

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: P909200

Luminaire Tested: DFN2DIP-SQ3F0-070D100US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909200
REPORT IS A COMBINATION OF REPORTS P899975 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-070D100US840-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

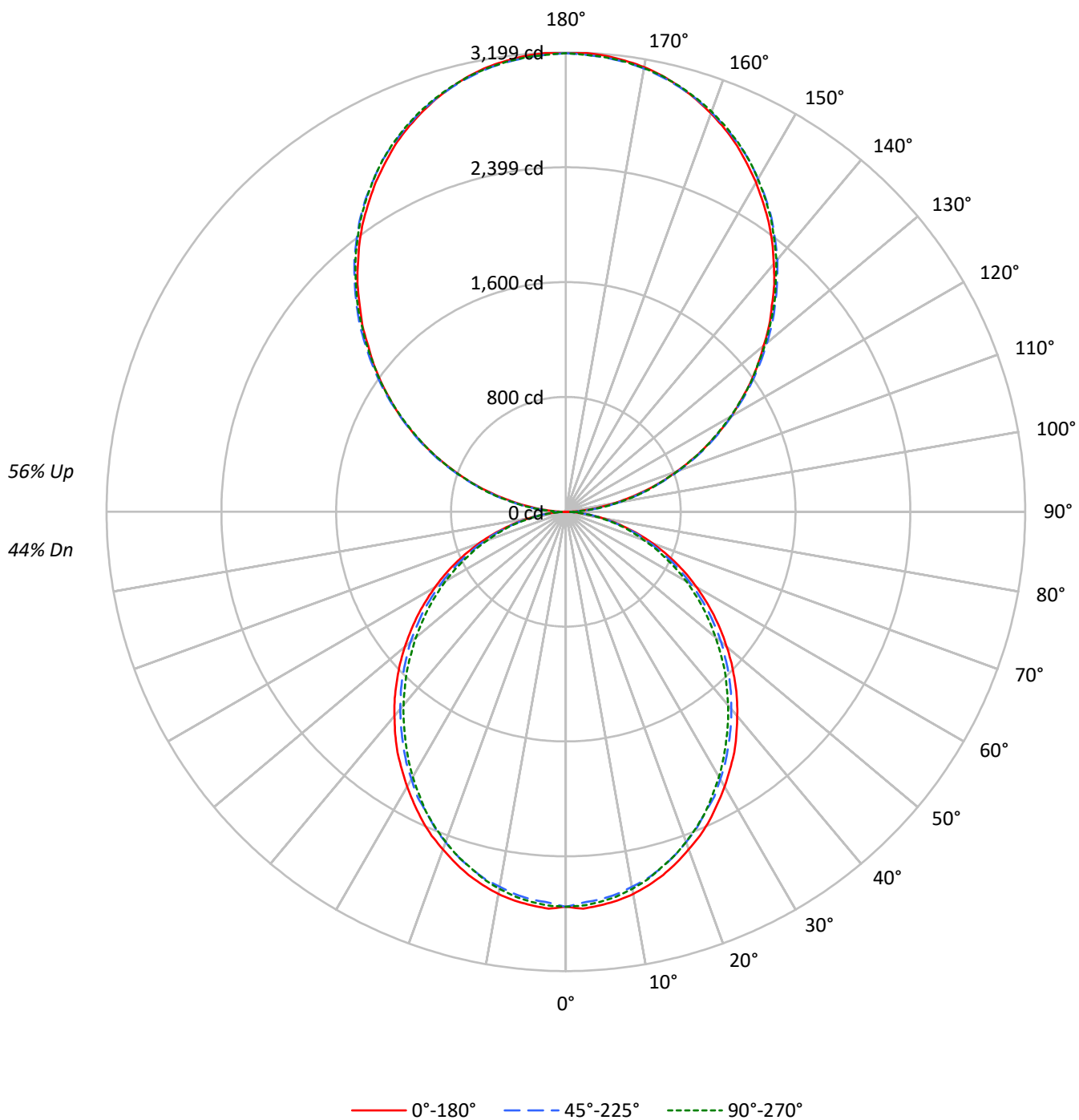
Lumens per Lamp: N/A
Luminaire Lumens: 15935.7 lumens
Efficiency: N/A
Efficacy: 111.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 143.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51
1	96	92	88	85	88	84	81	78	70	68	66	57	55	54	45	44	43
2	88	80	74	69	80	74	69	64	61	58	54	50	47	45	39	38	36
3	80	71	63	58	73	65	59	54	54	49	46	44	41	38	35	33	31
4	73	63	55	49	67	58	51	45	48	43	39	39	36	33	31	29	26
5	67	56	48	42	61	51	44	39	43	38	33	35	31	28	28	25	23
6	62	50	42	36	56	46	39	34	39	33	29	32	28	25	25	23	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	48	38	31	26	32	27	23	26	22	19	21	18	16
9	49	37	30	25	45	35	28	23	29	24	20	24	20	17	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3152	3152	3152
5°	3155	3106	3128
10°	3127	3062	3084
15°	3079	3009	3017
20°	3015	2937	2948
25°	2951	2851	2869
30°	2872	2771	2768
35°	2796	2677	2662
40°	2703	2582	2561
45°	2611	2487	2457
50°	2510	2386	2337
55°	2403	2270	2227
60°	2283	2133	2100
65°	2152	1990	1950
70°	1984	1816	1789
75°	1753	1608	1639
80°	1473	1341	1355
85°	1038	889	887

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3213 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.9	1.6
10°-20°	728.4	4.6
20°-30°	1070.5	6.7
30°-40°	1243.3	7.8
40°-50°	1241.7	7.8
50°-60°	1082.8	6.8
60°-70°	800.4	5.0
70°-80°	452.9	2.8
80°-90°	128.6	0.8
90°-100°	197.6	1.2
100°-110°	627.9	3.9
110°-120°	1074.6	6.7
120°-130°	1413.3	8.9
130°-140°	1586.4	10.0
140°-150°	1555.6	9.8
150°-160°	1304.9	8.2
160°-170°	865.4	5.4
170°-180°	302.5	1.9
0°-30°	2057.8	12.9
0°-40°	3301.1	20.7
0°-60°	5625.6	35.3
0°-90°	7007.5	44.0
90°-120°	1900.2	11.9
90°-150°	6455.4	40.5
90°-180°	8928.0	56.0
0°-180°	15935.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2751	2751	2751	2751	2751	
5°	2751	2740	2711	2732	2727	261
15°	2618	2603	2568	2579	2566	737
25°	2370	2349	2304	2309	2304	1090
35°	2045	2018	1976	1960	1947	1277
45°	1664	1645	1605	1576	1566	1284
55°	1259	1243	1211	1180	1166	1126
65°	849	833	807	783	770	840
75°	444	439	426	410	415	474
85°	108	106	103	95	93	121
90°	3	35	94	89	92	16
95°	141	168	172	172	168	156
105°	580	587	593	598	598	612
115°	1078	1094	1089	1086	1078	1067
125°	1568	1593	1585	1576	1573	1402
135°	2029	2059	2064	2062	2054	1568
145°	2463	2482	2498	2500	2490	1539
155°	2816	2824	2833	2846	2838	1296
165°	3064	3061	3061	3080	3067	864
175°	3188	3180	3175	3194	3177	303
180°	3194	3194	3194	3194	3194	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.6	2750.6	2750.6	2750.6	2750.6
2.5°	2766.6	2753.4	2724.2	2750.6	2745.5
5°	2750.6	2740.3	2711.1	2732.1	2727.0
7.5°	2732.1	2716.3	2687.2	2708.6	2703.2
10°	2703.2	2684.6	2652.9	2674.0	2666.1
12.5°	2663.3	2647.7	2616.0	2629.1	2623.7
15°	2618.5	2602.7	2568.2	2578.9	2565.7
17.5°	2562.8	2547.2	2512.6	2525.9	2512.6
20°	2501.9	2486.3	2449.2	2457.1	2446.7
22.5°	2441.3	2417.5	2383.0	2383.0	2377.6
25°	2369.9	2348.7	2303.9	2309.0	2303.9
27.5°	2290.4	2271.9	2237.7	2229.8	2216.6
30°	2211.3	2189.9	2150.4	2142.5	2131.8
32.5°	2126.5	2110.8	2068.4	2052.5	2041.7
35°	2044.6	2018.2	1975.8	1959.8	1946.6
37.5°	1952.0	1928.1	1885.7	1867.2	1854.0
40°	1856.8	1835.5	1793.1	1769.6	1758.9
42.5°	1764.2	1742.9	1700.8	1674.2	1658.4
45°	1663.8	1645.3	1605.4	1576.5	1565.8
47.5°	1565.8	1547.3	1504.9	1475.7	1460.1
50°	1462.6	1449.4	1412.3	1375.3	1362.1
52.5°	1362.1	1343.6	1309.4	1280.2	1261.6
55°	1259.1	1243.1	1211.4	1179.7	1166.5
57.5°	1155.9	1142.7	1108.1	1076.4	1065.8
60°	1052.6	1042.2	1005.2	976.0	968.2
62.5°	952.1	933.6	907.3	880.9	870.2
65°	849.2	833.1	806.8	782.9	769.7
67.5°	743.4	729.9	706.3	687.8	677.1
70°	645.4	634.8	610.9	592.4	582.0
72.5°	544.9	534.3	521.1	502.6	494.7
75°	444.2	439.2	425.7	410.0	415.4
77.5°	354.5	343.8	338.4	330.5	322.8
80°	264.6	261.9	256.5	248.6	243.3
82.5°	179.9	179.9	177.3	166.7	166.7
85°	108.4	105.8	103.3	95.1	92.6
87.5°	47.7	42.4	37.1	29.2	26.4
90°	2.9	34.6	94.3	88.6	91.5
92.5°	59.7	80.9	83.8	86.6	86.6
95°	140.6	167.5	172.4	172.4	167.5
97.5°	234.0	259.0	269.6	269.6	269.6
100°	341.8	364.0	371.6	371.6	368.8
102.5°	455.4	471.8	482.4	485.2	482.4
105°	579.7	587.3	593.1	597.9	597.9
107.5°	702.9	714.5	714.5	716.4	702.9
110°	822.3	837.7	837.7	837.7	830.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	951.3	967.7	964.8	957.0	951.3
115°	1078.4	1093.8	1089.0	1086.1	1078.4
117.5°	1204.6	1225.8	1212.2	1204.6	1196.8
120°	1331.6	1352.8	1331.6	1331.6	1323.0
122.5°	1447.1	1474.1	1460.7	1453.0	1447.1
125°	1568.5	1592.6	1584.9	1576.2	1573.4
127.5°	1687.0	1716.8	1706.2	1694.7	1687.0
130°	1797.7	1832.3	1827.6	1821.7	1811.2
132.5°	1921.9	1948.8	1950.8	1937.3	1929.6
135°	2028.7	2058.6	2064.4	2061.5	2053.8
137.5°	2148.2	2172.2	2177.1	2175.1	2163.5
140°	2253.1	2277.1	2290.7	2290.7	2280.1
142.5°	2361.0	2385.0	2392.7	2395.6	2385.0
145°	2463.0	2482.2	2497.7	2500.5	2489.9
147.5°	2554.5	2578.6	2590.1	2595.0	2584.3
150°	2648.9	2665.2	2675.8	2684.4	2675.8
152.5°	2732.6	2749.0	2762.5	2773.1	2762.5
155°	2816.4	2824.1	2832.8	2846.2	2837.5
157.5°	2888.6	2894.4	2899.2	2918.4	2905.0
160°	2953.1	2958.9	2961.7	2978.1	2966.6
162.5°	3012.8	3012.8	3015.7	3033.9	3020.5
165°	3063.8	3060.9	3060.9	3080.2	3066.8
167.5°	3110.1	3101.4	3101.4	3120.7	3107.2
170°	3144.7	3137.0	3134.1	3153.4	3137.0
172.5°	3168.8	3161.1	3158.2	3177.4	3161.1
175°	3188.0	3180.4	3174.6	3193.8	3177.4
177.5°	3198.6	3191.0	3185.1	3201.5	3185.1
180°	3193.8	3193.8	3193.8	3193.8	3193.8

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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	10.64	11.45	11.65	12.47	13.82	10.20	11.01	11.20	12.02	13.38
	3H	12.29	13.02	13.31	14.04	15.42	11.80	12.53	12.82	13.55	14.93
	4H	12.87	13.56	13.90	14.59	15.97	12.38	13.07	13.41	14.10	15.48
	6H	13.27	13.90	14.31	14.94	16.33	12.77	13.40	13.81	14.43	15.83
	8H	13.37	13.97	14.42	15.02	16.41	12.87	13.47	13.91	14.52	15.91
	12H	13.41	13.99	14.47	15.03	16.45	12.91	13.48	13.96	14.52	15.94
4H	2H	11.09	11.78	12.13	12.81	14.19	10.74	11.42	11.77	12.45	13.84
	3H	12.95	13.52	13.99	14.58	15.97	12.54	13.11	13.58	14.17	15.57
	4H	13.66	14.18	14.71	15.23	16.65	13.23	13.76	14.28	14.81	16.22
	6H	14.16	14.62	15.22	15.69	17.10	13.73	14.18	14.79	15.26	16.67
	8H	14.31	14.73	15.37	15.80	17.23	13.87	14.29	14.93	15.36	16.79
	12H	14.38	14.76	15.46	15.84	17.27	13.93	14.31	15.01	15.39	16.82
8H	4H	13.84	14.27	14.91	15.33	16.76	13.47	13.89	14.53	14.95	16.38
	6H	14.47	14.82	15.55	15.92	17.35	14.08	14.43	15.17	15.54	16.96
	8H	14.68	14.99	15.78	16.08	17.53	14.29	14.60	15.38	15.69	17.13
	12H	14.81	15.08	15.91	16.16	17.65	14.40	14.67	15.49	15.75	17.24
12H	4H	13.83	14.21	14.91	15.29	16.72	13.46	13.84	14.54	14.92	16.35
	6H	14.49	14.80	15.59	15.89	17.34	14.12	14.43	15.21	15.52	16.96
	8H	14.73	15.00	15.83	16.08	17.57	14.35	14.62	15.44	15.70	17.19