

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: P907539

Luminaire Tested: DFN2DIP-TR4F0-110D080US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907539
REPORT IS A COMBINATION OF REPORTS P901975 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D080US835-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

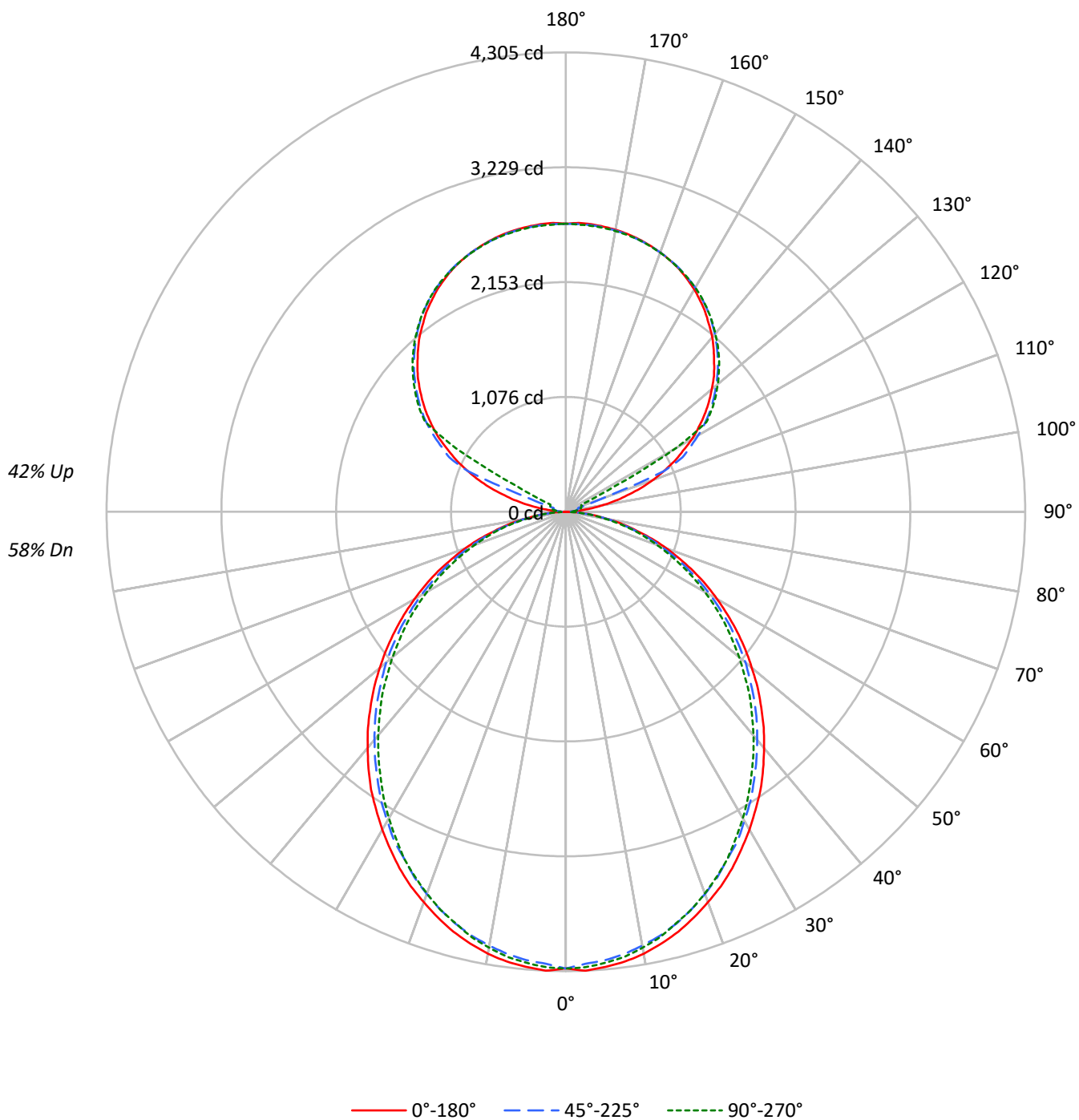
Lumens per Lamp: N/A
Luminaire Lumens: 18810.0 lumens
Efficiency: N/A
Efficacy: 109.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 171.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	109	109	109	109	102	102	102	102	88	88	88	75	75	75	63	63	63
1	100	95	91	88	93	89	85	82	77	74	72	66	64	63	56	55	54
2	91	83	77	72	84	78	72	68	67	63	60	58	55	52	49	47	45
3	83	73	66	60	77	68	62	57	60	54	50	51	47	44	44	41	38
4	76	65	57	51	70	61	54	48	53	47	43	46	41	38	39	36	33
5	70	58	50	43	65	54	47	41	47	42	37	41	37	33	35	32	29
6	64	52	44	38	60	49	41	36	43	37	32	37	32	29	32	28	25
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23
8	55	43	35	29	51	40	33	28	35	30	25	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	18
10	48	36	28	24	45	34	27	23	30	24	21	26	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3400	3400	3400
5°	3406	3353	3375
10°	3378	3308	3330
15°	3329	3253	3258
20°	3261	3178	3185
25°	3195	3087	3100
30°	3111	3003	2993
35°	3032	2903	2879
40°	2934	2803	2771
45°	2837	2703	2660
50°	2731	2597	2532
55°	2619	2475	2414
60°	2493	2330	2278
65°	2356	2180	2119
70°	2181	1997	1947
75°	1939	1778	1789
80°	1648	1499	1486
85°	1192	1017	985

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2837 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	402.8	2.1
10°-20°	1133.5	6.0
20°-30°	1665.7	8.9
30°-40°	1934.7	10.3
40°-50°	1932.3	10.3
50°-60°	1684.9	9.0
60°-70°	1245.5	6.6
70°-80°	704.7	3.7
80°-90°	190.7	1.0
90°-100°	89.0	0.5
100°-110°	331.9	1.8
110°-120°	880.2	4.7
120°-130°	1459.9	7.8
130°-140°	1550.7	8.2
140°-150°	1441.2	7.7
150°-160°	1158.7	6.2
160°-170°	746.6	4.0
170°-180°	257.0	1.4
0°-30°	3202.1	17.0
0°-40°	5136.7	27.3
0°-60°	8753.8	46.5
0°-90°	10894.7	57.9
90°-120°	1301.1	6.9
90°-150°	5752.9	30.6
90°-180°	7915.0	42.1
0°-180°	18810.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4280	4280	4280	4280	4280	
5°	4280	4264	4219	4251	4244	406
15°	4074	4050	3996	4013	3992	1148
25°	3688	3655	3585	3593	3585	1697
35°	3182	3140	3074	3050	3029	1987
45°	2589	2560	2498	2453	2437	1998
55°	1959	1934	1885	1836	1815	1752
65°	1321	1296	1255	1218	1198	1306
75°	691	683	662	638	646	738
85°	169	165	161	148	144	188
90°	2	23	39	49	53	17
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°	4280.2	4280.2	4280.2	4280.2	4280.2
2.5°	4305.0	4284.5	4239.1	4280.2	4272.3
5°	4280.2	4264.0	4218.6	4251.3	4243.5
7.5°	4251.3	4226.9	4181.5	4214.7	4206.4
10°	4206.4	4177.5	4128.2	4160.9	4148.7
12.5°	4144.4	4119.9	4070.6	4091.1	4082.8
15°	4074.5	4050.0	3996.3	4012.9	3992.4
17.5°	3988.0	3963.6	3909.9	3930.4	3909.9
20°	3893.3	3868.8	3811.2	3823.4	3807.3
22.5°	3799.0	3761.8	3708.1	3708.1	3699.8
25°	3687.6	3654.9	3585.0	3592.9	3585.0
27.5°	3564.0	3535.2	3481.9	3469.7	3449.2
30°	3440.9	3407.7	3346.1	3333.9	3317.3
32.5°	3309.0	3284.6	3218.6	3193.7	3177.1
35°	3181.5	3140.5	3074.5	3049.6	3029.1
37.5°	3037.4	3000.3	2934.4	2905.5	2885.0
40°	2889.4	2856.2	2790.3	2753.6	2737.0
42.5°	2745.3	2712.1	2646.6	2605.1	2580.7
45°	2589.0	2560.1	2498.1	2453.2	2436.6
47.5°	2436.6	2407.8	2341.8	2296.4	2271.9
50°	2275.9	2255.4	2197.7	2140.1	2119.6
52.5°	2119.6	2090.7	2037.5	1992.0	1963.2
55°	1959.3	1934.4	1885.1	1835.7	1815.2
57.5°	1798.6	1778.1	1724.4	1675.0	1658.4
60°	1637.9	1621.8	1564.1	1518.7	1506.5
62.5°	1481.6	1452.8	1411.7	1370.7	1354.1
65°	1321.3	1296.4	1255.4	1218.3	1197.8
67.5°	1156.7	1135.8	1099.1	1070.3	1053.7
70°	1004.3	987.7	950.6	921.8	905.6
72.5°	848.0	831.4	810.9	782.1	769.8
75°	691.2	683.4	662.4	638.0	646.3
77.5°	551.5	534.9	526.6	514.4	502.2
80°	411.8	407.4	399.1	386.9	378.6
82.5°	279.9	279.9	276.0	259.4	259.4
85°	168.6	164.6	160.7	148.0	144.1
87.5°	74.2	65.9	57.6	45.4	41.0
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	12.22	13.16	13.11	14.06	15.22	11.79	12.73	12.67	13.63	14.79
	3H	13.89	14.73	14.78	15.64	16.82	13.41	14.25	14.31	15.17	16.35
	4H	14.48	15.27	15.39	16.19	17.38	14.00	14.80	14.92	15.72	16.91
	6H	14.88	15.61	15.80	16.54	17.74	14.40	15.14	15.33	16.07	17.27
	8H	14.99	15.69	15.92	16.63	17.83	14.51	15.21	15.44	16.16	17.36
	12H	15.04	15.70	15.98	16.64	17.87	14.56	15.22	15.50	16.16	17.39
4H	2H	12.69	13.49	13.61	14.41	15.60	12.35	13.14	13.26	14.06	15.25
	3H	14.56	15.23	15.49	16.18	17.38	14.17	14.83	15.10	15.79	16.99
	4H	15.28	15.89	16.22	16.83	18.06	14.88	15.48	15.81	16.43	17.66
	6H	15.80	16.32	16.75	17.29	18.52	15.39	15.91	16.34	16.88	18.11
	8H	15.95	16.44	16.91	17.40	18.65	15.54	16.03	16.49	16.99	18.23
	12H	16.03	16.47	17.00	17.45	18.70	15.61	16.05	16.58	17.03	18.28
8H	4H	15.48	15.97	16.44	16.94	18.18	15.12	15.61	16.08	16.58	17.82
	6H	16.12	16.52	17.10	17.53	18.77	15.76	16.16	16.74	17.17	18.41
	8H	16.34	16.70	17.33	17.69	18.95	15.97	16.33	16.96	17.32	18.58
	12H	16.47	16.79	17.47	17.78	19.08	16.09	16.40	17.08	17.39	18.70
12H	4H	15.47	15.91	16.45	16.90	18.14	15.12	15.56	16.10	16.54	17.79
	6H	16.15	16.51	17.14	17.50	18.76	15.80	16.15	16.79	17.15	18.41
	8H	16.39	16.71	17.39	17.70	19.00	16.04	16.35	17.03	17.34	18.65

END OF REPORT