

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: P925917

Luminaire Tested: DFN2DIP-SQ4F0-100D090US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925917
REPORT IS A COMBINATION OF REPORTS P901641 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D090US950-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

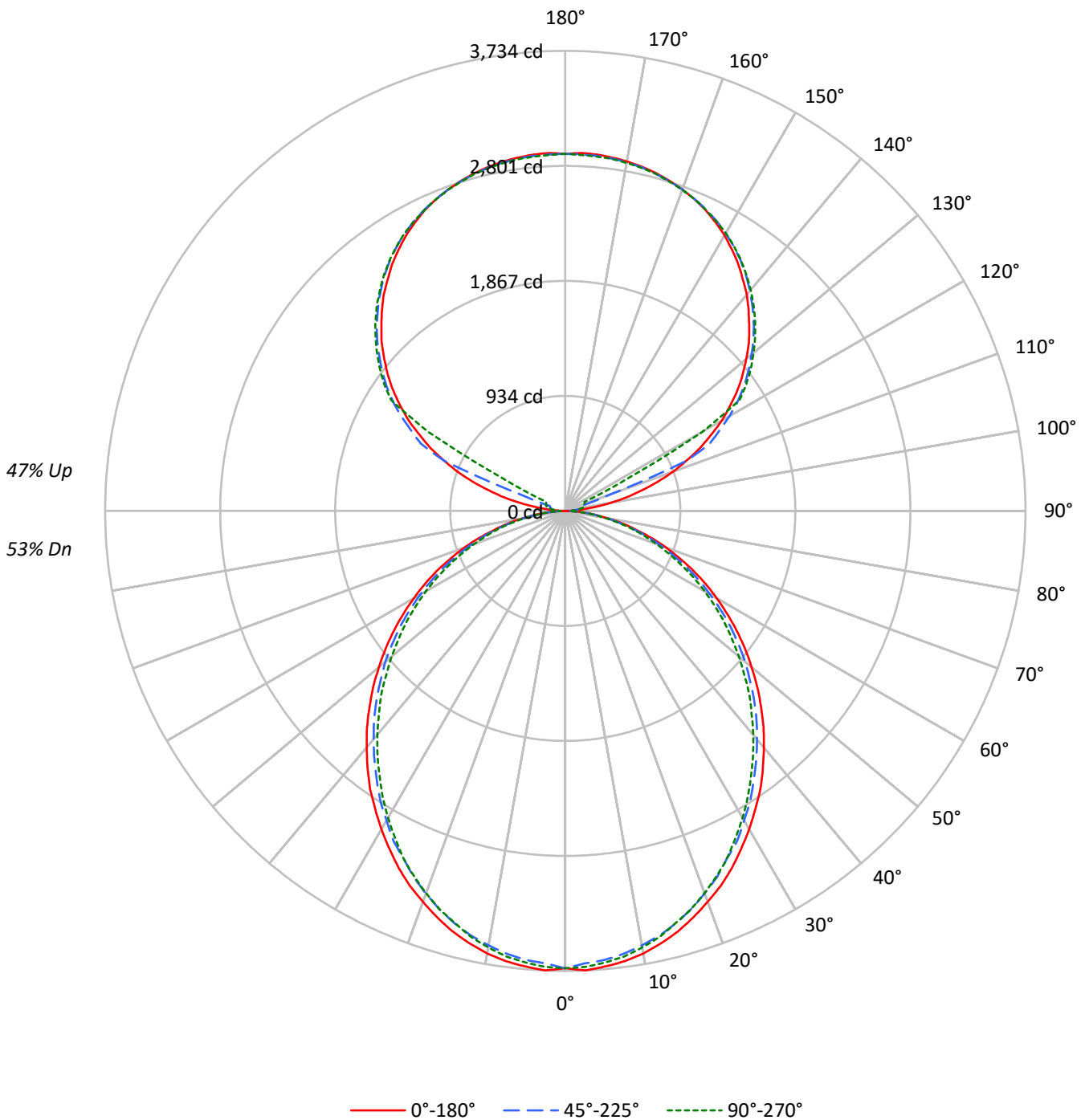
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17944.7 lumens
Efficiency: N/A
Efficacy: 112.6 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: General Diffuse

Input Watts (W): 159.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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			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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	53			
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	49	44			
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	37			
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	40	38	35	31			
4	75	64	56	50	69	59	52	47	51	46	41	43	39	36	36	33	31	27			
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27	23			
6	63	51	43	37	58	48	40	35	41	35	31	35	31	27	30	26	23	21			
7	59	46	38	33	54	43	36	31	37	32	27	32	28	24	27	24	21	18			
8	54	42	34	29	50	39	32	27	34	28	24	29	25	22	25	21	19	16			
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	19	17	15			
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15	13			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2605	2605	2605
5°	2609	2569	2586
10°	2588	2535	2552
15°	2550	2494	2498
20°	2498	2436	2443
25°	2447	2367	2379
30°	2383	2303	2297
35°	2322	2228	2211
40°	2247	2151	2129
45°	2173	2075	2045
50°	2091	1995	1947
55°	2006	1902	1858
60°	1909	1792	1756
65°	1804	1678	1635
70°	1670	1539	1506
75°	1484	1373	1387
80°	1260	1161	1159
85°	911	794	779

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2173 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	349.4	1.9
10°-20°	983.0	5.5
20°-30°	1444.7	8.1
30°-40°	1677.9	9.4
40°-50°	1675.8	9.3
50°-60°	1461.2	8.1
60°-70°	1080.2	6.0
70°-80°	611.1	3.4
80°-90°	166.4	0.9
90°-100°	95.6	0.5
100°-110°	356.2	2.0
110°-120°	944.7	5.3
120°-130°	1566.8	8.7
130°-140°	1664.3	9.3
140°-150°	1546.8	8.6
150°-160°	1243.6	6.9
160°-170°	801.3	4.5
170°-180°	275.8	1.5
0°-30°	2777.1	15.5
0°-40°	4454.9	24.8
0°-60°	7592.0	42.3
0°-90°	9449.7	52.7
90°-120°	1396.4	7.8
90°-150°	6174.3	34.4
90°-180°	8495.0	47.3
0°-180°	17944.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3712	3712	3712	3712	3712	
5°	3712	3698	3659	3687	3680	352
15°	3534	3512	3466	3480	3462	995
25°	3198	3170	3109	3116	3109	1472
35°	2759	2724	2666	2645	2627	1723
45°	2245	2220	2166	2128	2113	1733
55°	1699	1678	1635	1592	1574	1519
65°	1146	1124	1089	1057	1039	1133
75°	600	593	574	553	560	640
85°	146	143	139	128	125	163
90°	2	25	42	53	56	17
95°	136	67	82	92	90	161
105°	637	700	128	151	159	681
115°	1206	1241	1294	323	172	1187
125°	1704	1732	1772	1786	1793	1520
135°	2109	2143	2162	2183	2179	1629
145°	2447	2445	2480	2495	2485	1530
155°	2694	2676	2701	2713	2696	1242
165°	2839	2826	2833	2847	2833	802
175°	2904	2889	2894	2908	2887	276
180°	2898	2898	2898	2898	2898	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3712.1	3712.1	3712.1	3712.1	3712.1
2.5°	3733.7	3715.8	3676.4	3712.1	3705.2
5°	3712.1	3698.1	3658.7	3687.1	3680.2
7.5°	3687.1	3665.8	3626.4	3655.3	3648.1
10°	3648.1	3623.1	3580.3	3608.7	3598.1
12.5°	3594.3	3573.1	3530.3	3548.1	3540.9
15°	3533.7	3512.5	3465.9	3480.3	3462.5
17.5°	3458.7	3437.5	3390.9	3408.7	3390.9
20°	3376.5	3355.3	3305.3	3315.9	3301.9
22.5°	3294.7	3262.6	3215.9	3215.9	3208.8
25°	3198.2	3169.8	3109.2	3116.0	3109.2
27.5°	3091.0	3066.0	3019.8	3009.2	2991.4
30°	2984.2	2955.4	2902.0	2891.4	2877.0
32.5°	2869.8	2848.6	2791.4	2769.8	2755.4
35°	2759.3	2723.7	2666.4	2644.9	2627.0
37.5°	2634.3	2602.0	2544.9	2519.9	2502.1
40°	2505.9	2477.1	2419.9	2388.1	2373.7
42.5°	2380.9	2352.1	2295.3	2259.4	2238.2
45°	2245.3	2220.3	2166.5	2127.5	2113.2
47.5°	2113.2	2088.2	2031.0	1991.6	1970.4
50°	1973.8	1956.0	1906.0	1856.0	1838.3
52.5°	1838.3	1813.3	1767.0	1727.7	1702.7
55°	1699.3	1677.7	1634.9	1592.0	1574.3
57.5°	1559.9	1542.0	1495.5	1452.8	1438.3
60°	1420.5	1406.5	1356.5	1317.1	1306.5
62.5°	1284.9	1259.9	1224.4	1188.8	1174.4
65°	1145.9	1124.4	1088.8	1056.6	1038.8
67.5°	1003.2	985.0	953.2	928.2	913.8
70°	871.0	856.6	824.4	799.5	785.4
72.5°	735.4	721.0	703.3	678.3	667.6
75°	599.5	592.7	574.5	553.3	560.5
77.5°	478.3	463.9	456.7	446.1	435.5
80°	357.1	353.4	346.1	335.5	328.4
82.5°	242.8	242.8	239.4	225.0	225.0
85°	146.2	142.8	139.4	128.4	125.0
87.5°	64.4	57.1	50.0	39.4	35.6
90°	2.0	25.2	41.8	52.6	56.5
92.5°	52.6	44.1	50.3	54.6	56.5
95°	136.2	67.0	81.7	92.3	90.2
97.5°	245.3	73.5	106.8	113.2	115.2
100°	371.2	84.0	119.5	136.2	140.4
102.5°	509.4	505.4	123.7	146.6	153.1
105°	637.4	700.4	127.9	150.9	159.3
107.5°	786.3	838.6	132.2	155.1	163.6
110°	928.9	972.8	367.0	157.3	165.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1063.1	1100.7	1065.1	161.3	167.8
115°	1205.6	1241.2	1293.7	322.9	172.0
117.5°	1329.3	1371.2	1407.0	1107.0	557.7
120°	1467.7	1499.1	1537.0	1562.1	1279.0
122.5°	1585.1	1618.7	1660.7	1673.1	1675.4
125°	1704.5	1731.9	1771.8	1786.5	1792.7
127.5°	1813.6	1842.9	1874.6	1895.5	1897.5
130°	1916.4	1950.1	1973.0	1996.1	1994.1
132.5°	2021.2	2048.6	2071.5	2090.5	2088.5
135°	2109.4	2143.0	2161.7	2182.8	2178.6
137.5°	2201.5	2226.6	2247.8	2268.7	2262.5
140°	2291.6	2308.6	2331.5	2350.4	2340.0
142.5°	2367.4	2382.0	2409.1	2425.8	2415.4
145°	2447.0	2444.7	2480.4	2495.1	2484.6
147.5°	2516.0	2509.8	2545.4	2555.9	2547.6
150°	2583.2	2568.5	2602.1	2614.5	2604.1
152.5°	2639.7	2623.0	2654.4	2667.1	2652.4
155°	2694.3	2675.6	2700.7	2713.2	2696.5
157.5°	2738.4	2721.7	2740.6	2755.2	2738.4
160°	2776.1	2763.5	2776.1	2788.6	2773.9
162.5°	2809.5	2797.0	2807.5	2822.2	2803.3
165°	2838.9	2826.4	2832.7	2847.4	2832.7
167.5°	2862.1	2849.4	2855.8	2870.5	2851.6
170°	2881.0	2868.3	2872.5	2887.2	2868.3
172.5°	2893.5	2881.0	2885.2	2899.9	2881.0
175°	2903.9	2889.2	2893.5	2908.1	2887.2
177.5°	2908.1	2893.5	2895.7	2910.4	2891.5
180°	2897.7	2897.7	2897.7	2897.7	2897.7



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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	10.85	11.74	11.79	12.69	13.92	10.41	11.29	11.34	12.25	13.48
	3H	12.52	13.31	13.47	14.27	15.53	12.03	12.82	12.98	13.78	15.04
	4H	13.11	13.86	14.07	14.83	16.09	12.62	13.37	13.58	14.33	15.60
	6H	13.52	14.21	14.49	15.18	16.46	13.02	13.71	13.99	14.68	15.96
	8H	13.62	14.28	14.60	15.27	16.55	13.12	13.78	14.10	14.77	16.04
	12H	13.67	14.30	14.66	15.28	16.58	13.16	13.79	14.15	14.77	16.07
4H	2H	11.32	12.07	12.28	13.03	14.30	10.96	11.72	11.93	12.68	13.94
	3H	13.19	13.82	14.17	14.81	16.09	12.78	13.41	13.76	14.41	15.68
	4H	13.91	14.48	14.89	15.47	16.77	13.49	14.06	14.47	15.05	16.35
	6H	14.43	14.92	15.43	15.94	17.24	14.00	14.49	14.99	15.50	16.80
	8H	14.58	15.04	15.58	16.05	17.37	14.15	14.61	15.14	15.61	16.93
	12H	14.66	15.08	15.68	16.10	17.42	14.21	14.63	15.23	15.65	16.97
8H	4H	14.11	14.57	15.11	15.57	16.89	13.73	14.19	14.73	15.20	16.51
	6H	14.75	15.13	15.77	16.17	17.49	14.36	14.74	15.38	15.79	17.10
	8H	14.97	15.31	16.00	16.34	17.67	14.58	14.91	15.61	15.95	17.28
	12H	15.11	15.40	16.14	16.43	17.81	14.69	14.99	15.73	16.02	17.39
12H	4H	14.10	14.51	15.11	15.53	16.85	13.73	14.14	14.74	15.17	16.49
	6H	14.78	15.11	15.81	16.15	17.48	14.40	14.74	15.44	15.77	17.11
	8H	15.02	15.32	16.06	16.35	17.72	14.64	14.94	15.68	15.97	17.34