

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: P906732

Luminaire Tested: DFN2DIP-SQ4F0-070D160US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906732
REPORT IS A COMBINATION OF REPORTS P900205 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US835-FLLFL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

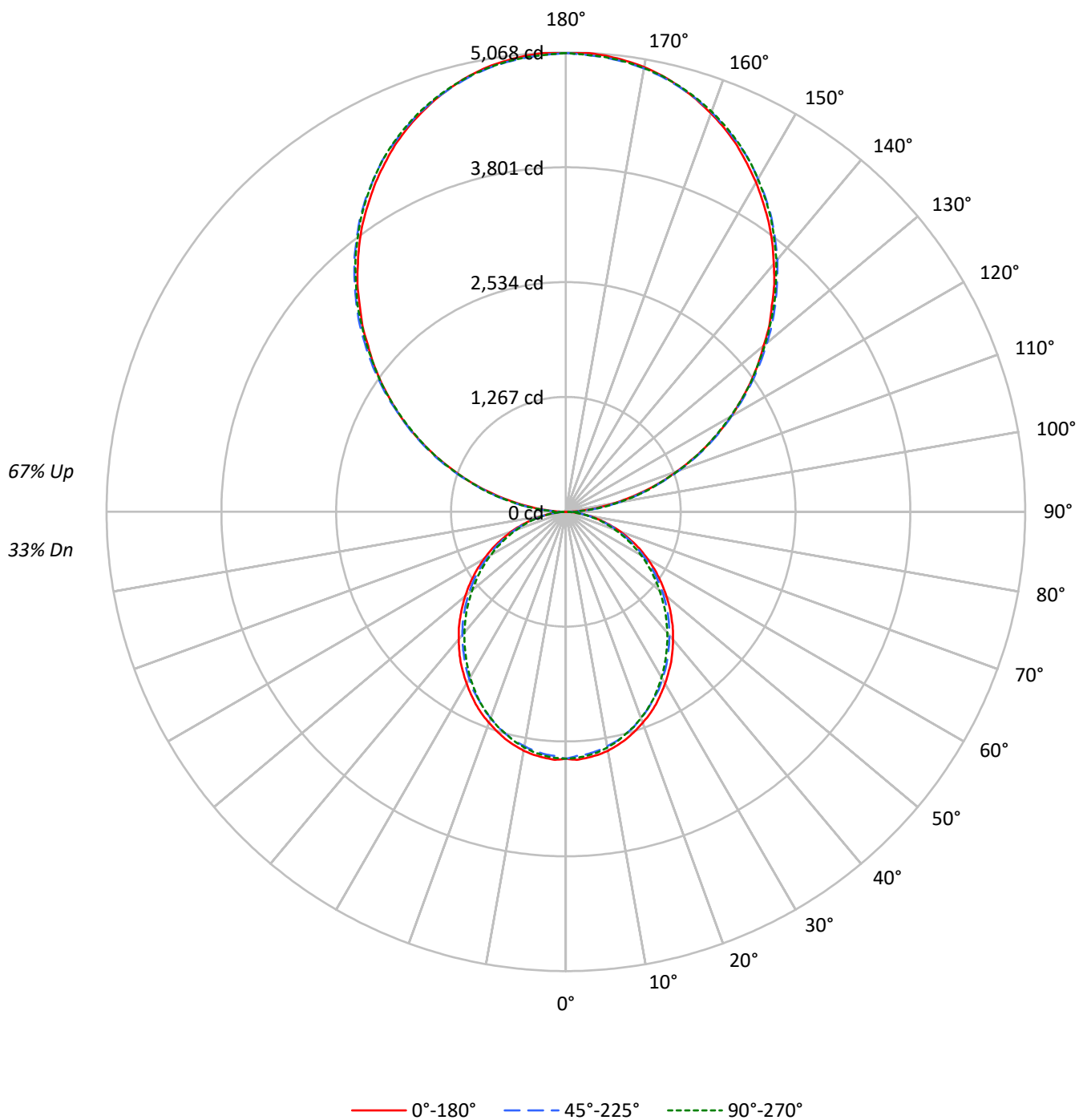
Lumens per Lamp: N/A
Luminaire Lumens: 21091.0 lumens
Efficiency: N/A
Efficacy: 115.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 183.4
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

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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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	62	60	50	48	47	36	35	34
2	86	78	72	67	77	71	66	61	57	53	50	43	41	39	31	30	29
3	78	69	62	56	70	62	56	51	50	46	42	38	36	33	28	26	24
4	71	61	53	47	64	55	48	43	44	39	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	39	35	31	31	27	24	22	20	18
6	60	48	40	35	54	44	37	32	36	30	27	28	24	21	20	18	16
7	55	44	36	30	50	40	33	28	32	27	23	25	21	19	18	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	18	21	17	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	13	14	12	10

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: 3982 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	256.4	1.2
10°-20°	721.3	3.4
20°-30°	1060.0	5.0
30°-40°	1231.1	5.8
40°-50°	1229.6	5.8
50°-60°	1072.2	5.1
60°-70°	792.6	3.8
70°-80°	448.4	2.1
80°-90°	132.7	0.6
90°-100°	313.1	1.5
100°-110°	995.0	4.7
110°-120°	1702.7	8.1
120°-130°	2239.3	10.6
130°-140°	2513.5	11.9
140°-150°	2464.8	11.7
150°-160°	2067.6	9.8
160°-170°	1371.2	6.5
170°-180°	479.3	2.3
0°-30°	2037.7	9.7
0°-40°	3268.8	15.5
0°-60°	5570.6	26.4
0°-90°	6944.4	32.9
90°-120°	3010.8	14.3
90°-150°	10228.5	48.5
90°-180°	14147.0	67.1
0°-180°	21091.0	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°	5	55	150	140	145	21
95°	223	266	273	273	266	248
105°	918	931	940	947	947	969
115°	1709	1733	1726	1721	1709	1690
125°	2485	2523	2511	2498	2493	2221
135°	3214	3262	3271	3266	3254	2485
145°	3903	3933	3958	3962	3945	2438
155°	4462	4475	4488	4510	4496	2054
165°	4855	4850	4850	4880	4859	1369
175°	5051	5039	5030	5061	5035	480
180°	5061	5061	5061	5061	5061	

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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°	4.6	54.9	149.5	140.4	144.9
92.5°	94.6	128.2	132.7	137.3	137.3
95°	222.7	265.5	273.1	273.1	265.5
97.5°	370.7	410.4	427.2	427.2	427.2
100°	541.6	576.7	588.9	588.9	584.3
102.5°	721.6	747.6	764.3	768.9	764.3
105°	918.4	930.6	939.8	947.4	947.4
107.5°	1113.7	1132.0	1132.0	1135.1	1113.7
110°	1302.9	1327.3	1327.3	1327.3	1315.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1507.3	1533.3	1528.7	1516.5	1507.3
115°	1708.7	1733.1	1725.5	1720.9	1708.7
117.5°	1908.6	1942.1	1920.8	1908.6	1896.4
120°	2110.0	2143.5	2110.0	2110.0	2096.2
122.5°	2293.0	2335.8	2314.4	2302.2	2293.0
125°	2485.3	2523.4	2511.2	2497.5	2492.9
127.5°	2672.9	2720.2	2703.4	2685.1	2672.9
130°	2848.4	2903.3	2895.7	2886.5	2869.7
132.5°	3045.2	3087.9	3090.9	3069.6	3057.4
135°	3214.5	3261.8	3271.0	3266.4	3254.2
137.5°	3403.7	3441.8	3449.5	3446.4	3428.1
140°	3570.0	3608.1	3629.5	3629.5	3612.7
142.5°	3740.9	3779.0	3791.2	3795.8	3779.0
145°	3902.6	3933.1	3957.5	3962.1	3945.3
147.5°	4047.5	4085.7	4104.0	4111.6	4094.8
150°	4197.0	4223.0	4239.8	4253.5	4239.8
152.5°	4329.8	4355.7	4377.1	4393.8	4377.1
155°	4462.5	4474.7	4488.4	4509.8	4496.1
157.5°	4576.9	4586.1	4593.7	4624.2	4602.9
160°	4679.1	4688.3	4692.9	4718.8	4700.5
162.5°	4773.7	4773.7	4778.3	4807.3	4785.9
165°	4854.6	4850.0	4850.0	4880.5	4859.2
167.5°	4927.8	4914.1	4914.1	4944.6	4923.2
170°	4982.7	4970.5	4966.0	4996.5	4970.5
172.5°	5020.9	5008.7	5004.1	5034.6	5008.7
175°	5051.4	5039.2	5030.0	5060.6	5034.6
177.5°	5068.2	5056.0	5046.8	5072.8	5046.8
180°	5060.6	5060.6	5060.6	5060.6	5060.6

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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	7.70	8.43	8.79	9.52	11.01	7.26	7.98	8.35	9.07	10.57
	3H	9.36	10.01	10.46	11.11	12.62	8.87	9.52	9.97	10.62	12.13
	4H	9.94	10.56	11.05	11.66	13.18	9.45	10.06	10.56	11.16	12.68
	6H	10.34	10.91	11.46	12.01	13.54	9.84	10.41	10.96	11.51	13.04
	8H	10.44	10.98	11.56	12.10	13.62	9.94	10.48	11.06	11.60	13.12
	12H	10.49	11.00	11.61	12.11	13.66	9.98	10.49	11.10	11.60	13.15
4H	2H	8.15	8.77	9.26	9.86	11.38	7.79	8.41	8.91	9.51	11.03
	3H	10.01	10.52	11.13	11.65	13.18	9.60	10.11	10.72	11.24	12.77
	4H	10.72	11.19	11.85	12.31	13.86	10.29	10.77	11.42	11.88	13.43
	6H	11.23	11.64	12.36	12.77	14.32	10.80	11.20	11.93	12.34	13.88
	8H	11.38	11.76	12.51	12.89	14.45	10.94	11.32	12.07	12.45	14.01
	12H	11.45	11.79	12.60	12.93	14.50	11.00	11.34	12.15	12.48	14.05
8H	4H	10.90	11.28	12.04	12.41	13.97	10.53	10.91	11.66	12.04	13.60
	6H	11.53	11.85	12.69	13.02	14.58	11.15	11.46	12.31	12.64	14.19
	8H	11.76	12.03	12.92	13.18	14.76	11.36	11.64	12.52	12.79	14.37
	12H	11.88	12.13	13.05	13.27	14.89	11.47	11.71	12.64	12.86	14.47
12H	4H	10.88	11.23	12.03	12.37	13.93	10.51	10.86	11.67	12.00	13.57
	6H	11.56	11.84	12.72	12.99	14.57	11.19	11.47	12.35	12.62	14.19
	8H	11.80	12.04	12.97	13.19	14.80	11.42	11.66	12.59	12.81	14.42