

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: P922382

Luminaire Tested: DFN2DIP-PN4F0-070D120US940-RLLFLL

Issue Date: 11/21/2024

**Test Information**

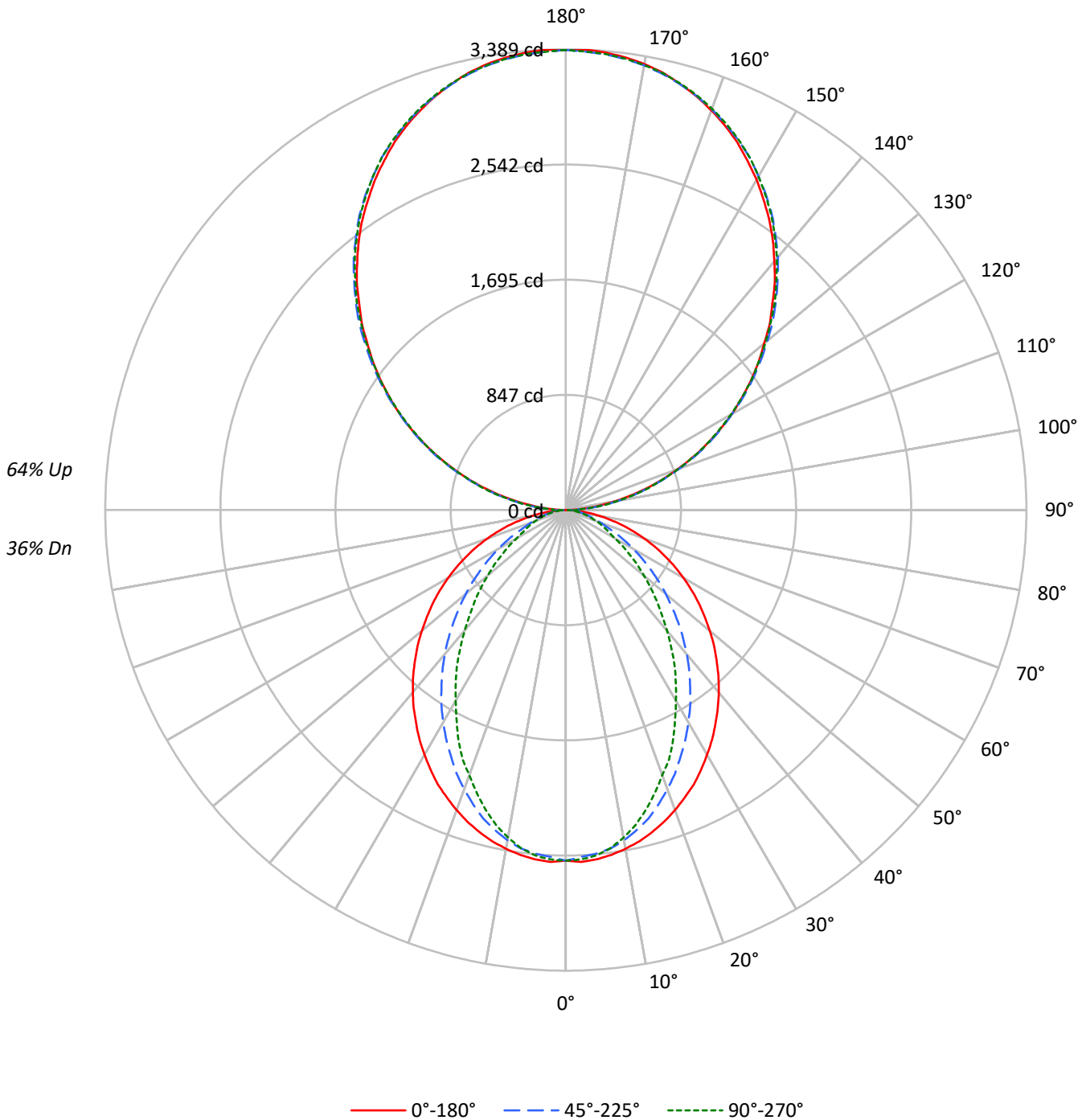
Test Method: LM-79-2019  
Report Number: P922382  
REPORT IS A COMBINATION OF REPORTS P899760 AND P896497  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN4F0-070D120US940-RLLFLL  
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14775.6 lumens  
Efficiency: N/A  
Efficacy: 86.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 170.2  
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

TEST NUMBER: P922382  
CATALOG NUMBER: DFN2DIP-PN4F0-070D120US940-RLLFLL

### Luminous Intensity Polar Plot





TEST NUMBER: P922382

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US940-RLLFLL

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43	36				36
1	95	91	87	84	86	82	79	77	67	64	63	52	51	49	39	38	37	31				31
2	87	80	74	69	78	72	68	63	59	55	52	46	44	42	34	33	32	26				26
3	79	70	63	58	72	64	58	53	52	48	44	41	38	36	31	29	27	23				23
4	73	62	55	49	66	57	50	45	46	42	38	37	34	31	28	26	24	20				20
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21	18				18
6	62	50	42	37	56	46	39	34	38	33	29	30	26	24	23	21	19	16				16
7	57	45	38	32	51	41	35	30	34	29	25	27	24	21	21	19	17	14				14
8	53	41	34	28	48	38	31	26	31	26	23	25	21	19	19	17	15	13				13
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	15	14	11				11
10	46	34	27	23	42	32	25	21	26	22	18	21	18	15	17	14	12	10				10

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1883	1883	1883
5°	1886	1854	1865
10°	1868	1817	1805
15°	1842	1758	1712
20°	1808	1675	1597
25°	1773	1582	1486
30°	1726	1487	1345
35°	1680	1385	1221
40°	1634	1280	1079
45°	1580	1162	951
50°	1524	1044	825
55°	1465	917	704
60°	1397	785	580
65°	1319	650	522
70°	1225	525	473
75°	1106	463	431
80°	935	389	375
85°	651	261	284

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2649 cd/sqm



TEST NUMBER: P922382

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US940-RLFL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	241.8	1.6
10°-20°	663.7	4.5
20°-30°	931.9	6.3
30°-40°	1015.8	6.9
40°-50°	933.6	6.3
50°-60°	733.2	5.0
60°-70°	477.3	3.2
70°-80°	245.7	1.7
80°-90°	72.3	0.5
90°-100°	209.4	1.4
100°-110°	665.4	4.5
110°-120°	1138.7	7.7
120°-130°	1497.5	10.1
130°-140°	1680.9	11.4
140°-150°	1648.3	11.2
150°-160°	1382.7	9.4
160°-170°	917.0	6.2
170°-180°	320.5	2.2
0°-30°	1837.4	12.4
0°-40°	2853.2	19.3
0°-60°	4520.0	30.6
0°-90°	5315.3	36.0
90°-120°	2013.4	13.6
90°-150°	6840.1	46.3
90°-180°	9460.0	64.0
0°-180°	14775.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2580	2580	2580	2580	2580	
5°	2580	2568	2538	2559	2552	245
15°	2454	2428	2349	2304	2281	691
25°	2227	2152	1998	1903	1868	1024
35°	1919	1800	1595	1448	1396	1201
45°	1569	1412	1167	1002	946	1212
55°	1193	1011	759	619	574	1066
65°	806	616	406	327	320	799
75°	430	266	187	170	168	454
85°	100	51	44	44	44	115
90°	3	37	100	94	97	15
95°	149	178	183	183	178	166
105°	614	622	628	634	634	648
115°	1143	1159	1154	1151	1143	1130
125°	1662	1688	1679	1670	1667	1485
135°	2150	2181	2188	2184	2176	1662
145°	2610	2630	2646	2650	2638	1631
155°	2984	2992	3002	3016	3007	1374
165°	3246	3243	3243	3264	3250	916
175°	3378	3370	3364	3384	3367	321
180°	3384	3384	3384	3384	3384	



TEST NUMBER: P922382

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US940-RLFL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2579.8	2579.8	2579.8	2579.8	2579.8
2.5°	2591.4	2579.8	2554.0	2577.6	2572.9
5°	2579.8	2568.1	2537.7	2558.8	2551.8
7.5°	2558.8	2544.9	2512.2	2521.3	2509.7
10°	2530.8	2514.4	2467.8	2460.7	2446.8
12.5°	2495.8	2474.8	2411.6	2397.7	2371.9
15°	2453.7	2427.9	2348.7	2304.4	2281.1
17.5°	2404.7	2367.3	2269.2	2217.9	2180.5
20°	2348.7	2301.9	2185.2	2127.0	2075.5
22.5°	2288.0	2234.3	2098.7	2019.5	1984.6
25°	2227.3	2152.5	1998.4	1902.8	1867.7
27.5°	2155.0	2075.5	1905.1	1795.4	1741.6
30°	2078.0	1989.0	1802.2	1683.4	1620.2
32.5°	2003.1	1895.7	1704.4	1564.2	1505.7
35°	1919.1	1800.0	1594.7	1447.6	1396.1
37.5°	1837.5	1708.9	1491.9	1330.6	1272.5
40°	1751.0	1611.1	1384.4	1218.7	1158.0
42.5°	1662.3	1513.0	1277.1	1104.2	1046.1
45°	1569.0	1412.4	1167.4	1001.5	945.5
47.5°	1480.2	1314.6	1062.4	896.4	845.2
50°	1382.2	1216.5	959.6	798.3	749.6
52.5°	1286.3	1111.2	861.5	707.4	663.1
55°	1192.9	1010.8	758.7	618.8	574.4
57.5°	1097.3	910.5	667.8	537.0	499.6
60°	999.3	812.4	571.9	453.1	415.6
62.5°	903.6	716.8	490.2	378.3	359.6
65°	805.5	616.3	406.3	327.0	319.8
67.5°	712.1	522.9	327.0	287.0	280.2
70°	614.0	431.9	270.7	247.4	238.0
72.5°	520.7	347.8	226.4	207.9	203.1
75°	429.5	266.0	186.7	170.4	168.2
77.5°	338.6	189.0	147.1	137.7	133.0
80°	254.4	135.5	112.0	102.8	102.8
82.5°	177.4	91.1	77.0	72.3	72.3
85°	100.3	51.3	44.3	44.3	44.3
87.5°	37.4	18.5	18.5	16.3	16.3
90°	3.0	36.7	100.0	93.9	96.9
92.5°	63.2	85.7	88.7	91.8	91.8
95°	148.9	177.5	182.6	182.6	177.5
97.5°	247.9	274.5	285.7	285.7	285.7
100°	362.2	385.7	393.8	393.8	390.7
102.5°	482.6	499.9	511.1	514.2	511.1
105°	614.2	622.3	628.5	633.6	633.6
107.5°	744.8	757.1	757.1	759.0	744.8
110°	871.3	887.6	887.6	887.6	879.5



TEST NUMBER: P922382

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US940-RLFL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1008.0	1025.4	1022.3	1014.1	1008.0
115°	1142.6	1159.0	1153.9	1150.8	1142.6
117.5°	1276.3	1298.8	1284.5	1276.3	1268.2
120°	1411.0	1433.4	1411.0	1411.0	1401.9
122.5°	1533.5	1562.0	1547.7	1539.5	1533.5
125°	1662.0	1687.5	1679.4	1670.2	1667.1
127.5°	1787.5	1819.1	1807.9	1795.6	1787.5
130°	1904.8	1941.5	1936.4	1930.3	1919.0
132.5°	2036.4	2065.0	2067.0	2052.7	2044.6
135°	2149.6	2181.3	2187.5	2184.3	2176.2
137.5°	2276.2	2301.7	2306.8	2304.7	2292.5
140°	2387.4	2412.9	2427.1	2427.1	2415.9
142.5°	2501.7	2527.2	2535.3	2538.3	2527.2
145°	2609.8	2630.2	2646.5	2649.6	2638.4
147.5°	2706.7	2732.2	2744.5	2749.6	2738.4
150°	2806.7	2824.0	2835.3	2844.5	2835.3
152.5°	2895.5	2912.8	2927.1	2938.4	2927.1
155°	2984.2	2992.4	3001.6	3015.9	3006.7
157.5°	3060.8	3066.9	3071.9	3092.4	3078.1
160°	3129.1	3135.3	3138.3	3155.7	3143.4
162.5°	3192.3	3192.3	3195.4	3214.8	3200.5
165°	3246.4	3243.4	3243.4	3263.7	3249.5
167.5°	3295.4	3286.2	3286.2	3306.6	3292.4
170°	3332.1	3323.9	3320.9	3341.3	3323.9
172.5°	3357.6	3349.4	3346.4	3366.8	3349.4
175°	3378.1	3369.9	3363.8	3384.1	3366.8
177.5°	3389.3	3381.1	3374.9	3392.3	3374.9
180°	3384.1	3384.1	3384.1	3384.1	3384.1



TEST NUMBER: P922382  
 CATALOG NUMBER: DFN2DIP-PN4F0-070D120US940-RLLFLL

**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	7.88	8.61	8.95	9.68	11.14	3.84	4.57	4.92	5.64	7.10
	3H	9.55	10.20	10.64	11.28	12.76	5.03	5.68	6.11	6.76	8.24
	4H	10.16	10.77	11.25	11.86	13.34	5.47	6.09	6.57	7.17	8.66
	6H	10.58	11.14	11.68	12.23	13.73	5.79	6.36	6.89	7.44	8.94
	8H	10.70	11.24	11.81	12.34	13.83	5.88	6.42	6.98	7.52	9.01
	12H	10.76	11.27	11.87	12.37	13.88	5.92	6.43	7.03	7.52	9.04
4H	2H	7.89	8.50	8.99	9.58	11.07	4.43	5.05	5.53	6.13	7.61
	3H	9.71	10.22	10.82	11.33	12.83	5.77	6.28	6.88	7.39	8.89
	4H	10.40	10.87	11.51	11.97	13.49	6.32	6.79	7.43	7.89	9.40
	6H	10.91	11.31	12.03	12.44	13.95	6.73	7.13	7.85	8.26	9.77
	8H	11.09	11.46	12.21	12.58	14.10	6.86	7.23	7.98	8.35	9.87
	12H	11.18	11.52	12.31	12.64	14.18	6.92	7.26	8.05	8.39	9.92
8H	4H	10.36	10.74	11.48	11.85	13.38	6.59	6.97	7.71	8.08	9.61
	6H	10.92	11.23	12.06	12.39	13.91	7.11	7.42	8.25	8.57	10.10
	8H	11.14	11.41	12.29	12.55	14.09	7.30	7.57	8.44	8.70	10.25
	12H	11.28	11.52	12.43	12.65	14.23	7.41	7.65	8.56	8.78	10.36
12H	4H	10.31	10.65	11.44	11.77	13.30	6.59	6.93	7.73	8.06	9.59
	6H	10.90	11.17	12.05	12.31	13.85	7.16	7.43	8.30	8.56	10.11
	8H	11.12	11.36	12.27	12.49	14.07	7.36	7.60	8.51	8.73	10.31