

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: P917058

Luminaire Tested: DFN2DIP-PN4F0-110D090US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917058
REPORT IS A COMBINATION OF REPORTS P899714 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D090US930-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

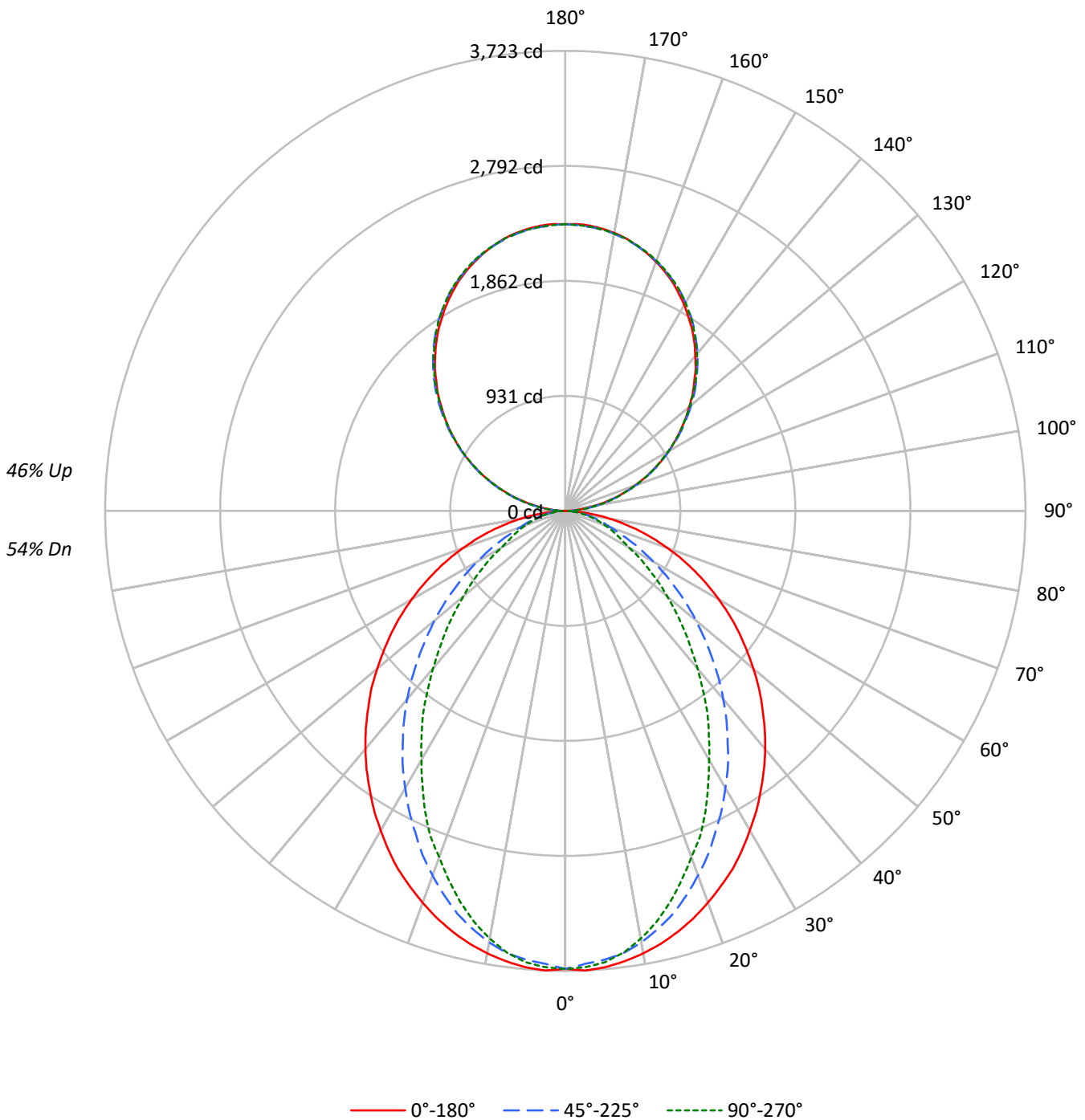
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14116.9 lumens
Efficiency: N/A
Efficacy: 78.0 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		0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60	54		54
1	99	95	91	88	92	88	85	82	76	73	71	64	63	61	54	53	52	47		47
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44	40		40
3	83	74	67	61	77	69	63	58	60	55	51	51	47	45	43	40	38	34		34
4	76	66	58	52	71	62	55	49	53	48	44	46	42	39	39	36	33	30		30
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29	26		26
6	65	53	45	39	60	50	43	38	43	38	34	38	33	30	32	29	26	23		23
7	60	48	40	35	56	45	38	33	40	34	30	34	30	27	29	26	23	21		21
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21	19		19
9	52	40	33	28	49	38	31	27	33	28	24	29	25	22	25	22	19	17		17
10	49	37	30	25	45	35	28	24	31	26	22	27	23	20	23	20	18	16		16

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	2.5
10°-20°	953.6	6.8
20°-30°	1338.9	9.5
30°-40°	1459.5	10.3
40°-50°	1341.4	9.5
50°-60°	1053.5	7.5
60°-70°	685.7	4.9
70°-80°	353.0	2.5
80°-90°	96.7	0.7
90°-100°	143.6	1.0
100°-110°	456.3	3.2
110°-120°	780.8	5.5
120°-130°	1026.9	7.3
130°-140°	1152.6	8.2
140°-150°	1130.3	8.0
150°-160°	948.2	6.7
160°-170°	628.8	4.5
170°-180°	219.8	1.6
0°-30°	2639.9	18.7
0°-40°	4099.4	29.0
0°-60°	6494.2	46.0
0°-90°	7629.6	54.0
90°-120°	1380.7	9.8
90°-150°	4690.5	33.2
90°-180°	6487.0	46.0
0°-180°	14116.9	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	25	69	64	66	14
95°	102	122	125	125	122	114
105°	421	427	431	434	434	444
115°	784	795	791	789	784	775
125°	1140	1157	1152	1145	1143	1018
135°	1474	1496	1500	1498	1492	1139
145°	1790	1804	1815	1817	1809	1118
155°	2046	2052	2058	2068	2062	942
165°	2226	2224	2224	2238	2228	628
175°	2316	2311	2307	2321	2309	220
180°	2321	2321	2321	2321	2321	



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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°	2.1	25.2	68.6	64.3	66.4
92.5°	43.4	58.8	60.9	62.9	62.9
95°	102.2	121.7	125.2	125.2	121.7
97.5°	170.0	188.2	195.9	195.9	195.9
100°	248.3	264.5	270.0	270.0	268.0
102.5°	330.9	342.8	350.5	352.6	350.5
105°	421.2	426.7	431.0	434.5	434.5
107.5°	510.7	519.1	519.1	520.5	510.7
110°	597.5	608.7	608.7	608.7	603.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	691.2	703.1	701.0	695.4	691.2
115°	783.6	794.8	791.2	789.2	783.6
117.5°	875.2	890.6	880.8	875.2	869.6
120°	967.6	982.9	967.6	967.6	961.2
122.5°	1051.5	1071.1	1061.4	1055.7	1051.5
125°	1139.7	1157.2	1151.6	1145.2	1143.2
127.5°	1225.7	1247.4	1239.7	1231.3	1225.7
130°	1306.2	1331.4	1327.9	1323.6	1316.0
132.5°	1396.4	1416.0	1417.4	1407.6	1402.1
135°	1474.1	1495.7	1500.0	1497.9	1492.3
137.5°	1560.8	1578.3	1581.8	1580.5	1572.1
140°	1637.1	1654.6	1664.3	1664.3	1656.7
142.5°	1715.5	1732.9	1738.5	1740.7	1732.9
145°	1789.7	1803.6	1814.8	1816.9	1809.2
147.5°	1856.1	1873.6	1882.0	1885.5	1877.8
150°	1924.7	1936.6	1944.2	1950.5	1944.2
152.5°	1985.5	1997.4	2007.2	2014.9	2007.2
155°	2046.4	2051.9	2058.3	2068.1	2061.8
157.5°	2098.8	2103.1	2106.6	2120.5	2110.7
160°	2145.7	2149.9	2152.1	2163.9	2155.5
162.5°	2189.1	2189.1	2191.2	2204.5	2194.7
165°	2226.2	2224.1	2224.1	2238.1	2228.3
167.5°	2259.8	2253.5	2253.5	2267.4	2257.6
170°	2285.0	2279.3	2277.3	2291.2	2279.3
172.5°	2302.4	2296.9	2294.7	2308.8	2296.9
175°	2316.4	2310.8	2306.6	2320.7	2308.8
177.5°	2324.1	2318.5	2314.3	2326.2	2314.3
180°	2320.7	2320.7	2320.7	2320.7	2320.7



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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	10.98	11.85	11.91	12.79	14.00	6.95	7.81	7.87	8.75	9.97
	3H	12.66	13.44	13.60	14.39	15.63	8.14	8.91	9.08	9.86	11.10
	4H	13.28	14.01	14.23	14.96	16.21	8.59	9.32	9.55	10.28	11.52
	6H	13.70	14.37	14.67	15.34	16.60	8.91	9.59	9.88	10.55	11.81
	8H	13.83	14.47	14.80	15.45	16.71	9.01	9.65	9.98	10.62	11.88
	12H	13.89	14.50	14.87	15.47	16.76	9.05	9.66	10.03	10.63	11.91
4H	2H	11.00	11.73	11.96	12.69	13.94	7.55	8.28	8.51	9.23	10.48
	3H	12.84	13.45	13.81	14.43	15.69	8.90	9.51	9.87	10.49	11.76
	4H	13.53	14.09	14.51	15.07	16.35	9.45	10.01	10.43	10.98	12.27
	6H	14.05	14.53	15.05	15.53	16.82	9.87	10.35	10.87	11.35	12.64
	8H	14.23	14.68	15.22	15.67	16.97	10.00	10.45	11.00	11.44	12.74
	12H	14.33	14.73	15.34	15.74	17.05	10.07	10.47	11.08	11.48	12.79
8H	4H	13.51	13.95	14.50	14.95	16.24	9.74	10.18	10.73	11.18	12.48
	6H	14.08	14.44	15.09	15.48	16.78	10.26	10.62	11.27	11.66	12.96
	8H	14.29	14.62	15.32	15.64	16.96	10.45	10.77	11.48	11.80	13.11
	12H	14.44	14.72	15.46	15.74	17.10	10.57	10.86	11.60	11.87	13.24
12H	4H	13.46	13.86	14.47	14.87	16.18	9.74	10.14	10.75	11.16	12.46
	6H	14.05	14.38	15.08	15.40	16.72	10.31	10.63	11.33	11.66	12.97
	8H	14.28	14.56	15.30	15.58	16.94	10.52	10.81	11.55	11.82	13.18