

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: P914368

Luminaire Tested: DFN2DIP-PN4F0-120D100US927-FLLFLL

Issue Date: 11/21/2024

**Test Information**

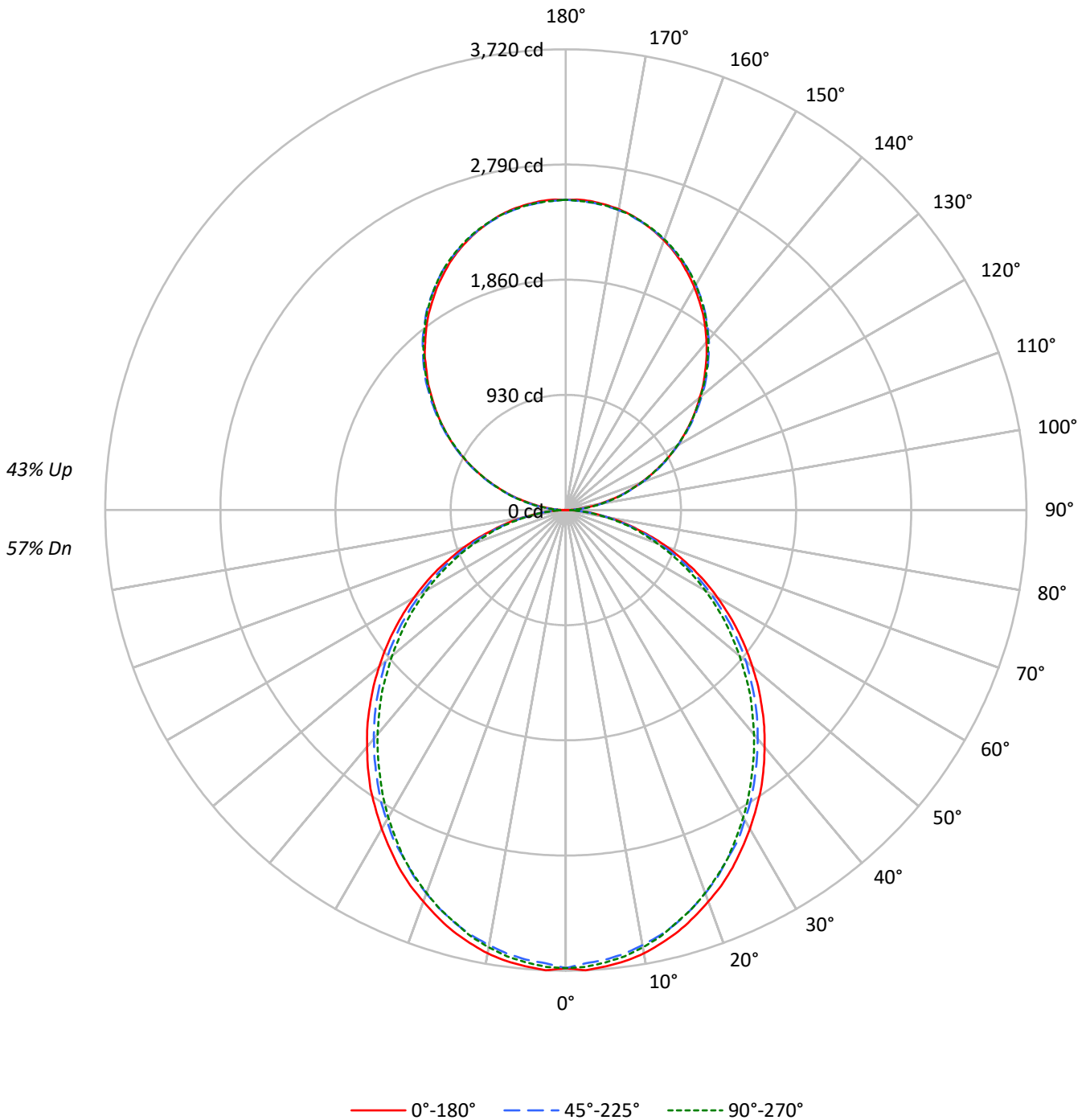
Test Method: LM-79-2019  
Report Number: P914368  
REPORT IS A COMBINATION OF REPORTS P899733 AND P896497  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN4F0-120D100US927-FLLFLL  
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 16421.9 lumens  
Efficiency: N/A  
Efficacy: 81.6 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): 201.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9781  
Total Harmonic Distortion (THDi): 0.075  
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
RCR																				
0	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63	57	57	57
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	56	54	53	48	48	48
2	91	83	77	72	84	78	72	67	67	63	60	58	55	52	49	47	45	40	40	40
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	41	38	34	34	34
4	76	65	57	51	70	61	53	48	53	47	43	46	41	38	39	36	33	29	29	29
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29	26	26	26
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25	22	22	22
7	59	47	39	33	55	44	37	32	39	33	28	34	29	25	29	25	22	20	20	20
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20	18	18	18
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18	16	16	16
10	48	36	28	24	45	34	27	23	30	24	21	26	22	19	23	19	17	15	15	15

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

	0°	45°	90°
0°	2700	2700	2700
5°	2704	2663	2681
10°	2682	2627	2645
15°	2643	2584	2589
20°	2590	2525	2531
25°	2537	2453	2465
30°	2470	2387	2380
35°	2407	2308	2290
40°	2330	2229	2204
45°	2252	2149	2117
50°	2168	2066	2016
55°	2079	1970	1923
60°	1979	1855	1817
65°	1870	1737	1691
70°	1732	1592	1556
75°	1539	1419	1432
80°	1307	1199	1195
85°	946	819	799

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2252 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	348.1	2.1
10°-20°	979.5	6.0
20°-30°	1439.5	8.8
30°-40°	1671.9	10.2
40°-50°	1669.9	10.2
50°-60°	1456.0	8.9
60°-70°	1076.3	6.6
70°-80°	609.0	3.7
80°-90°	167.9	1.0
90°-100°	155.0	0.9
100°-110°	492.6	3.0
110°-120°	843.0	5.1
120°-130°	1108.6	6.8
130°-140°	1244.4	7.6
140°-150°	1220.3	7.4
150°-160°	1023.6	6.2
160°-170°	678.9	4.1
170°-180°	237.3	1.4
0°-30°	2767.2	16.9
0°-40°	4439.1	27.0
0°-60°	7565.0	46.1
0°-90°	9418.2	57.4
90°-120°	1490.6	9.1
90°-150°	5063.9	30.8
90°-180°	7004.0	42.7
0°-180°	16421.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3699	3699	3699	3699	3699	
5°	3699	3685	3646	3674	3667	351
15°	3521	3500	3454	3468	3450	992
25°	3187	3158	3098	3105	3098	1466
35°	2749	2714	2657	2636	2618	1717
45°	2237	2212	2159	2120	2106	1727
55°	1693	1672	1629	1586	1569	1514
65°	1142	1120	1085	1053	1035	1129
75°	597	591	572	551	558	638
85°	146	142	139	128	124	162
90°	2	27	74	70	72	16
95°	110	131	135	135	131	123
105°	455	461	465	469	469	480
115°	846	858	854	852	846	837
125°	1230	1249	1243	1236	1234	1100
135°	1591	1615	1619	1617	1611	1230
145°	1932	1947	1959	1962	1953	1207
155°	2209	2215	2222	2233	2226	1017
165°	2403	2401	2401	2416	2406	678
175°	2501	2495	2490	2505	2492	238
180°	2505	2505	2505	2505	2505	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3698.9	3698.9	3698.9	3698.9	3698.9
2.5°	3720.4	3702.7	3663.4	3698.9	3692.1
5°	3698.9	3684.9	3645.7	3674.0	3667.2
7.5°	3674.0	3652.8	3613.6	3642.3	3635.2
10°	3635.2	3610.2	3567.6	3595.9	3585.3
12.5°	3581.5	3560.4	3517.8	3535.5	3528.3
15°	3521.2	3500.0	3453.6	3467.9	3450.2
17.5°	3446.5	3425.3	3378.9	3396.6	3378.9
20°	3364.6	3343.4	3293.7	3304.2	3290.2
22.5°	3283.0	3251.0	3204.5	3204.5	3197.4
25°	3186.8	3158.5	3098.1	3105.0	3098.1
27.5°	3080.0	3055.1	3009.1	2998.5	2980.8
30°	2973.6	2944.9	2891.7	2881.2	2866.8
32.5°	2859.6	2838.5	2781.5	2760.0	2745.7
35°	2749.4	2714.0	2657.0	2635.5	2617.8
37.5°	2624.9	2592.9	2535.9	2511.0	2493.2
40°	2497.0	2468.4	2411.3	2379.6	2365.3
42.5°	2372.5	2343.8	2287.2	2251.4	2230.2
45°	2237.4	2212.5	2158.9	2120.0	2105.7
47.5°	2105.7	2080.7	2023.8	1984.6	1963.4
50°	1966.8	1949.1	1899.3	1849.4	1831.7
52.5°	1831.7	1806.8	1760.8	1721.5	1696.6
55°	1693.2	1671.7	1629.0	1586.4	1568.7
57.5°	1554.3	1536.6	1490.2	1447.6	1433.2
60°	1415.5	1401.5	1351.7	1312.5	1301.9
62.5°	1280.4	1255.4	1220.0	1184.5	1170.2
65°	1141.9	1120.4	1084.9	1052.8	1035.1
67.5°	999.7	981.5	949.8	925.0	910.6
70°	867.9	853.6	821.5	796.6	782.7
72.5°	732.8	718.5	700.8	675.9	665.3
75°	597.4	590.6	572.4	551.4	558.5
77.5°	476.6	462.2	455.1	444.5	434.0
80°	355.8	352.0	344.9	334.4	327.2
82.5°	241.9	241.9	238.5	224.2	224.2
85°	145.7	142.3	138.9	127.9	124.5
87.5°	64.2	57.0	49.8	39.2	35.5
90°	2.3	27.2	74.0	69.5	71.8
92.5°	46.8	63.5	65.8	68.0	68.0
95°	110.3	131.4	135.2	135.2	131.4
97.5°	183.5	203.2	211.5	211.5	211.5
100°	268.2	285.5	291.5	291.5	289.3
102.5°	357.3	370.1	378.4	380.6	378.4
105°	454.7	460.7	465.2	469.1	469.1
107.5°	551.4	560.5	560.5	562.0	551.4
110°	645.1	657.1	657.1	657.1	651.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	746.2	759.1	756.8	750.8	746.2
115°	846.0	858.0	854.3	852.0	846.0
117.5°	944.9	961.5	950.9	944.9	938.8
120°	1044.6	1061.2	1044.6	1044.6	1037.8
122.5°	1135.2	1156.3	1145.8	1139.8	1135.2
125°	1230.4	1249.3	1243.2	1236.4	1234.2
127.5°	1323.3	1346.7	1338.4	1329.4	1323.3
130°	1410.2	1437.3	1433.6	1429.0	1420.8
132.5°	1507.6	1528.8	1530.3	1519.7	1513.6
135°	1591.4	1614.9	1619.4	1617.2	1611.1
137.5°	1685.1	1704.0	1707.8	1706.3	1697.2
140°	1767.4	1786.3	1796.9	1796.9	1788.6
142.5°	1852.0	1870.9	1876.9	1879.2	1870.9
145°	1932.1	1947.2	1959.3	1961.5	1953.2
147.5°	2003.8	2022.8	2031.8	2035.6	2027.3
150°	2077.9	2090.7	2099.0	2105.8	2099.0
152.5°	2143.6	2156.4	2167.0	2175.3	2167.0
155°	2209.3	2215.3	2222.1	2232.7	2225.9
157.5°	2266.0	2270.5	2274.3	2289.3	2278.8
160°	2316.6	2321.1	2323.3	2336.1	2327.1
162.5°	2363.4	2363.4	2365.6	2379.9	2369.4
165°	2403.4	2401.1	2401.1	2416.2	2405.7
167.5°	2439.7	2432.9	2432.9	2448.0	2437.4
170°	2466.9	2460.8	2458.5	2473.7	2460.8
172.5°	2485.7	2479.7	2477.4	2492.5	2479.7
175°	2500.8	2494.8	2490.3	2505.4	2492.5
177.5°	2509.2	2503.1	2498.5	2511.4	2498.5
180°	2505.4	2505.4	2505.4	2505.4	2505.4



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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	11.38	12.31	12.27	13.22	14.39	10.94	11.87	11.83	12.78	13.95
	3H	13.05	13.89	13.95	14.81	15.99	12.57	13.40	13.47	14.32	15.51
	4H	13.64	14.43	14.56	15.36	16.56	13.16	13.95	14.07	14.87	16.07
	6H	14.05	14.78	14.98	15.71	16.92	13.56	14.29	14.49	15.22	16.43
	8H	14.16	14.85	15.09	15.80	17.01	13.66	14.36	14.60	15.31	16.52
	12H	14.21	14.87	15.15	15.81	17.05	13.71	14.37	14.65	15.31	16.55
4H	2H	11.85	12.64	12.77	13.57	14.76	11.50	12.29	12.42	13.22	14.41
	3H	13.73	14.39	14.66	15.34	16.55	13.32	13.98	14.26	14.94	16.15
	4H	14.45	15.05	15.39	16.00	17.24	14.03	14.63	14.97	15.58	16.82
	6H	14.97	15.49	15.93	16.46	17.70	14.54	15.06	15.50	16.04	17.28
	8H	15.12	15.61	16.08	16.58	17.83	14.69	15.18	15.65	16.15	17.40
	12H	15.20	15.64	16.18	16.62	17.88	14.76	15.20	15.74	16.18	17.44
8H	4H	14.65	15.13	15.61	16.10	17.35	14.28	14.76	15.24	15.73	16.98
	6H	15.29	15.69	16.27	16.70	17.95	14.91	15.31	15.90	16.32	17.57
	8H	15.51	15.86	16.50	16.86	18.13	15.13	15.48	16.12	16.48	17.75
	12H	15.65	15.96	16.64	16.95	18.27	15.24	15.56	16.24	16.55	17.86
12H	4H	14.64	15.08	15.62	16.06	17.32	14.28	14.71	15.25	15.70	16.96
	6H	15.32	15.67	16.31	16.67	17.94	14.95	15.31	15.95	16.31	17.57
	8H	15.56	15.88	16.56	16.87	18.18	15.19	15.51	16.19	16.50	17.81