

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: P926642

Luminaire Tested: DFN2DIP-TR4F0-110D100US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926642
REPORT IS A COMBINATION OF REPORTS P900491 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D100US950-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

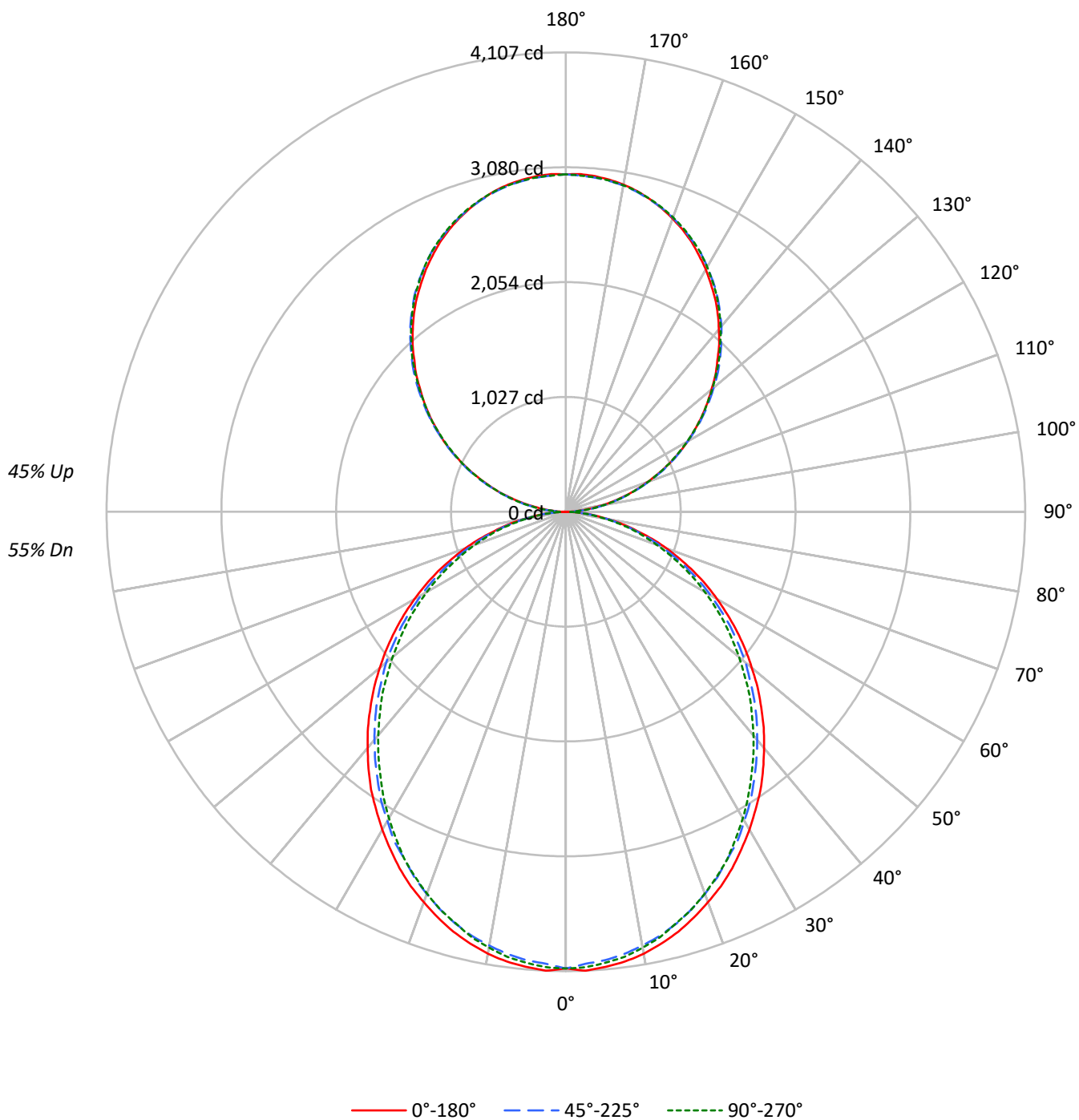
Lumens per Lamp: N/A
Luminaire Lumens: 18832.0 lumens
Efficiency: N/A
Efficacy: 99.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 189
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: P926642

CATALOG NUMBER: DFN2DIP-TR4F0-110D100US950-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P926642

CATALOG NUMBER: DFN2DIP-TR4F0-110D100US950-FLLFLL

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	101	101	101	101	86	86	86	73	73	73	61	61	61
1	99	95	91	87	92	88	85	82	76	73	71	64	63	61	54	53	51
2	90	83	76	71	83	77	72	67	66	62	59	56	53	51	47	45	43
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37
4	75	64	56	50	70	60	53	47	52	46	42	45	40	37	38	34	32
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	30	28
6	64	51	43	37	59	48	41	36	42	36	32	36	32	28	31	27	24
7	59	47	38	33	55	44	36	31	38	32	28	33	28	25	28	24	22
8	55	42	34	29	51	40	33	28	35	29	25	30	26	22	26	22	19
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3244	3244	3244
5°	3249	3199	3220
10°	3223	3156	3176
15°	3175	3104	3108
20°	3111	3031	3038
25°	3048	2945	2958
30°	2968	2865	2855
35°	2892	2770	2746
40°	2799	2674	2643
45°	2706	2578	2538
50°	2605	2477	2415
55°	2499	2361	2303
60°	2379	2223	2174
65°	2248	2080	2021
70°	2081	1905	1858
75°	1849	1696	1707
80°	1572	1429	1418
85°	1137	970	940

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2706 cd/sqm

TEST NUMBER: P926642

CATALOG NUMBER: DFN2DIP-TR4F0-110D100US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	384.3	2.0
10°-20°	1081.3	5.7
20°-30°	1589.1	8.4
30°-40°	1845.7	9.8
40°-50°	1843.4	9.8
50°-60°	1607.4	8.5
60°-70°	1188.2	6.3
70°-80°	672.3	3.6
80°-90°	186.0	1.0
90°-100°	186.7	1.0
100°-110°	593.2	3.2
110°-120°	1015.2	5.4
120°-130°	1335.1	7.1
130°-140°	1498.6	8.0
140°-150°	1469.5	7.8
150°-160°	1232.7	6.5
160°-170°	817.5	4.3
170°-180°	285.7	1.5
0°-30°	3054.8	16.2
0°-40°	4900.4	26.0
0°-60°	8351.2	44.3
0°-90°	10397.7	55.2
90°-120°	1795.1	9.5
90°-150°	6098.3	32.4
90°-180°	8434.0	44.8
0°-180°	18832.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4083	4083	4083	4083	4083	
5°	4083	4068	4024	4056	4048	388
15°	3887	3864	3812	3828	3809	1095
25°	3518	3487	3420	3428	3420	1619
35°	3035	2996	2933	2909	2890	1895
45°	2470	2442	2383	2340	2324	1906
55°	1869	1845	1798	1751	1732	1671
65°	1260	1237	1198	1162	1143	1246
75°	659	652	632	609	617	704
85°	161	157	153	141	138	179
90°	3	33	89	84	86	18
95°	133	158	163	163	158	148
105°	548	555	560	565	565	578
115°	1019	1033	1029	1026	1019	1008
125°	1482	1504	1497	1489	1486	1324
135°	1916	1945	1950	1948	1940	1481
145°	2327	2345	2360	2362	2352	1454
155°	2661	2668	2676	2689	2680	1225
165°	2894	2892	2892	2910	2897	817
175°	3012	3004	2999	3017	3002	286
180°	3017	3017	3017	3017	3017	

TEST NUMBER: P926642

CATALOG NUMBER: DFN2DIP-TR4F0-110D100US950-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4083.3	4083.3	4083.3	4083.3	4083.3
2.5°	4107.0	4087.4	4044.1	4083.3	4075.8
5°	4083.3	4067.9	4024.5	4055.7	4048.3
7.5°	4055.7	4032.5	3989.2	4020.8	4012.9
10°	4012.9	3985.3	3938.3	3969.5	3957.9
12.5°	3953.8	3930.4	3883.4	3902.9	3895.0
15°	3887.1	3863.7	3812.5	3828.3	3808.7
17.5°	3804.6	3781.3	3730.0	3749.6	3730.0
20°	3714.2	3690.8	3635.9	3647.5	3632.2
22.5°	3624.2	3588.8	3537.5	3537.5	3529.6
25°	3518.0	3486.8	3420.1	3427.6	3420.1
27.5°	3400.1	3372.6	3321.7	3310.1	3290.5
30°	3282.6	3250.9	3192.2	3180.5	3164.7
32.5°	3156.8	3133.5	3070.5	3046.8	3031.0
35°	3035.2	2996.0	2933.1	2909.3	2889.8
37.5°	2897.7	2862.3	2799.4	2771.8	2752.3
40°	2756.5	2724.8	2661.9	2626.9	2611.1
42.5°	2619.0	2587.3	2524.9	2485.3	2462.0
45°	2469.9	2442.3	2383.2	2340.4	2324.5
47.5°	2324.5	2297.0	2234.1	2190.8	2167.4
50°	2171.2	2151.7	2096.6	2041.7	2022.1
52.5°	2022.1	1994.5	1943.8	1900.4	1872.9
55°	1869.2	1845.4	1798.4	1751.3	1731.7
57.5°	1715.9	1696.3	1645.1	1597.9	1582.1
60°	1562.6	1547.2	1492.2	1448.8	1437.2
62.5°	1413.4	1386.0	1346.8	1307.6	1291.8
65°	1260.5	1236.8	1197.7	1162.3	1142.7
67.5°	1103.5	1083.6	1048.5	1021.1	1005.2
70°	958.1	942.3	906.9	879.4	863.9
72.5°	809.0	793.2	773.6	746.1	734.4
75°	659.4	652.0	631.9	608.7	616.6
77.5°	526.1	510.3	502.4	490.7	479.1
80°	392.9	388.7	380.7	369.1	361.2
82.5°	267.0	267.0	263.3	247.5	247.5
85°	160.8	157.0	153.3	141.2	137.5
87.5°	70.8	62.9	55.0	43.3	39.1
90°	2.8	32.7	89.1	83.7	86.4
92.5°	56.4	76.4	79.2	81.9	81.9
95°	132.8	158.3	162.8	162.8	158.3
97.5°	221.0	244.7	254.7	254.7	254.7
100°	322.9	343.8	351.1	351.1	348.4
102.5°	430.3	445.7	455.7	458.4	455.7
105°	547.6	554.8	560.3	564.9	564.9
107.5°	664.0	675.0	675.0	676.8	664.0
110°	776.8	791.3	791.3	791.3	784.1

TEST NUMBER: P926642

CATALOG NUMBER: DFN2DIP-TR4F0-110D100US950-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	898.7	914.1	911.5	904.1	898.7
115°	1018.8	1033.3	1028.8	1026.0	1018.8
117.5°	1137.9	1158.0	1145.2	1137.9	1130.6
120°	1257.9	1278.0	1257.9	1257.9	1249.8
122.5°	1367.1	1392.6	1379.9	1372.6	1367.1
125°	1481.8	1504.5	1497.2	1489.0	1486.3
127.5°	1593.7	1621.8	1611.8	1600.9	1593.7
130°	1698.2	1730.9	1726.5	1720.9	1711.0
132.5°	1815.6	1841.0	1842.8	1830.2	1822.8
135°	1916.5	1944.7	1950.2	1947.5	1940.1
137.5°	2029.3	2052.1	2056.6	2054.8	2043.8
140°	2128.5	2151.2	2164.0	2164.0	2153.9
142.5°	2230.4	2253.1	2260.3	2263.1	2253.1
145°	2326.7	2344.9	2359.5	2362.2	2352.2
147.5°	2413.1	2435.9	2446.8	2451.4	2441.4
150°	2502.3	2517.8	2527.8	2535.9	2527.8
152.5°	2581.4	2596.9	2609.7	2619.7	2609.7
155°	2660.6	2667.9	2676.1	2688.8	2680.5
157.5°	2728.8	2734.3	2738.8	2757.0	2744.3
160°	2789.8	2795.2	2797.9	2813.3	2802.5
162.5°	2846.2	2846.2	2848.8	2866.1	2853.4
165°	2894.3	2891.6	2891.6	2909.8	2897.1
167.5°	2938.0	2929.8	2929.8	2948.1	2935.3
170°	2970.8	2963.5	2960.7	2979.0	2963.5
172.5°	2993.5	2986.2	2983.4	3001.7	2986.2
175°	3011.7	3004.4	2999.0	3017.1	3001.7
177.5°	3021.7	3014.4	3008.9	3024.4	3008.9
180°	3017.1	3017.1	3017.1	3017.1	3017.1

TEST NUMBER: P926642

CATALOG NUMBER: DFN2DIP-TR4F0-110D100US950-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	11.82	12.73	12.73	13.66	14.86	11.39	12.30	12.30	13.23	14.43
	3H	13.49	14.30	14.41	15.24	16.46	13.01	13.83	13.94	14.77	15.99
	4H	14.08	14.85	15.01	15.79	17.02	13.60	14.38	14.54	15.32	16.55
	6H	14.48	15.19	15.43	16.14	17.38	14.00	14.71	14.95	15.67	16.91
	8H	14.58	15.26	15.54	16.23	17.47	14.11	14.79	15.07	15.76	16.99
	12H	14.63	15.28	15.60	16.24	17.51	14.15	14.80	15.12	15.76	17.02
4H	2H	12.29	13.06	13.23	14.01	15.24	11.95	12.72	12.89	13.66	14.89
	3H	14.16	14.81	15.11	15.78	17.02	13.77	14.41	14.72	15.39	16.63
	4H	14.88	15.47	15.84	16.43	17.70	14.47	15.06	15.43	16.03	17.30
	6H	15.39	15.90	16.37	16.89	18.16	14.99	15.49	15.96	16.49	17.75
	8H	15.55	16.02	16.52	17.01	18.29	15.13	15.61	16.11	16.59	17.87
	12H	15.62	16.05	16.62	17.05	18.34	15.20	15.63	16.20	16.63	17.92
8H	4H	15.08	15.55	16.05	16.54	17.82	14.72	15.19	15.69	16.18	17.46
	6H	15.71	16.10	16.71	17.13	18.41	15.35	15.74	16.35	16.77	18.05
	8H	15.93	16.28	16.94	17.29	18.59	15.56	15.91	16.57	16.92	18.22
	12H	16.07	16.37	17.08	17.38	18.72	15.68	15.99	16.70	17.00	18.34
12H	4H	15.07	15.49	16.06	16.50	17.78	14.71	15.14	15.71	16.14	17.43
	6H	15.74	16.09	16.75	17.10	18.40	15.39	15.74	16.40	16.75	18.05
	8H	15.99	16.29	17.00	17.30	18.64	15.63	15.93	16.64	16.94	18.28