

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: P913006

Luminaire Tested: DFN2DIP-TR4F0-110D110US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913006
REPORT IS A COMBINATION OF REPORTS P900509 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D110US850-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

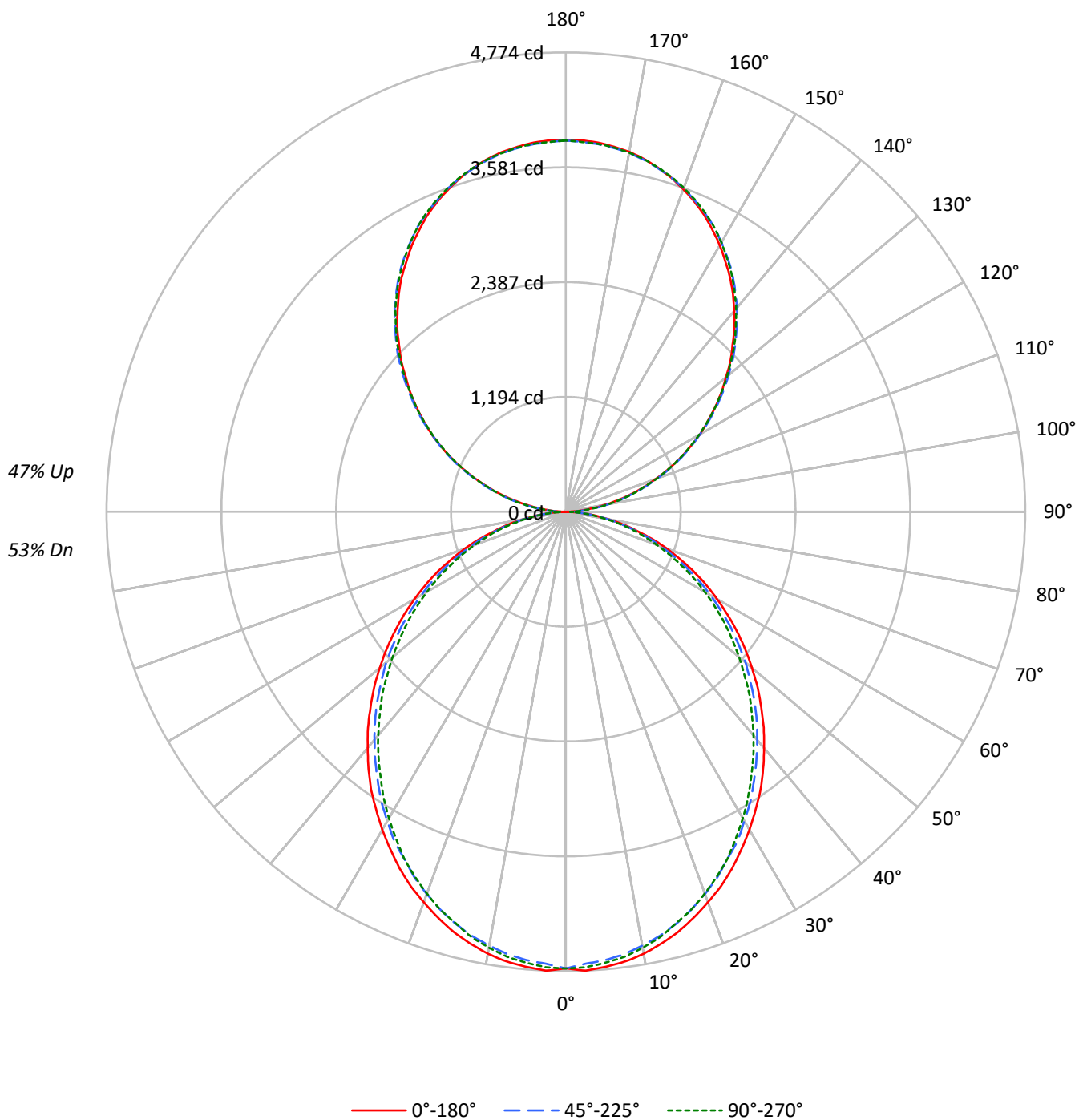
Lumens per Lamp: N/A
Luminaire Lumens: 22873.1 lumens
Efficiency: N/A
Efficacy: 115.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 197.4
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

TEST NUMBER: P913006

CATALOG NUMBER: DFN2DIP-TR4F0-110D110US850-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P913006

CATALOG NUMBER: DFN2DIP-TR4F0-110D110US850-FLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20			
RC	80				70				50				30				10			0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10	0
RCR																				
0	108	108	108	108	100	100	100	100	85	85	85		71	71	71		59	59	59	53
1	98	94	90	87	91	87	84	81	74	72	70		63	61	59		52	51	50	45
2	90	82	76	71	83	76	71	66	65	61	58		55	52	50		46	44	42	37
3	82	72	65	59	75	67	61	55	58	53	49		49	45	42		41	38	36	32
4	75	64	56	50	69	60	52	47	51	46	41		43	39	36		36	33	31	27
5	69	57	49	43	63	53	46	40	46	40	36		39	35	31		33	29	27	24
6	63	51	43	37	58	48	40	35	41	36	31		35	31	27		30	26	24	21
7	59	46	38	33	54	43	36	31	37	32	28		32	28	24		27	24	21	18
8	54	42	34	29	50	39	32	27	34	29	24		29	25	22		25	21	19	16
9	51	38	31	26	47	36	29	24	31	26	22		27	23	19		23	20	17	15
10	47	35	28	23	44	33	26	22	29	23	20		25	21	18		21	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3771	3771	3771
5°	3777	3718	3743
10°	3746	3668	3692
15°	3691	3608	3613
20°	3617	3524	3532
25°	3543	3424	3438
30°	3450	3330	3319
35°	3362	3220	3193
40°	3254	3109	3073
45°	3146	2997	2950
50°	3028	2880	2807
55°	2905	2745	2677
60°	2765	2584	2527
65°	2613	2417	2350
70°	2419	2214	2160
75°	2150	1971	1984
80°	1827	1662	1648
85°	1322	1128	1092

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3146 cd/sqm

TEST NUMBER: P913006

CATALOG NUMBER: DFN2DIP-TR4F0-110D110US850-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	446.8	2.0
10°-20°	1257.0	5.5
20°-30°	1847.3	8.1
30°-40°	2145.5	9.4
40°-50°	2142.9	9.4
50°-60°	1868.5	8.2
60°-70°	1381.3	6.0
70°-80°	781.5	3.4
80°-90°	217.2	0.9
90°-100°	238.7	1.0
100°-110°	758.6	3.3
110°-120°	1298.1	5.7
120°-130°	1707.2	7.5
130°-140°	1916.3	8.4
140°-150°	1879.1	8.2
150°-160°	1576.3	6.9
160°-170°	1045.4	4.6
170°-180°	365.4	1.6
0°-30°	3551.1	15.5
0°-40°	5696.6	24.9
0°-60°	9708.0	42.4
0°-90°	12088.0	52.8
90°-120°	2295.4	10.0
90°-150°	7798.0	34.1
90°-180°	10785.0	47.2
0°-180°	22873.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4747	4747	4747	4747	4747	
5°	4747	4729	4678	4715	4706	451
15°	4519	4491	4432	4450	4428	1273
25°	4090	4053	3976	3984	3976	1882
35°	3528	3483	3410	3382	3359	2203
45°	2871	2839	2770	2721	2702	2216
55°	2173	2145	2091	2036	2013	1943
65°	1465	1438	1392	1351	1328	1449
75°	766	758	735	708	717	818
85°	187	182	178	164	160	209
90°	3	42	114	107	110	22
95°	170	202	208	208	202	189
105°	700	710	716	722	722	739
115°	1303	1321	1316	1312	1303	1288
125°	1895	1924	1914	1904	1900	1693
135°	2451	2487	2494	2490	2481	1894
145°	2975	2998	3017	3021	3008	1859
155°	3402	3411	3422	3438	3428	1566
165°	3701	3698	3698	3721	3704	1044
175°	3851	3842	3835	3858	3838	366
180°	3858	3858	3858	3858	3858	

TEST NUMBER: P913006

CATALOG NUMBER: DFN2DIP-TR4F0-110D110US850-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4746.7	4746.7	4746.7	4746.7	4746.7
2.5°	4774.2	4751.5	4701.2	4746.7	4738.0
5°	4746.7	4728.8	4678.4	4714.7	4706.0
7.5°	4714.7	4687.6	4637.3	4674.1	4664.9
10°	4664.9	4632.8	4578.2	4614.4	4600.9
12.5°	4596.1	4569.0	4514.3	4537.0	4527.8
15°	4518.6	4491.4	4431.9	4450.3	4427.6
17.5°	4422.7	4395.6	4336.1	4358.8	4336.1
20°	4317.7	4290.5	4226.6	4240.2	4222.3
22.5°	4213.1	4171.8	4112.3	4112.3	4103.1
25°	4089.5	4053.3	3975.8	3984.5	3975.8
27.5°	3952.5	3920.5	3861.4	3847.9	3825.2
30°	3816.0	3779.1	3710.8	3697.3	3678.9
32.5°	3669.7	3642.6	3569.4	3541.8	3523.4
35°	3528.3	3482.8	3409.6	3382.0	3359.3
37.5°	3368.5	3327.3	3254.2	3222.2	3199.5
40°	3204.3	3167.5	3094.4	3053.7	3035.3
42.5°	3044.5	3007.7	2935.1	2889.1	2862.0
45°	2871.2	2839.2	2770.4	2720.6	2702.2
47.5°	2702.2	2670.3	2597.1	2546.7	2519.5
50°	2524.0	2501.2	2437.2	2373.4	2350.6
52.5°	2350.6	2318.6	2259.6	2209.1	2177.2
55°	2172.9	2145.2	2090.6	2035.8	2013.1
57.5°	1994.6	1971.9	1912.4	1857.6	1839.2
60°	1816.4	1798.6	1734.6	1684.2	1670.7
62.5°	1643.1	1611.2	1565.6	1520.1	1501.7
65°	1465.3	1437.7	1392.2	1351.1	1328.4
67.5°	1282.8	1259.6	1218.9	1187.0	1168.6
70°	1113.8	1095.4	1054.2	1022.3	1004.3
72.5°	940.4	922.0	899.3	867.3	853.7
75°	766.5	757.9	734.6	707.5	716.7
77.5°	611.6	593.2	584.0	570.5	556.9
80°	456.7	451.8	442.6	429.1	419.9
82.5°	310.4	310.4	306.1	287.7	287.7
85°	187.0	182.5	178.2	164.1	159.8
87.5°	82.3	73.1	63.9	50.3	45.5
90°	3.4	41.9	114.0	107.0	110.5
92.5°	72.1	97.7	101.1	104.7	104.7
95°	169.8	202.4	208.2	208.2	202.4
97.5°	282.7	312.8	325.7	325.7	325.7
100°	412.9	439.6	448.9	448.9	445.5
102.5°	550.2	569.9	582.8	586.2	582.8
105°	700.2	709.5	716.5	722.3	722.3
107.5°	849.1	863.0	863.0	865.4	849.1
110°	993.3	1012.0	1012.0	1012.0	1002.6

TEST NUMBER: P913006

CATALOG NUMBER: DFN2DIP-TR4F0-110D110US850-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1149.1	1168.9	1165.4	1156.1	1149.1
115°	1302.7	1321.3	1315.5	1312.1	1302.7
117.5°	1455.1	1480.6	1464.3	1455.1	1445.8
120°	1608.6	1634.2	1608.6	1608.6	1598.2
122.5°	1748.2	1780.7	1764.4	1755.1	1748.2
125°	1894.7	1923.8	1914.5	1904.0	1900.5
127.5°	2037.8	2073.8	2061.1	2047.1	2037.8
130°	2171.5	2213.5	2207.6	2200.6	2187.8
132.5°	2321.6	2354.2	2356.5	2340.2	2330.9
135°	2450.7	2486.7	2493.7	2490.3	2480.9
137.5°	2594.9	2624.0	2629.8	2627.4	2613.6
140°	2721.7	2750.8	2767.1	2767.1	2754.3
142.5°	2852.0	2881.1	2890.4	2893.8	2881.1
145°	2975.2	2998.5	3017.1	3020.6	3007.8
147.5°	3085.8	3114.8	3128.8	3134.6	3121.8
150°	3199.8	3219.5	3232.3	3242.8	3232.3
152.5°	3300.9	3320.7	3337.0	3349.8	3337.0
155°	3402.2	3411.4	3421.9	3438.2	3427.7
157.5°	3489.4	3496.3	3502.1	3525.4	3509.1
160°	3567.3	3574.3	3577.7	3597.6	3583.6
162.5°	3639.4	3639.4	3643.0	3665.0	3648.7
165°	3701.1	3697.5	3697.5	3720.8	3704.5
167.5°	3756.8	3746.4	3746.4	3769.7	3753.4
170°	3798.8	3789.5	3786.0	3809.2	3789.5
172.5°	3827.8	3818.5	3815.1	3838.4	3818.5
175°	3851.1	3841.8	3834.8	3858.1	3838.4
177.5°	3863.9	3854.6	3847.6	3867.4	3847.6
180°	3858.1	3858.1	3858.1	3858.1	3858.1

TEST NUMBER: P913006

CATALOG NUMBER: DFN2DIP-TR4F0-110D110US850-FLLFLL

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	12.14	13.02	13.07	13.97	15.20	11.70	12.59	12.64	13.54	14.77
	3H	13.80	14.59	14.74	15.55	16.81	13.33	14.12	14.27	15.08	16.33
	4H	14.39	15.14	15.35	16.10	17.37	13.91	14.67	14.87	15.63	16.89
	6H	14.79	15.48	15.76	16.45	17.73	14.31	15.01	15.28	15.98	17.25
	8H	14.89	15.55	15.87	16.54	17.81	14.42	15.08	15.40	16.07	17.34
	12H	14.94	15.57	15.92	16.55	17.85	14.46	15.09	15.44	16.07	17.37
4H	2H	12.60	13.35	13.57	14.32	15.58	12.26	13.01	13.22	13.97	15.24
	3H	14.47	15.10	15.44	16.09	17.37	14.08	14.71	15.05	15.70	16.98
	4H	15.18	15.76	16.17	16.75	18.05	14.78	15.35	15.76	16.34	17.64
	6H	15.70	16.20	16.70	17.21	18.51	15.29	15.79	16.29	16.80	18.10
	8H	15.85	16.31	16.85	17.32	18.63	15.44	15.90	16.44	16.91	18.22
	12H	15.93	16.34	16.94	17.36	18.68	15.50	15.92	16.52	16.94	18.26
8H	4H	15.38	15.85	16.38	16.85	18.16	15.02	15.49	16.02	16.49	17.80
	6H	16.02	16.40	17.04	17.44	18.76	15.65	16.04	16.67	17.08	18.39
	8H	16.24	16.57	17.27	17.61	18.94	15.87	16.21	16.90	17.24	18.57
	12H	16.37	16.67	17.40	17.69	19.07	15.99	16.28	17.02	17.31	18.68
12H	4H	15.37	15.79	16.39	16.81	18.13	15.02	15.44	16.03	16.46	17.77
	6H	16.05	16.38	17.08	17.42	18.75	15.69	16.03	16.72	17.06	18.39
	8H	16.29	16.59	17.32	17.61	18.99	15.93	16.23	16.97	17.26	18.63