

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: P925577

Luminaire Tested: DFN2DIP-SQ3F0-070D120US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925577
REPORT IS A COMBINATION OF REPORTS P901531 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-070D120US950-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

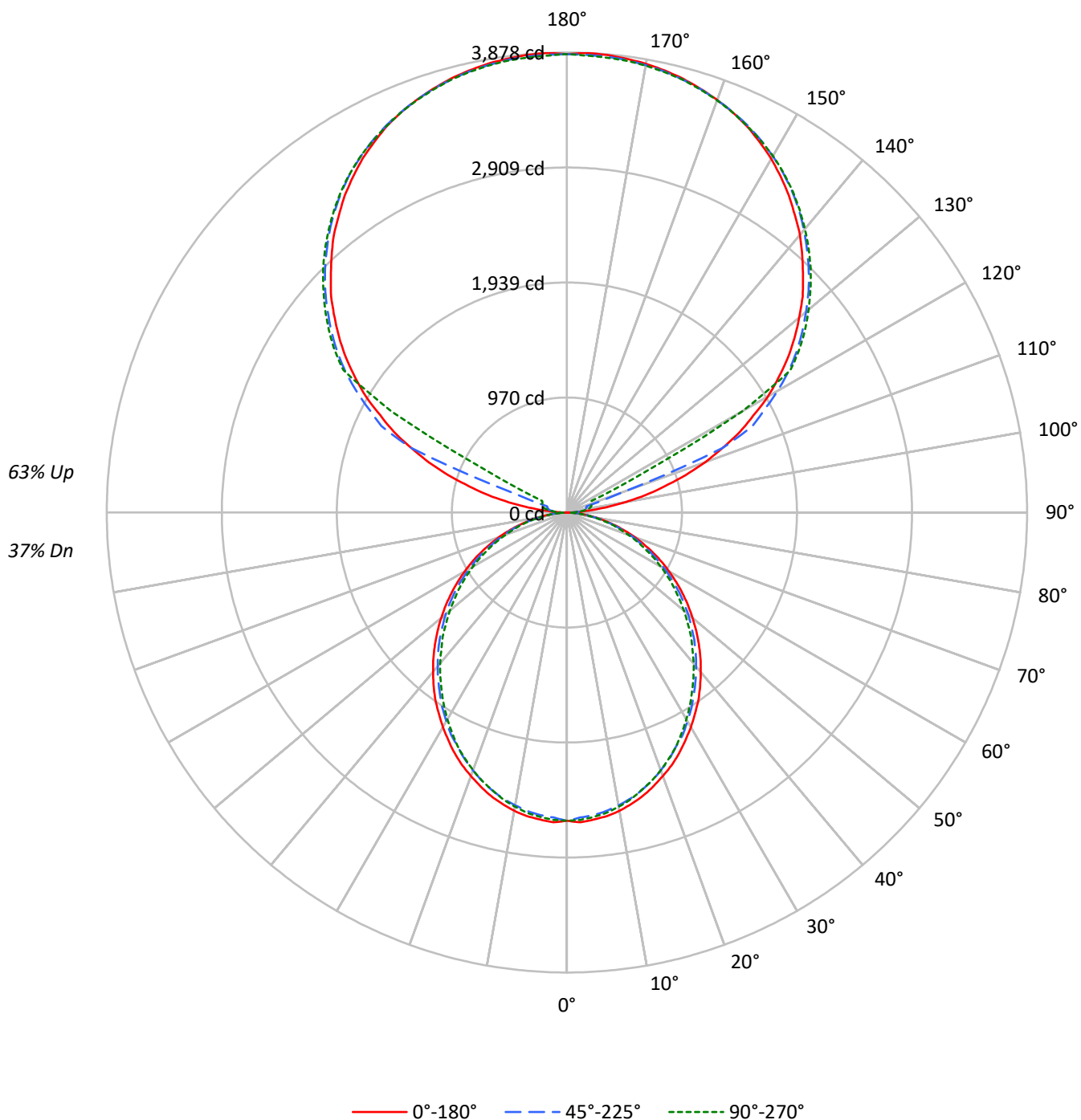
Lumens per Lamp: N/A
Luminaire Lumens: 17944.8 lumens
Efficiency: N/A
Efficacy: 112.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 159.7
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	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°	2977	2977	2977
5°	2980	2934	2955
10°	2954	2892	2914
15°	2909	2843	2850
20°	2848	2775	2785
25°	2788	2694	2710
30°	2713	2618	2615
35°	2641	2529	2515
40°	2554	2439	2419
45°	2466	2349	2321
50°	2371	2254	2208
55°	2270	2145	2103
60°	2157	2015	1984
65°	2033	1880	1842
70°	1875	1716	1690
75°	1656	1519	1549
80°	1391	1267	1280
85°	981	840	838

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2648 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	244.6	1.4
10°-20°	688.1	3.8
20°-30°	1011.3	5.6
30°-40°	1174.5	6.5
40°-50°	1173.1	6.5
50°-60°	1022.9	5.7
60°-70°	756.1	4.2
70°-80°	427.8	2.4
80°-90°	119.7	0.7
90°-100°	127.4	0.7
100°-110°	474.9	2.6
110°-120°	1259.5	7.0
120°-130°	2089.1	11.6
130°-140°	2219.1	12.4
140°-150°	2062.4	11.5
150°-160°	1658.1	9.2
160°-170°	1068.4	6.0
170°-180°	367.7	2.0
0°-30°	1943.9	10.8
0°-40°	3118.5	17.4
0°-60°	5314.4	29.6
0°-90°	6618.1	36.9
90°-120°	1861.9	10.4
90°-150°	8232.4	45.9
90°-180°	11327.0	63.1
0°-180°	17944.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2598	2598	2598	2598	2598	
5°	2598	2589	2561	2581	2576	247
15°	2474	2459	2426	2436	2424	697
25°	2239	2219	2176	2181	2176	1030
35°	1932	1907	1866	1851	1839	1206
45°	1572	1554	1517	1489	1479	1213
55°	1189	1174	1144	1114	1102	1063
65°	802	787	762	740	727	793
75°	420	415	402	387	392	448
85°	102	100	98	90	88	114
90°	3	34	56	70	75	16
95°	182	89	109	123	120	215
105°	850	934	171	201	212	908
115°	1607	1655	1725	430	229	1582
125°	2273	2309	2362	2382	2390	2027
135°	2812	2857	2882	2910	2905	2173
145°	3263	3260	3307	3327	3313	2041
155°	3592	3567	3601	3618	3595	1655
165°	3785	3769	3777	3796	3777	1069
175°	3872	3852	3858	3878	3850	368
180°	3864	3864	3864	3864	3864	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2598.4	2598.4	2598.4	2598.4	2598.4
2.5°	2613.6	2601.1	2573.5	2598.4	2593.6
5°	2598.4	2588.7	2561.1	2581.0	2576.2
7.5°	2581.0	2566.1	2538.5	2558.7	2553.7
10°	2553.7	2536.1	2506.2	2526.1	2518.7
12.5°	2516.0	2501.2	2471.2	2483.6	2478.6
15°	2473.6	2458.7	2426.1	2436.2	2423.7
17.5°	2421.1	2406.3	2373.6	2386.1	2373.6
20°	2363.5	2348.7	2313.7	2321.2	2311.4
22.5°	2306.3	2283.8	2251.2	2251.2	2246.1
25°	2238.8	2218.8	2176.5	2181.2	2176.5
27.5°	2163.7	2146.2	2113.9	2106.4	2093.9
30°	2089.0	2068.7	2031.4	2024.0	2013.9
32.5°	2008.8	1994.1	1954.0	1938.9	1928.8
35°	1931.5	1906.6	1866.5	1851.4	1838.9
37.5°	1844.0	1821.5	1781.4	1763.9	1751.4
40°	1754.1	1734.0	1693.9	1671.7	1661.6
42.5°	1666.6	1646.5	1606.7	1581.5	1566.7
45°	1571.7	1554.3	1516.6	1489.3	1479.2
47.5°	1479.2	1461.7	1421.7	1394.1	1379.3
50°	1381.7	1369.2	1334.2	1299.3	1286.8
52.5°	1286.8	1269.3	1237.0	1209.4	1191.8
55°	1189.4	1174.4	1144.4	1114.5	1102.0
57.5°	1091.9	1079.5	1046.8	1016.9	1006.9
60°	994.4	984.5	949.6	922.0	914.6
62.5°	899.4	882.0	857.1	832.2	822.1
65°	802.2	787.0	762.2	739.6	727.1
67.5°	702.2	689.6	667.2	649.8	639.7
70°	609.7	599.7	577.1	559.6	549.8
72.5°	514.8	504.8	492.3	474.8	467.4
75°	419.7	414.9	402.1	387.3	392.4
77.5°	334.9	324.7	319.7	312.2	304.9
80°	249.9	247.4	242.3	234.9	229.8
82.5°	169.9	169.9	167.5	157.5	157.5
85°	102.4	100.0	97.6	89.9	87.5
87.5°	45.0	40.1	35.0	27.6	24.9
90°	2.7	33.5	55.8	70.0	75.4
92.5°	70.0	58.8	67.1	72.7	75.4
95°	181.5	89.3	108.9	123.2	120.2
97.5°	327.0	98.0	142.4	151.0	153.7
100°	494.9	111.9	159.3	181.5	187.3
102.5°	679.2	673.9	164.9	195.6	204.2
105°	849.8	933.9	170.7	201.2	212.5
107.5°	1048.4	1118.1	176.3	206.8	218.1
110°	1238.6	1297.1	489.3	209.8	220.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1417.5	1467.6	1420.2	215.1	223.7
115°	1607.4	1654.9	1724.9	430.5	229.4
117.5°	1772.4	1828.2	1876.0	1475.9	743.6
120°	1957.0	1998.8	2049.3	2082.9	1705.4
122.5°	2113.4	2158.2	2214.3	2230.9	2233.9
125°	2272.7	2309.3	2362.4	2381.9	2390.2
127.5°	2418.1	2457.3	2499.5	2527.3	2530.0
130°	2555.2	2600.0	2630.6	2661.5	2658.8
132.5°	2695.0	2731.5	2762.0	2787.3	2784.6
135°	2812.5	2857.3	2882.2	2910.5	2904.8
137.5°	2935.4	2968.8	2997.1	3024.9	3016.6
140°	3055.6	3078.1	3108.6	3133.9	3120.0
142.5°	3156.4	3176.1	3212.2	3234.4	3220.5
145°	3262.7	3259.7	3307.1	3326.8	3312.8
147.5°	3354.6	3346.3	3393.9	3407.8	3396.8
150°	3444.2	3424.7	3469.5	3486.1	3472.2
152.5°	3519.6	3497.4	3539.2	3556.1	3536.6
155°	3592.3	3567.4	3601.0	3617.6	3595.3
157.5°	3651.1	3628.8	3654.1	3673.7	3651.1
160°	3701.5	3684.6	3701.5	3718.1	3698.6
162.5°	3746.1	3729.5	3743.4	3763.0	3737.8
165°	3785.2	3768.6	3776.9	3796.5	3776.9
167.5°	3816.1	3799.1	3807.8	3827.4	3802.2
170°	3841.3	3824.4	3830.0	3849.6	3824.4
172.5°	3857.9	3841.3	3847.0	3866.6	3841.3
175°	3871.8	3852.3	3857.9	3877.5	3849.6
177.5°	3877.5	3857.9	3860.9	3880.5	3855.3
180°	3863.6	3863.6	3863.6	3863.6	3863.6

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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	9.68	10.43	10.74	11.50	12.94	9.23	9.99	10.30	11.05	12.50
	3H	11.33	12.00	12.40	13.08	14.54	10.84	11.51	11.91	12.58	14.05
	4H	11.91	12.55	12.99	13.62	15.09	11.41	12.05	12.49	13.13	14.60
	6H	12.30	12.89	13.39	13.97	15.45	11.80	12.39	12.89	13.46	14.95
	8H	12.40	12.96	13.49	14.05	15.53	11.89	12.46	12.99	13.55	15.03
	12H	12.44	12.97	13.54	14.06	15.56	11.93	12.46	13.03	13.55	15.05
4H	2H	10.12	10.76	11.21	11.84	13.31	9.77	10.41	10.86	11.48	12.96
	3H	11.97	12.51	13.07	13.61	15.09	11.56	12.10	12.66	13.20	14.69
	4H	12.68	13.17	13.78	14.26	15.77	12.25	12.75	13.36	13.84	15.34
	6H	13.18	13.60	14.29	14.72	16.22	12.75	13.17	13.86	14.29	15.79
	8H	13.33	13.72	14.44	14.83	16.34	12.89	13.28	14.00	14.39	15.91
	12H	13.39	13.75	14.52	14.87	16.39	12.94	13.30	14.07	14.42	15.94
8H	4H	12.86	13.26	13.97	14.36	15.88	12.49	12.88	13.59	13.99	15.50
	6H	13.48	13.81	14.61	14.96	16.47	13.10	13.42	14.23	14.57	16.08
	8H	13.70	13.98	14.84	15.11	16.65	13.31	13.59	14.44	14.72	16.25
	12H	13.82	14.07	14.96	15.20	16.77	13.41	13.66	14.55	14.79	16.36
12H	4H	12.84	13.20	13.97	14.32	15.84	12.47	12.83	13.60	13.95	15.47
	6H	13.51	13.80	14.65	14.93	16.46	13.14	13.42	14.27	14.55	16.08
	8H	13.74	13.99	14.88	15.12	16.69	13.36	13.61	14.50	14.74	16.31