

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: P925243

Luminaire Tested: DFN2DIP-PN4F0-110D090US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925243
REPORT IS A COMBINATION OF REPORTS P901234 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D090US950-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

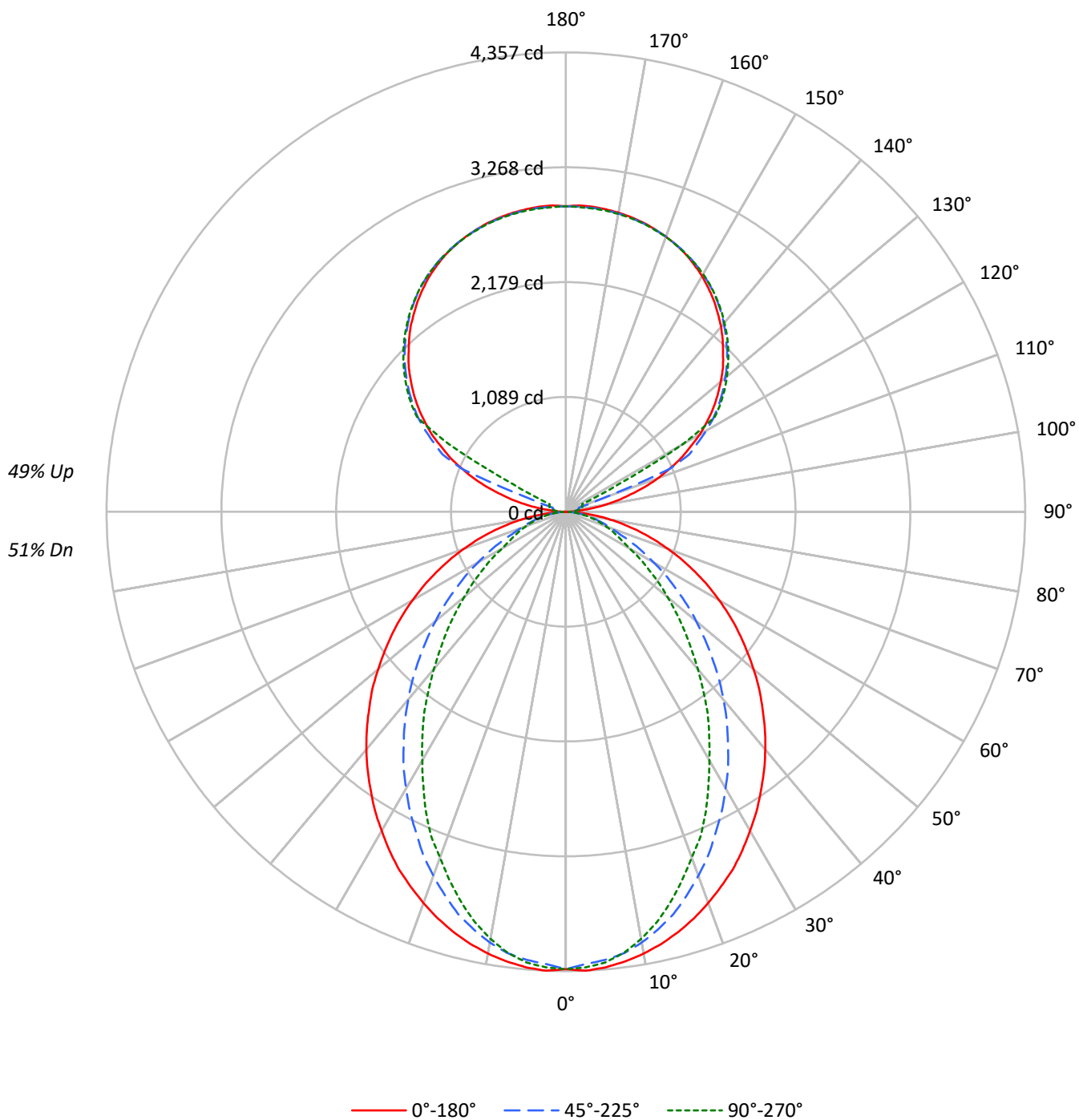
Lumens per Lamp: N/A
Luminaire Lumens: 17420.0 lumens
Efficiency: N/A
Efficacy: 96.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 180.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	107	107	107	107	99	99	99	99	84	84	84		70	70	70		57
1	99	94	91	87	91	87	84	81	74	72	70		62	61	59		51
2	90	83	77	72	83	77	72	68	66	62	59		55	53	50		46
3	83	73	66	61	76	68	62	57	58	54	50		49	46	43		41
4	76	65	58	52	70	61	54	49	52	47	43		44	41	37		37
5	70	58	51	45	64	54	48	42	47	42	37		40	36	33		34
6	64	53	45	39	59	49	42	37	43	37	33		36	32	29		31
7	60	48	40	34	55	45	38	33	39	33	29		33	29	26		28
8	55	43	36	31	51	41	34	29	35	30	26		31	26	23		26
9	52	40	32	27	48	37	31	26	33	27	24		28	24	21		24
10	48	37	29	25	45	34	28	24	30	25	21		26	22	19		22

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3166	3166	3166
5°	3171	3116	3136
10°	3140	3055	3035
15°	3096	2955	2877
20°	3039	2816	2684
25°	2981	2660	2498
30°	2902	2501	2261
35°	2825	2329	2053
40°	2747	2151	1814
45°	2655	1954	1598
50°	2561	1755	1387
55°	2463	1542	1184
60°	2349	1320	975
65°	2218	1093	878
70°	2059	882	796
75°	1860	779	725
80°	1572	654	631
85°	1095	439	478

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2655 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	11.27	12.11	12.23	13.08	14.33	7.24	8.08	8.19	9.04	10.30
	3H	12.95	13.71	13.92	14.68	15.96	8.43	9.18	9.39	10.15	11.43
	4H	13.57	14.28	14.54	15.25	16.54	8.88	9.59	9.86	10.57	11.86
	6H	13.99	14.64	14.98	15.63	16.93	9.20	9.86	10.19	10.84	12.14
	8H	14.12	14.74	15.11	15.74	17.04	9.29	9.92	10.29	10.91	12.21
	12H	14.18	14.77	15.18	15.77	17.09	9.34	9.93	10.34	10.92	12.24
4H	2H	11.29	12.00	12.28	12.98	14.27	7.84	8.55	8.82	9.52	10.81
	3H	13.13	13.72	14.12	14.72	16.02	9.19	9.78	10.18	10.79	12.09
	4H	13.82	14.36	14.82	15.36	16.68	9.74	10.28	10.74	11.28	12.60
	6H	14.34	14.80	15.35	15.83	17.15	10.16	10.62	11.17	11.65	12.97
	8H	14.52	14.95	15.53	15.97	17.30	10.29	10.72	11.30	11.74	13.07
	12H	14.61	15.00	15.65	16.04	17.38	10.35	10.74	11.39	11.78	13.12
8H	4H	13.79	14.22	14.80	15.24	16.58	10.02	10.45	11.03	11.47	12.81
	6H	14.36	14.72	15.40	15.77	17.11	10.54	10.90	11.58	11.96	13.29
	8H	14.58	14.89	15.62	15.94	17.29	10.73	11.05	11.78	12.09	13.44
	12H	14.72	15.00	15.77	16.03	17.43	10.85	11.13	11.90	12.17	13.57
12H	4H	13.74	14.13	14.77	15.16	16.51	10.03	10.42	11.06	11.45	12.79
	6H	14.33	14.65	15.38	15.69	17.05	10.59	10.90	11.64	11.95	13.30
	8H	14.56	14.83	15.61	15.87	17.27	10.80	11.08	11.85	12.12	13.52