

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: P916924

Luminaire Tested: DFN2DIP-PN4F0-070D120US930-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P916924  
REPORT IS A COMBINATION OF REPORTS P899759 AND P896497  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN4F0-070D120US930-FLLFLL  
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

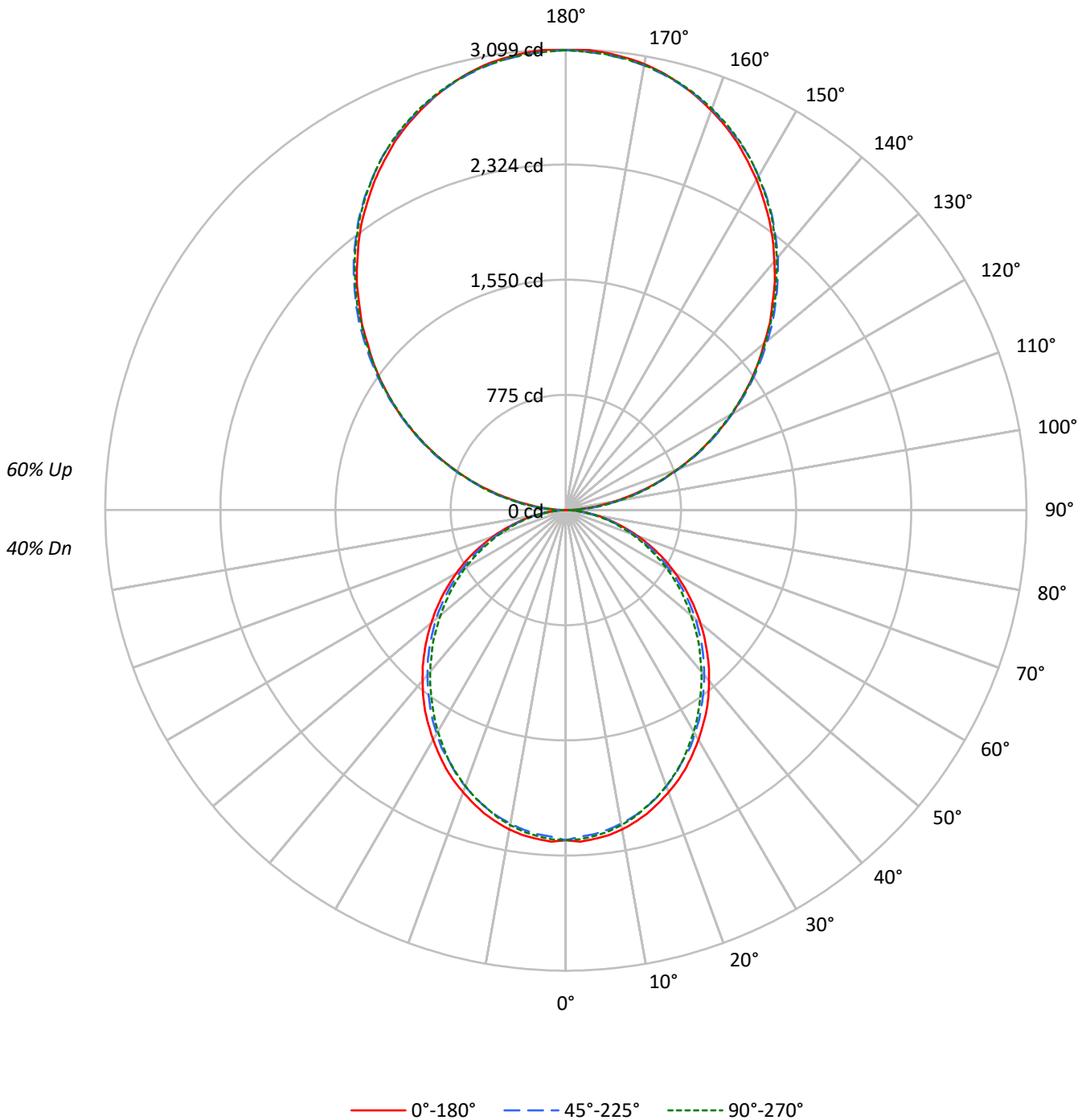
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14308.5 lumens  
Efficiency: N/A  
Efficacy: 84.1 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: 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: P916924  
CATALOG NUMBER: DFN2DIP-PN4F0-070D120US930-FLLFLL

### Luminous Intensity Polar Plot





TEST NUMBER: P916924

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US930-FLLFLL

**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	105	105	105	105	95	95	95	95	78	78	78	61	61	61	47	47	47	47	47	47	40
1	95	91	87	84	87	83	80	77	68	66	64	54	52	51	41	40	39	39	39	39	33
2	87	80	74	68	79	73	67	63	59	56	53	47	45	43	36	35	33	33	33	33	28
3	79	70	63	57	72	64	58	53	52	48	44	42	39	36	32	30	28	28	28	28	24
4	72	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24	24	24	24	20
5	66	55	47	41	60	50	43	38	42	36	32	33	30	27	26	23	21	21	21	21	18
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	21	19	19	19	19	15
7	56	44	37	31	51	41	34	29	34	29	25	27	24	21	21	19	16	16	16	16	14
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15	15	15	15	12
9	49	37	29	24	44	34	27	23	28	23	20	23	19	16	18	15	13	13	13	13	11
10	45	34	27	22	41	31	25	20	26	21	18	21	17	15	17	14	12	12	12	12	10

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

	0°	45°	90°
0°	1621	1621	1621
5°	1624	1599	1609
10°	1610	1577	1588
15°	1587	1552	1554
20°	1555	1516	1520
25°	1523	1473	1480
30°	1483	1433	1429
35°	1445	1386	1375
40°	1399	1338	1323
45°	1352	1290	1271
50°	1302	1240	1210
55°	1248	1182	1155
60°	1188	1114	1091
65°	1123	1043	1015
70°	1040	956	934
75°	924	852	860
80°	785	720	717
85°	568	492	480

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2422 cd/sqm



TEST NUMBER: P916924

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US930-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	209.0	1.5
10°-20°	588.1	4.1
20°-30°	864.2	6.0
30°-40°	1003.7	7.0
40°-50°	1002.5	7.0
50°-60°	874.2	6.1
60°-70°	646.2	4.5
70°-80°	365.6	2.6
80°-90°	105.3	0.7
90°-100°	191.5	1.3
100°-110°	608.3	4.3
110°-120°	1041.1	7.3
120°-130°	1369.2	9.6
130°-140°	1536.9	10.7
140°-150°	1507.1	10.5
150°-160°	1264.2	8.8
160°-170°	838.4	5.9
170°-180°	293.0	2.0
0°-30°	1661.3	11.6
0°-40°	2665.1	18.6
0°-60°	4541.7	31.7
0°-90°	5658.8	39.5
90°-120°	1840.9	12.9
90°-150°	6254.0	43.7
90°-180°	8650.0	60.5
0°-180°	14308.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2221	2221	2221	2221	2221	
5°	2221	2212	2189	2206	2202	211
15°	2114	2101	2073	2082	2071	595
25°	1913	1896	1860	1864	1860	880
35°	1651	1629	1595	1582	1572	1031
45°	1343	1328	1296	1273	1264	1037
55°	1016	1004	978	952	942	909
65°	686	673	651	632	621	678
75°	359	355	344	331	335	383
85°	88	85	83	77	75	98
90°	3	34	91	86	89	14
95°	136	162	167	167	162	152
105°	562	569	575	579	579	593
115°	1045	1060	1055	1052	1045	1033
125°	1520	1543	1536	1527	1524	1358
135°	1965	1994	2000	1997	1990	1519
145°	2386	2405	2420	2423	2412	1491
155°	2728	2736	2744	2757	2749	1256
165°	2968	2966	2966	2984	2971	837
175°	3089	3081	3076	3094	3078	293
180°	3094	3094	3094	3094	3094	



TEST NUMBER: P916924

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US930-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2220.6	2220.6	2220.6	2220.6	2220.6
2.5°	2233.6	2222.9	2199.3	2220.6	2216.6
5°	2220.6	2212.3	2188.7	2205.7	2201.6
7.5°	2205.7	2193.0	2169.4	2186.7	2182.4
10°	2182.4	2167.4	2141.8	2158.8	2152.5
12.5°	2150.2	2137.5	2111.9	2122.5	2118.2
15°	2114.0	2101.3	2073.4	2082.0	2071.3
17.5°	2069.1	2056.4	2028.5	2039.2	2028.5
20°	2019.9	2007.3	1977.3	1983.7	1975.3
22.5°	1971.0	1951.7	1923.9	1923.9	1919.5
25°	1913.3	1896.2	1860.0	1864.1	1860.0
27.5°	1849.1	1834.2	1806.5	1800.2	1789.5
30°	1785.3	1768.0	1736.1	1729.7	1721.1
32.5°	1716.8	1704.1	1669.9	1657.0	1648.4
35°	1650.7	1629.4	1595.1	1582.2	1571.6
37.5°	1575.9	1556.6	1522.4	1507.5	1496.8
40°	1499.1	1481.9	1447.6	1428.6	1420.0
42.5°	1424.3	1407.1	1373.1	1351.6	1338.9
45°	1343.2	1328.3	1296.1	1272.8	1264.1
47.5°	1264.1	1249.2	1215.0	1191.4	1178.8
50°	1180.8	1170.1	1140.2	1110.4	1099.7
52.5°	1099.7	1084.8	1057.1	1033.6	1018.6
55°	1016.5	1003.6	978.0	952.4	941.8
57.5°	933.2	922.5	894.6	869.0	860.5
60°	849.8	841.4	811.5	788.0	781.6
62.5°	768.7	753.7	732.5	711.2	702.5
65°	685.6	672.6	651.3	632.1	621.4
67.5°	600.1	589.3	570.2	555.3	546.7
70°	521.1	512.5	493.2	478.3	469.9
72.5°	439.9	431.4	420.7	405.8	399.4
75°	358.6	354.6	343.6	331.0	335.3
77.5°	286.2	277.5	273.2	266.8	260.6
80°	213.6	211.4	207.1	200.7	196.4
82.5°	145.2	145.2	143.2	134.6	134.6
85°	87.5	85.4	83.4	76.8	74.8
87.5°	38.5	34.2	29.9	23.6	21.3
90°	2.8	33.6	91.4	85.9	88.6
92.5°	57.8	78.4	81.1	84.0	84.0
95°	136.2	162.3	167.0	167.0	162.3
97.5°	226.7	250.9	261.2	261.2	261.2
100°	331.2	352.6	360.0	360.0	357.3
102.5°	441.2	457.1	467.3	470.2	467.3
105°	561.6	569.0	574.6	579.3	579.3
107.5°	680.9	692.2	692.2	694.0	680.9
110°	796.6	811.5	811.5	811.5	804.1



TEST NUMBER: P916924

CATALOG NUMBER: DFN2DIP-PN4F0-070D120US930-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	921.6	937.5	934.7	927.2	921.6
115°	1044.7	1059.7	1055.0	1052.2	1044.7
117.5°	1166.9	1187.5	1174.4	1166.9	1159.5
120°	1290.1	1310.6	1290.1	1290.1	1281.7
122.5°	1402.1	1428.2	1415.1	1407.6	1402.1
125°	1519.6	1542.9	1535.5	1527.1	1524.2
127.5°	1634.3	1663.2	1652.9	1641.8	1634.3
130°	1741.6	1775.1	1770.5	1764.9	1754.6
132.5°	1861.9	1888.1	1889.9	1876.8	1869.4
135°	1965.4	1994.4	2000.0	1997.2	1989.7
137.5°	2081.1	2104.4	2109.1	2107.2	2096.1
140°	2182.8	2206.1	2219.2	2219.2	2208.9
142.5°	2287.3	2310.6	2318.1	2320.8	2310.6
145°	2386.1	2404.8	2419.7	2422.6	2412.3
147.5°	2474.8	2498.1	2509.3	2514.0	2503.7
150°	2566.2	2582.0	2592.3	2600.7	2592.3
152.5°	2647.4	2663.2	2676.3	2686.6	2676.3
155°	2728.5	2736.0	2744.4	2757.4	2749.0
157.5°	2798.5	2804.1	2808.7	2827.4	2814.3
160°	2861.0	2866.6	2869.4	2885.3	2874.0
162.5°	2918.8	2918.8	2921.6	2939.3	2926.3
165°	2968.3	2965.5	2965.5	2984.1	2971.0
167.5°	3013.0	3004.6	3004.6	3023.3	3010.2
170°	3046.6	3039.1	3036.3	3055.0	3039.1
172.5°	3069.9	3062.4	3059.7	3078.3	3062.4
175°	3088.6	3081.1	3075.5	3094.1	3078.3
177.5°	3098.9	3091.4	3085.7	3101.6	3085.7
180°	3094.1	3094.1	3094.1	3094.1	3094.1



TEST NUMBER: P916924  
 CATALOG NUMBER: DFN2DIP-PN4F0-070D120US930-FLLFLL

**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	7.90	8.68	8.95	9.73	11.14	7.46	8.24	8.51	9.29	10.70
	3H	9.56	10.26	10.61	11.31	12.74	9.08	9.77	10.13	10.83	12.26
	4H	10.15	10.80	11.21	11.86	13.30	9.66	10.32	10.72	11.38	12.82
	6H	10.54	11.15	11.62	12.21	13.66	10.05	10.66	11.13	11.72	13.17
	8H	10.65	11.22	11.73	12.30	13.75	10.15	10.73	11.23	11.81	13.26
	12H	10.69	11.24	11.78	12.31	13.78	10.19	10.74	11.28	11.81	13.28
4H	2H	8.36	9.01	9.43	10.07	11.51	8.00	8.66	9.07	9.72	11.16
	3H	10.22	10.77	11.29	11.85	13.30	9.81	10.36	10.89	11.45	12.90
	4H	10.93	11.43	12.01	12.51	13.98	10.51	11.02	11.59	12.09	13.57
	6H	11.44	11.88	12.53	12.98	14.44	11.02	11.45	12.11	12.55	14.02
	8H	11.59	12.00	12.68	13.09	14.57	11.16	11.57	12.25	12.66	14.14
	12H	11.66	12.03	12.77	13.13	14.62	11.22	11.59	12.33	12.69	14.18
8H	4H	11.12	11.52	12.21	12.62	14.10	10.75	11.15	11.84	12.24	13.73
	6H	11.75	12.08	12.86	13.22	14.70	11.37	11.71	12.49	12.84	14.32
	8H	11.97	12.26	13.09	13.38	14.88	11.59	11.88	12.71	13.00	14.50
	12H	12.10	12.36	13.23	13.47	15.01	11.70	11.96	12.82	13.07	14.61
12H	4H	11.10	11.47	12.21	12.57	14.06	10.74	11.10	11.85	12.21	13.70
	6H	11.78	12.07	12.90	13.19	14.69	11.41	11.71	12.54	12.82	14.32
	8H	12.02	12.28	13.14	13.39	14.93	11.65	11.90	12.77	13.02	14.55