

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: P917059

Luminaire Tested: DFN2DIP-PN4F0-110D090US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917059
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-PN4F0-110D090US930-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

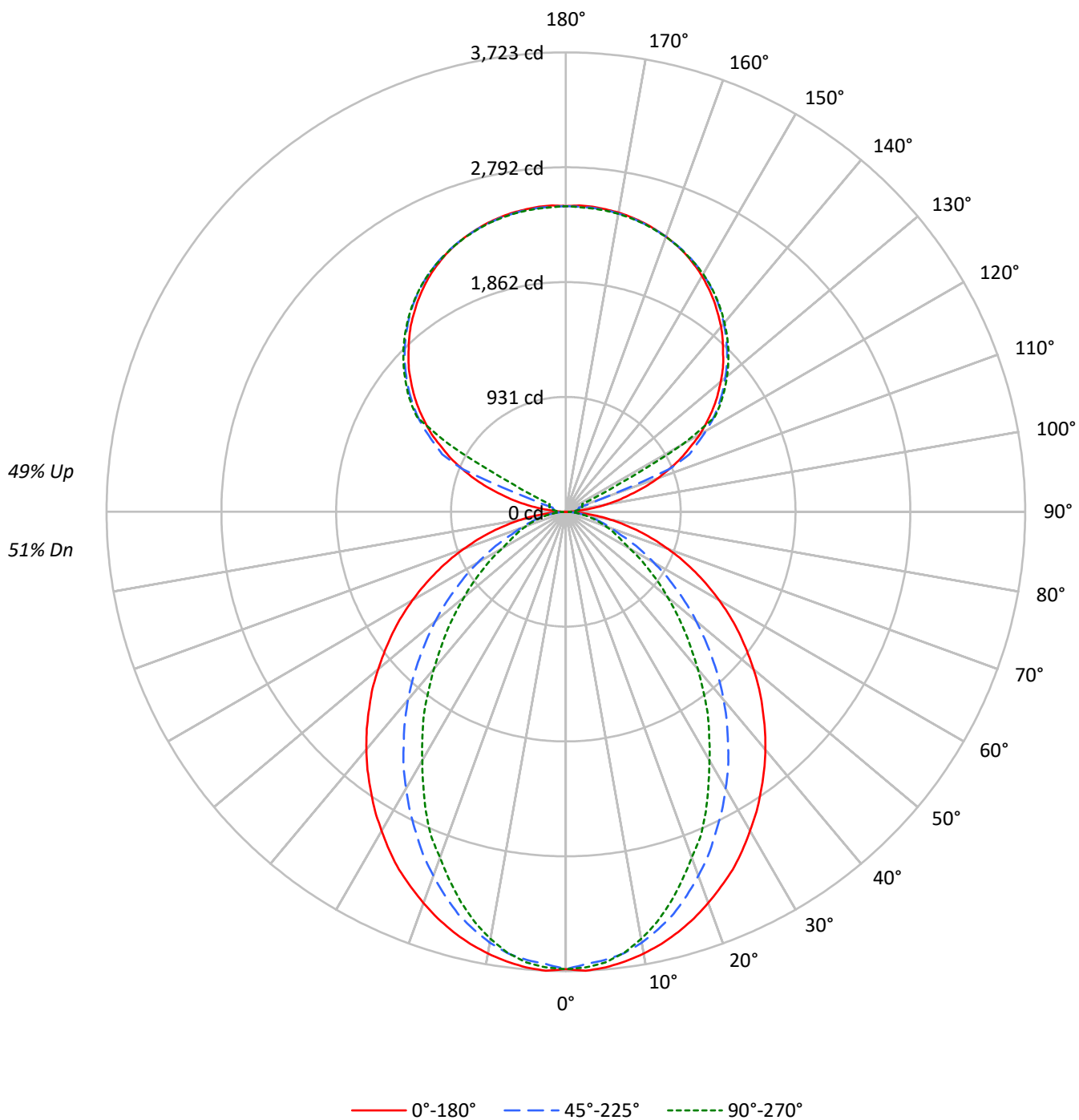
Lumens per Lamp: N/A
Luminaire Lumens: 14887.4 lumens
Efficiency: N/A
Efficacy: 82.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

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	30	10	50	30	10
RCR																				
0	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	57	57	57
1	99	94	91	87	91	87	84	81	74	72	70	62	61	59	51	50	49	49	49	44
2	90	83	77	72	83	77	72	68	66	62	59	55	53	50	46	44	42	42	42	38
3	83	73	66	61	76	68	62	57	58	54	50	49	46	43	41	39	37	37	37	33
4	76	65	58	52	70	61	54	49	52	47	43	44	41	37	37	34	32	32	32	28
5	70	58	51	45	64	54	48	42	47	42	37	40	36	33	34	31	28	28	28	25
6	64	53	45	39	59	49	42	37	43	37	33	36	32	29	31	27	25	25	25	22
7	60	48	40	34	55	45	38	33	39	33	29	33	29	26	28	25	22	22	22	20
8	55	43	36	31	51	41	34	29	35	30	26	31	26	23	26	23	20	20	20	18
9	52	40	32	27	48	37	31	26	33	27	24	28	24	21	24	21	18	18	18	16
10	48	37	29	25	45	34	28	24	30	25	21	26	22	19	22	19	17	17	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2706	2706	2706
5°	2710	2663	2680
10°	2683	2611	2594
15°	2646	2525	2459
20°	2597	2407	2294
25°	2547	2274	2135
30°	2480	2137	1932
35°	2414	1990	1755
40°	2347	1839	1551
45°	2269	1670	1366
50°	2189	1500	1185
55°	2105	1318	1012
60°	2008	1128	833
65°	1896	934	751
70°	1760	754	680
75°	1590	665	620
80°	1343	559	539
85°	935	375	409

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2269 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	347.4	2.3
10°-20°	953.6	6.4
20°-30°	1338.9	9.0
30°-40°	1459.5	9.8
40°-50°	1341.4	9.0
50°-60°	1053.5	7.1
60°-70°	685.7	4.6
70°-80°	353.0	2.4
80°-90°	94.5	0.6
90°-100°	81.7	0.5
100°-110°	304.4	2.0
110°-120°	807.3	5.4
120°-130°	1339.0	9.0
130°-140°	1422.3	9.6
140°-150°	1321.9	8.9
150°-160°	1062.8	7.1
160°-170°	684.8	4.6
170°-180°	235.7	1.6
0°-30°	2639.9	17.7
0°-40°	4099.4	27.5
0°-60°	6494.2	43.6
0°-90°	7627.4	51.2
90°-120°	1193.4	8.0
90°-150°	5276.6	35.4
90°-180°	7260.0	48.8
0°-180°	14887.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3707	3707	3707	3707	3707	
5°	3707	3690	3646	3676	3666	351
15°	3525	3488	3374	3311	3277	993
25°	3200	3093	2871	2734	2683	1472
35°	2757	2586	2291	2080	2006	1726
45°	2254	2029	1677	1439	1358	1741
55°	1714	1452	1090	889	825	1532
65°	1157	885	584	470	459	1147
75°	617	382	268	245	242	653
85°	144	74	64	64	64	165
90°	2	22	36	45	48	14
95°	116	57	70	79	77	138
105°	545	599	109	129	136	582
115°	1030	1061	1106	276	147	1014
125°	1457	1480	1514	1527	1532	1299
135°	1803	1831	1847	1866	1862	1393
145°	2091	2089	2120	2132	2123	1308
155°	2303	2287	2308	2319	2304	1061
165°	2426	2416	2421	2433	2421	685
175°	2482	2469	2473	2485	2467	236
180°	2476	2476	2476	2476	2476	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3706.6	3706.6	3706.6	3706.6	3706.6
2.5°	3723.3	3706.6	3669.6	3703.4	3696.6
5°	3706.6	3689.9	3646.1	3676.3	3666.4
7.5°	3676.3	3656.4	3609.4	3622.6	3605.8
10°	3636.1	3612.6	3545.7	3535.4	3515.5
12.5°	3585.9	3555.7	3464.9	3445.0	3407.9
15°	3525.4	3488.4	3374.5	3310.8	3277.3
17.5°	3455.0	3401.3	3260.3	3186.6	3132.9
20°	3374.5	3307.3	3139.6	3056.0	2982.0
22.5°	3287.4	3210.1	3015.5	2901.6	2851.3
25°	3200.1	3092.7	2871.3	2733.9	2683.4
27.5°	3096.3	2982.0	2737.1	2579.4	2502.2
30°	2985.5	2857.8	2589.5	2418.6	2327.8
32.5°	2878.1	2723.6	2448.8	2247.5	2163.5
35°	2757.4	2586.2	2291.2	2079.8	2005.8
37.5°	2640.0	2455.3	2143.5	1911.8	1828.2
40°	2515.8	2314.7	1989.1	1750.9	1663.8
42.5°	2388.3	2173.7	1835.0	1586.6	1502.9
45°	2254.2	2029.3	1677.3	1438.8	1358.4
47.5°	2126.8	1888.7	1526.4	1287.9	1214.3
50°	1985.8	1747.8	1378.8	1147.0	1076.9
52.5°	1848.1	1596.5	1237.8	1016.4	952.7
55°	1713.9	1452.4	1090.1	889.0	825.3
57.5°	1576.6	1308.2	959.4	771.6	717.8
60°	1435.7	1167.3	821.7	650.9	597.2
62.5°	1298.3	1030.0	704.3	543.5	516.7
65°	1157.3	885.4	583.7	469.8	459.4
67.5°	1023.2	751.3	469.8	412.5	402.5
70°	882.2	620.7	389.0	355.6	342.0
72.5°	748.0	499.7	325.3	298.6	291.8
75°	617.1	382.2	268.3	244.8	241.7
77.5°	486.5	271.6	211.4	197.9	191.1
80°	365.5	194.7	160.9	147.7	147.7
82.5°	254.8	130.9	110.7	104.0	104.0
85°	144.1	73.7	63.7	63.7	63.7
87.5°	53.7	26.7	26.7	23.5	23.5
90°	1.7	21.5	35.7	44.9	48.3
92.5°	44.9	37.7	43.0	46.6	48.3
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.6	62.8	91.3	96.8	98.5
100°	317.2	71.7	102.2	116.4	120.0
102.5°	435.4	431.9	105.7	125.3	130.9
105°	544.7	598.6	109.3	129.0	136.2
107.5°	672.0	716.6	113.0	132.6	139.8
110°	793.9	831.4	313.6	134.4	141.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	908.6	940.7	910.3	137.9	143.4
115°	1030.3	1060.7	1105.6	276.0	147.0
117.5°	1136.0	1171.8	1202.4	946.1	476.6
120°	1254.3	1281.2	1313.5	1335.0	1093.1
122.5°	1354.6	1383.3	1419.3	1429.9	1431.8
125°	1456.7	1480.1	1514.2	1526.7	1532.0
127.5°	1549.9	1575.0	1602.1	1619.9	1621.6
130°	1637.8	1666.6	1686.1	1705.8	1704.2
132.5°	1727.4	1750.8	1770.3	1786.6	1784.9
135°	1802.7	1831.4	1847.4	1865.5	1861.9
137.5°	1881.5	1902.9	1921.0	1938.9	1933.6
140°	1958.4	1972.9	1992.5	2008.7	1999.8
142.5°	2023.2	2035.7	2058.9	2073.1	2064.3
145°	2091.2	2089.3	2119.8	2132.3	2123.4
147.5°	2150.2	2144.9	2175.3	2184.3	2177.2
150°	2207.7	2195.1	2223.8	2234.4	2225.5
152.5°	2255.9	2241.7	2268.5	2279.3	2266.8
155°	2302.6	2286.6	2308.0	2318.7	2304.4
157.5°	2340.2	2326.0	2342.1	2354.7	2340.2
160°	2372.5	2361.7	2372.5	2383.2	2370.6
162.5°	2401.1	2390.4	2399.3	2411.9	2395.8
165°	2426.2	2415.5	2420.9	2433.4	2420.9
167.5°	2446.0	2435.1	2440.6	2453.2	2437.0
170°	2462.1	2451.3	2454.9	2467.4	2451.3
172.5°	2472.8	2462.1	2465.7	2478.3	2462.1
175°	2481.7	2469.1	2472.8	2485.3	2467.4
177.5°	2485.3	2472.8	2474.7	2487.2	2471.1
180°	2476.4	2476.4	2476.4	2476.4	2476.4

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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	10.73	11.57	11.68	12.53	13.79	6.69	7.53	7.65	8.50	9.75
	3H	12.41	13.16	13.37	14.13	15.41	7.88	8.63	8.85	9.61	10.89
	4H	13.02	13.73	14.00	14.71	15.99	8.33	9.04	9.31	10.02	11.31
	6H	13.44	14.10	14.43	15.08	16.38	8.66	9.31	9.65	10.29	11.59
	8H	13.57	14.19	14.57	15.19	16.49	8.75	9.37	9.74	10.37	11.67
	12H	13.64	14.23	14.64	15.22	16.54	8.79	9.38	9.79	10.38	11.70
4H	2H	10.75	11.46	11.73	12.43	13.72	7.29	8.00	8.28	8.98	10.27
	3H	12.58	13.17	13.57	14.18	15.48	8.64	9.23	9.64	10.24	11.54
	4H	13.27	13.81	14.28	14.81	16.14	9.19	9.73	10.19	10.73	12.06
	6H	13.79	14.26	14.81	15.28	16.60	9.61	10.08	10.63	11.10	12.42
	8H	13.97	14.40	14.98	15.42	16.76	9.74	10.17	10.76	11.19	12.53
	12H	14.07	14.46	15.10	15.49	16.83	9.81	10.20	10.84	11.23	12.57
8H	4H	13.24	13.68	14.26	14.69	16.03	9.47	9.91	10.49	10.92	12.26
	6H	13.81	14.17	14.85	15.23	16.56	9.99	10.35	11.03	11.41	12.74
	8H	14.03	14.35	15.08	15.39	16.74	10.19	10.50	11.23	11.55	12.90
	12H	14.17	14.45	15.22	15.49	16.89	10.31	10.58	11.36	11.62	13.02
12H	4H	13.20	13.59	14.23	14.62	15.96	9.48	9.87	10.51	10.90	12.24
	6H	13.79	14.10	14.84	15.15	16.50	10.04	10.36	11.09	11.40	12.76
	8H	14.01	14.29	15.06	15.33	16.72	10.26	10.53	11.31	11.57	12.97