

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: P906717

Luminaire Tested: DFN2DIP-SQ4F0-070D100US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906717
REPORT IS A COMBINATION OF REPORTS P901653 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D100US835-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

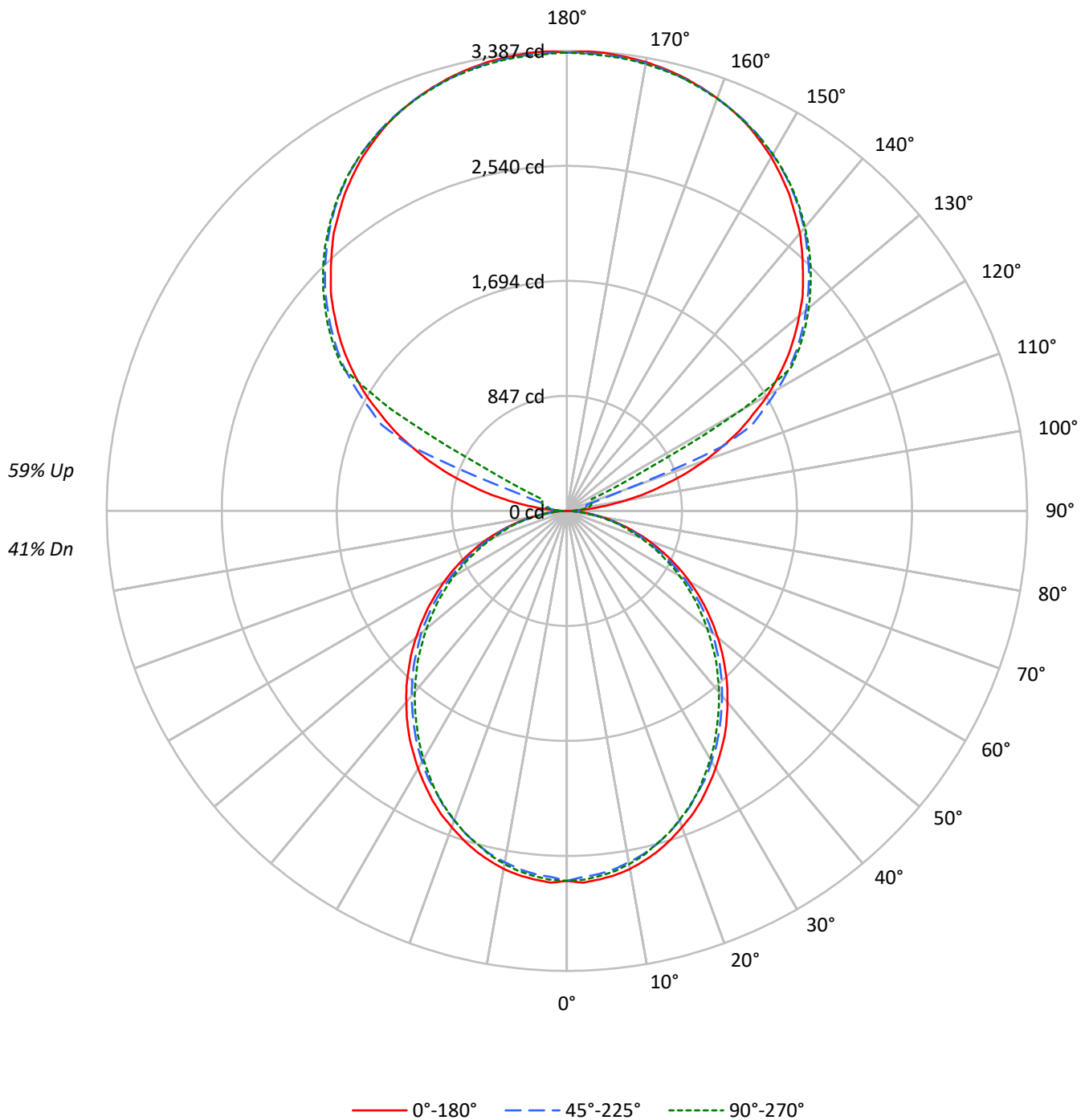
Lumens per Lamp: N/A
Luminaire Lumens: 16830.0 lumens
Efficiency: N/A
Efficacy: 123.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 136
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
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	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48
1	96	92	88	84	87	84	80	77	69	66	64	55	54	52	42	41	41
2	87	80	74	69	79	73	68	63	60	56	53	48	46	43	37	36	34
3	80	70	63	57	72	64	58	53	53	49	45	43	39	37	33	31	29
4	73	62	54	48	66	57	50	45	47	42	38	38	34	31	30	27	25
5	67	55	47	41	61	51	44	38	42	37	33	34	30	27	27	24	22
6	61	50	42	36	56	46	38	33	38	33	29	31	27	24	24	21	19
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17
8	53	40	33	28	48	37	31	26	31	26	22	26	22	19	20	17	15
9	49	37	30	25	45	34	27	23	29	23	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1911	1911	1911
5°	1914	1885	1898
10°	1899	1860	1873
15°	1871	1830	1833
20°	1833	1788	1792
25°	1795	1737	1746
30°	1748	1690	1686
35°	1704	1635	1622
40°	1649	1579	1562
45°	1594	1523	1500
50°	1534	1464	1429
55°	1472	1396	1363
60°	1401	1315	1288
65°	1324	1231	1200
70°	1225	1129	1105
75°	1089	1007	1018
80°	925	852	850
85°	669	583	571

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1808 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	256.4	1.5
10°-20°	721.3	4.3
20°-30°	1060.0	6.3
30°-40°	1231.1	7.3
40°-50°	1229.6	7.3
50°-60°	1072.2	6.4
60°-70°	792.6	4.7
70°-80°	448.4	2.7
80°-90°	124.3	0.7
90°-100°	111.3	0.7
100°-110°	414.9	2.5
110°-120°	1100.3	6.5
120°-130°	1824.9	10.8
130°-140°	1938.4	11.5
140°-150°	1801.5	10.7
150°-160°	1448.4	8.6
160°-170°	933.3	5.5
170°-180°	321.2	1.9
0°-30°	2037.7	12.1
0°-40°	3268.8	19.4
0°-60°	5570.6	33.1
0°-90°	6936.0	41.2
90°-120°	1626.4	9.7
90°-150°	7191.2	42.7
90°-180°	9894.0	58.8
0°-180°	16830.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2724	2724	2724	2724	2724	
5°	2724	2714	2685	2705	2700	259
15°	2593	2577	2543	2554	2541	730
25°	2347	2326	2281	2286	2281	1080
35°	2025	1998	1956	1941	1928	1264
45°	1648	1629	1590	1561	1550	1271
55°	1247	1231	1200	1168	1155	1115
65°	841	825	799	775	762	831
75°	440	435	422	406	411	470
85°	107	105	102	94	92	120
90°	2	29	49	61	66	15
95°	159	78	95	108	105	188
105°	742	816	149	176	186	793
115°	1404	1446	1507	376	200	1382
125°	1985	2017	2064	2081	2088	1771
135°	2457	2496	2518	2542	2537	1898
145°	2850	2847	2889	2906	2894	1782
155°	3138	3116	3146	3160	3141	1446
165°	3306	3292	3299	3316	3299	934
175°	3382	3365	3370	3387	3363	322
180°	3375	3375	3375	3375	3375	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2723.7	2723.7	2723.7	2723.7	2723.7
2.5°	2739.6	2726.5	2697.6	2723.7	2718.7
5°	2723.7	2713.5	2684.6	2705.4	2700.4
7.5°	2705.4	2689.8	2660.9	2682.1	2676.8
10°	2676.8	2658.4	2627.0	2647.9	2640.1
12.5°	2637.3	2621.8	2590.4	2603.4	2598.1
15°	2592.9	2577.3	2543.1	2553.7	2540.6
17.5°	2537.8	2522.3	2488.1	2501.2	2488.1
20°	2477.5	2462.0	2425.3	2433.1	2422.8
22.5°	2417.5	2393.9	2359.7	2359.7	2354.4
25°	2346.7	2325.8	2281.4	2286.4	2281.4
27.5°	2268.0	2249.7	2215.8	2208.0	2194.9
30°	2189.7	2168.5	2129.4	2121.6	2111.0
32.5°	2105.7	2090.2	2048.2	2032.4	2021.8
35°	2024.6	1998.5	1956.5	1940.7	1927.6
37.5°	1932.9	1909.3	1867.3	1849.0	1835.9
40°	1838.7	1817.6	1775.6	1752.3	1741.7
42.5°	1747.0	1725.9	1684.2	1657.8	1642.2
45°	1647.5	1629.2	1589.7	1561.1	1550.5
47.5°	1550.5	1532.2	1490.2	1461.3	1445.8
50°	1448.3	1435.2	1398.5	1361.9	1348.8
52.5°	1348.8	1330.5	1296.6	1267.7	1249.3
55°	1246.8	1231.0	1199.6	1168.2	1155.1
57.5°	1144.6	1131.5	1097.3	1065.9	1055.4
60°	1042.3	1032.0	995.4	966.5	958.7
62.5°	942.8	924.5	898.4	872.3	861.7
65°	840.9	825.0	798.9	775.3	762.2
67.5°	736.1	722.8	699.4	681.1	670.5
70°	639.1	628.6	604.9	586.6	576.3
72.5°	539.6	529.1	516.0	497.7	489.9
75°	439.9	434.9	421.5	406.0	411.3
77.5°	351.0	340.4	335.1	327.3	319.6
80°	262.0	259.3	254.0	246.2	240.9
82.5°	178.1	178.1	175.6	165.1	165.1
85°	107.3	104.8	102.3	94.2	91.7
87.5°	47.2	42.0	36.7	28.9	26.1
90°	2.3	29.3	48.7	61.2	65.8
92.5°	61.2	51.3	58.6	63.5	65.8
95°	158.6	78.0	95.1	107.6	105.0
97.5°	285.6	85.5	124.4	131.9	134.3
100°	432.4	97.7	139.2	158.6	163.6
102.5°	593.3	588.7	144.1	170.8	178.3
105°	742.4	815.7	149.1	175.7	185.6
107.5°	915.8	976.7	154.0	180.7	190.5
110°	1081.9	1133.0	427.4	183.3	192.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1238.2	1282.0	1240.6	187.9	195.5
115°	1404.1	1445.6	1506.8	376.1	200.4
117.5°	1548.2	1597.0	1638.7	1289.3	649.6
120°	1709.5	1746.0	1790.1	1819.4	1489.7
122.5°	1846.1	1885.2	1934.2	1948.7	1951.3
125°	1985.3	2017.2	2063.6	2080.7	2087.9
127.5°	2112.3	2146.5	2183.3	2207.7	2210.0
130°	2232.0	2271.2	2297.9	2324.8	2322.5
132.5°	2354.1	2386.0	2412.7	2434.7	2432.4
135°	2456.8	2495.9	2517.7	2542.3	2537.4
137.5°	2564.1	2593.4	2618.0	2642.4	2635.1
140°	2669.0	2688.8	2715.4	2737.5	2725.3
142.5°	2757.2	2774.3	2805.9	2825.3	2813.2
145°	2850.0	2847.4	2888.9	2906.0	2893.8
147.5°	2930.3	2923.1	2964.5	2976.7	2967.2
150°	3008.6	2991.5	3030.7	3045.2	3033.0
152.5°	3074.4	3055.0	3091.6	3106.3	3089.2
155°	3138.0	3116.2	3145.5	3160.0	3140.6
157.5°	3189.3	3169.9	3191.9	3209.0	3189.3
160°	3233.4	3218.6	3233.4	3247.9	3230.8
162.5°	3272.2	3257.7	3269.9	3287.0	3265.0
165°	3306.4	3291.9	3299.2	3316.3	3299.2
167.5°	3333.4	3318.6	3326.2	3343.3	3321.2
170°	3355.4	3340.7	3345.6	3362.7	3340.7
172.5°	3369.9	3355.4	3360.4	3377.5	3355.4
175°	3382.1	3365.0	3369.9	3387.1	3362.7
177.5°	3387.1	3369.9	3372.6	3389.7	3367.6
180°	3374.9	3374.9	3374.9	3374.9	3374.9

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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	8.66	9.45	9.69	10.49	11.88	8.22	9.01	9.25	10.04	11.44
	3H	10.32	11.03	11.36	12.07	13.49	9.83	10.54	10.87	11.58	12.99
	4H	10.91	11.58	11.96	12.63	14.05	10.42	11.09	11.47	12.13	13.55
	6H	11.31	11.93	12.37	12.98	14.41	10.81	11.43	11.87	12.48	13.91
	8H	11.41	12.00	12.48	13.07	14.49	10.91	11.50	11.98	12.57	13.99
	12H	11.46	12.02	12.53	13.08	14.53	10.95	11.51	12.02	12.57	14.02
4H	2H	9.12	9.79	10.17	10.83	12.25	8.76	9.43	9.82	10.48	11.90
	3H	10.98	11.54	12.05	12.61	14.05	10.57	11.13	11.64	12.21	13.64
	4H	11.70	12.21	12.77	13.27	14.73	11.27	11.78	12.34	12.85	14.30
	6H	12.21	12.65	13.29	13.74	15.19	11.78	12.22	12.86	13.31	14.75
	8H	12.36	12.77	13.44	13.85	15.32	11.92	12.33	13.00	13.42	14.88
	12H	12.43	12.80	13.53	13.90	15.37	11.98	12.35	13.08	13.45	14.92
8H	4H	11.89	12.30	12.97	13.38	14.84	11.51	11.92	12.59	13.00	14.46
	6H	12.52	12.86	13.62	13.98	15.44	12.14	12.48	13.24	13.60	15.06
	8H	12.74	13.04	13.85	14.15	15.63	12.35	12.65	13.46	13.75	15.23
	12H	12.87	13.14	13.99	14.24	15.76	12.46	12.72	13.58	13.83	15.34
12H	4H	11.87	12.24	12.97	13.34	14.80	11.50	11.87	12.60	12.97	14.44
	6H	12.55	12.85	13.66	13.95	15.43	12.18	12.47	13.29	13.58	15.06
	8H	12.79	13.05	13.90	14.15	15.67	12.41	12.67	13.52	13.77	15.29