

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: P912993

Luminaire Tested: DFN2DIP-TR4F0-110D070US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912993
REPORT IS A COMBINATION OF REPORTS P901958 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D070US850-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

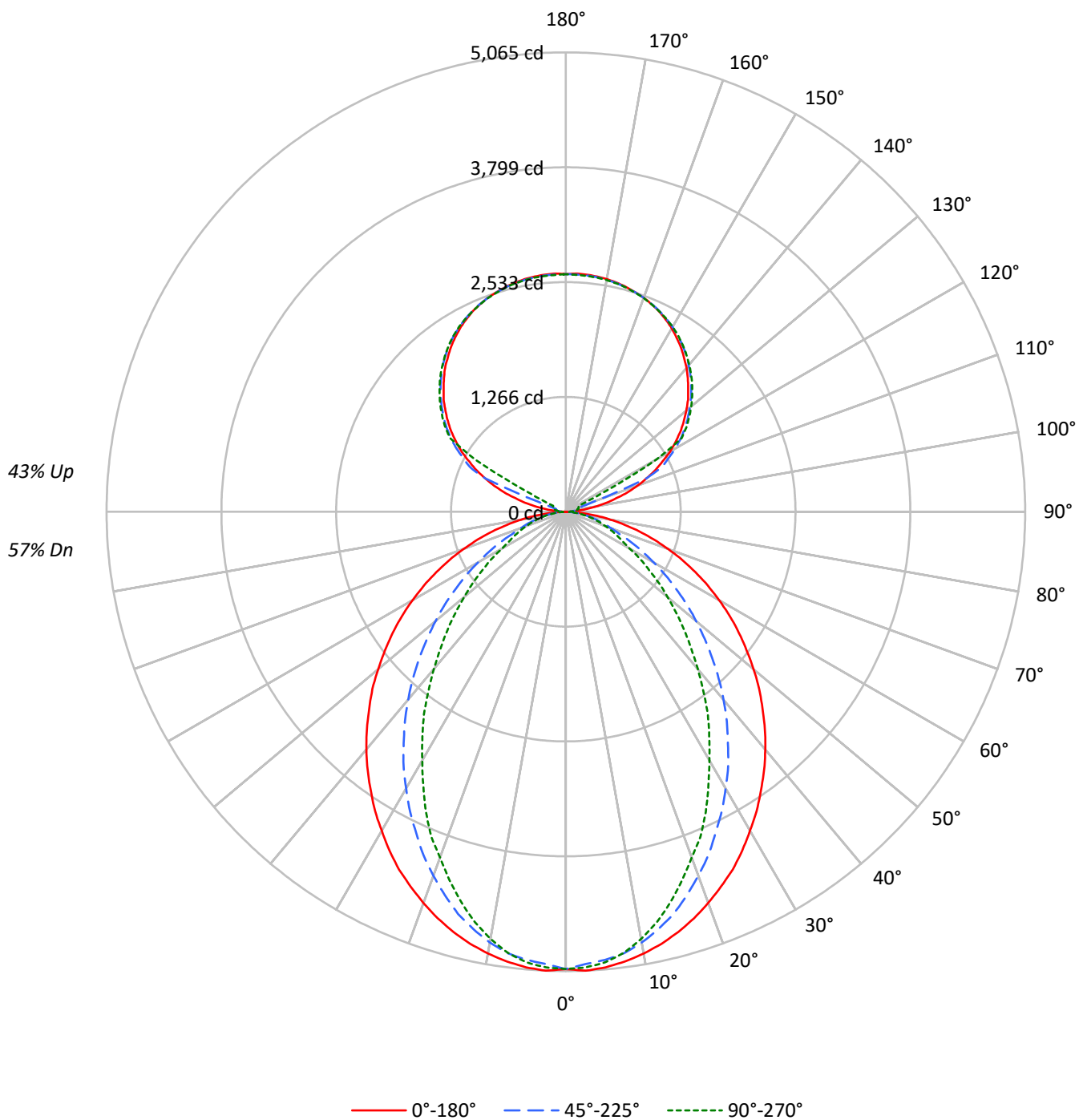
Lumens per Lamp: N/A
Luminaire Lumens: 18054.5 lumens
Efficiency: N/A
Efficacy: 109.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.8
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

TEST NUMBER: P912993

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US850-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P912993

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US850-RLLONL

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		101	101	101	101		87	87	87		75	75	75		63	63	63
1	100	96	92	89		93	89	86	83		78	75	73		67	65	63		57	55	54
2	92	84	78	73		85	79	74	69		69	65	61		59	56	54		50	48	47
3	84	75	68	62		78	70	64	59		61	56	52		53	49	46		45	43	40
4	77	66	59	53		72	62	56	50		55	49	45		47	43	40		41	38	35
5	71	60	52	46		66	56	49	44		49	44	39		43	39	35		37	34	31
6	66	54	46	40		61	51	43	38		45	39	35		39	35	31		34	30	28
7	61	49	41	35		57	46	39	34		41	35	31		36	31	28		31	27	25
8	57	44	37	32		53	42	35	30		37	32	28		33	28	25		29	25	22
9	53	41	33	28		49	38	32	27		34	29	25		30	26	23		27	23	20
10	49	37	30	26		46	35	29	25		32	26	23		28	24	21		25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4005	4005	4005
5°	4012	3942	3967
10°	3972	3864	3838
15°	3917	3737	3638
20°	3845	3561	3393
25°	3771	3363	3157
30°	3672	3161	2857
35°	3574	2943	2593
40°	3475	2718	2291
45°	3360	2468	2017
50°	3241	2216	1750
55°	3116	1947	1493
60°	2973	1665	1229
65°	2807	1378	1105
70°	2606	1111	1000
75°	2354	980	910
80°	1989	822	789
85°	1387	548	592

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3360 cd/sqm

TEST NUMBER: P912993

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US850-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	472.5	2.6
10°-20°	1297.2	7.2
20°-30°	1821.2	10.1
30°-40°	1985.2	11.0
40°-50°	1824.6	10.1
50°-60°	1433.0	7.9
60°-70°	932.7	5.2
70°-80°	480.1	2.7
80°-90°	127.2	0.7
90°-100°	86.4	0.5
100°-110°	322.1	1.8
110°-120°	854.1	4.7
120°-130°	1416.6	7.8
130°-140°	1504.8	8.3
140°-150°	1398.5	7.7
150°-160°	1124.4	6.2
160°-170°	724.5	4.0
170°-180°	249.4	1.4
0°-30°	3590.9	19.9
0°-40°	5576.1	30.9
0°-60°	8833.7	48.9
0°-90°	10373.8	57.5
90°-120°	1262.6	7.0
90°-150°	5582.5	30.9
90°-180°	7681.0	42.5
0°-180°	18054.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5042	5042	5042	5042	5042	
5°	5042	5019	4960	5001	4987	478
15°	4795	4745	4590	4504	4458	1351
25°	4353	4207	3906	3719	3650	2002
35°	3751	3518	3117	2829	2728	2348
45°	3066	2760	2282	1957	1848	2368
55°	2331	1976	1483	1209	1123	2083
65°	1574	1204	794	639	625	1561
75°	839	520	365	333	329	888
85°	196	100	87	87	87	225
90°	2	23	38	48	51	17
95°	123	61	74	84	82	146
105°	576	633	116	136	144	616
115°	1090	1122	1170	292	156	1073
125°	1541	1566	1602	1615	1621	1375
135°	1907	1938	1954	1974	1970	1473
145°	2212	2210	2243	2256	2246	1384
155°	2436	2419	2442	2453	2438	1123
165°	2567	2556	2561	2574	2561	725
175°	2626	2612	2616	2629	2610	250
180°	2620	2620	2620	2620	2620	

TEST NUMBER: P912993

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US850-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5041.8	5041.8	5041.8	5041.8	5041.8
2.5°	5064.6	5041.8	4991.5	5037.5	5028.3
5°	5041.8	5019.1	4959.6	5000.7	4987.2
7.5°	5000.7	4973.5	4909.7	4927.6	4904.8
10°	4946.0	4914.0	4823.0	4809.0	4781.9
12.5°	4877.7	4836.6	4713.1	4686.0	4635.6
15°	4795.4	4745.1	4590.2	4503.5	4458.0
17.5°	4699.6	4626.5	4434.8	4334.5	4261.4
20°	4590.2	4498.7	4270.6	4156.9	4056.2
22.5°	4471.6	4366.5	4101.7	3946.8	3878.5
25°	4352.9	4206.8	3905.7	3718.8	3650.1
27.5°	4211.6	4056.2	3723.1	3508.7	3403.6
30°	4061.0	3887.3	3522.3	3289.8	3166.4
32.5°	3914.9	3704.7	3331.0	3057.1	2942.8
35°	3750.7	3517.9	3116.6	2829.1	2728.4
37.5°	3591.1	3339.8	2915.7	2600.5	2486.8
40°	3422.0	3148.6	2705.6	2381.7	2263.1
42.5°	3248.7	2956.8	2496.0	2158.1	2044.3
45°	3066.3	2760.3	2281.5	1957.2	1847.8
47.5°	2892.9	2569.1	2076.3	1751.9	1651.7
50°	2701.2	2377.4	1875.4	1560.3	1464.9
52.5°	2513.9	2171.6	1683.7	1382.6	1295.9
55°	2331.3	1975.6	1482.7	1209.3	1122.6
57.5°	2144.6	1779.5	1305.1	1049.6	976.4
60°	1952.8	1587.9	1117.8	885.4	812.3
62.5°	1766.0	1401.0	958.1	739.3	702.9
65°	1574.2	1204.4	793.9	639.0	624.9
67.5°	1391.8	1021.9	639.0	561.0	547.5
70°	1200.0	844.3	529.1	483.6	465.2
72.5°	1017.5	679.7	442.5	406.1	396.9
75°	839.4	519.9	365.0	333.0	328.7
77.5°	661.7	369.4	287.6	269.2	259.9
80°	497.2	264.8	218.8	201.0	201.0
82.5°	346.6	178.1	150.6	141.4	141.4
85°	196.1	100.3	86.6	86.6	86.6
87.5°	73.1	36.3	36.3	31.9	31.9
90°	1.8	22.7	37.8	47.5	51.1
92.5°	47.5	39.8	45.5	49.4	51.1
95°	123.1	60.6	73.9	83.5	81.5
97.5°	221.7	66.4	96.6	102.5	104.2
100°	335.7	75.9	108.0	123.1	127.0
102.5°	460.6	457.0	111.9	132.6	138.4
105°	576.3	633.2	115.7	136.4	144.1
107.5°	710.9	758.2	119.6	140.3	147.9
110°	840.0	879.5	331.8	142.3	149.7



TEST NUMBER: P912993

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US850-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	961.3	995.2	963.1	145.8	151.7
115°	1090.0	1122.2	1169.7	292.0	155.6
117.5°	1201.9	1239.8	1272.1	1000.9	504.3
120°	1327.0	1355.4	1389.7	1412.4	1156.5
122.5°	1433.0	1463.4	1501.6	1512.8	1514.8
125°	1541.2	1565.9	1602.0	1615.3	1620.8
127.5°	1639.8	1666.3	1694.9	1713.8	1715.6
130°	1732.7	1763.1	1783.8	1804.8	1803.0
132.5°	1827.5	1852.3	1873.0	1890.1	1888.3
135°	1907.1	1937.5	1954.5	1973.6	1969.8
137.5°	1990.4	2013.3	2032.4	2051.3	2045.7
140°	2071.9	2087.2	2108.0	2125.1	2115.6
142.5°	2140.4	2153.7	2178.2	2193.3	2183.8
145°	2212.5	2210.5	2242.6	2255.9	2246.5
147.5°	2274.8	2269.2	2301.4	2310.8	2303.4
150°	2335.6	2322.4	2352.7	2363.9	2354.5
152.5°	2386.7	2371.6	2400.0	2411.4	2398.2
155°	2436.0	2419.1	2441.8	2453.1	2438.0
157.5°	2475.8	2460.8	2477.8	2491.1	2475.8
160°	2510.1	2498.6	2510.1	2521.3	2508.0
162.5°	2540.3	2529.0	2538.4	2551.7	2534.6
165°	2566.8	2555.6	2561.1	2574.4	2561.1
167.5°	2587.7	2576.2	2582.1	2595.4	2578.3
170°	2604.8	2593.4	2597.2	2610.5	2593.4
172.5°	2616.1	2604.8	2608.7	2621.9	2604.8
175°	2625.6	2612.2	2616.1	2629.3	2610.5
177.5°	2629.3	2616.1	2618.1	2631.4	2614.2
180°	2619.9	2619.9	2619.9	2619.9	2619.9

TEST NUMBER: P912993

CATALOG NUMBER: DFN2DIP-TR4F0-110D070US850-RLLONL

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	12.63	13.53	13.53	14.44	15.60	8.61	9.50	9.50	10.41	11.58
	3H	14.31	15.12	15.22	16.04	17.23	9.80	10.60	10.71	11.52	12.71
	4H	14.93	15.68	15.85	16.61	17.81	10.25	11.01	11.18	11.94	13.14
	6H	15.35	16.05	16.29	16.98	18.19	10.58	11.28	11.52	12.21	13.42
	8H	15.48	16.14	16.42	17.09	18.30	10.67	11.33	11.62	12.28	13.49
	12H	15.54	16.17	16.49	17.12	18.35	10.72	11.35	11.67	12.29	13.53
4H	2H	12.66	13.41	13.59	14.34	15.54	9.21	9.97	10.14	10.89	12.09
	3H	14.49	15.12	15.43	16.08	17.29	10.57	11.19	11.51	12.15	13.36
	4H	15.19	15.76	16.14	16.71	17.95	11.12	11.69	12.07	12.64	13.88
	6H	15.71	16.20	16.67	17.18	18.41	11.54	12.03	12.50	13.01	14.25
	8H	15.88	16.34	16.85	17.31	18.56	11.67	12.13	12.64	13.10	14.35
	12H	15.98	16.40	16.96	17.38	18.64	11.74	12.15	12.72	13.14	14.40
8H	4H	15.16	15.62	16.13	16.59	17.84	11.40	11.86	12.37	12.83	14.08
	6H	15.73	16.11	16.72	17.12	18.37	11.92	12.30	12.91	13.32	14.57
	8H	15.95	16.28	16.95	17.28	18.55	12.12	12.45	13.12	13.45	14.72
	12H	16.09	16.38	17.09	17.38	18.69	12.24	12.53	13.24	13.53	14.84
12H	4H	15.12	15.53	16.10	16.52	17.77	11.41	11.82	12.39	12.81	14.07
	6H	15.71	16.04	16.70	17.04	18.31	11.97	12.31	12.97	13.31	14.58
	8H	15.93	16.22	16.93	17.22	18.53	12.19	12.48	13.19	13.48	14.79