

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: P918469

Luminaire Tested: DFN2DIP-TR4F0-110D120US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918469
REPORT IS A COMBINATION OF REPORTS P902048 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D120US930-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

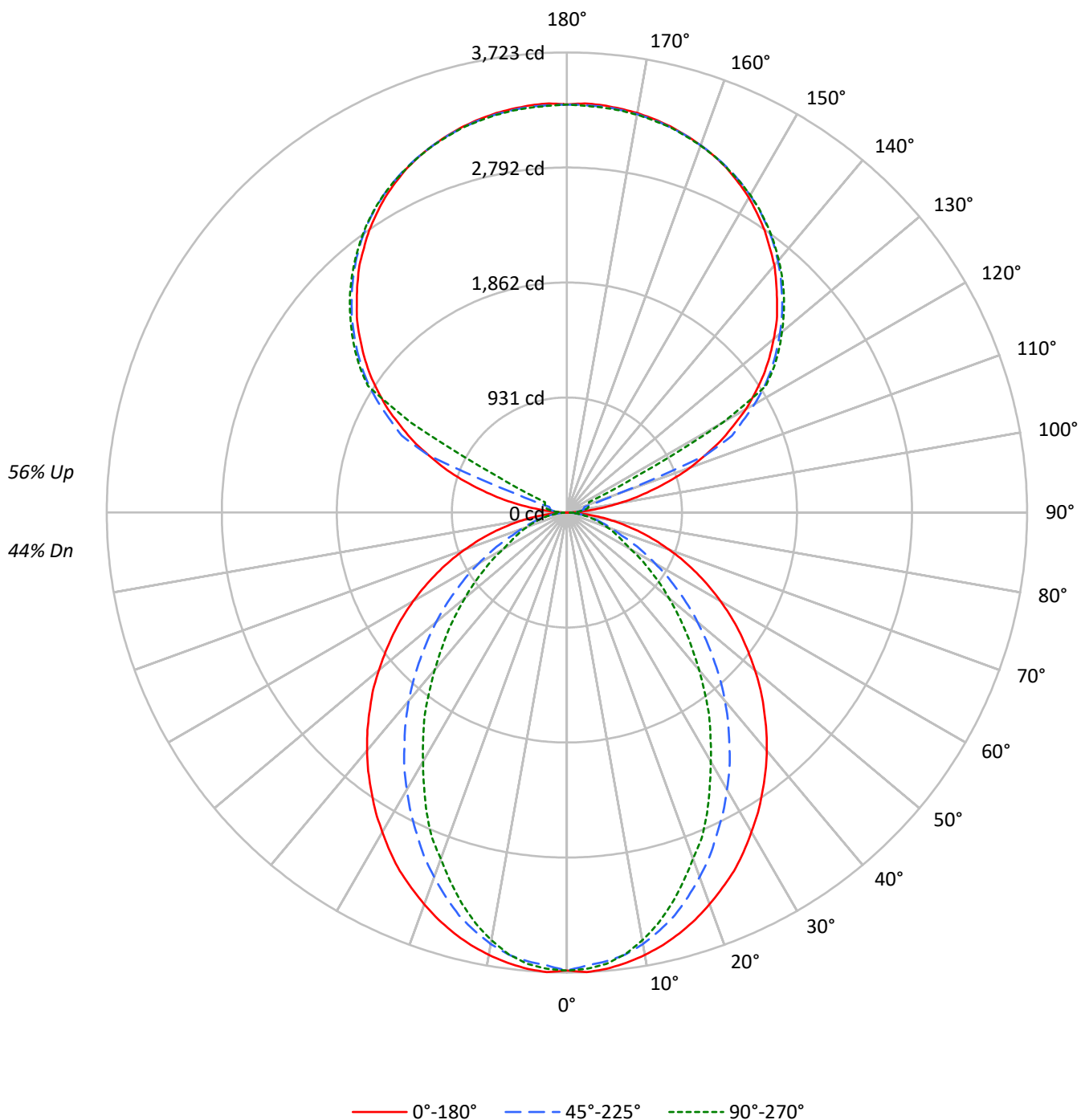
Lumens per Lamp: N/A
Luminaire Lumens: 17308.8 lumens
Efficiency: N/A
Efficacy: 84.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 204
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	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51			44
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	45	44	44			38
2	89	81	76	71	81	75	70	66	62	59	56	51	49	46	40	39	37			32
3	81	72	65	59	74	66	60	55	55	51	47	46	42	40	36	34	32			28
4	74	64	56	51	68	59	52	47	50	45	41	41	37	34	33	30	28			24
5	68	57	49	44	62	53	46	41	45	39	35	37	33	30	30	27	25			21
6	63	51	44	38	58	48	41	36	40	35	31	33	29	26	27	24	22			19
7	58	46	39	33	53	43	36	31	37	31	27	31	27	24	25	22	20			17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18			15
9	51	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16			14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2945	2945	2945
5°	2949	2898	2916
10°	2920	2841	2821
15°	2880	2747	2675
20°	2827	2618	2495
25°	2772	2472	2321
30°	2699	2324	2100
35°	2628	2164	1906
40°	2555	1998	1684
45°	2470	1815	1483
50°	2382	1629	1286
55°	2291	1431	1097
60°	2185	1224	903
65°	2064	1014	813
70°	1916	817	735
75°	1731	720	669
80°	1462	604	580
85°	1019	403	435

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2470 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	347.4	2.0
10°-20°	953.6	5.5
20°-30°	1338.9	7.7
30°-40°	1459.5	8.4
40°-50°	1341.4	7.7
50°-60°	1053.5	6.1
60°-70°	685.7	4.0
70°-80°	353.0	2.0
80°-90°	95.9	0.6
90°-100°	108.9	0.6
100°-110°	405.9	2.3
110°-120°	1076.4	6.2
120°-130°	1785.3	10.3
130°-140°	1896.5	11.0
140°-150°	1762.5	10.2
150°-160°	1417.0	8.2
160°-170°	913.1	5.3
170°-180°	314.3	1.8
0°-30°	2639.9	15.3
0°-40°	4099.4	23.7
0°-60°	6494.2	37.5
0°-90°	7628.9	44.1
90°-120°	1591.2	9.2
90°-150°	7035.5	40.6
90°-180°	9680.0	55.9
0°-180°	17308.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3707	3707	3707	3707	3707	
5°	3707	3690	3646	3676	3666	351
15°	3525	3488	3374	3311	3277	993
25°	3200	3093	2871	2734	2683	1472
35°	2757	2586	2291	2080	2006	1726
45°	2254	2029	1677	1439	1358	1741
55°	1714	1452	1090	889	825	1532
65°	1157	885	584	470	459	1147
75°	617	382	268	245	242	653
85°	144	74	64	64	64	165
90°	2	29	48	60	64	16
95°	155	76	93	105	103	184
105°	726	798	146	172	182	776
115°	1374	1414	1474	368	196	1352
125°	1942	1974	2019	2036	2043	1732
135°	2404	2442	2463	2487	2482	1857
145°	2788	2786	2826	2843	2831	1744
155°	3070	3049	3077	3092	3073	1415
165°	3235	3221	3228	3245	3228	914
175°	3309	3292	3297	3314	3290	315
180°	3302	3302	3302	3302	3302	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3706.6	3706.6	3706.6	3706.6	3706.6
2.5°	3723.3	3706.6	3669.6	3703.4	3696.6
5°	3706.6	3689.9	3646.1	3676.3	3666.4
7.5°	3676.3	3656.4	3609.4	3622.6	3605.8
10°	3636.1	3612.6	3545.7	3535.4	3515.5
12.5°	3585.9	3555.7	3464.9	3445.0	3407.9
15°	3525.4	3488.4	3374.5	3310.8	3277.3
17.5°	3455.0	3401.3	3260.3	3186.6	3132.9
20°	3374.5	3307.3	3139.6	3056.0	2982.0
22.5°	3287.4	3210.1	3015.5	2901.6	2851.3
25°	3200.1	3092.7	2871.3	2733.9	2683.4
27.5°	3096.3	2982.0	2737.1	2579.4	2502.2
30°	2985.5	2857.8	2589.5	2418.6	2327.8
32.5°	2878.1	2723.6	2448.8	2247.5	2163.5
35°	2757.4	2586.2	2291.2	2079.8	2005.8
37.5°	2640.0	2455.3	2143.5	1911.8	1828.2
40°	2515.8	2314.7	1989.1	1750.9	1663.8
42.5°	2388.3	2173.7	1835.0	1586.6	1502.9
45°	2254.2	2029.3	1677.3	1438.8	1358.4
47.5°	2126.8	1888.7	1526.4	1287.9	1214.3
50°	1985.8	1747.8	1378.8	1147.0	1076.9
52.5°	1848.1	1596.5	1237.8	1016.4	952.7
55°	1713.9	1452.4	1090.1	889.0	825.3
57.5°	1576.6	1308.2	959.4	771.6	717.8
60°	1435.7	1167.3	821.7	650.9	597.2
62.5°	1298.3	1030.0	704.3	543.5	516.7
65°	1157.3	885.4	583.7	469.8	459.4
67.5°	1023.2	751.3	469.8	412.5	402.5
70°	882.2	620.7	389.0	355.6	342.0
72.5°	748.0	499.7	325.3	298.6	291.8
75°	617.1	382.2	268.3	244.8	241.7
77.5°	486.5	271.6	211.4	197.9	191.1
80°	365.5	194.7	160.9	147.7	147.7
82.5°	254.8	130.9	110.7	104.0	104.0
85°	144.1	73.7	63.7	63.7	63.7
87.5°	53.7	26.7	26.7	23.5	23.5
90°	2.3	28.6	47.7	59.8	64.4
92.5°	59.8	50.2	57.3	62.1	64.4
95°	155.2	76.3	93.0	105.3	102.7
97.5°	279.5	83.7	121.7	129.1	131.3
100°	423.0	95.6	136.2	155.2	160.0
102.5°	580.5	575.9	141.0	167.1	174.5
105°	726.3	798.1	145.9	171.9	181.6
107.5°	895.9	955.5	150.7	176.8	186.4
110°	1058.5	1108.5	418.2	179.3	188.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1211.5	1254.3	1213.7	183.8	191.2
115°	1373.7	1414.3	1474.1	367.9	196.1
117.5°	1514.7	1562.4	1603.3	1261.3	635.5
120°	1672.5	1708.2	1751.3	1780.0	1457.4
122.5°	1806.1	1844.4	1892.4	1906.6	1909.1
125°	1942.3	1973.5	2018.9	2035.6	2042.7
127.5°	2066.5	2100.0	2136.1	2159.9	2162.2
130°	2183.7	2222.0	2248.1	2274.5	2272.2
132.5°	2303.1	2334.4	2360.5	2382.1	2379.8
135°	2403.6	2441.9	2463.2	2487.3	2482.5
137.5°	2508.6	2537.2	2561.3	2585.1	2578.1
140°	2611.3	2630.6	2656.6	2678.3	2666.4
142.5°	2697.5	2714.3	2745.2	2764.2	2752.3
145°	2788.3	2785.8	2826.3	2843.1	2831.1
147.5°	2866.9	2859.8	2900.4	2912.3	2903.0
150°	2943.5	2926.8	2965.1	2979.3	2967.4
152.5°	3007.9	2988.9	3024.7	3039.1	3022.4
155°	3070.0	3048.7	3077.4	3091.6	3072.6
157.5°	3120.2	3101.2	3122.8	3139.6	3120.2
160°	3163.4	3148.9	3163.4	3177.5	3160.8
162.5°	3201.4	3187.2	3199.1	3215.9	3194.3
165°	3234.9	3220.7	3227.8	3244.6	3227.8
167.5°	3261.3	3246.8	3254.2	3270.9	3249.4
170°	3282.8	3268.4	3273.2	3289.9	3268.4
172.5°	3297.0	3282.8	3287.7	3304.4	3282.8
175°	3308.9	3292.2	3297.0	3313.8	3289.9
177.5°	3313.8	3297.0	3299.6	3316.3	3294.8
180°	3301.9	3301.9	3301.9	3301.9	3301.9

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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	10.31	11.10	11.33	12.12	13.47	6.29	7.07	7.30	8.09	9.45
	3H	11.99	12.69	13.01	13.72	15.09	7.47	8.18	8.50	9.20	10.58
	4H	12.59	13.26	13.63	14.29	15.67	7.92	8.59	8.96	9.62	11.00
	6H	13.01	13.62	14.06	14.66	16.05	8.24	8.85	9.29	9.89	11.28
	8H	13.14	13.72	14.19	14.77	16.16	8.33	8.91	9.38	9.96	11.35
	12H	13.20	13.75	14.25	14.79	16.21	8.38	8.93	9.43	9.97	11.39
4H	2H	10.33	10.99	11.37	12.02	13.40	6.88	7.54	7.92	8.57	9.95
	3H	12.15	12.70	13.20	13.76	15.16	8.22	8.78	9.27	9.83	11.23
	4H	12.84	13.35	13.90	14.40	15.82	8.77	9.28	9.83	10.33	11.75
	6H	13.35	13.79	14.42	14.86	16.27	9.19	9.62	10.26	10.69	12.11
	8H	13.53	13.93	14.60	15.00	16.43	9.32	9.72	10.38	10.79	12.22
	12H	13.62	13.99	14.71	15.07	16.50	9.38	9.75	10.47	10.83	12.26
8H	4H	12.81	13.21	13.87	14.28	15.71	9.05	9.45	10.11	10.52	11.95
	6H	13.37	13.70	14.46	14.81	16.24	9.57	9.90	10.65	11.01	12.43
	8H	13.59	13.88	14.68	14.97	16.42	9.76	10.05	10.85	11.14	12.59
	12H	13.72	13.98	14.82	15.07	16.55	9.88	10.13	10.97	11.22	12.70
12H	4H	12.76	13.12	13.84	14.20	15.64	9.05	9.42	10.13	10.50	11.93
	6H	13.35	13.64	14.44	14.73	16.18	9.62	9.91	10.71	11.00	12.44
	8H	13.57	13.82	14.66	14.91	16.39	9.82	10.08	10.92	11.17	12.65

END OF REPORT