

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: P918499

Luminaire Tested: DFN2DIP-TR4F0-120D110US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918499
REPORT IS A COMBINATION OF REPORTS P902031 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D110US930-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

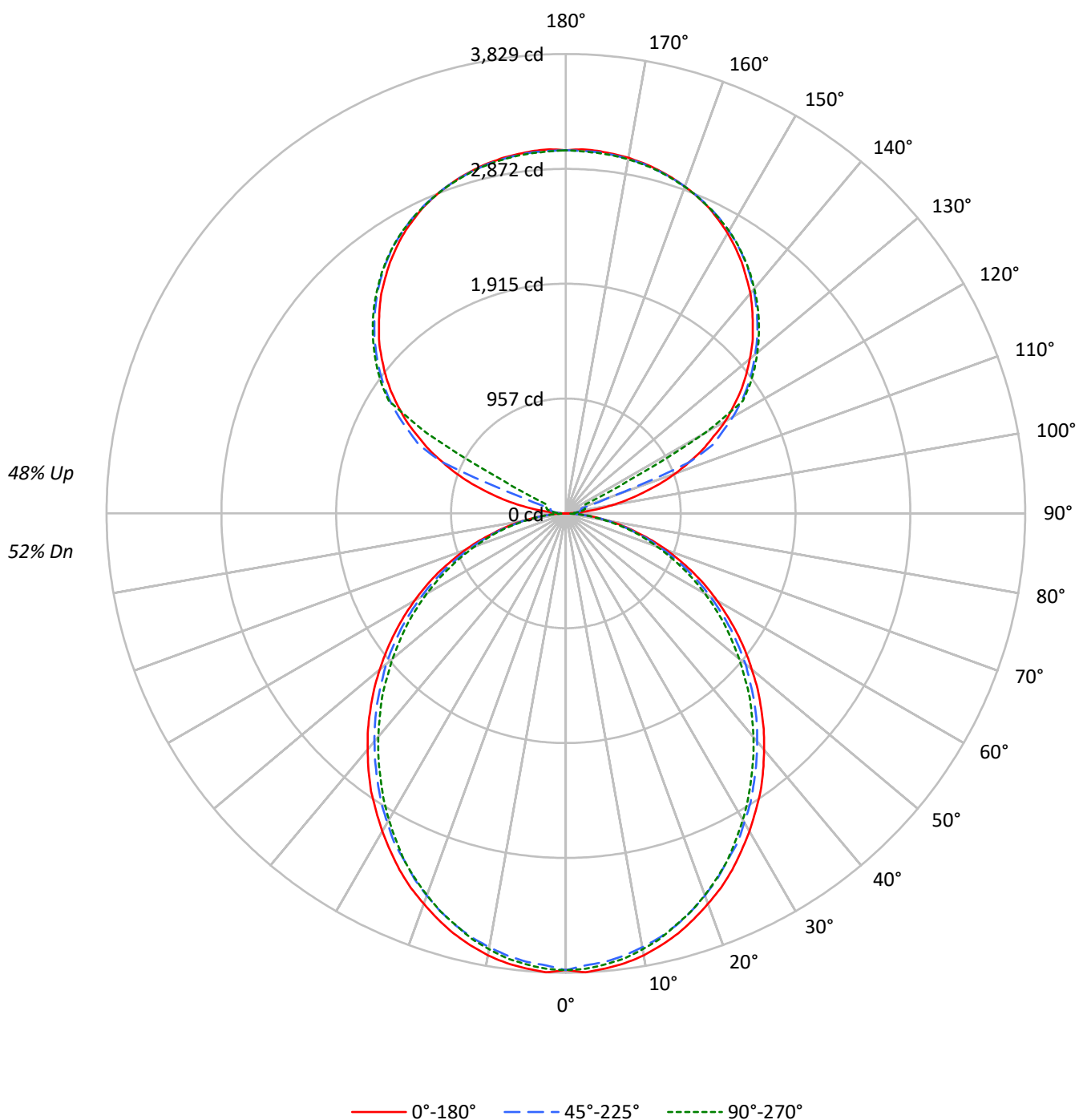
Lumens per Lamp: N/A
Luminaire Lumens: 18564.3 lumens
Efficiency: N/A
Efficacy: 88.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P918499

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918499

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-FLONL

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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58
1	98	94	90	87	91	87	84	81	74	72	69	62	61	59	51	50	49
2	89	82	76	71	83	76	71	66	65	61	58	55	52	49	45	43	41
3	82	72	65	59	75	67	61	55	57	52	48	48	45	42	40	37	35
4	75	64	56	50	69	59	52	47	51	46	41	43	39	36	36	33	30
5	69	57	49	43	63	53	46	40	46	40	36	39	34	31	32	29	26
6	63	51	43	37	58	48	40	35	41	35	31	35	31	27	29	26	23
7	58	46	38	33	54	43	36	31	37	32	27	32	27	24	27	23	21
8	54	42	34	29	50	39	32	27	34	28	24	29	25	21	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	22	19	23	19	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	17	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3024	3024	3024
5°	3029	2982	3002
10°	3005	2942	2961
15°	2960	2893	2898
20°	2901	2826	2833
25°	2841	2746	2757
30°	2767	2671	2662
35°	2697	2582	2561
40°	2610	2493	2464
45°	2523	2404	2366
50°	2429	2310	2252
55°	2329	2201	2147
60°	2218	2072	2026
65°	2096	1939	1885
70°	1940	1776	1732
75°	1724	1581	1591
80°	1465	1333	1322
85°	1060	904	876

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2523 cd/sqm

TEST NUMBER: P918499

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	358.3	1.9
10°-20°	1008.1	5.4
20°-30°	1481.5	8.0
30°-40°	1720.7	9.3
40°-50°	1718.6	9.3
50°-60°	1498.5	8.1
60°-70°	1107.8	6.0
70°-80°	626.7	3.4
80°-90°	170.7	0.9
90°-100°	99.8	0.5
100°-110°	372.1	2.0
110°-120°	986.7	5.3
120°-130°	1636.6	8.8
130°-140°	1738.4	9.4
140°-150°	1615.7	8.7
150°-160°	1298.9	7.0
160°-170°	837.0	4.5
170°-180°	288.1	1.6
0°-30°	2848.0	15.3
0°-40°	4568.7	24.6
0°-60°	7785.8	41.9
0°-90°	9691.1	52.2
90°-120°	1458.6	7.9
90°-150°	6449.2	34.7
90°-180°	8873.0	47.8
0°-180°	18564.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3807	3807	3807	3807	3807	
5°	3807	3792	3752	3781	3774	361
15°	3624	3602	3554	3569	3551	1021
25°	3280	3251	3188	3196	3188	1509
35°	2830	2793	2734	2712	2694	1767
45°	2303	2277	2222	2182	2167	1777
55°	1743	1720	1677	1633	1614	1558
65°	1175	1153	1117	1084	1065	1162
75°	615	608	589	567	575	656
85°	150	146	143	132	128	167
90°	2	26	44	55	59	17
95°	142	70	85	96	94	169
105°	666	732	134	158	166	711
115°	1259	1296	1351	337	180	1240
125°	1780	1809	1851	1866	1872	1588
135°	2203	2238	2258	2280	2276	1702
145°	2556	2554	2591	2606	2595	1599
155°	2814	2795	2821	2834	2816	1297
165°	2965	2952	2959	2974	2959	838
175°	3033	3018	3022	3038	3016	289
180°	3027	3027	3027	3027	3027	

TEST NUMBER: P918499

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-FLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3806.9	3806.9	3806.9	3806.9	3806.9
2.5°	3829.0	3810.7	3770.3	3806.9	3799.9
5°	3806.9	3792.4	3752.1	3781.2	3774.2
7.5°	3781.2	3759.4	3719.1	3748.6	3741.2
10°	3741.2	3715.6	3671.7	3700.8	3690.0
12.5°	3686.0	3664.3	3620.4	3638.7	3631.3
15°	3623.9	3602.2	3554.4	3569.1	3550.9
17.5°	3547.0	3525.3	3477.5	3495.8	3477.5
20°	3462.7	3441.0	3389.8	3400.6	3386.3
22.5°	3378.8	3345.8	3298.0	3298.0	3290.7
25°	3279.8	3250.7	3188.5	3195.6	3188.5
27.5°	3169.9	3144.3	3096.9	3086.0	3067.8
30°	3060.4	3030.9	2976.1	2965.2	2950.5
32.5°	2943.1	2921.4	2862.7	2840.6	2825.8
35°	2829.7	2793.2	2734.5	2712.4	2694.2
37.5°	2701.5	2668.6	2609.9	2584.3	2566.0
40°	2569.9	2540.4	2481.7	2449.1	2434.3
42.5°	2441.7	2412.2	2353.9	2317.1	2295.3
45°	2302.6	2277.0	2221.9	2181.9	2167.1
47.5°	2167.1	2141.5	2082.8	2042.5	2020.7
50°	2024.2	2006.0	1954.7	1903.4	1885.1
52.5°	1885.1	1859.5	1812.2	1771.7	1746.1
55°	1742.6	1720.5	1676.6	1632.7	1614.5
57.5°	1599.7	1581.4	1533.7	1489.8	1475.0
60°	1456.8	1442.4	1391.1	1350.8	1339.9
62.5°	1317.8	1292.1	1255.6	1219.1	1204.4
65°	1175.3	1153.1	1116.6	1083.5	1065.4
67.5°	1028.8	1010.2	977.5	951.9	937.2
70°	893.2	878.5	845.5	819.9	805.5
72.5°	754.2	739.5	721.2	695.6	684.7
75°	614.8	607.8	589.1	567.4	574.8
77.5°	490.5	475.7	468.4	457.5	446.6
80°	366.2	362.3	355.0	344.1	336.7
82.5°	248.9	248.9	245.5	230.7	230.7
85°	149.9	146.4	142.9	131.7	128.2
87.5°	66.0	58.6	51.3	40.4	36.5
90°	2.1	26.3	43.7	54.9	59.0
92.5°	54.9	46.1	52.5	57.0	59.0
95°	142.3	70.0	85.3	96.4	94.2
97.5°	256.2	76.7	111.5	118.3	120.4
100°	387.8	87.6	124.8	142.3	146.7
102.5°	532.1	527.9	129.2	153.2	160.0
105°	665.8	731.6	133.7	157.6	166.5
107.5°	821.3	875.9	138.1	162.0	170.9
110°	970.3	1016.1	383.4	164.4	172.9



TEST NUMBER: P918499

CATALOG NUMBER: DFN2DIP-TR4F0-120D110US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1110.5	1149.7	1112.6	168.5	175.3
115°	1259.2	1296.4	1351.4	337.3	179.7
117.5°	1388.5	1432.2	1469.7	1156.3	582.5
120°	1533.1	1565.9	1605.4	1631.7	1335.9
122.5°	1655.6	1690.7	1734.6	1747.7	1750.0
125°	1780.4	1809.1	1850.6	1866.0	1872.5
127.5°	1894.3	1925.0	1958.0	1979.9	1982.0
130°	2001.7	2036.9	2060.7	2085.0	2082.9
132.5°	2111.2	2139.8	2163.8	2183.5	2181.5
135°	2203.3	2238.4	2257.9	2280.1	2275.6
137.5°	2299.5	2325.8	2347.9	2369.7	2363.2
140°	2393.7	2411.3	2435.3	2455.0	2444.1
142.5°	2472.7	2488.0	2516.4	2533.9	2522.9
145°	2556.0	2553.6	2590.8	2606.2	2595.3
147.5°	2628.0	2621.5	2658.7	2669.6	2661.1
150°	2698.2	2682.9	2718.0	2731.0	2720.1
152.5°	2757.3	2739.8	2772.6	2785.9	2770.5
155°	2814.2	2794.7	2820.9	2834.0	2816.5
157.5°	2860.2	2842.8	2862.6	2877.9	2860.2
160°	2899.8	2886.5	2899.8	2912.7	2897.4
162.5°	2934.6	2921.6	2932.5	2947.9	2928.1
165°	2965.3	2952.3	2958.8	2974.1	2958.8
167.5°	2989.5	2976.2	2983.0	2998.3	2978.6
170°	3009.3	2996.0	3000.4	3015.8	2996.0
172.5°	3022.2	3009.3	3013.7	3029.0	3009.3
175°	3033.2	3017.8	3022.2	3037.6	3015.8
177.5°	3037.6	3022.2	3024.6	3039.9	3020.2
180°	3026.7	3026.7	3026.7	3026.7	3026.7

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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	11.31	12.19	12.25	13.15	14.39	10.88	11.76	11.82	12.72	13.96
	3H	12.97	13.77	13.92	14.73	15.99	12.50	13.29	13.45	14.26	15.52
	4H	13.56	14.31	14.53	15.28	16.55	13.09	13.84	14.05	14.81	16.08
	6H	13.96	14.65	14.94	15.63	16.91	13.49	14.18	14.46	15.15	16.44
	8H	14.07	14.73	15.05	15.72	17.00	13.59	14.25	14.58	15.24	16.52
	12H	14.12	14.74	15.10	15.73	17.03	13.64	14.26	14.62	15.25	16.55
4H	2H	11.78	12.53	12.75	13.49	14.77	11.43	12.18	12.40	13.15	14.42
	3H	13.65	14.27	14.62	15.27	16.55	13.25	13.88	14.23	14.88	16.16
	4H	14.36	14.93	15.35	15.92	17.23	13.95	14.53	14.94	15.52	16.83
	6H	14.88	15.37	15.88	16.38	17.69	14.47	14.96	15.47	15.97	17.28
	8H	15.03	15.49	16.03	16.49	17.82	14.61	15.07	15.62	16.08	17.40
	12H	15.10	15.52	16.12	16.54	17.87	14.68	15.09	15.70	16.12	17.45
8H	4H	14.56	15.02	15.56	16.03	17.35	14.20	14.66	15.20	15.67	16.99
	6H	15.19	15.57	16.22	16.62	17.94	14.83	15.21	15.85	16.26	17.58
	8H	15.41	15.75	16.45	16.78	18.12	15.04	15.38	16.08	16.41	17.75
	12H	15.54	15.84	16.58	16.87	18.25	15.16	15.45	16.20	16.49	17.87
12H	4H	14.55	14.96	15.57	15.98	17.31	14.19	14.61	15.21	15.63	16.96
	6H	15.22	15.56	16.25	16.59	17.93	14.87	15.20	15.90	16.24	17.58
	8H	15.46	15.76	16.50	16.79	18.17	15.11	15.40	16.14	16.43	17.81