

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: P914300

Luminaire Tested: DFN2DIP-PN4F0-100D110US927-FLLFLL

Issue Date: 11/21/2024

**Test Information**

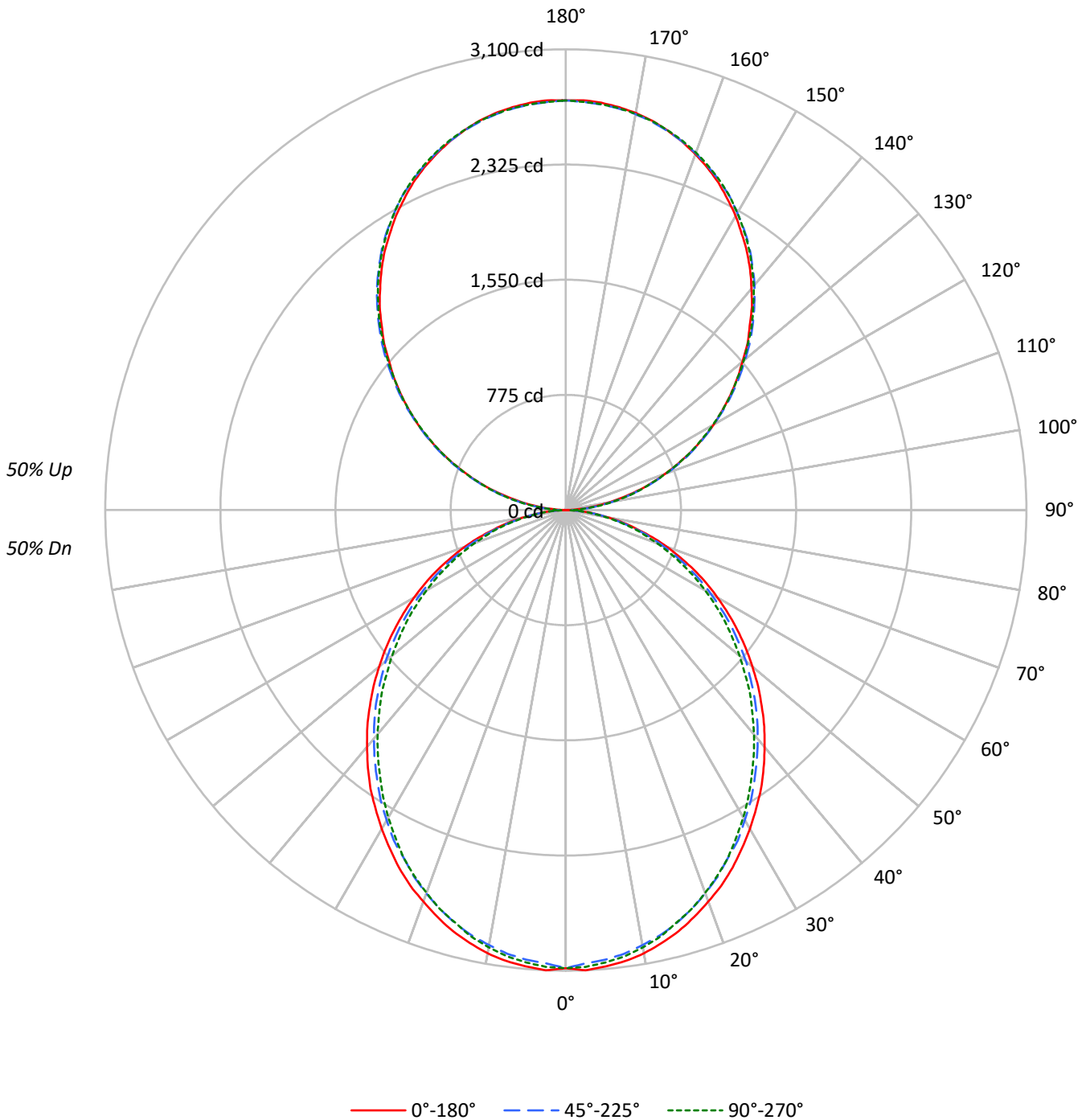
Test Method: LM-79-2019  
Report Number: P914300  
REPORT IS A COMBINATION OF REPORTS P899747 AND P896497  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN4F0-100D110US927-FLLFLL  
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15554.5 lumens  
Efficiency: N/A  
Efficacy: 80.8 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): 192.6  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
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	0
RCR																					
0	107	107	107	107	99	99	99	99	84	84	84	69	69	69	57	57	57	57	57	57	50
1	98	94	90	86	90	86	83	80	73	71	69	61	59	58	50	49	48	50	49	48	42
2	89	82	76	70	82	76	70	66	64	60	57	54	51	48	44	42	40	44	42	40	36
3	81	72	64	59	75	67	60	55	57	52	48	47	44	41	39	36	34	39	36	34	30
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	30	35	32	30	26
5	68	57	49	42	63	53	45	40	45	39	35	38	34	30	31	28	26	31	28	26	23
6	63	51	43	37	58	47	40	35	41	35	31	34	30	27	29	25	23	29	25	23	20
7	58	46	38	32	54	43	36	31	37	31	27	31	27	24	26	23	20	26	23	20	18
8	54	42	34	29	50	39	32	27	34	28	24	29	24	21	24	21	18	24	21	18	16
9	50	38	31	25	46	36	29	24	31	25	22	26	22	19	22	19	16	22	19	16	14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15	20	17	15	13

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

	0°	45°	90°
0°	2250	2250	2250
5°	2254	2219	2234
10°	2235	2189	2204
15°	2202	2154	2157
20°	2158	2104	2109
25°	2114	2044	2054
30°	2058	1989	1983
35°	2006	1923	1908
40°	1941	1857	1837
45°	1877	1791	1764
50°	1807	1722	1680
55°	1733	1641	1603
60°	1650	1546	1514
65°	1559	1447	1409
70°	1443	1327	1297
75°	1282	1183	1194
80°	1089	999	996
85°	788	682	666

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2157 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	290.1	1.9
10°-20°	816.3	5.2
20°-30°	1199.6	7.7
30°-40°	1393.3	9.0
40°-50°	1391.5	8.9
50°-60°	1213.4	7.8
60°-70°	897.0	5.8
70°-80°	507.5	3.3
80°-90°	141.8	0.9
90°-100°	170.5	1.1
100°-110°	541.8	3.5
110°-120°	927.3	6.0
120°-130°	1219.5	7.8
130°-140°	1368.8	8.8
140°-150°	1342.3	8.6
150°-160°	1126.0	7.2
160°-170°	746.7	4.8
170°-180°	261.0	1.7
0°-30°	2306.0	14.8
0°-40°	3699.3	23.8
0°-60°	6304.2	40.5
0°-90°	7850.4	50.5
90°-120°	1639.7	10.5
90°-150°	5570.3	35.8
90°-180°	7704.0	49.5
0°-180°	15554.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3082	3082	3082	3082	3082	
5°	3082	3071	3038	3062	3056	293
15°	2934	2917	2878	2890	2875	826
25°	2656	2632	2582	2587	2582	1222
35°	2291	2262	2214	2196	2181	1431
45°	1864	1844	1799	1767	1755	1439
55°	1411	1393	1358	1322	1307	1262
65°	952	934	904	877	863	941
75°	498	492	477	460	465	531
85°	121	119	116	107	104	135
90°	2	30	81	76	79	15
95°	121	145	149	149	145	135
105°	500	507	512	516	516	528
115°	931	944	940	937	931	920
125°	1353	1374	1368	1360	1358	1209
135°	1751	1776	1781	1779	1772	1353
145°	2125	2142	2155	2158	2149	1328
155°	2430	2437	2444	2456	2448	1119
165°	2644	2641	2641	2658	2646	746
175°	2751	2744	2739	2756	2742	261
180°	2756	2756	2756	2756	2756	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3082.5	3082.5	3082.5	3082.5	3082.5
2.5°	3100.4	3085.5	3052.8	3082.5	3076.8
5°	3082.5	3070.8	3038.1	3061.7	3056.0
7.5°	3061.7	3044.0	3011.3	3035.2	3029.3
10°	3029.3	3008.5	2973.0	2996.6	2987.8
12.5°	2984.6	2967.0	2931.5	2946.3	2940.3
15°	2934.3	2916.7	2878.0	2890.0	2875.2
17.5°	2872.1	2854.5	2815.7	2830.5	2815.7
20°	2803.8	2786.2	2744.7	2753.5	2741.8
22.5°	2735.9	2709.2	2670.4	2670.4	2664.5
25°	2655.7	2632.1	2581.8	2587.4	2581.8
27.5°	2566.7	2545.9	2507.6	2498.8	2484.0
30°	2478.0	2454.1	2409.7	2400.9	2389.0
32.5°	2383.0	2365.5	2317.9	2300.0	2288.1
35°	2291.2	2261.7	2214.1	2196.2	2181.4
37.5°	2187.4	2160.7	2113.2	2092.5	2077.7
40°	2080.8	2056.9	2009.4	1983.1	1971.1
42.5°	1977.0	1953.1	1906.0	1876.1	1858.5
45°	1864.5	1843.7	1799.0	1766.6	1754.8
47.5°	1754.8	1734.0	1686.5	1653.8	1636.2
50°	1639.0	1624.2	1582.7	1541.2	1526.5
52.5°	1526.5	1505.7	1467.3	1434.6	1413.9
55°	1411.0	1393.1	1357.6	1322.0	1307.3
57.5°	1295.3	1280.5	1241.8	1206.3	1194.4
60°	1179.6	1167.9	1126.4	1093.7	1084.9
62.5°	1067.0	1046.2	1016.7	987.1	975.2
65°	951.6	933.7	904.1	877.3	862.6
67.5°	833.1	817.9	791.5	770.8	758.8
70°	723.3	711.3	684.6	663.8	652.2
72.5°	610.7	598.7	584.0	563.2	554.4
75°	497.8	492.2	477.1	459.5	465.4
77.5°	397.2	385.2	379.2	370.4	361.6
80°	296.5	293.4	287.4	278.6	272.7
82.5°	201.6	201.6	198.8	186.8	186.8
85°	121.4	118.6	115.7	106.6	103.8
87.5°	53.5	47.5	41.5	32.7	29.5
90°	2.5	29.9	81.4	76.4	78.9
92.5°	51.5	69.8	72.2	74.8	74.8
95°	121.3	144.6	148.7	148.7	144.6
97.5°	201.9	223.5	232.7	232.7	232.7
100°	294.9	314.0	320.7	320.7	318.2
102.5°	393.0	407.1	416.3	418.7	416.3
105°	500.2	506.8	511.8	515.9	515.9
107.5°	606.5	616.5	616.5	618.1	606.5
110°	709.6	722.9	722.9	722.9	716.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	820.9	835.0	832.5	825.8	820.9
115°	930.6	943.8	939.7	937.2	930.6
117.5°	1039.4	1057.6	1046.0	1039.4	1032.8
120°	1149.1	1167.4	1149.1	1149.1	1141.6
122.5°	1248.8	1272.0	1260.4	1253.7	1248.8
125°	1353.4	1374.2	1367.5	1360.1	1357.6
127.5°	1455.6	1481.4	1472.3	1462.3	1455.6
130°	1551.2	1581.1	1576.9	1571.9	1562.8
132.5°	1658.4	1681.6	1683.3	1671.7	1665.0
135°	1750.6	1776.3	1781.3	1778.8	1772.2
137.5°	1853.6	1874.4	1878.5	1876.8	1866.9
140°	1944.2	1964.9	1976.6	1976.6	1967.5
142.5°	2037.3	2058.0	2064.7	2067.1	2058.0
145°	2125.3	2141.9	2155.2	2157.7	2148.6
147.5°	2204.2	2225.0	2235.0	2239.1	2230.0
150°	2285.7	2299.8	2308.9	2316.4	2308.9
152.5°	2357.9	2372.0	2383.7	2392.9	2383.7
155°	2430.3	2436.8	2444.4	2456.0	2448.5
157.5°	2492.5	2497.5	2501.6	2518.3	2506.6
160°	2548.2	2553.2	2555.7	2569.8	2559.9
162.5°	2599.7	2599.7	2602.2	2618.0	2606.4
165°	2643.7	2641.2	2641.2	2657.8	2646.2
167.5°	2683.6	2676.1	2676.1	2692.8	2681.1
170°	2713.5	2706.9	2704.4	2721.0	2706.9
172.5°	2734.3	2727.6	2725.2	2741.8	2727.6
175°	2750.9	2744.3	2739.3	2755.9	2741.8
177.5°	2760.0	2753.4	2748.4	2762.6	2748.4
180°	2755.9	2755.9	2755.9	2755.9	2755.9



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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	10.14	11.00	11.09	11.97	13.24	9.70	10.56	10.65	11.53	12.80
	3H	11.80	12.58	12.77	13.56	14.84	11.32	12.09	12.28	13.07	14.36
	4H	12.39	13.13	13.37	14.11	15.40	11.90	12.64	12.88	13.62	14.92
	6H	12.79	13.47	13.78	14.46	15.77	12.30	12.98	13.29	13.97	15.27
	8H	12.90	13.55	13.90	14.55	15.85	12.41	13.05	13.40	14.06	15.36
	12H	12.95	13.56	13.95	14.56	15.89	12.45	13.06	13.45	14.06	15.39
4H	2H	10.60	11.34	11.58	12.32	13.61	10.25	10.98	11.23	11.97	13.26
	3H	12.47	13.08	13.46	14.09	15.40	12.07	12.68	13.06	13.69	15.00
	4H	13.19	13.75	14.19	14.75	16.09	12.77	13.33	13.77	14.33	15.67
	6H	13.71	14.19	14.72	15.22	16.55	13.28	13.76	14.29	14.79	16.12
	8H	13.86	14.31	14.87	15.33	16.67	13.43	13.88	14.44	14.90	16.24
	12H	13.93	14.34	14.96	15.38	16.73	13.49	13.90	14.52	14.93	16.29
8H	4H	13.38	13.84	14.40	14.86	16.20	13.01	13.46	14.03	14.49	15.83
	6H	14.02	14.39	15.06	15.45	16.80	13.64	14.02	14.68	15.08	16.42
	8H	14.24	14.57	15.29	15.62	16.98	13.86	14.19	14.90	15.23	16.60
	12H	14.38	14.66	15.43	15.71	17.11	13.97	14.26	15.02	15.31	16.71
12H	4H	13.37	13.78	14.40	14.81	16.16	13.01	13.42	14.04	14.45	15.80
	6H	14.05	14.38	15.10	15.43	16.79	13.68	14.01	14.73	15.06	16.42
	8H	14.29	14.58	15.34	15.63	17.03	13.92	14.21	14.97	15.25	16.66