

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: P925823

Luminaire Tested: DFN2DIP-SQ4F0-070D120US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925823
REPORT IS A COMBINATION OF REPORTS P901690 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D120US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

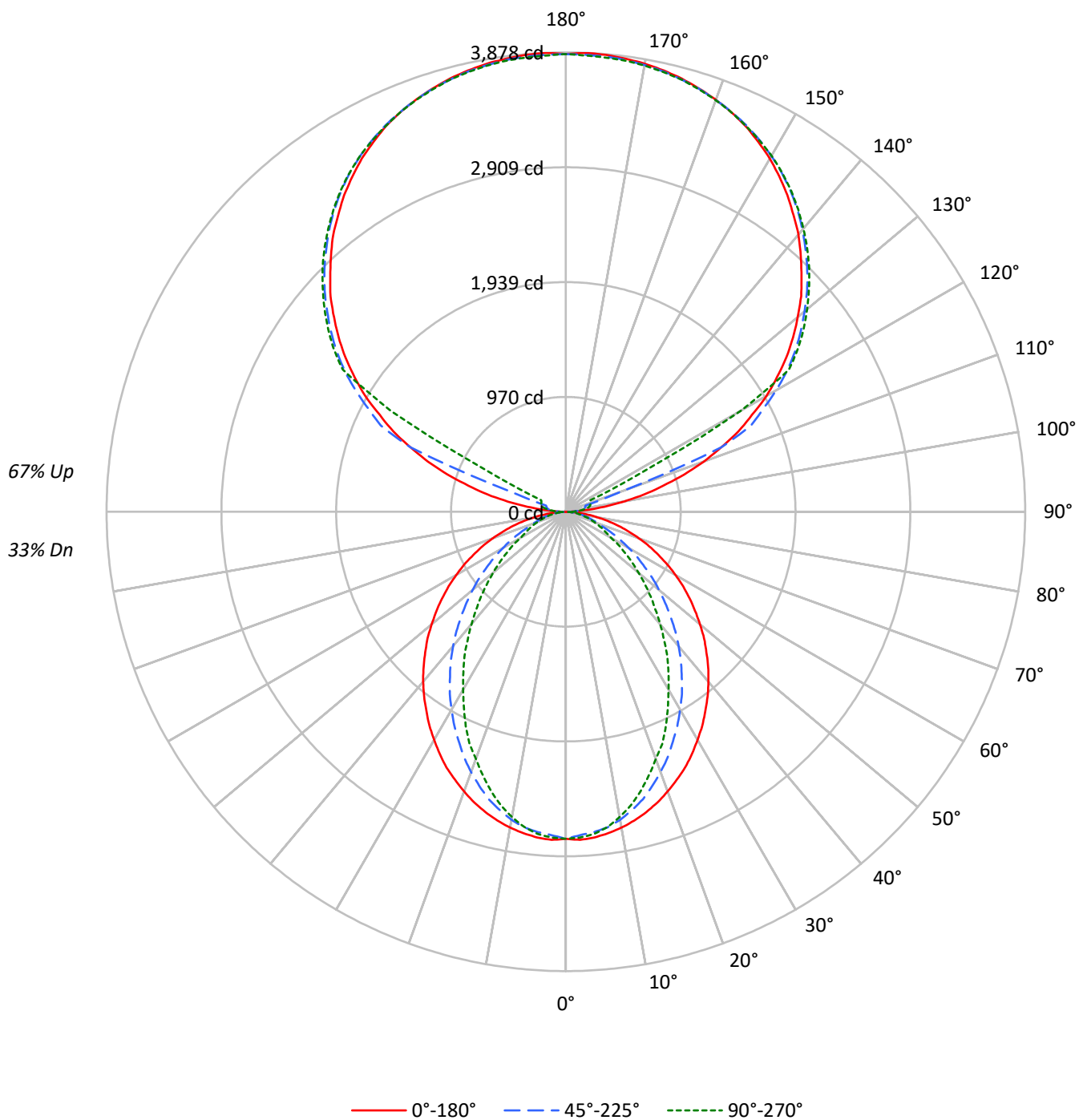
Lumens per Lamp: N/A
Luminaire Lumens: 17009.7 lumens
Efficiency: N/A
Efficacy: 112.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

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

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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	57	57	57	41	41	41
1	94	90	87	83	85	82	79	76	65	63	61	50	49	48	37	36	35
2	86	79	73	69	78	72	67	63	58	54	51	45	42	40	33	31	30
3	79	70	63	57	71	63	57	53	51	47	43	40	37	35	29	27	26
4	72	62	54	49	65	56	50	45	45	41	37	36	32	30	26	24	23
5	66	55	48	42	60	50	44	39	41	36	32	32	29	26	24	22	20
6	61	50	42	36	55	45	38	34	37	32	28	29	25	23	22	19	18
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	18	16
8	52	41	33	28	47	37	31	26	30	26	22	24	21	18	18	16	14
9	49	37	30	25	44	34	28	23	28	23	20	22	19	16	17	15	13
10	45	34	27	22	41	31	25	21	26	21	18	21	17	15	16	13	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1937	1937	1937
5°	1940	1906	1919
10°	1920	1869	1857
15°	1894	1808	1761
20°	1859	1723	1643
25°	1823	1628	1529
30°	1775	1530	1384
35°	1728	1425	1257
40°	1680	1317	1111
45°	1624	1196	979
50°	1567	1074	850
55°	1506	944	725
60°	1437	808	598
65°	1356	670	539
70°	1259	541	488
75°	1137	477	445
80°	961	402	388
85°	669	270	295

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2072 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.7	1.5
10°-20°	710.1	4.2
20°-30°	997.0	5.9
30°-40°	1086.8	6.4
40°-50°	998.8	5.9
50°-60°	784.4	4.6
60°-70°	510.6	3.0
70°-80°	262.8	1.5
80°-90°	73.9	0.4
90°-100°	127.4	0.7
100°-110°	474.9	2.8
110°-120°	1259.5	7.4
120°-130°	2089.1	12.3
130°-140°	2219.1	13.0
140°-150°	2062.4	12.1
150°-160°	1658.1	9.7
160°-170°	1068.4	6.3
170°-180°	367.7	2.2
0°-30°	1965.7	11.6
0°-40°	3052.5	17.9
0°-60°	4835.8	28.4
0°-90°	5683.0	33.4
90°-120°	1861.9	10.9
90°-150°	8232.4	48.4
90°-180°	11327.0	66.6
0°-180°	17009.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2760	2760	2760	2760	2760	
5°	2760	2748	2715	2738	2730	262
15°	2625	2598	2513	2465	2440	740
25°	2383	2303	2138	2036	1998	1096
35°	2053	1926	1706	1549	1494	1285
45°	1679	1511	1249	1071	1012	1296
55°	1276	1082	812	662	615	1140
65°	862	659	435	350	342	854
75°	460	285	200	182	180	486
85°	107	55	47	47	47	123
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°	2760.0	2760.0	2760.0	2760.0	2760.0
2.5°	2772.4	2760.0	2732.4	2757.6	2752.6
5°	2760.0	2747.5	2715.0	2737.5	2730.1
7.5°	2737.5	2722.6	2687.7	2697.4	2685.0
10°	2707.5	2690.1	2640.2	2632.6	2617.7
12.5°	2670.2	2647.6	2580.1	2565.2	2537.6
15°	2625.1	2597.6	2512.7	2465.3	2440.4
17.5°	2572.7	2532.7	2427.7	2372.8	2332.8
20°	2512.7	2462.7	2337.9	2275.6	2220.4
22.5°	2447.9	2390.3	2245.3	2160.5	2123.2
25°	2382.9	2302.9	2138.0	2035.7	1998.2
27.5°	2305.5	2220.4	2038.1	1920.8	1863.3
30°	2223.1	2128.0	1928.1	1801.0	1733.4
32.5°	2143.1	2028.1	1823.5	1673.5	1610.9
35°	2053.2	1925.7	1706.1	1548.7	1493.6
37.5°	1965.8	1828.2	1596.1	1423.6	1361.4
40°	1873.3	1723.6	1481.1	1303.8	1238.9
42.5°	1778.4	1618.7	1366.3	1181.3	1119.1
45°	1678.6	1511.0	1249.0	1071.4	1011.5
47.5°	1583.6	1406.4	1136.6	959.1	904.2
50°	1478.7	1301.4	1026.6	854.1	801.9
52.5°	1376.1	1188.8	921.7	756.8	709.4
55°	1276.3	1081.5	811.7	662.0	614.6
57.5°	1174.0	974.1	714.5	574.5	534.5
60°	1069.1	869.2	611.9	484.7	444.7
62.5°	966.7	766.9	524.4	404.7	384.7
65°	861.7	659.3	434.6	349.8	342.1
67.5°	761.9	559.4	349.8	307.1	299.7
70°	656.9	462.1	289.6	264.7	254.6
72.5°	557.0	372.1	242.2	222.4	217.3
75°	459.5	284.6	199.8	182.3	179.9
77.5°	362.2	202.2	157.4	147.3	142.3
80°	272.2	144.9	119.8	110.0	110.0
82.5°	189.8	97.5	82.4	77.4	77.4
85°	107.3	54.9	47.4	47.4	47.4
87.5°	40.0	19.8	19.8	17.5	17.5
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	7.67	8.38	8.77	9.47	10.96	3.63	4.34	4.73	5.43	6.92
	3H	9.35	9.98	10.45	11.08	12.59	4.81	5.45	5.91	6.54	8.05
	4H	9.95	10.55	11.06	11.65	13.17	5.26	5.86	6.37	6.96	8.47
	6H	10.37	10.92	11.49	12.02	13.55	5.57	6.13	6.69	7.23	8.75
	8H	10.50	11.02	11.62	12.14	13.66	5.66	6.19	6.79	7.30	8.82
	12H	10.56	11.06	11.68	12.16	13.71	5.70	6.20	6.83	7.31	8.85
4H	2H	7.68	8.28	8.79	9.38	10.89	4.22	4.82	5.34	5.92	7.43
	3H	9.50	10.00	10.62	11.12	12.65	5.56	6.06	6.68	7.18	8.71
	4H	10.19	10.65	11.32	11.76	13.31	6.10	6.56	7.23	7.67	9.22
	6H	10.70	11.10	11.84	12.23	13.77	6.51	6.91	7.65	8.04	9.58
	8H	10.88	11.25	12.01	12.37	13.93	6.64	7.01	7.78	8.14	9.69
	12H	10.97	11.30	12.12	12.44	14.00	6.70	7.03	7.85	8.17	9.73
8H	4H	10.15	10.52	11.28	11.64	13.20	6.37	6.74	7.51	7.87	9.43
	6H	10.71	11.02	11.87	12.19	13.74	6.89	7.19	8.04	8.36	9.92
	8H	10.93	11.20	12.10	12.35	13.92	7.08	7.35	8.24	8.50	10.07
	12H	11.07	11.30	12.24	12.45	14.06	7.20	7.43	8.36	8.57	10.18
12H	4H	10.10	10.43	11.25	11.57	13.13	6.37	6.71	7.52	7.85	9.41
	6H	10.69	10.96	11.85	12.10	13.68	6.94	7.20	8.10	8.35	9.93
	8H	10.91	11.14	12.07	12.29	13.90	7.15	7.38	8.31	8.52	10.13