

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: P908571

Luminaire Tested: DFN2DIP-PN3F0-080D090US840-RLLONL

Issue Date: 11/21/2024

**Test Information**

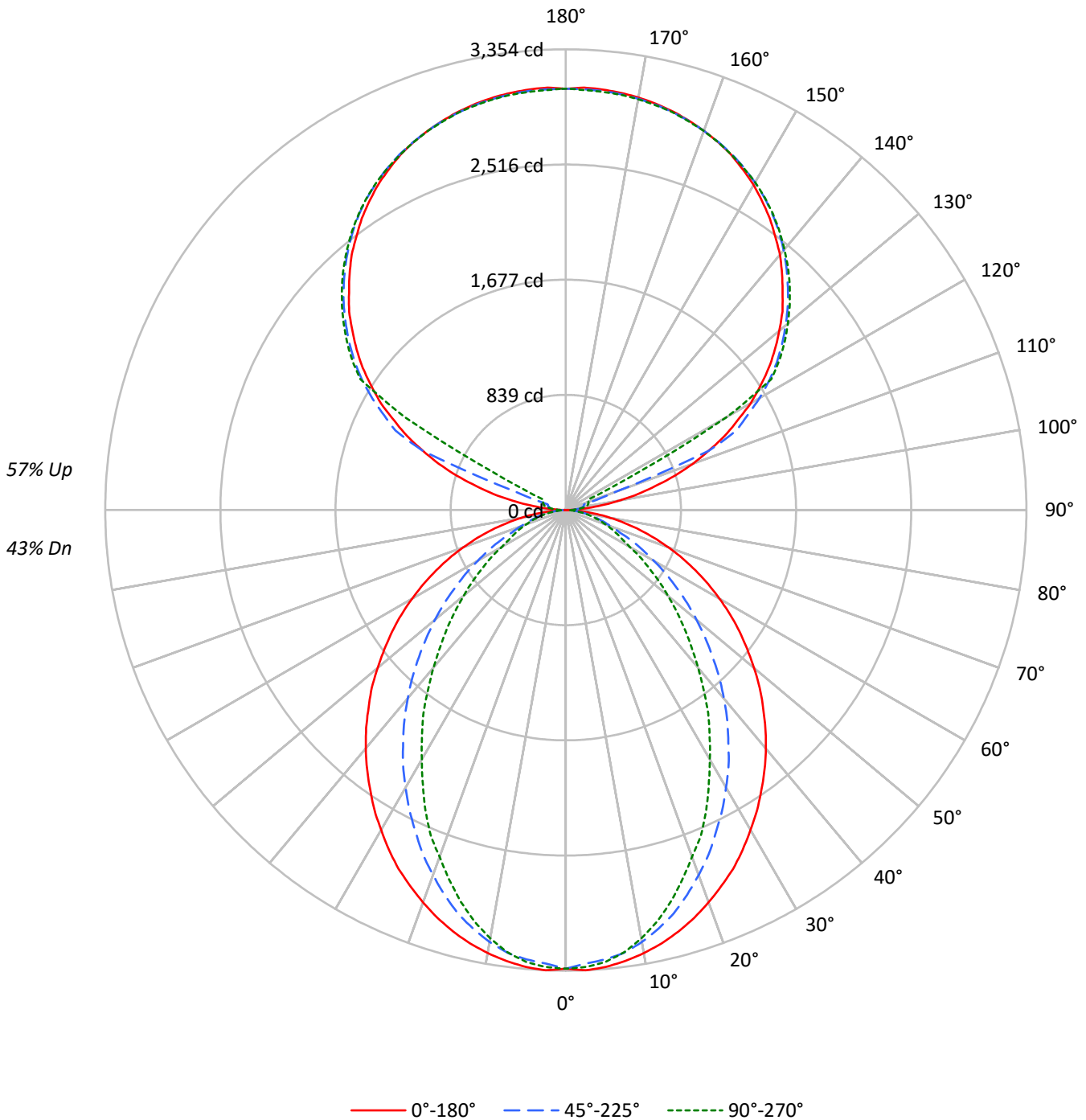
Test Method: LM-79-2019  
Report Number: P908571  
REPORT IS A COMBINATION OF REPORTS P901126 AND P897955  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-080D090US840-RLONL  
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15865.0 lumens  
Efficiency: N/A  
Efficacy: 105.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 151.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9967  
Total Harmonic Distortion (THDi): 0.063  
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									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	50	30	10	50	30	10	0																			
RCR																																														
0	106	106	106	106	97	97	97	97	80	80	80	64	64	64	50	50	50	43																												
1	97	93	89	86	88	85	82	79	70	68	66	57	56	54	45	44	43	37																												
2	88	81	75	71	81	75	70	65	62	59	55	51	48	46	40	38	37	32																												
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	34	32	28																												
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28	24																												
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	27	24	21																												
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	27	24	22	19																												
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	22	19	17																												
8	54	42	35	30	49	39	32	28	33	28	24	28	24	21	23	20	18	15																												
9	50	39	31	26	46	36	29	25	31	25	22	26	22	19	21	18	16	14																												
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	17	15	13																												

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

	0°	45°	90°
0°	3903	3903	3903
5°	3907	3839	3864
10°	3866	3761	3737
15°	3811	3634	3541
20°	3738	3460	3301
25°	3663	3265	3070
30°	3564	3066	2776
35°	3467	2852	2519
40°	3368	2631	2224
45°	3252	2387	1957
50°	3133	2140	1696
55°	3009	1876	1446
60°	2864	1601	1188
65°	2698	1322	1067
70°	2496	1062	964
75°	2242	930	873
80°	1874	771	751
85°	1274	502	555

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3252 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	312.9	2.0
10°-20°	859.1	5.4
20°-30°	1206.1	7.6
30°-40°	1314.7	8.3
40°-50°	1208.4	7.6
50°-60°	949.0	6.0
60°-70°	617.7	3.9
70°-80°	318.0	2.0
80°-90°	86.6	0.5
90°-100°	101.2	0.6
100°-110°	377.0	2.4
110°-120°	1000.0	6.3
120°-130°	1658.6	10.5
130°-140°	1761.8	11.1
140°-150°	1637.4	10.3
150°-160°	1316.4	8.3
160°-170°	848.2	5.3
170°-180°	292.0	1.8
0°-30°	2378.1	15.0
0°-40°	3692.9	23.3
0°-60°	5850.2	36.9
0°-90°	6872.5	43.3
90°-120°	1478.2	9.3
90°-150°	6535.9	41.2
90°-180°	8992.0	56.7
0°-180°	15865.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3339	3339	3339	3339	3339	
5°	3339	3324	3284	3312	3303	317
15°	3176	3142	3040	2982	2952	895
25°	2883	2786	2587	2463	2417	1326
35°	2484	2330	2064	1874	1807	1555
45°	2031	1828	1511	1296	1224	1568
55°	1544	1308	982	801	744	1380
65°	1043	798	526	423	414	1034
75°	556	344	242	221	218	588
85°	130	66	57	57	57	149
90°	2	27	44	56	60	15
95°	144	71	86	98	95	171
105°	675	741	135	160	169	721
115°	1276	1314	1370	342	182	1256
125°	1804	1833	1876	1891	1898	1609
135°	2233	2268	2288	2311	2306	1725
145°	2590	2588	2626	2641	2630	1620
155°	2852	2832	2859	2872	2854	1314
165°	3005	2992	2999	3014	2999	849
175°	3074	3058	3063	3078	3056	293
180°	3067	3067	3067	3067	3067	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3339.0	3339.0	3339.0	3339.0	3339.0
2.5°	3354.1	3339.0	3305.7	3336.1	3330.0
5°	3339.0	3324.0	3284.5	3311.8	3302.8
7.5°	3311.8	3293.8	3251.5	3263.4	3248.2
10°	3275.5	3254.4	3194.1	3184.8	3166.8
12.5°	3230.4	3203.1	3121.3	3103.3	3070.0
15°	3175.8	3142.5	3039.9	2982.5	2952.3
17.5°	3112.3	3063.9	2937.0	2870.6	2822.2
20°	3039.9	2979.3	2828.3	2753.0	2686.2
22.5°	2961.3	2891.7	2716.4	2613.8	2568.6
25°	2882.8	2786.0	2586.6	2462.9	2417.3
27.5°	2789.1	2686.2	2465.7	2323.7	2254.1
30°	2689.5	2574.3	2332.7	2178.8	2097.0
32.5°	2592.6	2453.6	2206.1	2024.6	1948.9
35°	2484.0	2329.8	2064.0	1873.6	1806.9
37.5°	2378.1	2211.8	1931.0	1722.2	1646.9
40°	2266.3	2085.2	1791.8	1577.3	1498.7
42.5°	2151.5	1958.2	1652.9	1429.3	1353.8
45°	2030.6	1828.1	1511.0	1296.2	1223.8
47.5°	1915.9	1701.4	1375.0	1160.2	1093.9
50°	1788.9	1574.5	1242.0	1033.3	970.1
52.5°	1664.9	1438.1	1115.0	915.6	858.3
55°	1544.0	1308.4	982.0	800.8	743.5
57.5°	1420.3	1178.5	864.3	695.1	646.6
60°	1293.2	1051.6	740.2	586.3	538.0
62.5°	1169.5	927.8	634.5	489.6	465.5
65°	1042.6	797.6	525.7	423.2	413.8
67.5°	921.7	676.8	423.2	371.5	362.6
70°	794.8	559.2	350.4	320.2	308.1
72.5°	673.9	450.1	293.1	269.0	262.9
75°	555.9	344.4	241.8	220.6	217.7
77.5°	438.3	244.6	190.5	178.2	172.2
80°	329.2	175.4	144.9	133.0	133.0
82.5°	229.5	118.0	99.7	93.6	93.6
85°	129.9	66.3	57.4	57.4	57.4
87.5°	48.4	24.0	24.0	21.2	21.2
90°	2.1	26.7	44.2	55.6	59.8
92.5°	55.6	46.7	53.2	57.8	59.8
95°	144.2	70.9	86.4	97.8	95.4
97.5°	259.6	77.8	113.1	119.9	122.0
100°	392.9	88.9	126.5	144.2	148.7
102.5°	539.3	535.0	131.0	155.2	162.1
105°	674.7	741.4	135.4	159.8	168.6
107.5°	832.3	887.7	140.0	164.2	173.2
110°	983.3	1029.8	388.5	166.5	175.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1125.4	1165.2	1127.5	170.8	177.6
115°	1276.2	1313.8	1369.5	341.8	182.1
117.5°	1407.1	1451.5	1489.3	1171.8	590.4
120°	1553.7	1586.9	1627.0	1653.6	1353.9
122.5°	1677.9	1713.4	1758.0	1771.1	1773.5
125°	1804.3	1833.3	1875.5	1891.1	1897.6
127.5°	1919.8	1950.9	1984.4	2006.5	2008.6
130°	2028.6	2064.3	2088.5	2112.9	2110.9
132.5°	2139.6	2168.6	2192.8	2212.9	2210.8
135°	2232.9	2268.5	2288.3	2310.7	2306.2
137.5°	2330.5	2357.0	2379.4	2401.6	2395.0
140°	2425.8	2443.8	2468.0	2488.0	2477.0
142.5°	2506.0	2521.5	2550.2	2567.9	2556.9
145°	2590.3	2587.9	2625.7	2641.2	2630.1
147.5°	2663.3	2656.8	2694.4	2705.5	2696.7
150°	2734.5	2719.0	2754.5	2767.6	2756.6
152.5°	2794.3	2776.6	2809.8	2823.3	2807.7
155°	2852.1	2832.3	2858.8	2872.1	2854.4
157.5°	2898.7	2881.0	2901.0	2916.6	2898.7
160°	2938.7	2925.3	2938.7	2951.9	2936.4
162.5°	2974.1	2960.8	2971.9	2987.5	2967.5
165°	3005.2	2991.9	2998.6	3014.1	2998.6
167.5°	3029.7	3016.3	3023.0	3038.6	3018.6
170°	3049.7	3036.3	3040.7	3056.3	3036.3
172.5°	3062.9	3049.7	3054.1	3069.7	3049.7
175°	3073.9	3058.4	3062.9	3078.4	3056.3
177.5°	3078.4	3062.9	3065.2	3080.8	3060.8
180°	3067.4	3067.4	3067.4	3067.4	3067.4



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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	11.18	11.96	12.20	12.98	14.35	7.15	7.93	8.17	8.95	10.32
	3H	12.85	13.55	13.88	14.58	15.96	8.33	9.02	9.36	10.05	11.44
	4H	13.45	14.11	14.49	15.15	16.54	8.77	9.43	9.81	10.46	11.86
	6H	13.87	14.47	14.92	15.51	16.92	9.08	9.69	10.13	10.73	12.13
	8H	13.99	14.56	15.04	15.62	17.02	9.17	9.75	10.23	10.80	12.20
	12H	14.05	14.59	15.11	15.64	17.07	9.21	9.76	10.27	10.81	12.23
4H	2H	11.19	11.85	12.24	12.89	14.28	7.73	8.39	8.78	9.43	10.82
	3H	13.01	13.56	14.07	14.62	16.03	9.07	9.62	10.13	10.68	12.09
	4H	13.70	14.20	14.76	15.25	16.68	9.61	10.11	10.68	11.17	12.60
	6H	14.20	14.63	15.27	15.71	17.13	10.02	10.45	11.09	11.53	12.95
	8H	14.37	14.77	15.44	15.84	17.28	10.15	10.55	11.22	11.62	13.06
	12H	14.46	14.82	15.55	15.91	17.35	10.21	10.57	11.30	11.65	13.10
8H	4H	13.66	14.06	14.73	15.13	16.57	9.89	10.29	10.96	11.36	12.80
	6H	14.22	14.55	15.31	15.66	17.09	10.39	10.73	11.49	11.84	13.27
	8H	14.43	14.72	15.53	15.81	17.27	10.58	10.87	11.68	11.97	13.42
	12H	14.56	14.82	15.66	15.91	17.40	10.69	10.95	11.80	12.04	13.53
12H	4H	13.61	13.97	14.70	15.05	16.50	9.89	10.25	10.98	11.33	12.78
	6H	14.19	14.48	15.29	15.58	17.03	10.44	10.73	11.54	11.83	13.28
	8H	14.40	14.66	15.51	15.75	17.24	10.64	10.90	11.75	11.99	13.49