

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: P912341

Luminaire Tested: DFN2DIP-SQ4F0-120D070US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912341
REPORT IS A COMBINATION OF REPORTS P901609 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D070US850-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

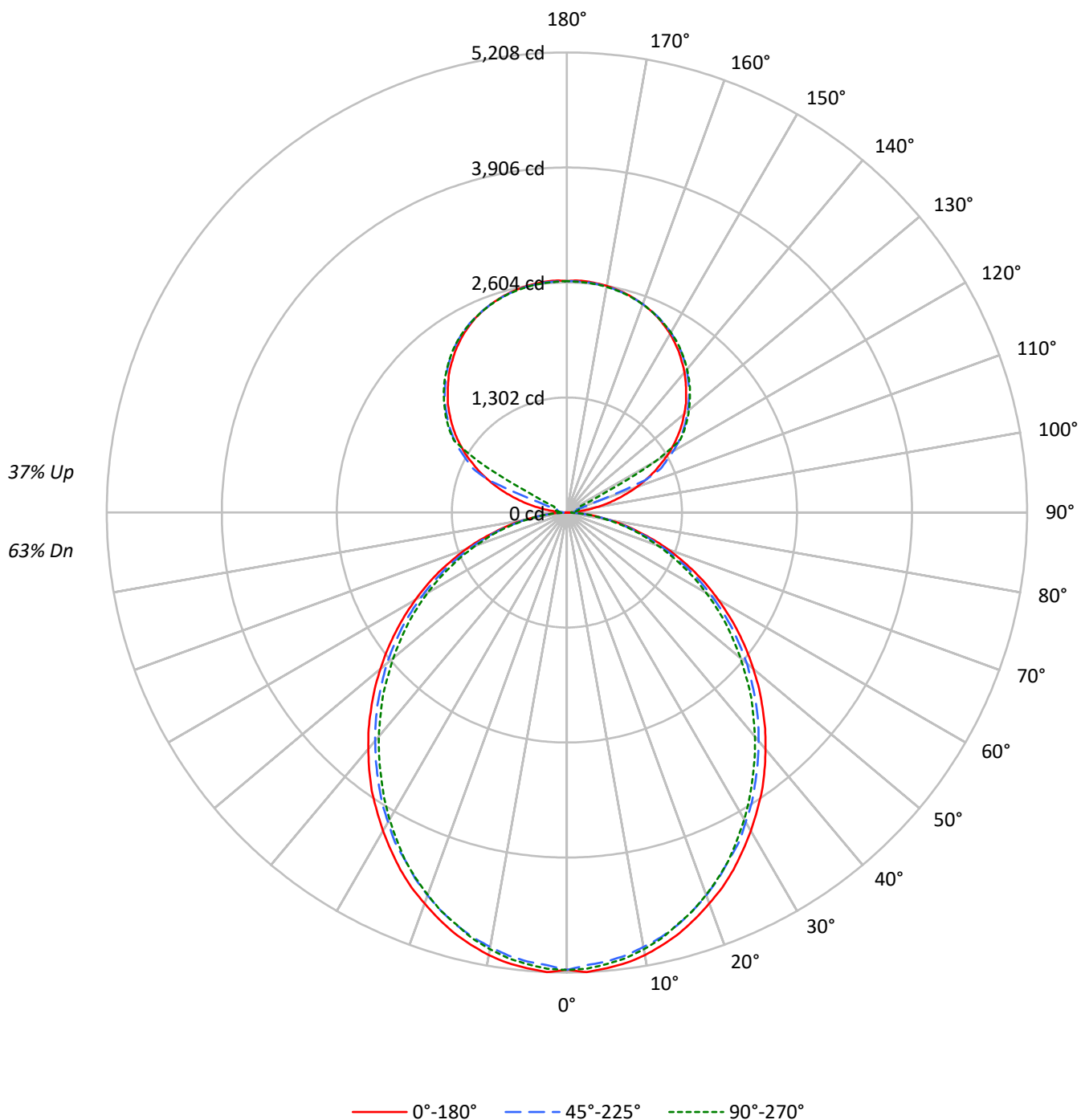
Lumens per Lamp: N/A
Luminaire Lumens: 20860.3 lumens
Efficiency: N/A
Efficacy: 122.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 169.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68
1	101	96	92	89	94	91	87	84	80	77	75	70	68	66	60	59	58
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	53	51	49
3	84	74	67	61	78	70	63	58	62	56	52	54	50	47	47	44	41
4	77	66	57	51	72	62	55	49	55	49	44	48	44	40	42	39	36
5	70	59	50	44	66	55	48	42	49	43	38	43	39	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	34	39	34	30	34	31	27
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3633	3633	3633
5°	3639	3584	3608
10°	3610	3536	3560
15°	3557	3478	3485
20°	3485	3398	3408
25°	3413	3302	3318
30°	3324	3213	3205
35°	3239	3108	3084
40°	3135	3001	2969
45°	3031	2894	2852
50°	2917	2783	2716
55°	2798	2653	2592
60°	2663	2499	2449
65°	2516	2340	2281
70°	2329	2146	2101
75°	2070	1915	1935
80°	1758	1620	1617
85°	1271	1108	1086

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3031 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	487.4	2.3
10°-20°	1371.3	6.6
20°-30°	2015.2	9.7
30°-40°	2340.6	11.2
40°-50°	2337.7	11.2
50°-60°	2038.4	9.8
60°-70°	1506.8	7.2
70°-80°	852.5	4.1
80°-90°	229.6	1.1
90°-100°	86.4	0.4
100°-110°	322.1	1.5
110°-120°	854.1	4.1
120°-130°	1416.6	6.8
130°-140°	1504.8	7.2
140°-150°	1398.5	6.7
150°-160°	1124.4	5.4
160°-170°	724.5	3.5
170°-180°	249.4	1.2
0°-30°	3873.9	18.6
0°-40°	6214.5	29.8
0°-60°	10590.5	50.8
0°-90°	13179.5	63.2
90°-120°	1262.6	6.1
90°-150°	5582.5	26.8
90°-180°	7681.0	36.8
0°-180°	20860.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5178	5178	5178	5178	5178	
5°	5178	5159	5104	5143	5134	492
15°	4929	4900	4835	4855	4830	1388
25°	4461	4422	4337	4347	4337	2053
35°	3849	3799	3720	3690	3665	2404
45°	3132	3097	3022	2968	2948	2417
55°	2370	2340	2280	2221	2196	2119
65°	1599	1568	1519	1474	1449	1581
75°	836	827	801	772	782	893
85°	204	199	194	179	174	227
90°	2	23	38	48	51	19
95°	123	61	74	84	82	146
105°	576	633	116	136	144	616
115°	1090	1122	1170	292	156	1073
125°	1541	1566	1602	1615	1621	1375
135°	1907	1938	1954	1974	1970	1473
145°	2212	2210	2243	2256	2246	1384
155°	2436	2419	2442	2453	2438	1123
165°	2567	2556	2561	2574	2561	725
175°	2626	2612	2616	2629	2610	250
180°	2620	2620	2620	2620	2620	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5178.3	5178.3	5178.3	5178.3	5178.3
2.5°	5208.3	5183.5	5128.6	5178.3	5168.7
5°	5178.3	5158.6	5103.7	5143.3	5133.8
7.5°	5143.3	5113.7	5058.8	5099.0	5089.0
10°	5089.0	5054.0	4994.4	5034.0	5019.2
12.5°	5013.9	4984.3	4924.6	4949.5	4939.4
15°	4929.4	4899.8	4834.8	4854.9	4830.0
17.5°	4824.8	4795.2	4730.2	4755.1	4730.2
20°	4710.1	4680.5	4610.9	4625.6	4606.1
22.5°	4596.0	4551.1	4486.1	4486.1	4476.1
25°	4461.3	4421.7	4337.2	4346.7	4337.2
27.5°	4311.8	4277.0	4212.5	4197.7	4172.9
30°	4162.9	4122.7	4048.2	4033.4	4013.4
32.5°	4003.3	3973.8	3893.9	3863.9	3843.8
35°	3849.0	3799.4	3719.6	3689.5	3664.7
37.5°	3674.7	3629.9	3550.0	3515.2	3490.4
40°	3495.7	3455.5	3375.7	3331.3	3311.3
42.5°	3321.3	3281.2	3201.9	3151.8	3122.2
45°	3132.1	3097.3	3022.2	2967.9	2947.8
47.5°	2947.8	2912.9	2833.2	2778.3	2748.7
50°	2753.4	2728.6	2658.8	2589.1	2564.2
52.5°	2564.2	2529.4	2465.0	2410.0	2375.1
55°	2370.4	2340.3	2280.5	2220.9	2196.0
57.5°	2176.0	2151.1	2086.1	2026.5	2006.4
60°	1981.6	1962.0	1892.3	1837.4	1822.5
62.5°	1792.5	1757.5	1708.0	1658.3	1638.2
65°	1598.6	1568.5	1518.8	1473.9	1449.1
67.5°	1399.4	1374.1	1329.7	1294.9	1274.8
70°	1215.0	1194.9	1150.0	1115.2	1095.7
72.5°	1025.9	1005.9	981.0	946.2	931.3
75°	836.3	826.8	801.4	771.9	781.8
77.5°	667.2	647.1	637.1	622.3	607.5
80°	498.2	492.8	482.9	468.1	458.0
82.5°	338.6	338.6	333.9	313.8	313.8
85°	203.9	199.2	194.4	179.1	174.3
87.5°	89.8	79.7	69.8	54.9	49.7
90°	1.8	22.7	37.8	47.5	51.1
92.5°	47.5	39.8	45.5	49.4	51.1
95°	123.1	60.6	73.9	83.5	81.5
97.5°	221.7	66.4	96.6	102.5	104.2
100°	335.7	75.9	108.0	123.1	127.0
102.5°	460.6	457.0	111.9	132.6	138.4
105°	576.3	633.2	115.7	136.4	144.1
107.5°	710.9	758.2	119.6	140.3	147.9
110°	840.0	879.5	331.8	142.3	149.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	961.3	995.2	963.1	145.8	151.7
115°	1090.0	1122.2	1169.7	292.0	155.6
117.5°	1201.9	1239.8	1272.1	1000.9	504.3
120°	1327.0	1355.4	1389.7	1412.4	1156.5
122.5°	1433.0	1463.4	1501.6	1512.8	1514.8
125°	1541.2	1565.9	1602.0	1615.3	1620.8
127.5°	1639.8	1666.3	1694.9	1713.8	1715.6
130°	1732.7	1763.1	1783.8	1804.8	1803.0
132.5°	1827.5	1852.3	1873.0	1890.1	1888.3
135°	1907.1	1937.5	1954.5	1973.6	1969.8
137.5°	1990.4	2013.3	2032.4	2051.3	2045.7
140°	2071.9	2087.2	2108.0	2125.1	2115.6
142.5°	2140.4	2153.7	2178.2	2193.3	2183.8
145°	2212.5	2210.5	2242.6	2255.9	2246.5
147.5°	2274.8	2269.2	2301.4	2310.8	2303.4
150°	2335.6	2322.4	2352.7	2363.9	2354.5
152.5°	2386.7	2371.6	2400.0	2411.4	2398.2
155°	2436.0	2419.1	2441.8	2453.1	2438.0
157.5°	2475.8	2460.8	2477.8	2491.1	2475.8
160°	2510.1	2498.6	2510.1	2521.3	2508.0
162.5°	2540.3	2529.0	2538.4	2551.7	2534.6
165°	2566.8	2555.6	2561.1	2574.4	2561.1
167.5°	2587.7	2576.2	2582.1	2595.4	2578.3
170°	2604.8	2593.4	2597.2	2610.5	2593.4
172.5°	2616.1	2604.8	2608.7	2621.9	2604.8
175°	2625.6	2612.2	2616.1	2629.3	2610.5
177.5°	2629.3	2616.1	2618.1	2631.4	2614.2
180°	2619.9	2619.9	2619.9	2619.9	2619.9

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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	12.90	13.89	13.74	14.75	15.82	12.46	13.45	13.29	14.31	15.38
	3H	14.58	15.47	15.42	16.34	17.43	14.09	14.98	14.93	15.84	16.94
	4H	15.17	16.02	16.04	16.89	18.00	14.68	15.52	15.54	16.40	17.50
	6H	15.58	16.36	16.46	17.24	18.36	15.08	15.86	15.96	16.74	17.86
	8H	15.69	16.43	16.58	17.33	18.45	15.19	15.93	16.08	16.83	17.95
	12H	15.75	16.45	16.64	17.35	18.49	15.24	15.94	16.13	16.84	17.98
4H	2H	13.38	14.22	14.25	15.10	16.20	13.02	13.87	13.89	14.74	15.85
	3H	15.26	15.97	16.14	16.87	17.99	14.85	15.56	15.73	16.46	17.59
	4H	15.98	16.63	16.88	17.53	18.68	15.56	16.20	16.45	17.10	18.25
	6H	16.51	17.07	17.42	17.99	19.14	16.08	16.63	16.99	17.56	18.71
	8H	16.67	17.18	17.58	18.11	19.27	16.23	16.75	17.14	17.67	18.83
	12H	16.75	17.22	17.68	18.15	19.32	16.30	16.77	17.23	17.70	18.87
8H	4H	16.19	16.71	17.10	17.63	18.80	15.82	16.33	16.73	17.25	18.42
	6H	16.83	17.26	17.77	18.23	19.39	16.45	16.88	17.39	17.84	19.01
	8H	17.06	17.44	18.00	18.39	19.57	16.67	17.05	17.61	18.00	19.18
	12H	17.20	17.53	18.15	18.48	19.71	16.79	17.12	17.74	18.07	19.30
12H	4H	16.18	16.65	17.11	17.59	18.76	15.82	16.28	16.75	17.22	18.39
	6H	16.86	17.25	17.81	18.20	19.38	16.49	16.87	17.44	17.83	19.01
	8H	17.12	17.45	18.07	18.40	19.63	16.74	17.07	17.69	18.02	19.25

END OF REPORT