

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: P906729

Luminaire Tested: DFN2DIP-SQ4F0-070D140US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906729
REPORT IS A COMBINATION OF REPORTS P901707 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D140US835-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

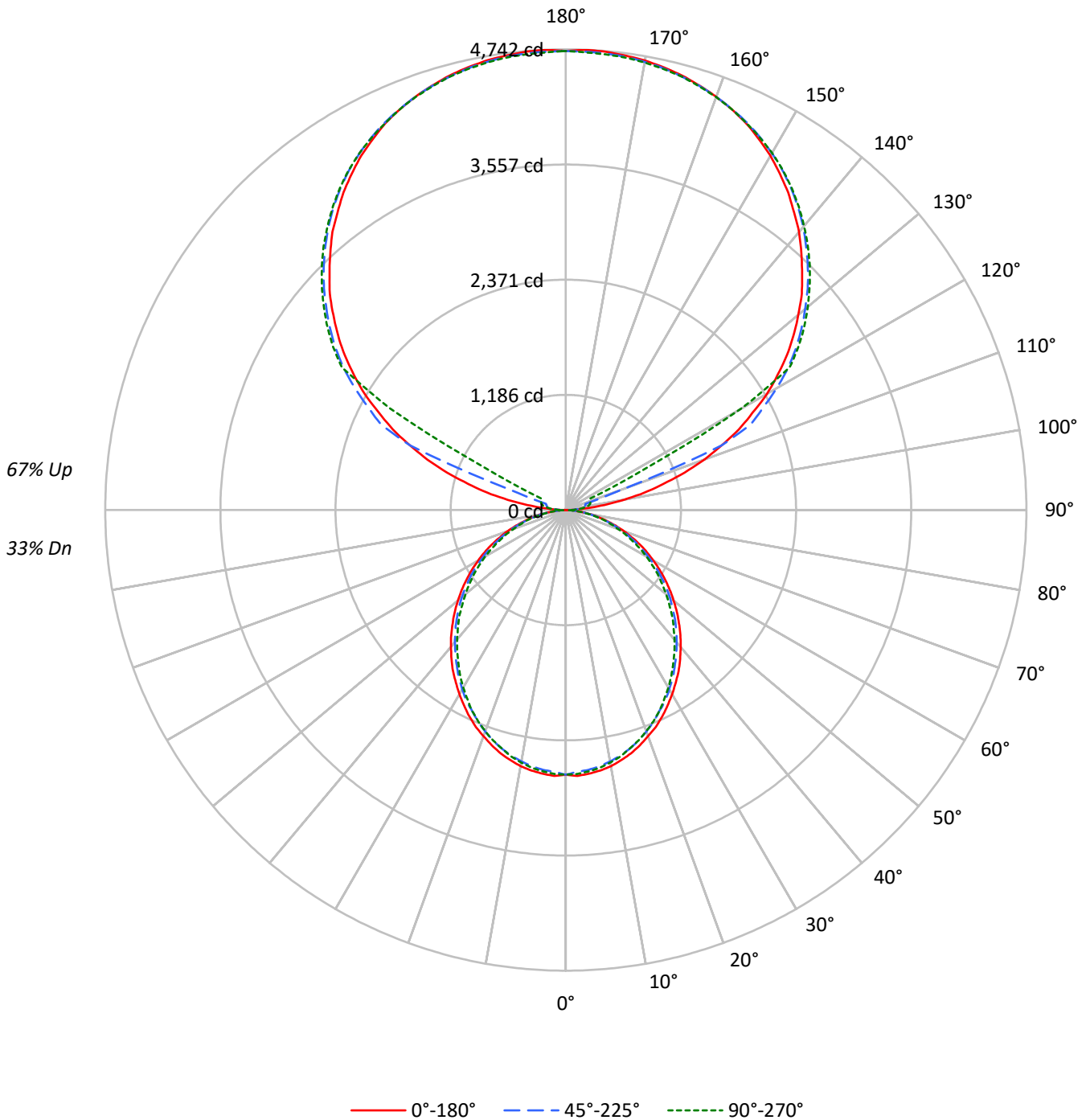
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20790.0 lumens
Efficiency: N/A
Efficacy: 124.4 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): 167.1
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

TEST NUMBER: P906729
CATALOG NUMBER: DFN2DIP-SQ4F0-070D140US835-FLLONL

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	0	
RCR																						
0	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	33				33
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34	28				28
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29	24				24
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25	20				20
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21	17				17
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18	15				15
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16	13				13
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14	12				12
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13	10				10
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12	9				9
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11	9				9

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: 2534 cd/sqm



TEST NUMBER: P906729

CATALOG NUMBER: DFN2DIP-SQ4F0-070D140US835-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	256.4	1.2
10°-20°	721.3	3.5
20°-30°	1060.0	5.1
30°-40°	1231.1	5.9
40°-50°	1229.6	5.9
50°-60°	1072.2	5.2
60°-70°	792.6	3.8
70°-80°	448.4	2.2
80°-90°	126.7	0.6
90°-100°	155.8	0.7
100°-110°	580.8	2.8
110°-120°	1540.3	7.4
120°-130°	2554.8	12.3
130°-140°	2713.8	13.1
140°-150°	2522.1	12.1
150°-160°	2027.7	9.8
160°-170°	1306.6	6.3
170°-180°	449.7	2.2
0°-30°	2037.7	9.8
0°-40°	3268.8	15.7
0°-60°	5570.6	26.8
0°-90°	6938.3	33.4
90°-120°	2276.9	11.0
90°-150°	10067.6	48.4
90°-180°	13852.0	66.6
0°-180°	20790.0	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	41	68	86	92	19
95°	222	109	133	151	147	263
105°	1039	1142	209	246	260	1110
115°	1966	2024	2110	527	280	1935
125°	2779	2824	2889	2913	2923	2479
135°	3440	3494	3525	3559	3552	2657
145°	3990	3986	4044	4068	4051	2495
155°	4393	4363	4404	4424	4397	2024
165°	4629	4609	4619	4643	4619	1308
175°	4735	4711	4718	4742	4708	451
180°	4725	4725	4725	4725	4725	



TEST NUMBER: P906729

CATALOG NUMBER: DFN2DIP-SQ4F0-070D140US835-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°	3.2	41.0	68.2	85.7	92.2
92.5°	85.7	71.9	82.0	88.9	92.2
95°	222.1	109.2	133.2	150.6	147.0
97.5°	399.9	119.8	174.2	184.7	188.0
100°	605.3	136.8	194.9	222.1	229.0
102.5°	830.6	824.1	201.8	239.1	249.7
105°	1039.3	1142.0	208.7	246.0	259.8
107.5°	1282.1	1367.3	215.6	252.9	266.7
110°	1514.7	1586.2	598.4	256.6	270.0



TEST NUMBER: P906729

CATALOG NUMBER: DFN2DIP-SQ4F0-070D140US835-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1733.5	1794.8	1736.8	263.1	273.6
115°	1965.8	2023.8	2109.5	526.6	280.5
117.5°	2167.5	2235.7	2294.2	1805.0	909.4
120°	2393.3	2444.4	2506.1	2547.1	2085.5
122.5°	2584.5	2639.3	2707.9	2728.2	2731.9
125°	2779.4	2824.0	2889.0	2912.9	2923.1
127.5°	2957.2	3005.1	3056.6	3090.7	3094.0
130°	3124.8	3179.7	3217.0	3254.8	3251.5
132.5°	3295.8	3340.4	3377.8	3408.6	3405.4
135°	3439.5	3494.3	3524.7	3559.2	3552.3
137.5°	3589.7	3630.7	3665.2	3699.3	3689.2
140°	3736.7	3764.3	3801.6	3832.5	3815.4
142.5°	3860.1	3884.0	3928.3	3955.5	3938.4
145°	3990.0	3986.3	4044.4	4068.4	4051.3
147.5°	4102.5	4092.3	4150.4	4167.4	4154.0
150°	4212.1	4188.1	4242.9	4263.2	4246.2
152.5°	4304.2	4277.0	4328.2	4348.9	4324.9
155°	4393.1	4362.7	4403.7	4424.0	4396.8
157.5°	4465.0	4437.8	4468.7	4492.6	4465.0
160°	4526.7	4506.0	4526.7	4547.0	4523.1
162.5°	4581.1	4560.8	4577.9	4601.8	4571.0
165°	4629.0	4608.7	4618.9	4642.8	4618.9
167.5°	4666.8	4646.1	4656.6	4680.6	4649.7
170°	4697.6	4676.9	4683.8	4707.8	4676.9
172.5°	4717.9	4697.6	4704.5	4728.5	4697.6
175°	4735.0	4711.0	4717.9	4741.9	4707.8
177.5°	4741.9	4717.9	4721.6	4745.5	4714.7
180°	4724.8	4724.8	4724.8	4724.8	4724.8



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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	7.76	8.49	8.85	9.58	11.07	7.32	8.05	8.41	9.13	10.62
	3H	9.42	10.07	10.51	11.17	12.67	8.93	9.58	10.02	10.67	12.18
	4H	10.00	10.62	11.11	11.72	13.23	9.51	10.13	10.61	11.22	12.74
	6H	10.40	10.97	11.51	12.07	13.59	9.90	10.47	11.01	11.57	13.09
	8H	10.50	11.04	11.62	12.16	13.68	10.00	10.54	11.12	11.66	13.18
	12H	10.55	11.06	11.67	12.17	13.71	10.04	10.55	11.16	11.66	13.20
4H	2H	8.21	8.83	9.32	9.92	11.44	7.85	8.47	8.97	9.57	11.08
	3H	10.07	10.58	11.19	11.71	13.23	9.66	10.18	10.78	11.30	12.82
	4H	10.78	11.25	11.90	12.37	13.91	10.35	10.83	11.48	11.94	13.49
	6H	11.29	11.70	12.42	12.83	14.37	10.86	11.27	11.99	12.40	13.94
	8H	11.44	11.82	12.57	12.95	14.50	11.00	11.38	12.13	12.51	14.06
	12H	11.51	11.85	12.66	12.99	14.55	11.06	11.40	12.21	12.54	14.10
8H	4H	10.96	11.34	12.10	12.47	14.03	10.59	10.97	11.72	12.10	13.65
	6H	11.59	11.91	12.75	13.08	14.63	11.21	11.53	12.36	12.70	14.25
	8H	11.82	12.09	12.98	13.24	14.81	11.42	11.70	12.58	12.85	14.42
	12H	11.95	12.19	13.11	13.33	14.94	11.53	11.78	12.70	12.92	14.53
12H	4H	10.94	11.29	12.09	12.43	13.99	10.58	10.92	11.72	12.06	13.62
	6H	11.62	11.90	12.78	13.05	14.62	11.25	11.53	12.41	12.68	14.25
	8H	11.86	12.10	13.02	13.25	14.86	11.48	11.72	12.64	12.87	14.48