

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: P905143

Luminaire Tested: DFN2DIP-4P4F0-080D080US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905143
REPORT IS A COMBINATION OF REPORTS P900669 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D080US835-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

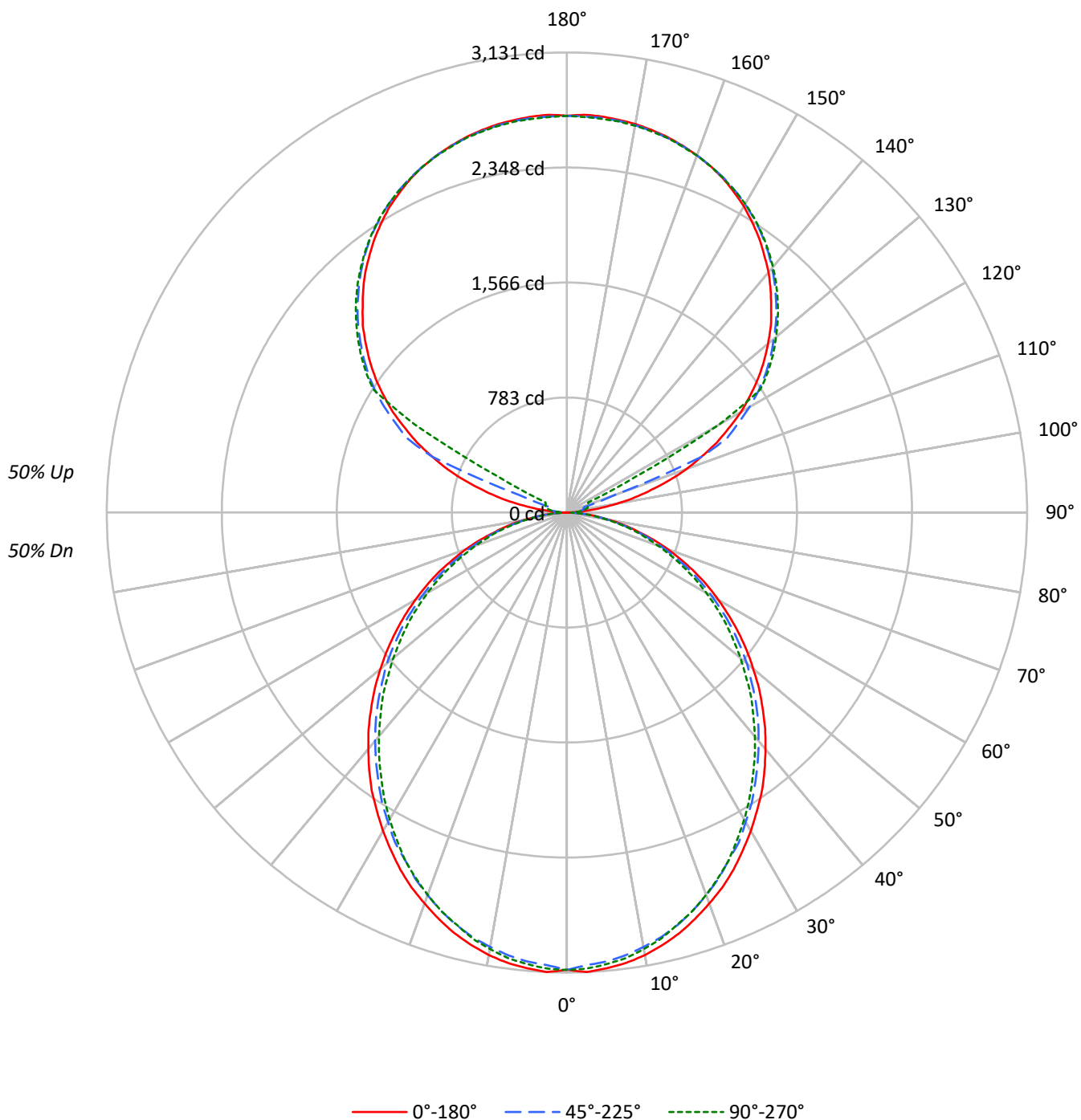
Lumens per Lamp: N/A
Luminaire Lumens: 15840.0 lumens
Efficiency: N/A
Efficacy: 99.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 159.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	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	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	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°	2019	2019	2019
5°	2023	1992	2005
10°	2007	1966	1979
15°	1977	1934	1937
20°	1937	1890	1895
25°	1898	1837	1845
30°	1848	1787	1782
35°	1801	1729	1715
40°	1744	1670	1652
45°	1686	1611	1587
50°	1623	1549	1512
55°	1557	1477	1443
60°	1483	1392	1364
65°	1401	1304	1270
70°	1298	1197	1170
75°	1154	1069	1079
80°	982	906	903
85°	713	623	609

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1686 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.0	1.8
10°-20°	824.3	5.2
20°-30°	1211.5	7.6
30°-40°	1407.0	8.9
40°-50°	1405.3	8.9
50°-60°	1225.4	7.7
60°-70°	905.8	5.7
70°-80°	512.5	3.2
80°-90°	140.0	0.9
90°-100°	89.0	0.6
100°-110°	331.9	2.1
110°-120°	880.2	5.6
120°-130°	1459.9	9.2
130°-140°	1550.7	9.8
140°-150°	1441.2	9.1
150°-160°	1158.7	7.3
160°-170°	746.6	4.7
170°-180°	257.0	1.6
0°-30°	2328.8	14.7
0°-40°	3735.8	23.6
0°-60°	6366.4	40.2
0°-90°	7924.8	50.0
90°-120°	1301.1	8.2
90°-150°	5752.9	36.3
90°-180°	7915.0	50.0
0°-180°	15840.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3113	3113	3113	3113	3113	
5°	3113	3101	3068	3092	3086	295
15°	2963	2946	2906	2918	2904	835
25°	2682	2658	2607	2613	2607	1234
35°	2314	2284	2236	2218	2203	1445
45°	1883	1862	1817	1784	1772	1453
55°	1425	1407	1371	1335	1320	1274
65°	961	943	913	886	871	950
75°	503	497	482	464	470	537
85°	123	120	117	108	105	137
90°	2	23	39	49	53	15
95°	127	62	76	86	84	150
105°	594	653	119	141	148	635
115°	1123	1156	1205	301	160	1106
125°	1588	1614	1651	1664	1670	1416
135°	1965	1997	2014	2034	2030	1518
145°	2280	2278	2311	2325	2315	1426
155°	2510	2493	2516	2528	2512	1157
165°	2645	2634	2639	2653	2639	747
175°	2706	2692	2696	2710	2690	258
180°	2700	2700	2700	2700	2700	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3112.8	3112.8	3112.8	3112.8	3112.8
2.5°	3130.9	3116.0	3083.0	3112.8	3107.1
5°	3112.8	3101.1	3068.1	3091.9	3086.2
7.5°	3091.9	3074.1	3041.1	3065.2	3059.2
10°	3059.2	3038.2	3002.3	3026.1	3017.3
12.5°	3014.1	2996.3	2960.4	2975.3	2969.3
15°	2963.3	2945.5	2906.4	2918.5	2903.6
17.5°	2900.4	2882.6	2843.5	2858.5	2843.5
20°	2831.5	2813.7	2771.8	2780.7	2768.9
22.5°	2762.9	2735.9	2696.8	2696.8	2690.8
25°	2681.9	2658.1	2607.3	2613.0	2607.3
27.5°	2592.0	2571.1	2532.3	2523.4	2508.5
30°	2502.5	2478.3	2433.6	2424.7	2412.6
32.5°	2406.6	2388.8	2340.8	2322.7	2310.7
35°	2313.8	2284.0	2236.0	2217.9	2203.0
37.5°	2209.0	2182.0	2134.1	2113.1	2098.2
40°	2101.4	2077.2	2029.3	2002.6	1990.5
42.5°	1996.6	1972.4	1924.8	1894.6	1876.9
45°	1882.9	1861.9	1816.8	1784.1	1772.1
47.5°	1772.1	1751.1	1703.1	1670.1	1652.3
50°	1655.2	1640.3	1598.3	1556.4	1541.5
52.5°	1541.5	1520.5	1481.8	1448.8	1427.8
55°	1424.9	1406.8	1371.0	1335.1	1320.1
57.5°	1308.1	1293.2	1254.1	1218.2	1206.1
60°	1191.2	1179.5	1137.5	1104.5	1095.6
62.5°	1077.5	1056.6	1026.7	996.9	984.8
65°	961.0	942.9	913.0	886.0	871.1
67.5°	841.2	826.0	799.3	778.4	766.3
70°	730.4	718.3	691.4	670.4	658.6
72.5°	616.7	604.7	589.7	568.8	559.9
75°	502.7	497.0	481.8	464.0	470.0
77.5°	401.1	389.0	383.0	374.1	365.2
80°	299.5	296.3	290.3	281.4	275.3
82.5°	203.6	203.6	200.7	188.6	188.6
85°	122.6	119.7	116.9	107.7	104.8
87.5°	54.0	48.0	41.9	33.0	29.9
90°	1.9	23.4	39.0	48.9	52.7
92.5°	48.9	41.1	46.9	50.8	52.7
95°	126.9	62.4	76.1	86.1	84.0
97.5°	228.5	68.4	99.5	105.6	107.4
100°	345.9	78.2	111.4	126.9	130.8
102.5°	474.7	470.9	115.3	136.6	142.7
105°	593.9	652.6	119.2	140.6	148.5
107.5°	732.6	781.3	123.2	144.5	152.4
110°	865.6	906.4	342.0	146.6	154.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	990.6	1025.6	992.5	150.3	156.4
115°	1123.3	1156.5	1205.4	300.9	160.3
117.5°	1238.6	1277.6	1311.0	1031.4	519.7
120°	1367.6	1396.8	1432.1	1455.5	1191.7
122.5°	1476.8	1508.2	1547.4	1559.0	1561.1
125°	1588.2	1613.7	1650.8	1664.5	1670.3
127.5°	1689.8	1717.2	1746.7	1766.1	1768.0
130°	1785.6	1816.9	1838.3	1859.9	1858.0
132.5°	1883.3	1908.8	1930.2	1947.8	1945.9
135°	1965.4	1996.7	2014.1	2033.9	2029.9
137.5°	2051.3	2074.7	2094.4	2113.9	2108.1
140°	2135.2	2151.0	2172.4	2190.0	2180.2
142.5°	2205.8	2219.4	2244.7	2260.3	2250.5
145°	2280.0	2277.9	2311.1	2324.8	2315.0
147.5°	2344.3	2338.5	2371.6	2381.4	2373.7
150°	2406.9	2393.2	2424.5	2436.1	2426.4
152.5°	2459.6	2444.0	2473.2	2485.1	2471.4
155°	2510.4	2493.0	2516.4	2528.0	2512.5
157.5°	2551.4	2535.9	2553.5	2567.2	2551.4
160°	2586.7	2574.9	2586.7	2598.3	2584.6
162.5°	2617.8	2606.2	2615.9	2629.6	2612.0
165°	2645.2	2633.6	2639.4	2653.0	2639.4
167.5°	2666.7	2654.9	2660.9	2674.6	2657.0
170°	2684.4	2672.5	2676.5	2690.2	2672.5
172.5°	2696.0	2684.4	2688.3	2702.0	2684.4
175°	2705.7	2692.0	2696.0	2709.6	2690.2
177.5°	2709.6	2696.0	2698.0	2711.7	2694.1
180°	2699.9	2699.9	2699.9	2699.9	2699.9

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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	9.74	10.60	10.69	11.57	12.84	9.29	10.15	10.25	11.13	12.40
	3H	11.40	12.17	12.37	13.16	14.45	10.91	11.68	11.88	12.67	13.96
	4H	11.99	12.72	12.97	13.71	15.01	11.50	12.23	12.48	13.22	14.52
	6H	12.40	13.07	13.39	14.06	15.38	11.90	12.57	12.89	13.56	14.88
	8H	12.50	13.15	13.50	14.15	15.46	12.00	12.64	13.00	13.65	14.96
	12H	12.56	13.17	13.56	14.17	15.50	12.05	12.66	13.05	13.66	14.99
4H	2H	10.20	10.93	11.19	11.91	13.22	9.84	10.57	10.83	11.56	12.86
	3H	12.07	12.68	13.07	13.69	15.01	11.66	12.27	12.66	13.29	14.60
	4H	12.79	13.35	13.79	14.35	15.69	12.36	12.92	13.37	13.93	15.27
	6H	13.31	13.79	14.33	14.82	16.16	12.88	13.36	13.89	14.39	15.72
	8H	13.46	13.91	14.48	14.94	16.29	13.02	13.47	14.04	14.50	15.85
	12H	13.54	13.94	14.57	14.98	16.34	13.09	13.49	14.12	14.53	15.89
8H	4H	12.99	13.44	14.00	14.46	15.81	12.61	13.06	13.63	14.08	15.43
	6H	13.62	14.00	14.67	15.06	16.41	13.24	13.61	14.28	14.68	16.03
	8H	13.85	14.18	14.90	15.23	16.59	13.46	13.78	14.51	14.83	16.20
	12H	13.98	14.27	15.04	15.32	16.73	13.57	13.86	14.63	14.91	16.32
12H	4H	12.97	13.38	14.01	14.42	15.77	12.60	13.01	13.64	14.05	15.41
	6H	13.65	13.98	14.70	15.03	16.40	13.28	13.61	14.33	14.66	16.03
	8H	13.90	14.19	14.95	15.23	16.64	13.52	13.81	14.57	14.85	16.26