

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: P906725

Luminaire Tested: DFN2DIP-SQ4F0-070D120US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906725
REPORT IS A COMBINATION OF REPORTS P901689 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D120US835-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

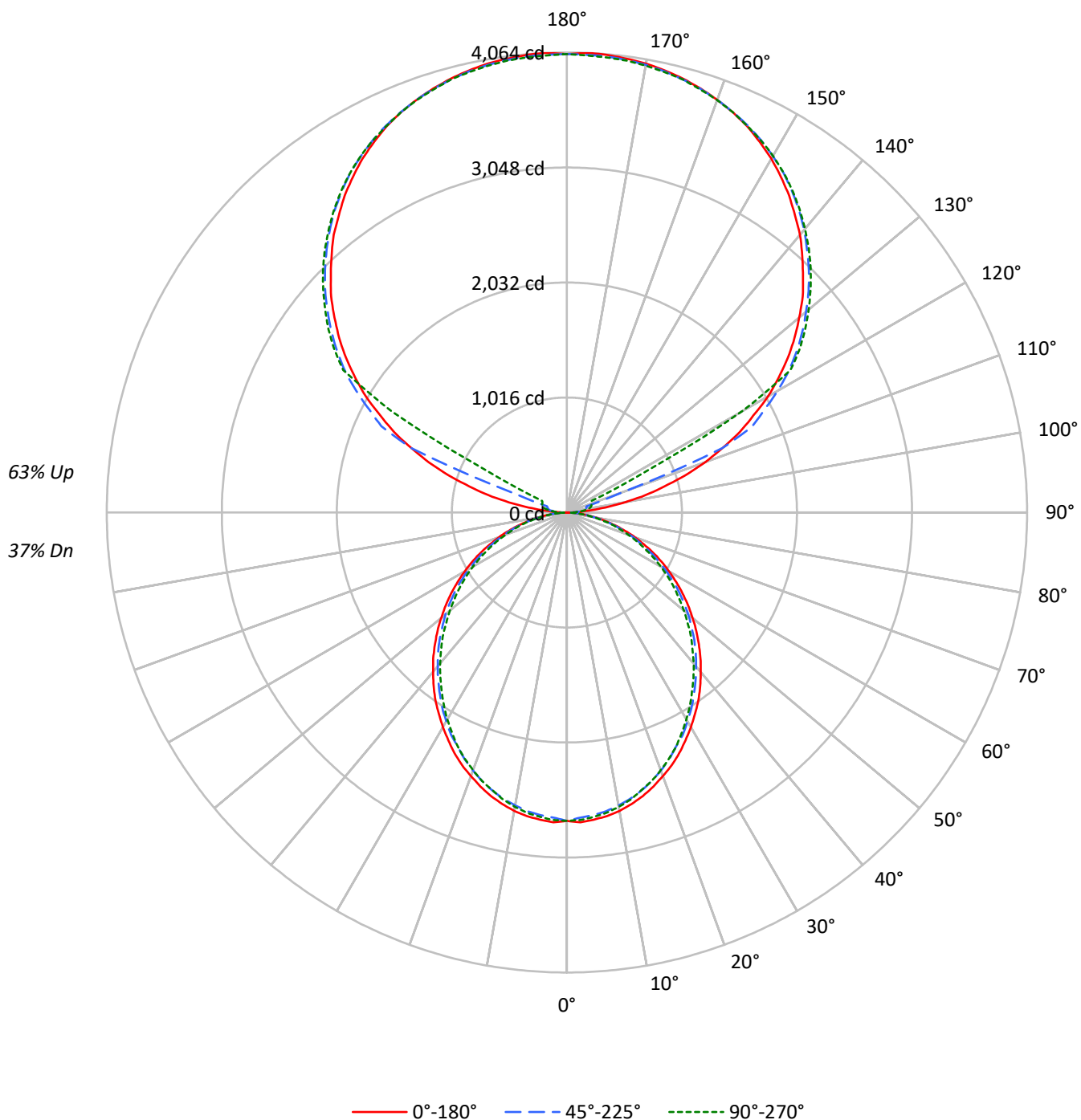
Lumens per Lamp: N/A
Luminaire Lumens: 18810.0 lumens
Efficiency: N/A
Efficacy: 124.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 151.4
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

TEST NUMBER: P906725

CATALOG NUMBER: DFN2DIP-SQ4F0-070D120US835-FLLONL

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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	91	87	83	86	82	79	76	67	64	62	52	51	49	39	38	37
2	86	79	73	68	78	72	67	62	58	55	52	46	43	41	34	33	31
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	27
4	72	61	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20
6	61	49	41	35	55	45	38	33	37	31	28	29	25	23	22	20	18
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	18	16
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	19	16	14
9	48	36	29	24	44	33	27	22	28	23	19	22	19	16	17	15	13
10	45	33	26	22	41	31	24	20	25	21	17	20	17	14	16	13	11

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: 2171 cd/sqm

TEST NUMBER: P906725

CATALOG NUMBER: DFN2DIP-SQ4F0-070D120US835-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	256.4	1.4
10°-20°	721.3	3.8
20°-30°	1060.0	5.6
30°-40°	1231.1	6.5
40°-50°	1229.6	6.5
50°-60°	1072.2	5.7
60°-70°	792.6	4.2
70°-80°	448.4	2.4
80°-90°	125.5	0.7
90°-100°	133.5	0.7
100°-110°	497.8	2.6
110°-120°	1320.3	7.0
120°-130°	2189.8	11.6
130°-140°	2326.1	12.4
140°-150°	2161.8	11.5
150°-160°	1738.1	9.2
160°-170°	1119.9	6.0
170°-180°	385.5	2.0
0°-30°	2037.7	10.8
0°-40°	3268.8	17.4
0°-60°	5570.6	29.6
0°-90°	6937.2	36.9
90°-120°	1951.7	10.4
90°-150°	8629.4	45.9
90°-180°	11873.0	63.1
0°-180°	18810.0	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°	3	35	58	73	79	17
95°	190	94	114	129	126	225
105°	891	979	179	211	223	952
115°	1685	1735	1808	451	240	1659
125°	2382	2421	2476	2497	2506	2125
135°	2948	2995	3021	3051	3045	2277
145°	3420	3417	3467	3487	3472	2139
155°	3766	3739	3775	3792	3769	1735
165°	3968	3950	3959	3980	3959	1121
175°	4058	4038	4044	4064	4035	386
180°	4050	4050	4050	4050	4050	

TEST NUMBER: P906725

CATALOG NUMBER: DFN2DIP-SQ4F0-070D120US835-FLLONL

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°	2.8	35.1	58.5	73.4	79.0
92.5°	73.4	61.6	70.3	76.2	79.0
95°	190.3	93.6	114.1	129.1	126.0
97.5°	342.8	102.7	149.3	158.3	161.1
100°	518.8	117.3	167.0	190.3	196.3
102.5°	712.0	706.4	172.9	205.0	214.0
105°	890.8	978.9	178.9	210.9	222.7
107.5°	1098.9	1172.0	184.8	216.8	228.6
110°	1298.3	1359.6	512.9	219.9	231.4

TEST NUMBER: P906725

CATALOG NUMBER: DFN2DIP-SQ4F0-070D120US835-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1485.9	1538.4	1488.7	225.5	234.5
115°	1684.9	1734.7	1808.1	451.3	240.5
117.5°	1857.9	1916.4	1966.5	1547.1	779.5
120°	2051.4	2095.2	2148.1	2183.3	1787.6
122.5°	2215.3	2262.3	2321.1	2338.5	2341.6
125°	2382.3	2420.6	2476.3	2496.8	2505.5
127.5°	2534.7	2575.8	2620.0	2649.2	2652.0
130°	2678.4	2725.4	2757.4	2789.8	2787.0
132.5°	2824.9	2863.2	2895.2	2921.7	2918.9
135°	2948.1	2995.1	3021.2	3050.8	3044.9
137.5°	3076.9	3112.0	3141.6	3170.8	3162.1
140°	3202.9	3226.5	3258.5	3285.0	3270.4
142.5°	3308.6	3329.2	3367.1	3390.4	3375.8
145°	3420.0	3416.9	3466.6	3487.2	3472.5
147.5°	3516.4	3507.7	3557.5	3572.1	3560.6
150°	3610.3	3589.8	3636.8	3654.2	3639.6
152.5°	3689.3	3666.0	3709.9	3727.6	3707.1
155°	3765.5	3739.4	3774.6	3792.0	3768.7
157.5°	3827.1	3803.8	3830.3	3850.8	3827.1
160°	3880.0	3862.3	3880.0	3897.4	3876.9
162.5°	3926.7	3909.3	3923.9	3944.4	3918.0
165°	3967.7	3950.3	3959.0	3979.6	3959.0
167.5°	4000.1	3982.3	3991.4	4011.9	3985.5
170°	4026.5	4008.8	4014.7	4035.2	4008.8
172.5°	4043.9	4026.5	4032.5	4053.0	4026.5
175°	4058.5	4038.0	4043.9	4064.5	4035.2
177.5°	4064.5	4043.9	4047.1	4067.6	4041.2
180°	4049.9	4049.9	4049.9	4049.9	4049.9

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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	8.18	8.94	9.25	10.00	11.45	7.74	8.49	8.80	9.56	11.01
	3H	9.84	10.52	10.91	11.59	13.06	9.35	10.03	10.42	11.10	12.57
	4H	10.43	11.07	11.51	12.14	13.61	9.93	10.57	11.01	11.65	13.12
	6H	10.82	11.41	11.92	12.49	13.98	10.32	10.91	11.42	11.99	13.48
	8H	10.93	11.49	12.02	12.58	14.06	10.43	10.99	11.52	12.08	13.56
	12H	10.97	11.51	12.07	12.60	14.10	10.46	11.00	11.56	12.09	13.59
4H	2H	8.63	9.27	9.72	10.35	11.82	8.28	8.92	9.37	9.99	11.47
	3H	10.49	11.03	11.59	12.13	13.62	10.09	10.62	11.18	11.72	13.21
	4H	11.21	11.70	12.31	12.79	14.30	10.78	11.27	11.88	12.37	13.87
	6H	11.72	12.14	12.83	13.26	14.76	11.29	11.71	12.40	12.82	14.32
	8H	11.87	12.26	12.98	13.37	14.88	11.43	11.83	12.54	12.93	14.45
	12H	11.94	12.30	13.07	13.42	14.94	11.49	11.85	12.62	12.97	14.49
8H	4H	11.39	11.79	12.50	12.90	14.41	11.02	11.41	12.13	12.52	14.03
	6H	12.03	12.35	13.16	13.50	15.01	11.64	11.97	12.77	13.12	14.63
	8H	12.25	12.53	13.39	13.66	15.20	11.86	12.14	12.99	13.27	14.80
	12H	12.38	12.63	13.52	13.76	15.32	11.97	12.22	13.11	13.34	14.91
12H	4H	11.38	11.73	12.50	12.85	14.37	11.01	11.36	12.13	12.48	14.00
	6H	12.06	12.34	13.19	13.47	15.00	11.68	11.97	12.82	13.10	14.63
	8H	12.30	12.55	13.44	13.67	15.24	11.92	12.17	13.06	13.29	14.86

END OF REPORT