

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: P925212

Luminaire Tested: DFN2DIP-PN4F0-100D110US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925212
REPORT IS A COMBINATION OF REPORTS P899747 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D110US950-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

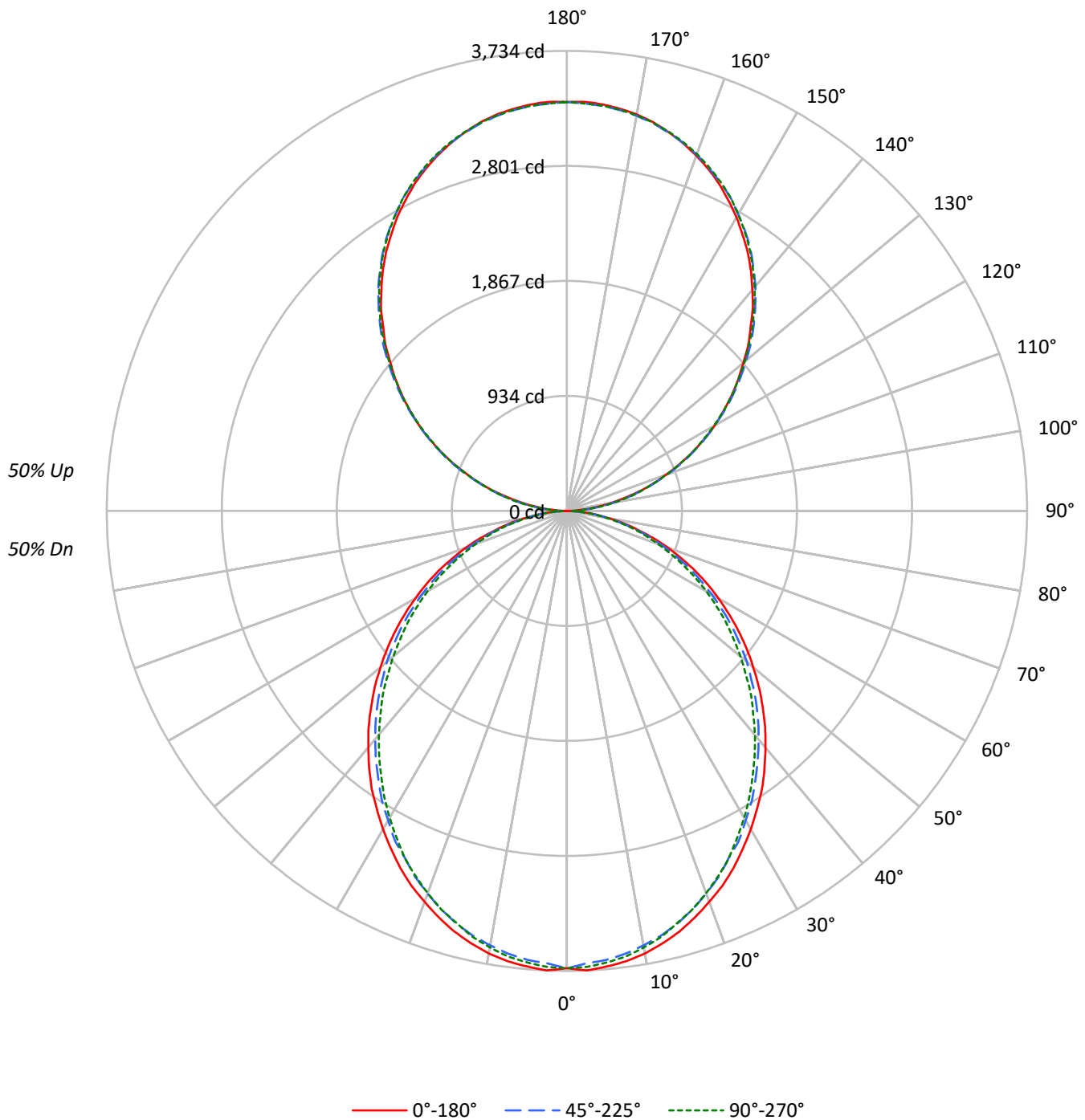
Lumens per Lamp: N/A
Luminaire Lumens: 18731.8 lumens
Efficiency: N/A
Efficacy: 97.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 192.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	69	69	69	57	57	57
1	98	94	90	86	90	86	83	80	73	71	69	61	59	58	50	49	48
2	89	82	76	70	82	76	70	66	64	60	57	54	51	48	44	42	40
3	81	72	64	59	75	67	60	55	57	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	30
5	68	57	49	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	41	35	31	34	30	27	29	25	23
7	58	46	38	32	54	43	36	31	37	31	27	31	27	24	26	23	20
8	54	42	34	29	50	39	32	27	34	28	24	29	24	21	24	21	18
9	50	38	31	25	46	36	29	24	31	25	22	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2710	2710	2710
5°	2714	2672	2690
10°	2692	2637	2654
15°	2652	2594	2598
20°	2599	2534	2540
25°	2546	2462	2473
30°	2479	2395	2388
35°	2416	2316	2298
40°	2338	2237	2212
45°	2260	2157	2125
50°	2176	2073	2023
55°	2087	1977	1930
60°	1986	1862	1823
65°	1877	1743	1697
70°	1738	1598	1562
75°	1544	1424	1438
80°	1312	1203	1199
85°	949	822	802

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2597 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	349.4	1.9
10°-20°	983.0	5.2
20°-30°	1444.7	7.7
30°-40°	1677.9	9.0
40°-50°	1675.8	8.9
50°-60°	1461.2	7.8
60°-70°	1080.2	5.8
70°-80°	611.1	3.3
80°-90°	170.8	0.9
90°-100°	205.4	1.1
100°-110°	652.5	3.5
110°-120°	1116.7	6.0
120°-130°	1468.6	7.8
130°-140°	1648.4	8.8
140°-150°	1616.5	8.6
150°-160°	1356.0	7.2
160°-170°	899.3	4.8
170°-180°	314.3	1.7
0°-30°	2777.1	14.8
0°-40°	4454.9	23.8
0°-60°	7592.0	40.5
0°-90°	9454.0	50.5
90°-120°	1974.6	10.5
90°-150°	6708.2	35.8
90°-180°	9278.0	49.5
0°-180°	18731.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3712	3712	3712	3712	3712	
5°	3712	3698	3659	3687	3680	352
15°	3534	3512	3466	3480	3462	995
25°	3198	3170	3109	3116	3109	1472
35°	2759	2724	2666	2645	2627	1723
45°	2245	2220	2166	2128	2113	1733
55°	1699	1678	1635	1592	1574	1519
65°	1146	1124	1089	1057	1039	1133
75°	600	593	574	553	560	640
85°	146	143	139	128	125	163
90°	3	36	98	92	95	18
95°	146	174	179	179	174	163
105°	602	610	616	621	621	636
115°	1121	1137	1132	1129	1121	1108
125°	1630	1655	1647	1638	1635	1457
135°	2108	2139	2145	2142	2134	1630
145°	2559	2579	2596	2598	2587	1599
155°	2927	2935	2944	2958	2949	1347
165°	3184	3181	3181	3201	3187	898
175°	3313	3305	3299	3319	3302	315
180°	3319	3319	3319	3319	3319	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3712.1	3712.1	3712.1	3712.1	3712.1
2.5°	3733.7	3715.8	3676.4	3712.1	3705.2
5°	3712.1	3698.1	3658.7	3687.1	3680.2
7.5°	3687.1	3665.8	3626.4	3655.3	3648.1
10°	3648.1	3623.1	3580.3	3608.7	3598.1
12.5°	3594.3	3573.1	3530.3	3548.1	3540.9
15°	3533.7	3512.5	3465.9	3480.3	3462.5
17.5°	3458.7	3437.5	3390.9	3408.7	3390.9
20°	3376.5	3355.3	3305.3	3315.9	3301.9
22.5°	3294.7	3262.6	3215.9	3215.9	3208.8
25°	3198.2	3169.8	3109.2	3116.0	3109.2
27.5°	3091.0	3066.0	3019.8	3009.2	2991.4
30°	2984.2	2955.4	2902.0	2891.4	2877.0
32.5°	2869.8	2848.6	2791.4	2769.8	2755.4
35°	2759.3	2723.7	2666.4	2644.9	2627.0
37.5°	2634.3	2602.0	2544.9	2519.9	2502.1
40°	2505.9	2477.1	2419.9	2388.1	2373.7
42.5°	2380.9	2352.1	2295.3	2259.4	2238.2
45°	2245.3	2220.3	2166.5	2127.5	2113.2
47.5°	2113.2	2088.2	2031.0	1991.6	1970.4
50°	1973.8	1956.0	1906.0	1856.0	1838.3
52.5°	1838.3	1813.3	1767.0	1727.7	1702.7
55°	1699.3	1677.7	1634.9	1592.0	1574.3
57.5°	1559.9	1542.0	1495.5	1452.8	1438.3
60°	1420.5	1406.5	1356.5	1317.1	1306.5
62.5°	1284.9	1259.9	1224.4	1188.8	1174.4
65°	1145.9	1124.4	1088.8	1056.6	1038.8
67.5°	1003.2	985.0	953.2	928.2	913.8
70°	871.0	856.6	824.4	799.5	785.4
72.5°	735.4	721.0	703.3	678.3	667.6
75°	599.5	592.7	574.5	553.3	560.5
77.5°	478.3	463.9	456.7	446.1	435.5
80°	357.1	353.4	346.1	335.5	328.4
82.5°	242.8	242.8	239.4	225.0	225.0
85°	146.2	142.8	139.4	128.4	125.0
87.5°	64.4	57.1	50.0	39.4	35.6
90°	3.0	36.1	98.1	92.1	95.0
92.5°	62.0	84.0	87.0	90.1	90.1
95°	146.1	174.1	179.1	179.1	174.1
97.5°	243.2	269.1	280.2	280.2	280.2
100°	355.2	378.2	386.2	386.2	383.2
102.5°	473.3	490.3	501.3	504.3	501.3
105°	602.4	610.4	616.4	621.3	621.3
107.5°	730.4	742.4	742.4	744.4	730.4
110°	854.5	870.5	870.5	870.5	862.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	988.5	1005.5	1002.6	994.5	988.5
115°	1120.7	1136.6	1131.6	1128.7	1120.7
117.5°	1251.7	1273.7	1259.7	1251.7	1243.7
120°	1383.8	1405.8	1383.8	1383.8	1374.8
122.5°	1503.9	1531.8	1517.8	1509.8	1503.9
125°	1629.9	1654.9	1646.9	1637.9	1634.9
127.5°	1753.0	1784.0	1773.0	1761.0	1753.0
130°	1868.0	1904.1	1899.0	1893.0	1882.1
132.5°	1997.1	2025.2	2027.2	2013.1	2005.1
135°	2108.1	2139.2	2145.2	2142.2	2134.2
137.5°	2232.3	2257.3	2262.2	2260.2	2248.3
140°	2341.3	2366.3	2380.3	2380.3	2369.4
142.5°	2453.4	2478.4	2486.4	2489.4	2478.4
145°	2559.4	2579.4	2595.5	2598.4	2587.4
147.5°	2654.5	2679.5	2691.5	2696.5	2685.5
150°	2752.6	2769.6	2780.5	2789.6	2780.5
152.5°	2839.6	2856.6	2870.6	2881.7	2870.6
155°	2926.7	2934.6	2943.7	2957.7	2948.6
157.5°	3001.7	3007.7	3012.6	3032.7	3018.6
160°	3068.7	3074.7	3077.7	3094.8	3082.8
162.5°	3130.7	3130.7	3133.8	3152.8	3138.8
165°	3183.8	3180.7	3180.7	3200.8	3186.7
167.5°	3231.8	3222.8	3222.8	3242.8	3228.8
170°	3267.8	3259.8	3256.9	3276.8	3259.8
172.5°	3292.8	3284.8	3281.9	3301.9	3284.8
175°	3312.9	3304.8	3298.8	3318.9	3301.9
177.5°	3323.8	3315.8	3309.8	3326.9	3309.8
180°	3318.9	3318.9	3318.9	3318.9	3318.9

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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	10.78	11.65	11.74	12.62	13.88	10.34	11.21	11.30	12.18	13.44
	3H	12.45	13.22	13.41	14.20	15.49	11.96	12.74	12.93	13.72	15.00
	4H	13.04	13.77	14.02	14.75	16.05	12.55	13.29	13.53	14.27	15.56
	6H	13.44	14.12	14.43	15.10	16.41	12.95	13.63	13.94	14.61	15.92
	8H	13.55	14.19	14.54	15.19	16.50	13.05	13.70	14.05	14.70	16.01
	12H	13.60	14.21	14.60	15.21	16.54	13.10	13.71	14.10	14.71	16.04
4H	2H	11.25	11.98	12.23	12.96	14.26	10.90	11.63	11.88	12.61	13.91
	3H	13.12	13.73	14.11	14.74	16.05	12.71	13.33	13.71	14.34	15.65
	4H	13.83	14.39	14.83	15.40	16.73	13.42	13.98	14.42	14.98	16.31
	6H	14.35	14.83	15.36	15.86	17.19	13.93	14.41	14.94	15.44	16.77
	8H	14.50	14.95	15.52	15.97	17.32	14.07	14.52	15.09	15.55	16.89
	12H	14.58	14.98	15.61	16.02	17.37	14.14	14.54	15.17	15.58	16.93
8H	4H	14.03	14.48	15.04	15.50	16.85	13.66	14.11	14.67	15.13	16.48
	6H	14.66	15.04	15.70	16.10	17.44	14.29	14.66	15.33	15.72	17.07
	8H	14.89	15.22	15.93	16.26	17.63	14.50	14.83	15.55	15.88	17.24
	12H	15.02	15.31	16.07	16.35	17.76	14.62	14.91	15.67	15.95	17.36
12H	4H	14.02	14.42	15.05	15.46	16.81	13.65	14.06	14.69	15.10	16.45
	6H	14.69	15.02	15.74	16.07	17.43	14.33	14.66	15.38	15.71	17.07
	8H	14.94	15.23	15.99	16.27	17.68	14.57	14.86	15.62	15.90	17.30

END OF REPORT