

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: P917052

Luminaire Tested: DFN2DIP-PN4F0-110D080US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917052
REPORT IS A COMBINATION OF REPORTS P899695 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D080US930-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

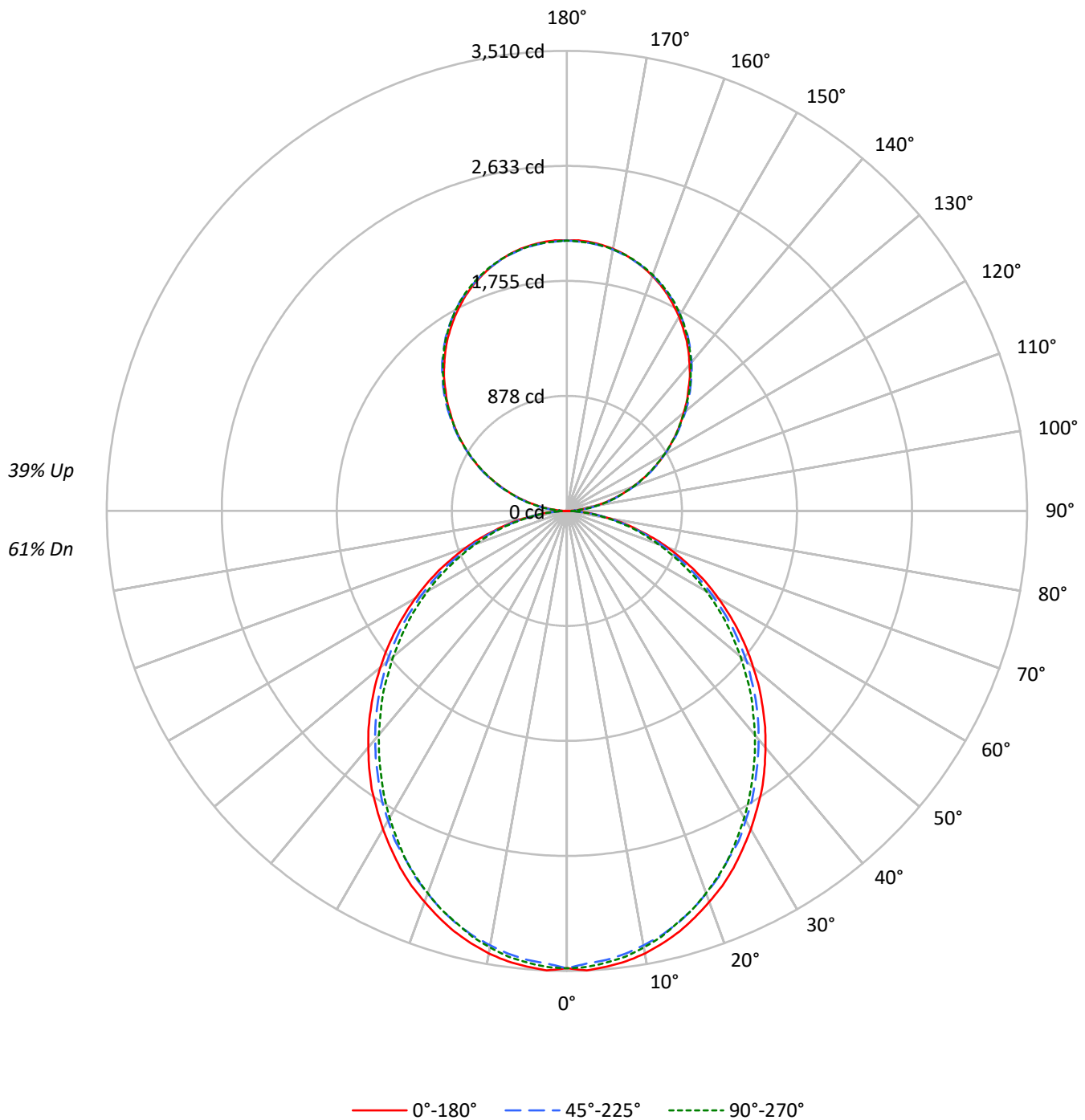
Lumens per Lamp: N/A
Luminaire Lumens: 14650.9 lumens
Efficiency: N/A
Efficacy: 85.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 172.2
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
RCR																					
0	110	110	110	110		103	103	103	103		89	89	89		77	77	77		66	66	66
1	100	96	92	88		94	90	86	83		78	76	73		68	66	64		58	57	56
2	91	84	77	72		85	78	73	68		69	64	61		60	56	54		51	49	47
3	83	74	66	60		78	69	62	57		61	55	51		53	49	45		45	42	40
4	76	65	57	51		71	61	54	48		54	48	44		47	43	39		41	37	34
5	70	58	50	44		65	55	47	42		48	42	38		42	38	34		37	33	30
6	65	52	44	38		60	49	42	36		44	38	33		38	33	30		33	29	26
7	60	47	39	33		56	45	37	32		40	34	29		35	30	26		30	27	24
8	55	43	35	30		52	41	33	28		36	30	26		32	27	24		28	24	21
9	52	39	32	26		48	37	30	25		33	27	23		29	25	21		26	22	19
10	48	36	29	24		45	34	27	23		31	25	21		27	23	19		24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2547	2547	2547
5°	2551	2512	2529
10°	2531	2479	2495
15°	2493	2438	2442
20°	2443	2382	2388
25°	2393	2314	2325
30°	2330	2252	2245
35°	2271	2177	2160
40°	2198	2103	2080
45°	2125	2028	1997
50°	2045	1949	1902
55°	1962	1858	1814
60°	1867	1750	1714
65°	1765	1638	1595
70°	1634	1502	1468
75°	1452	1339	1351
80°	1234	1131	1127
85°	893	772	754

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2125 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.4	2.2
10°-20°	924.1	6.3
20°-30°	1358.1	9.3
30°-40°	1577.3	10.8
40°-50°	1575.4	10.8
50°-60°	1373.7	9.4
60°-70°	1015.5	6.9
70°-80°	574.5	3.9
80°-90°	157.5	1.1
90°-100°	127.6	0.9
100°-110°	405.6	2.8
110°-120°	694.1	4.7
120°-130°	912.8	6.2
130°-140°	1024.6	7.0
140°-150°	1004.7	6.9
150°-160°	842.8	5.8
160°-170°	558.9	3.8
170°-180°	195.4	1.3
0°-30°	2610.6	17.8
0°-40°	4187.9	28.6
0°-60°	7137.0	48.7
0°-90°	8884.4	60.6
90°-120°	1227.3	8.4
90°-150°	4169.4	28.5
90°-180°	5766.0	39.4
0°-180°	14650.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3490	3490	3490	3490	3490	
5°	3490	3476	3439	3466	3460	331
15°	3322	3302	3258	3272	3255	936
25°	3006	2980	2923	2929	2923	1383
35°	2594	2560	2507	2486	2470	1620
45°	2111	2087	2037	2000	1987	1629
55°	1597	1577	1537	1497	1480	1428
65°	1077	1057	1024	993	977	1065
75°	564	557	540	520	527	602
85°	138	134	131	121	118	153
90°	2	22	61	57	59	14
95°	91	108	111	111	108	101
105°	374	379	383	386	386	395
115°	696	706	703	702	696	689
125°	1013	1029	1024	1018	1016	905
135°	1310	1330	1333	1332	1326	1013
145°	1591	1603	1613	1615	1608	994
155°	1819	1824	1830	1838	1833	837
165°	1979	1977	1977	1989	1981	558
175°	2059	2054	2050	2063	2052	196
180°	2063	2063	2063	2063	2063	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3489.6	3489.6	3489.6	3489.6	3489.6
2.5°	3509.9	3493.1	3456.1	3489.6	3483.2
5°	3489.6	3476.4	3439.4	3466.1	3459.7
7.5°	3466.1	3446.2	3409.2	3436.2	3429.5
10°	3429.5	3405.9	3365.7	3392.4	3382.4
12.5°	3378.9	3358.9	3318.8	3335.5	3328.7
15°	3321.9	3302.0	3258.2	3271.7	3255.0
17.5°	3251.4	3231.5	3187.7	3204.4	3187.7
20°	3174.2	3154.2	3107.3	3117.2	3104.1
22.5°	3097.3	3067.0	3023.2	3023.2	3016.4
25°	3006.5	2979.8	2922.8	2929.3	2922.8
27.5°	2905.7	2882.2	2838.8	2828.8	2812.1
30°	2805.4	2778.3	2728.1	2718.1	2704.6
32.5°	2697.8	2677.9	2624.1	2603.8	2590.3
35°	2593.9	2560.4	2506.6	2486.3	2469.6
37.5°	2476.4	2446.1	2392.4	2368.8	2352.1
40°	2355.7	2328.7	2274.9	2245.0	2231.5
42.5°	2238.2	2211.2	2157.8	2123.9	2104.0
45°	2110.8	2087.2	2036.7	2000.1	1986.6
47.5°	1986.6	1963.1	1909.3	1872.3	1852.3
50°	1855.5	1838.8	1791.8	1744.8	1728.1
52.5°	1728.1	1704.5	1661.2	1624.1	1600.6
55°	1597.4	1577.1	1536.9	1496.6	1479.9
57.5°	1466.4	1449.7	1405.9	1365.6	1352.1
60°	1335.4	1322.3	1275.2	1238.2	1228.2
62.5°	1207.9	1184.5	1151.0	1117.5	1104.0
65°	1077.3	1057.0	1023.5	993.3	976.6
67.5°	943.1	926.0	896.1	872.6	859.1
70°	818.8	805.3	775.0	751.5	738.3
72.5°	691.4	677.8	661.1	637.6	627.6
75°	563.5	557.2	540.1	520.2	526.9
77.5°	449.6	436.1	429.3	419.4	409.4
80°	335.7	332.2	325.4	315.4	308.7
82.5°	228.2	228.2	225.0	211.5	211.5
85°	137.5	134.2	131.0	120.7	117.5
87.5°	60.5	53.7	47.0	37.0	33.4
90°	1.9	22.4	61.0	57.2	59.1
92.5°	38.6	52.3	54.1	55.9	55.9
95°	90.8	108.2	111.3	111.3	108.2
97.5°	151.2	167.3	174.1	174.1	174.1
100°	220.8	235.1	240.0	240.0	238.1
102.5°	294.2	304.8	311.5	313.4	311.5
105°	374.4	379.4	383.1	386.2	386.2
107.5°	454.0	461.5	461.5	462.7	454.0
110°	531.1	541.0	541.0	541.0	536.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	614.4	625.0	623.1	618.2	614.4
115°	696.5	706.5	703.4	701.5	696.5
117.5°	778.0	791.7	782.9	778.0	773.0
120°	860.1	873.8	860.1	860.1	854.4
122.5°	934.7	952.1	943.4	938.4	934.7
125°	1013.0	1028.6	1023.6	1018.0	1016.2
127.5°	1089.6	1108.8	1102.0	1094.5	1089.6
130°	1161.1	1183.4	1180.3	1176.6	1169.8
132.5°	1241.3	1258.7	1260.0	1251.2	1246.3
135°	1310.3	1329.6	1333.3	1331.5	1326.5
137.5°	1387.4	1403.0	1406.1	1404.8	1397.3
140°	1455.2	1470.7	1479.4	1479.4	1472.6
142.5°	1524.9	1540.4	1545.4	1547.3	1540.4
145°	1590.8	1603.2	1613.1	1615.0	1608.2
147.5°	1649.8	1665.4	1672.8	1676.0	1669.2
150°	1710.8	1721.3	1728.2	1733.8	1728.2
152.5°	1764.9	1775.5	1784.2	1791.0	1784.2
155°	1819.0	1824.0	1829.6	1838.3	1832.7
157.5°	1865.6	1869.4	1872.5	1884.9	1876.2
160°	1907.3	1911.1	1912.9	1923.5	1916.0
162.5°	1945.9	1945.9	1947.7	1959.6	1950.8
165°	1978.8	1976.9	1976.9	1989.4	1980.7
167.5°	2008.7	2003.1	2003.1	2015.5	2006.8
170°	2031.1	2026.1	2024.2	2036.7	2026.1
172.5°	2046.6	2041.7	2039.8	2052.2	2041.7
175°	2059.0	2054.1	2050.3	2062.8	2052.2
177.5°	2065.9	2060.9	2057.2	2067.8	2057.2
180°	2062.8	2062.8	2062.8	2062.8	2062.8

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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	11.45	12.42	12.31	13.30	14.41	11.01	11.98	11.87	12.86	13.97
	3H	13.13	13.99	14.00	14.88	16.02	12.64	13.51	13.51	14.40	15.54
	4H	13.72	14.54	14.61	15.44	16.58	13.23	14.05	14.12	14.95	16.10
	6H	14.13	14.88	15.03	15.79	16.95	13.64	14.39	14.54	15.29	16.46
	8H	14.24	14.96	15.14	15.88	17.04	13.74	14.46	14.65	15.39	16.54
	12H	14.29	14.97	15.20	15.89	17.08	13.79	14.47	14.70	15.39	16.58
4H	2H	11.93	12.75	12.82	13.65	14.79	11.58	12.40	12.47	13.29	14.44
	3H	13.81	14.49	14.71	15.42	16.58	13.40	14.09	14.31	15.02	16.18
	4H	14.53	15.15	15.44	16.08	17.26	14.11	14.73	15.03	15.66	16.85
	6H	15.05	15.59	15.98	16.54	17.73	14.63	15.17	15.56	16.11	17.30
	8H	15.21	15.71	16.14	16.65	17.85	14.78	15.28	15.71	16.22	17.43
	12H	15.28	15.74	16.24	16.70	17.91	14.84	15.30	15.80	16.26	17.47
8H	4H	14.73	15.24	15.67	16.18	17.38	14.36	14.87	15.29	15.81	17.01
	6H	15.37	15.79	16.33	16.77	17.97	15.00	15.41	15.95	16.40	17.60
	8H	15.60	15.96	16.56	16.94	18.16	15.21	15.58	16.18	16.55	17.77
	12H	15.73	16.06	16.71	17.03	18.29	15.33	15.66	16.30	16.62	17.89
12H	4H	14.72	15.18	15.68	16.14	17.35	14.36	14.82	15.31	15.78	16.98
	6H	15.40	15.77	16.37	16.75	17.97	15.04	15.41	16.01	16.38	17.60
	8H	15.65	15.98	16.62	16.94	18.21	15.28	15.60	16.25	16.57	17.84