

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: P925955

Luminaire Tested: DFN2DIP-SQ4F0-110D090US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925955
REPORT IS A COMBINATION OF REPORTS P901644 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D090US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

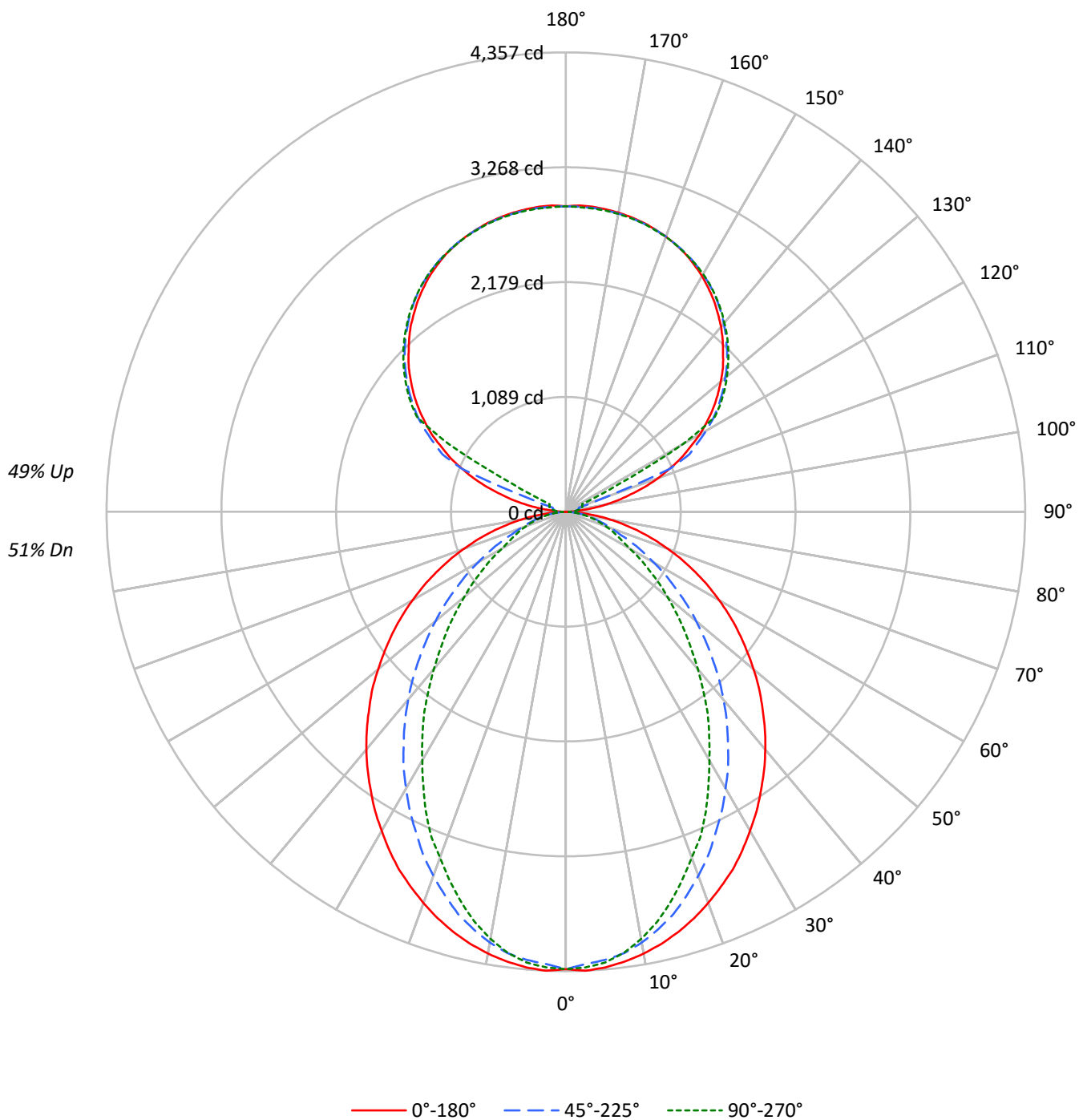
Lumens per Lamp: N/A
Luminaire Lumens: 17420.0 lumens
Efficiency: N/A
Efficacy: 101.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 171.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57
1	99	94	91	87	91	87	84	81	74	72	70	62	61	59	51	50	49
2	90	83	77	72	83	77	72	68	66	62	59	55	53	50	46	44	42
3	83	73	66	61	76	68	62	57	58	54	50	49	46	43	41	39	37
4	76	65	58	52	70	61	54	49	52	47	43	44	41	37	37	34	32
5	70	58	51	45	64	54	48	42	47	42	37	40	36	33	34	31	28
6	64	53	45	39	59	49	42	37	43	37	33	36	32	29	31	27	25
7	60	48	40	34	55	45	38	33	39	33	29	33	29	26	28	25	22
8	55	43	36	31	51	41	34	29	35	30	26	31	26	23	26	23	20
9	52	40	32	27	48	37	31	26	33	27	24	28	24	21	24	21	18
10	48	37	29	25	45	34	28	24	30	25	21	26	22	19	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3043	3043	3043
5°	3048	2996	3015
10°	3018	2937	2918
15°	2976	2841	2767
20°	2921	2708	2582
25°	2865	2558	2402
30°	2789	2405	2175
35°	2715	2240	1975
40°	2640	2069	1746
45°	2552	1880	1538
50°	2462	1688	1335
55°	2367	1484	1140
60°	2258	1270	939
65°	2132	1052	846
70°	1979	850	767
75°	1787	750	700
80°	1510	631	610
85°	1051	425	464

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2552 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.5	2.3
10°-20°	1115.9	6.4
20°-30°	1566.7	9.0
30°-40°	1707.7	9.8
40°-50°	1569.6	9.0
50°-60°	1232.7	7.1
60°-70°	802.4	4.6
70°-80°	413.0	2.4
80°-90°	110.5	0.6
90°-100°	95.6	0.5
100°-110°	356.2	2.0
110°-120°	944.7	5.4
120°-130°	1566.8	9.0
130°-140°	1664.3	9.6
140°-150°	1546.8	8.9
150°-160°	1243.6	7.1
160°-170°	801.3	4.6
170°-180°	275.8	1.6
0°-30°	3089.0	17.7
0°-40°	4796.8	27.5
0°-60°	7599.1	43.6
0°-90°	8925.0	51.2
90°-120°	1396.4	8.0
90°-150°	6174.3	35.4
90°-180°	8495.0	48.8
0°-180°	17420.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4337	4337	4337	4337	4337	
5°	4337	4318	4266	4302	4290	411
15°	4125	4082	3949	3874	3835	1162
25°	3744	3619	3360	3199	3140	1722
35°	3226	3026	2681	2434	2347	2019
45°	2638	2374	1963	1684	1590	2037
55°	2006	1700	1276	1040	966	1792
65°	1354	1036	683	550	538	1343
75°	722	447	314	286	283	764
85°	169	86	74	74	74	194
90°	2	25	42	53	56	16
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°	4337.2	4337.2	4337.2	4337.2	4337.2
2.5°	4356.7	4337.2	4293.9	4333.4	4325.5
5°	4337.2	4317.6	4266.4	4301.8	4290.1
7.5°	4301.8	4278.4	4223.5	4238.9	4219.3
10°	4254.7	4227.2	4148.9	4136.8	4113.6
12.5°	4196.0	4160.6	4054.4	4031.0	3987.7
15°	4125.2	4081.9	3948.6	3874.1	3834.9
17.5°	4042.8	3979.9	3815.0	3728.7	3665.8
20°	3948.6	3869.9	3673.8	3575.9	3489.3
22.5°	3846.6	3756.2	3528.5	3395.2	3336.4
25°	3744.5	3618.8	3359.8	3199.0	3139.9
27.5°	3623.0	3489.3	3202.8	3018.3	2927.9
30°	3493.5	3344.0	3030.0	2830.0	2723.9
32.5°	3367.7	3186.9	2865.4	2629.8	2531.5
35°	3226.5	3026.2	2681.0	2433.7	2347.0
37.5°	3089.1	2873.0	2508.2	2237.0	2139.2
40°	2943.8	2708.5	2327.5	2048.8	1946.8
42.5°	2794.6	2543.6	2147.2	1856.5	1758.6
45°	2637.7	2374.5	1962.7	1683.6	1589.6
47.5°	2488.6	2210.0	1786.1	1507.0	1420.9
50°	2323.7	2045.1	1613.3	1342.2	1260.1
52.5°	2162.5	1868.1	1448.4	1189.4	1114.7
55°	2005.5	1699.5	1275.5	1040.2	965.7
57.5°	1844.8	1530.8	1122.7	902.9	839.9
60°	1679.9	1365.9	961.5	761.7	698.8
62.5°	1519.1	1205.2	824.2	635.9	604.6
65°	1354.2	1036.0	683.0	549.7	537.6
67.5°	1197.3	879.1	549.7	482.6	471.0
70°	1032.3	726.3	455.2	416.0	400.2
72.5°	875.3	584.7	380.6	349.4	341.4
75°	722.1	447.2	314.0	286.5	282.8
77.5°	569.3	317.8	247.4	231.5	223.6
80°	427.7	227.8	188.2	172.9	172.9
82.5°	298.1	153.2	129.6	121.6	121.6
85°	168.7	86.2	74.5	74.5	74.5
87.5°	62.9	31.2	31.2	27.5	27.5
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	11.14	11.98	12.09	12.95	14.20	7.10	7.94	8.06	8.91	10.16
	3H	12.82	13.58	13.79	14.55	15.83	8.29	9.04	9.26	10.02	11.30
	4H	13.44	14.15	14.41	15.12	16.41	8.74	9.45	9.72	10.43	11.72
	6H	13.86	14.52	14.85	15.50	16.80	9.07	9.72	10.05	10.70	12.00
	8H	13.99	14.61	14.99	15.61	16.91	9.16	9.78	10.15	10.78	12.07
	12H	14.05	14.65	15.06	15.64	16.96	9.20	9.79	10.20	10.79	12.11
4H	2H	11.16	11.87	12.15	12.85	14.14	7.70	8.41	8.69	9.39	10.68
	3H	13.00	13.59	13.99	14.59	15.89	9.05	9.64	10.05	10.65	11.95
	4H	13.69	14.23	14.69	15.23	16.56	9.60	10.14	10.60	11.14	12.47
	6H	14.21	14.67	15.22	15.70	17.02	10.02	10.49	11.04	11.51	12.83
	8H	14.39	14.82	15.40	15.84	17.18	10.15	10.59	11.17	11.60	12.94
	12H	14.49	14.88	15.52	15.91	17.25	10.22	10.61	11.25	11.64	12.98
8H	4H	13.66	14.09	14.67	15.11	16.45	9.89	10.32	10.90	11.33	12.67
	6H	14.23	14.59	15.27	15.65	16.98	10.41	10.76	11.44	11.82	13.16
	8H	14.45	14.77	15.50	15.81	17.16	10.60	10.91	11.64	11.96	13.31
	12H	14.59	14.87	15.64	15.91	17.31	10.72	10.99	11.77	12.03	13.43
12H	4H	13.61	14.00	14.65	15.03	16.38	9.89	10.28	10.92	11.31	12.66
	6H	14.21	14.52	15.25	15.57	16.92	10.46	10.77	11.50	11.82	13.17
	8H	14.43	14.71	15.48	15.75	17.14	10.67	10.95	11.72	11.98	13.38