	1600	1587	1576	1034
45°	1347	1332	1300	1276	1268	1040
55°	1020	1007	981	955	945	912
65°	688	675	653	634	623	680
75°	360	356	345	332	336	384
85°	88	86	84	77	75	98
90°	2	25	42	53	56	13
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	

TEST NUMBER: P925061

CATALOG NUMBER: DFN2DIP-PN4F0-060D090US950-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2227.2	2227.2	2227.2	2227.2	2227.2
2.5°	2240.2	2229.5	2205.8	2227.2	2223.1
5°	2227.2	2218.8	2195.2	2212.2	2208.1
7.5°	2212.2	2199.5	2175.9	2193.2	2188.9
10°	2188.9	2173.9	2148.1	2165.2	2158.8
12.5°	2156.6	2143.8	2118.2	2128.9	2124.6
15°	2120.2	2107.5	2079.5	2088.2	2077.5
17.5°	2075.2	2062.5	2034.6	2045.2	2034.6
20°	2025.9	2013.2	1983.2	1989.6	1981.2
22.5°	1976.9	1957.5	1929.6	1929.6	1925.3
25°	1918.9	1901.9	1865.5	1869.6	1865.5
27.5°	1854.6	1839.6	1811.8	1805.5	1794.9
30°	1790.6	1773.2	1741.2	1734.8	1726.2
32.5°	1721.9	1709.2	1674.8	1661.9	1653.3
35°	1655.6	1634.2	1599.9	1586.9	1576.2
37.5°	1580.6	1561.2	1527.0	1511.9	1501.2
40°	1503.5	1486.2	1452.0	1432.9	1424.2
42.5°	1428.5	1411.3	1377.2	1355.6	1342.9
45°	1347.2	1332.2	1299.9	1276.5	1267.9
47.5°	1267.9	1252.9	1218.6	1195.0	1182.2
50°	1184.3	1173.6	1143.7	1113.6	1102.9
52.5°	1102.9	1087.9	1060.2	1036.6	1021.6
55°	1019.5	1006.6	980.9	955.2	944.6
57.5°	936.0	925.3	897.3	871.7	863.0
60°	852.3	843.9	814.0	790.3	783.9
62.5°	770.9	755.9	734.6	713.2	704.6
65°	687.5	674.7	653.3	633.9	623.2
67.5°	601.9	591.0	571.9	556.9	548.3
70°	522.6	514.0	494.6	479.7	471.3
72.5°	441.2	432.6	422.0	407.0	400.6
75°	359.7	355.7	344.7	332.0	336.3
77.5°	287.0	278.4	274.0	267.7	261.3
80°	214.3	212.0	207.7	201.3	197.0
82.5°	145.7	145.7	143.6	135.0	135.0
85°	87.7	85.7	83.6	77.0	75.0
87.5°	38.6	34.3	30.0	23.7	21.4
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

TEST NUMBER: P925061

CATALOG NUMBER: DFN2DIP-PN4F0-060D090US950-FLLONL

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	7.97	8.75	9.01	9.79	11.20	7.53	8.31	8.57	9.35	10.76
	3H	9.63	10.32	10.68	11.38	12.80	9.14	9.84	10.19	10.89	12.32
	4H	10.21	10.87	11.27	11.93	13.36	9.73	10.39	10.79	11.44	12.88
	6H	10.61	11.22	11.68	12.28	13.72	10.12	10.73	11.19	11.79	13.23
	8H	10.71	11.29	11.79	12.37	13.81	10.22	10.80	11.30	11.88	13.32
	12H	10.76	11.31	11.84	12.38	13.84	10.26	10.81	11.34	11.88	13.34
4H	2H	8.42	9.08	9.49	10.14	11.57	8.07	8.73	9.14	9.79	11.22
	3H	10.28	10.84	11.36	11.92	13.36	9.88	10.43	10.96	11.52	12.96
	4H	11.00	11.50	12.08	12.58	14.04	10.58	11.09	11.66	12.16	13.63
	6H	11.51	11.94	12.60	13.04	14.50	11.09	11.52	12.17	12.62	14.08
	8H	11.66	12.07	12.75	13.15	14.63	11.23	11.64	12.32	12.73	14.20
	12H	11.73	12.10	12.84	13.20	14.68	11.29	11.66	12.40	12.76	14.24
8H	4H	11.19	11.59	12.28	12.68	14.16	10.82	11.22	11.90	12.31	13.79
	6H	11.82	12.15	12.93	13.28	14.76	11.44	11.78	12.55	12.91	14.38
	8H	12.04	12.33	13.16	13.45	14.94	11.66	11.95	12.77	13.06	14.56
	12H	12.17	12.43	13.29	13.54	15.07	11.77	12.03	12.89	13.13	14.67
12H	4H	11.17	11.54	12.27	12.64	14.12	10.81	11.17	11.91	12.28	13.76
	6H	11.85	12.14	12.96	13.25	14.75	11.48	11.78	12.60	12.89	14.38
	8H	12.09	12.35	13.21	13.46	14.99	11.72	11.97	12.84	13.08	14.61

END OF REPORT

FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE

8 of 8