

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: P918387

Luminaire Tested: DFN2DIP-TR4F0-090D100US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918387
REPORT IS A COMBINATION OF REPORTS P902007 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D100US930-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

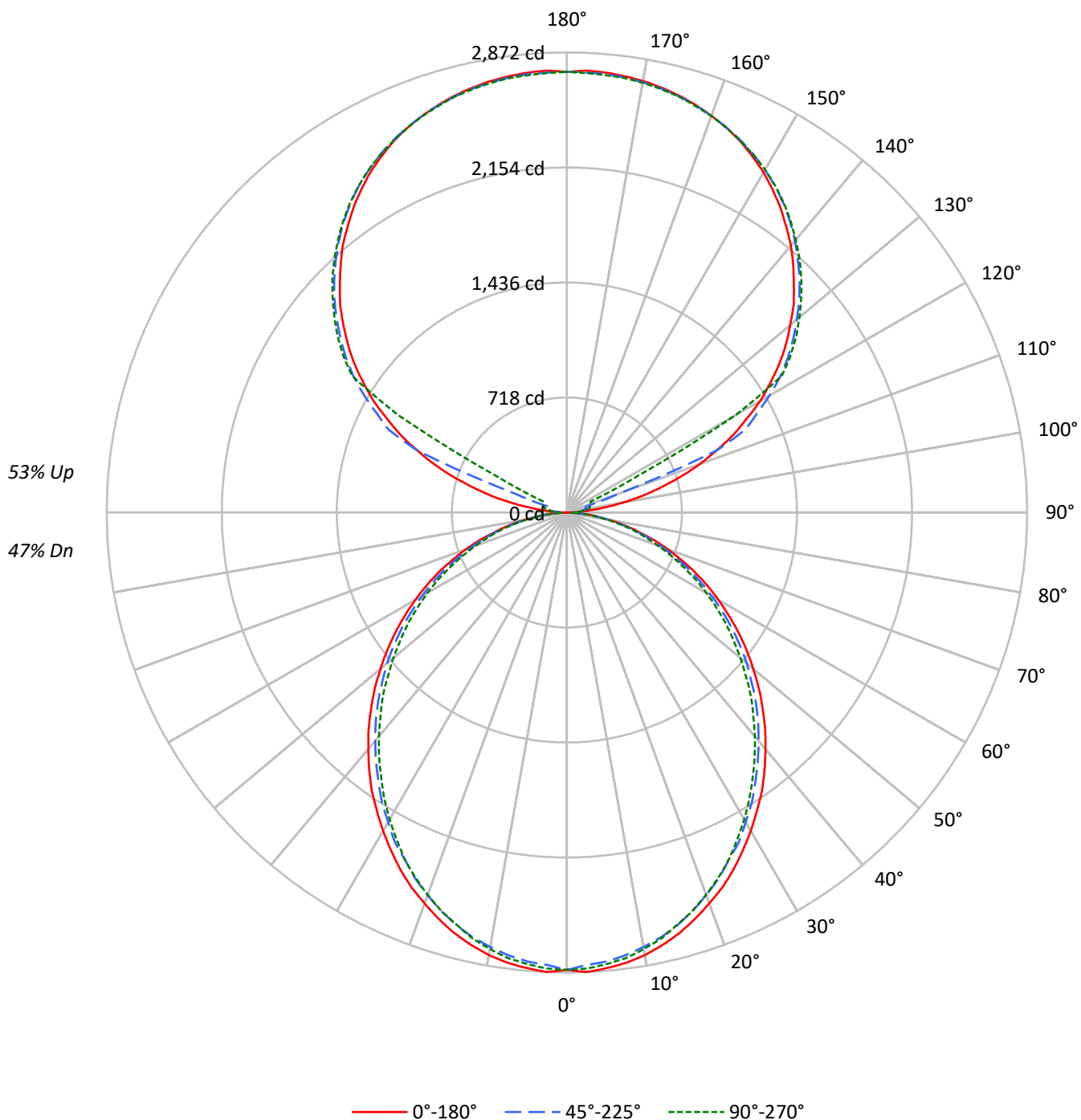
Lumens per Lamp: N/A
Luminaire Lumens: 15335.8 lumens
Efficiency: N/A
Efficacy: 93.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 163.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	98	98	98	98	82	82	82	67	67	67	54	54	54
1	97	93	89	86	89	86	82	79	72	69	67	59	57	56	47	46	45
2	89	81	75	70	81	75	70	65	63	59	56	52	49	47	42	40	38
3	81	71	64	58	74	66	59	54	55	51	47	46	42	40	37	35	33
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	30	28
5	68	56	48	42	62	52	45	40	44	39	34	37	33	29	30	27	24
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	22
7	58	45	38	32	53	42	35	30	36	30	26	30	26	23	25	22	19
8	54	41	34	28	49	38	31	27	33	27	23	28	23	20	23	20	17
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15
10	47	35	27	23	43	32	26	21	28	22	19	23	19	16	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2268	2268	2268
5°	2272	2237	2252
10°	2253	2206	2221
15°	2220	2170	2173
20°	2176	2120	2125
25°	2131	2059	2068
30°	2075	2003	1996
35°	2022	1937	1920
40°	1957	1870	1848
45°	1892	1803	1774
50°	1821	1732	1689
55°	1747	1651	1610
60°	1663	1554	1520
65°	1572	1454	1413
70°	1455	1332	1299
75°	1293	1186	1193
80°	1099	1000	991
85°	795	678	657

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1892 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	268.7	1.8
10°-20°	756.1	4.9
20°-30°	1111.2	7.2
30°-40°	1290.5	8.4
40°-50°	1288.9	8.4
50°-60°	1123.9	7.3
60°-70°	830.8	5.4
70°-80°	470.1	3.1
80°-90°	128.9	0.8
90°-100°	90.7	0.6
100°-110°	338.2	2.2
110°-120°	897.0	5.8
120°-130°	1487.8	9.7
130°-140°	1580.4	10.3
140°-150°	1468.8	9.6
150°-160°	1180.9	7.7
160°-170°	760.9	5.0
170°-180°	261.9	1.7
0°-30°	2136.0	13.9
0°-40°	3426.5	22.3
0°-60°	5839.4	38.1
0°-90°	7269.2	47.4
90°-120°	1326.0	8.6
90°-150°	5862.9	38.2
90°-180°	8067.0	52.6
0°-180°	15335.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2855	2855	2855	2855	2855	
5°	2855	2844	2814	2836	2831	271
15°	2718	2702	2666	2677	2663	765
25°	2460	2438	2391	2397	2391	1132
35°	2122	2095	2051	2034	2021	1325
45°	1727	1708	1666	1636	1625	1333
55°	1307	1290	1257	1225	1211	1169
65°	881	865	837	813	799	871
75°	461	456	442	426	431	492
85°	112	110	107	99	96	125
90°	2	24	40	50	54	14
95°	129	64	78	88	86	153
105°	605	665	122	143	151	647
115°	1145	1179	1228	307	163	1127
125°	1619	1645	1682	1696	1702	1444
135°	2003	2035	2053	2073	2069	1547
145°	2324	2322	2355	2369	2359	1453
155°	2558	2541	2564	2576	2560	1179
165°	2696	2684	2690	2704	2690	762
175°	2757	2744	2748	2762	2742	262
180°	2752	2752	2752	2752	2752	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2855.1	2855.1	2855.1	2855.1	2855.1
2.5°	2871.7	2858.0	2827.8	2855.1	2849.9
5°	2855.1	2844.3	2814.1	2835.9	2830.6
7.5°	2835.9	2819.6	2789.3	2811.5	2805.9
10°	2805.9	2786.7	2753.8	2775.6	2767.4
12.5°	2764.5	2748.2	2715.4	2729.0	2723.5
15°	2718.0	2701.7	2665.8	2676.9	2663.2
17.5°	2660.2	2643.9	2608.1	2621.8	2608.1
20°	2597.1	2580.7	2542.3	2550.4	2539.7
22.5°	2534.1	2509.4	2473.5	2473.5	2468.0
25°	2459.8	2438.0	2391.4	2396.7	2391.4
27.5°	2377.4	2358.2	2322.7	2314.6	2300.9
30°	2295.3	2273.1	2232.0	2223.9	2212.9
32.5°	2207.3	2191.0	2147.0	2130.5	2119.4
35°	2122.3	2094.9	2050.9	2034.3	2020.6
37.5°	2026.2	2001.4	1957.4	1938.2	1924.5
40°	1927.4	1905.3	1861.2	1836.8	1825.8
42.5°	1831.2	1809.1	1765.4	1737.8	1721.5
45°	1727.0	1707.8	1666.4	1636.4	1625.4
47.5°	1625.4	1606.1	1562.1	1531.9	1515.6
50°	1518.2	1504.5	1466.0	1427.6	1413.9
52.5°	1413.9	1394.6	1359.1	1328.9	1309.6
55°	1307.0	1290.4	1257.4	1224.6	1210.9
57.5°	1199.8	1186.1	1150.3	1117.4	1106.3
60°	1092.6	1081.8	1043.3	1013.1	1004.9
62.5°	988.3	969.1	941.7	914.4	903.3
65°	881.4	864.8	837.4	812.7	799.0
67.5°	771.6	757.7	733.1	714.0	702.9
70°	669.9	658.8	634.1	614.9	604.1
72.5°	565.7	554.6	540.9	521.7	513.6
75°	461.1	455.8	441.9	425.6	431.1
77.5°	367.9	356.9	351.3	343.2	335.0
80°	274.7	271.7	266.2	258.0	252.6
82.5°	186.7	186.7	184.1	173.0	173.0
85°	112.4	109.8	107.2	98.7	96.1
87.5°	49.5	43.9	38.5	30.3	27.4
90°	1.9	23.9	39.7	49.9	53.6
92.5°	49.9	41.8	47.8	51.8	53.6
95°	129.3	63.6	77.5	87.7	85.6
97.5°	232.8	69.7	101.4	107.5	109.5
100°	352.5	79.7	113.5	129.3	133.4
102.5°	483.7	480.0	117.5	139.3	145.4
105°	605.3	665.0	121.6	143.2	151.3
107.5°	746.7	796.3	125.6	147.3	155.3
110°	882.1	923.7	348.5	149.4	157.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1009.5	1045.2	1011.5	153.2	159.4
115°	1144.8	1178.6	1228.5	306.6	163.4
117.5°	1262.2	1302.0	1336.0	1051.2	529.6
120°	1393.8	1423.5	1459.5	1483.4	1214.5
122.5°	1505.1	1537.0	1576.9	1588.8	1590.9
125°	1618.6	1644.6	1682.4	1696.4	1702.3
127.5°	1722.2	1750.0	1780.0	1799.9	1801.8
130°	1819.7	1851.7	1873.5	1895.4	1893.5
132.5°	1919.3	1945.3	1967.1	1985.0	1983.1
135°	2003.0	2034.9	2052.7	2072.7	2068.7
137.5°	2090.5	2114.4	2134.5	2154.3	2148.4
140°	2176.0	2192.2	2213.9	2231.9	2221.9
142.5°	2247.9	2261.9	2287.6	2303.5	2293.6
145°	2323.6	2321.5	2355.3	2369.3	2359.3
147.5°	2389.1	2383.2	2417.0	2426.9	2419.2
150°	2452.9	2439.0	2470.9	2482.7	2472.8
152.5°	2506.6	2490.7	2520.6	2532.6	2518.6
155°	2558.4	2540.6	2564.5	2576.3	2560.5
157.5°	2600.2	2584.4	2602.4	2616.3	2600.2
160°	2636.2	2624.1	2636.2	2648.0	2634.1
162.5°	2667.8	2656.0	2665.9	2679.9	2661.9
165°	2695.7	2683.9	2689.8	2703.8	2689.8
167.5°	2717.7	2705.6	2711.8	2725.8	2707.8
170°	2735.7	2723.7	2727.7	2741.6	2723.7
172.5°	2747.5	2735.7	2739.7	2753.7	2735.7
175°	2757.4	2743.5	2747.5	2761.5	2741.6
177.5°	2761.5	2747.5	2749.7	2763.6	2745.6
180°	2751.6	2751.6	2751.6	2751.6	2751.6

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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	9.87	10.71	10.85	11.70	13.01	9.44	10.27	10.41	11.27	12.57
	3H	11.53	12.28	12.52	13.28	14.61	11.05	11.80	12.04	12.81	14.14
	4H	12.11	12.82	13.11	13.83	15.17	11.64	12.35	12.64	13.36	14.69
	6H	12.51	13.17	13.52	14.18	15.53	12.04	12.69	13.05	13.70	15.05
	8H	12.61	13.24	13.63	14.26	15.61	12.14	12.76	13.16	13.79	15.14
	12H	12.66	13.26	13.69	14.28	15.65	12.18	12.77	13.21	13.79	15.17
4H	2H	10.33	11.04	11.34	12.04	13.38	9.98	10.69	10.99	11.70	13.04
	3H	12.19	12.78	13.21	13.82	15.17	11.80	12.39	12.82	13.42	14.78
	4H	12.90	13.45	13.93	14.47	15.85	12.50	13.04	13.52	14.07	15.44
	6H	13.42	13.88	14.45	14.93	16.30	13.01	13.48	14.04	14.52	15.89
	8H	13.57	14.00	14.60	15.04	16.43	13.15	13.59	14.19	14.63	16.02
	12H	13.64	14.03	14.69	15.09	16.48	13.22	13.61	14.27	14.67	16.06
8H	4H	13.10	13.53	14.13	14.58	15.96	12.74	13.17	13.78	14.22	15.60
	6H	13.73	14.09	14.79	15.17	16.56	13.37	13.73	14.43	14.81	16.19
	8H	13.95	14.27	15.02	15.33	16.74	13.58	13.90	14.65	14.97	16.37
	12H	14.08	14.36	15.15	15.42	16.86	13.69	13.97	14.77	15.04	16.48
12H	4H	13.08	13.48	14.14	14.53	15.92	12.73	13.13	13.79	14.18	15.57
	6H	13.76	14.08	14.83	15.14	16.55	13.41	13.72	14.47	14.79	16.19
	8H	14.00	14.28	15.07	15.34	16.78	13.64	13.92	14.71	14.98	16.43