

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: P925196

Luminaire Tested: DFN2DIP-PN4F0-100D070US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925196
REPORT IS A COMBINATION OF REPORTS P899675 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D070US950-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

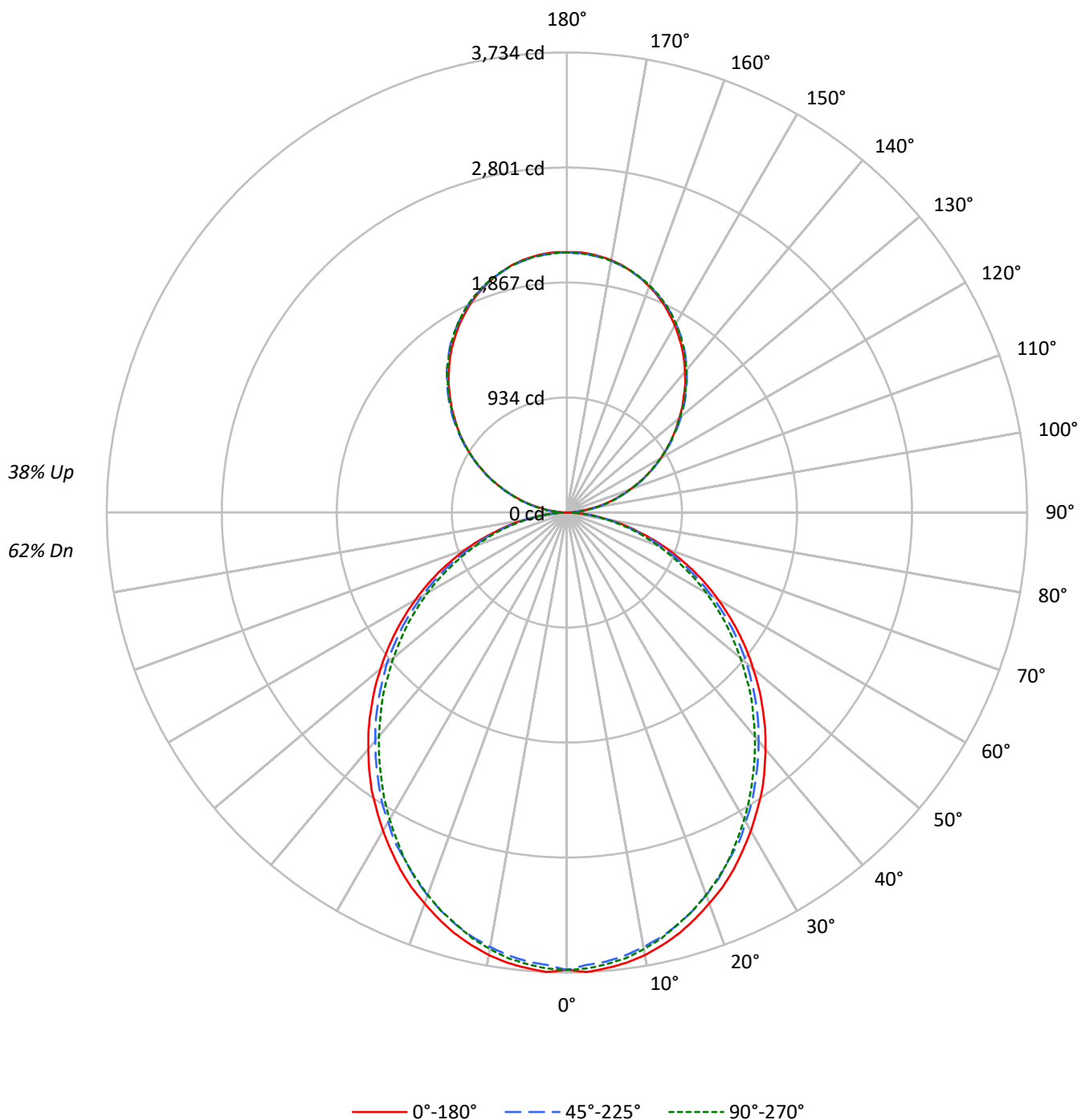
Lumens per Lamp: N/A
Luminaire Lumens: 15354.7 lumens
Efficiency: N/A
Efficacy: 100.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 153.5
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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67
1	100	96	92	88	94	90	87	83	79	76	74	68	67	65	59	58	56
2	91	84	78	72	85	79	73	68	69	65	61	60	57	54	52	50	48
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	38	35
5	70	58	50	44	65	55	47	42	49	43	38	43	38	34	37	33	30
6	65	52	44	38	60	49	42	36	44	38	33	39	34	30	34	30	27
7	60	47	39	34	56	45	37	32	40	34	29	35	30	27	31	27	24
8	56	43	35	30	52	41	34	29	36	30	26	32	27	24	28	24	21
9	52	39	32	27	49	37	30	26	33	28	23	30	25	21	26	22	19
10	49	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	18

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: 0°

Vertical Angle: 45°

Luminance: 2260 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	349.4	2.3
10°-20°	983.0	6.4
20°-30°	1444.7	9.4
30°-40°	1677.9	10.9
40°-50°	1675.8	10.9
50°-60°	1461.2	9.5
60°-70°	1080.2	7.0
70°-80°	611.1	4.0
80°-90°	167.3	1.1
90°-100°	130.7	0.9
100°-110°	415.3	2.7
110°-120°	710.6	4.6
120°-130°	934.6	6.1
130°-140°	1049.0	6.8
140°-150°	1028.7	6.7
150°-160°	862.9	5.6
160°-170°	572.3	3.7
170°-180°	200.0	1.3
0°-30°	2777.1	18.1
0°-40°	4454.9	29.0
0°-60°	7592.0	49.4
0°-90°	9450.6	61.5
90°-120°	1256.6	8.2
90°-150°	4268.9	27.8
90°-180°	5904.0	38.5
0°-180°	15354.7	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°	2	23	62	59	60	15
95°	93	111	114	114	111	103
105°	383	388	392	395	395	405
115°	713	723	720	718	713	705
125°	1037	1053	1048	1042	1040	927
135°	1342	1361	1365	1363	1358	1037
145°	1629	1642	1652	1654	1647	1018
155°	1862	1868	1873	1882	1876	857
165°	2026	2024	2024	2037	2028	572
175°	2108	2103	2099	2112	2101	200
180°	2112	2112	2112	2112	2112	



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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°	1.9	22.9	62.4	58.6	60.5
92.5°	39.5	53.5	55.4	57.3	57.3
95°	92.9	110.8	114.0	114.0	110.8
97.5°	154.7	171.2	178.3	178.3	178.3
100°	226.0	240.7	245.8	245.8	243.8
102.5°	301.2	312.0	319.0	320.9	319.0
105°	383.3	388.4	392.2	395.4	395.4
107.5°	464.8	472.4	472.4	473.8	464.8
110°	543.8	554.0	554.0	554.0	548.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	629.1	639.9	638.0	632.9	629.1
115°	713.1	723.3	720.2	718.3	713.1
117.5°	796.5	810.5	801.6	796.5	791.4
120°	880.5	894.6	880.5	880.5	874.8
122.5°	957.0	974.8	965.9	960.8	957.0
125°	1037.2	1053.1	1048.1	1042.3	1040.4
127.5°	1115.5	1135.3	1128.3	1120.7	1115.5
130°	1188.8	1211.7	1208.5	1204.7	1197.7
132.5°	1270.9	1288.8	1290.0	1281.1	1276.0
135°	1341.6	1361.3	1365.2	1363.2	1358.1
137.5°	1420.5	1436.4	1439.6	1438.3	1430.7
140°	1490.0	1505.9	1514.8	1514.8	1507.8
142.5°	1561.2	1577.2	1582.2	1584.1	1577.2
145°	1628.8	1641.5	1651.7	1653.6	1646.6
147.5°	1689.2	1705.2	1712.8	1716.0	1709.0
150°	1751.6	1762.4	1769.5	1775.2	1769.5
152.5°	1807.0	1817.8	1826.7	1833.8	1826.7
155°	1862.4	1867.5	1873.3	1882.1	1876.4
157.5°	1910.2	1914.0	1917.2	1929.9	1921.0
160°	1952.8	1956.7	1958.6	1969.3	1961.7
162.5°	1992.3	1992.3	1994.2	2006.3	1997.4
165°	2026.0	2024.1	2024.1	2036.9	2027.9
167.5°	2056.6	2050.9	2050.9	2063.6	2054.7
170°	2079.5	2074.5	2072.6	2085.3	2074.5
172.5°	2095.5	2090.3	2088.4	2101.2	2090.3
175°	2108.1	2103.1	2099.3	2112.0	2101.2
177.5°	2115.2	2110.1	2106.2	2117.1	2106.2
180°	2112.0	2112.0	2112.0	2112.0	2112.0

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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	11.74	12.72	12.59	13.59	14.69	11.30	12.28	12.15	13.15	14.25
	3H	13.41	14.29	14.28	15.17	16.30	12.93	13.81	13.79	14.69	15.81
	4H	14.01	14.84	14.89	15.73	16.86	13.52	14.35	14.40	15.24	16.37
	6H	14.42	15.18	15.31	16.08	17.22	13.93	14.69	14.82	15.59	16.73
	8H	14.53	15.25	15.43	16.17	17.31	14.03	14.76	14.93	15.68	16.82
	12H	14.58	15.27	15.49	16.18	17.35	14.08	14.77	14.99	15.68	16.85
4H	2H	12.22	13.05	13.10	13.94	15.07	11.87	12.70	12.75	13.58	14.72
	3H	14.10	14.79	14.99	15.71	16.86	13.70	14.39	14.59	15.31	16.46
	4H	14.82	15.45	15.73	16.37	17.54	14.40	15.03	15.31	15.95	17.12
	6H	15.34	15.89	16.27	16.83	18.00	14.92	15.46	15.84	16.40	17.58
	8H	15.50	16.01	16.42	16.94	18.13	15.07	15.58	15.99	16.51	17.70
	12H	15.58	16.04	16.52	16.99	18.18	15.14	15.60	16.08	16.55	17.74
8H	4H	15.03	15.53	15.95	16.47	17.66	14.65	15.16	15.58	16.10	17.29
	6H	15.66	16.09	16.62	17.06	18.25	15.29	15.71	16.24	16.69	17.87
	8H	15.89	16.26	16.85	17.23	18.43	15.50	15.88	16.46	16.84	18.05
	12H	16.03	16.36	16.99	17.32	18.57	15.63	15.95	16.59	16.91	18.17
12H	4H	15.02	15.48	15.96	16.43	17.62	14.65	15.11	15.60	16.07	17.26
	6H	15.70	16.07	16.66	17.04	18.24	15.33	15.70	16.29	16.67	17.88
	8H	15.95	16.27	16.91	17.23	18.49	15.57	15.90	16.54	16.86	18.12