

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: P908597

Luminaire Tested: DFN2DIP-PN3F0-090D090US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908597
REPORT IS A COMBINATION OF REPORTS P901127 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-090D090US840-FLLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

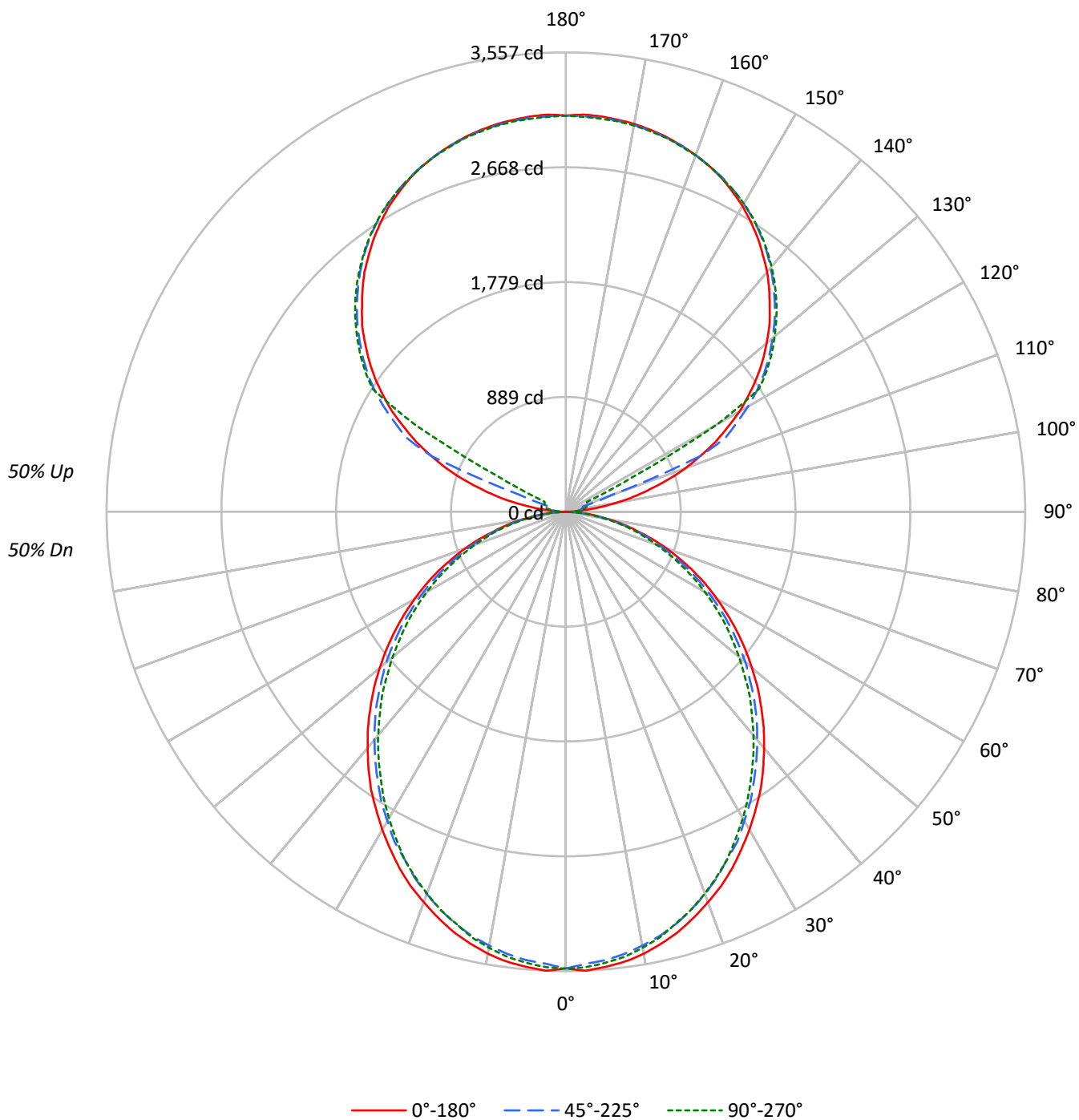
Lumens per Lamp: N/A
Luminaire Lumens: 17995.8 lumens
Efficiency: N/A
Efficacy: 109.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4134	4134	4134
5°	4138	4074	4102
10°	4102	4016	4045
15°	4040	3947	3956
20°	3955	3852	3866
25°	3872	3739	3761
30°	3768	3634	3629
35°	3669	3511	3489
40°	3547	3386	3356
45°	3426	3260	3220
50°	3294	3128	3062
55°	3155	2976	2916
60°	2997	2796	2749
65°	2825	2608	2553
70°	2606	2380	2340
75°	2304	2106	2142
80°	1937	1755	1768
85°	1366	1162	1152

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3426 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.9	1.8
10°-20°	936.5	5.2
20°-30°	1376.3	7.6
30°-40°	1598.5	8.9
40°-50°	1596.5	8.9
50°-60°	1392.1	7.7
60°-70°	1029.1	5.7
70°-80°	582.2	3.2
80°-90°	159.1	0.9
90°-100°	101.2	0.6
100°-110°	377.0	2.1
110°-120°	1000.0	5.6
120°-130°	1658.6	9.2
130°-140°	1761.8	9.8
140°-150°	1637.4	9.1
150°-160°	1316.4	7.3
160°-170°	848.2	4.7
170°-180°	292.0	1.6
0°-30°	2645.7	14.7
0°-40°	4244.2	23.6
0°-60°	7232.9	40.2
0°-90°	9003.3	50.0
90°-120°	1478.2	8.2
90°-150°	6535.9	36.3
90°-180°	8992.0	50.0
0°-180°	17995.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3536	3536	3536	3536	3536	
5°	3536	3523	3486	3513	3506	336
15°	3367	3346	3302	3316	3299	948
25°	3047	3020	2962	2969	2962	1402
35°	2629	2595	2540	2520	2503	1642
45°	2139	2115	2064	2027	2013	1651
55°	1619	1598	1558	1517	1500	1447
65°	1092	1071	1037	1007	990	1079
75°	571	565	547	527	534	610
85°	139	136	133	122	119	155
90°	2	27	44	56	60	17
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°	3536.4	3536.4	3536.4	3536.4	3536.4
2.5°	3557.0	3540.1	3502.6	3536.4	3530.0
5°	3536.4	3523.1	3485.7	3512.7	3506.2
7.5°	3512.7	3492.5	3455.0	3482.4	3475.6
10°	3475.6	3451.7	3410.9	3438.0	3427.9
12.5°	3424.3	3404.1	3363.4	3380.2	3373.5
15°	3366.6	3346.4	3302.0	3315.7	3298.7
17.5°	3295.1	3274.9	3230.6	3247.5	3230.6
20°	3216.8	3196.6	3149.0	3159.1	3145.7
22.5°	3138.9	3108.3	3063.8	3063.8	3057.0
25°	3046.9	3019.8	2962.1	2968.6	2962.1
27.5°	2944.8	2920.9	2877.0	2866.9	2849.9
30°	2843.1	2815.6	2764.7	2754.6	2741.0
32.5°	2734.1	2713.9	2659.4	2638.9	2625.1
35°	2628.8	2594.8	2540.3	2519.8	2502.9
37.5°	2509.7	2479.0	2424.5	2400.8	2383.8
40°	2387.3	2360.0	2305.4	2275.1	2261.5
42.5°	2268.3	2240.9	2186.8	2152.5	2132.3
45°	2139.1	2115.4	2064.1	2026.9	2013.3
47.5°	2013.3	1989.4	1934.9	1897.4	1877.2
50°	1880.5	1863.5	1815.8	1768.3	1751.3
52.5°	1751.3	1727.5	1683.4	1646.0	1622.1
55°	1618.9	1598.3	1557.5	1516.8	1499.9
57.5°	1486.1	1469.2	1424.8	1384.0	1370.3
60°	1353.3	1340.0	1292.3	1254.9	1244.8
62.5°	1224.2	1200.3	1166.4	1132.6	1118.8
65°	1091.8	1071.2	1037.2	1006.6	989.7
67.5°	955.7	938.5	908.1	884.3	870.6
70°	829.8	816.1	785.5	761.6	748.3
72.5°	700.6	686.9	669.9	646.2	636.1
75°	571.2	564.6	547.3	527.1	534.0
77.5°	455.7	442.0	435.2	425.1	415.0
80°	340.2	336.6	329.7	319.6	312.9
82.5°	231.3	231.3	228.0	214.3	214.3
85°	139.3	136.0	132.8	122.3	119.1
87.5°	61.3	54.4	47.7	37.6	33.9
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	12.17	13.03	13.12	14.00	15.27	11.73	12.59	12.68	13.56	14.83
	3H	13.82	14.59	14.79	15.58	16.87	13.34	14.11	14.31	15.09	16.39
	4H	14.41	15.14	15.39	16.12	17.42	13.92	14.65	14.90	15.64	16.94
	6H	14.80	15.47	15.79	16.46	17.78	14.31	14.98	15.30	15.98	17.29
	8H	14.90	15.54	15.90	16.55	17.86	14.41	15.05	15.41	16.06	17.37
	12H	14.95	15.56	15.95	16.56	17.90	14.45	15.06	15.46	16.06	17.40
4H	2H	12.62	13.36	13.61	14.34	15.64	12.27	13.01	13.26	13.99	15.29
	3H	14.48	15.09	15.48	16.11	17.42	14.08	14.69	15.08	15.71	17.02
	4H	15.19	15.75	16.20	16.76	18.10	14.78	15.34	15.78	16.34	17.68
	6H	15.70	16.18	16.72	17.21	18.55	15.28	15.76	16.30	16.79	18.13
	8H	15.85	16.30	16.87	17.32	18.67	15.42	15.87	16.44	16.90	18.25
	12H	15.92	16.33	16.96	17.36	18.72	15.48	15.89	16.52	16.93	18.28
8H	4H	15.39	15.83	16.40	16.86	18.21	15.02	15.46	16.03	16.49	17.84
	6H	16.01	16.38	17.05	17.45	18.80	15.63	16.01	16.68	17.07	18.42
	8H	16.23	16.55	17.28	17.60	18.97	15.84	16.17	16.89	17.22	18.59
	12H	16.35	16.64	17.41	17.69	19.10	15.95	16.24	17.01	17.29	18.70
12H	4H	15.37	15.78	16.41	16.82	18.17	15.01	15.41	16.05	16.45	17.81
	6H	16.04	16.37	17.09	17.42	18.78	15.67	16.00	16.72	17.05	18.42
	8H	16.27	16.56	17.33	17.61	19.02	15.90	16.19	16.96	17.24	18.65