

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: P923880

Luminaire Tested: DFN2DIP-TR4F0-100D100US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923880
REPORT IS A COMBINATION OF REPORTS P900490 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D100US940-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

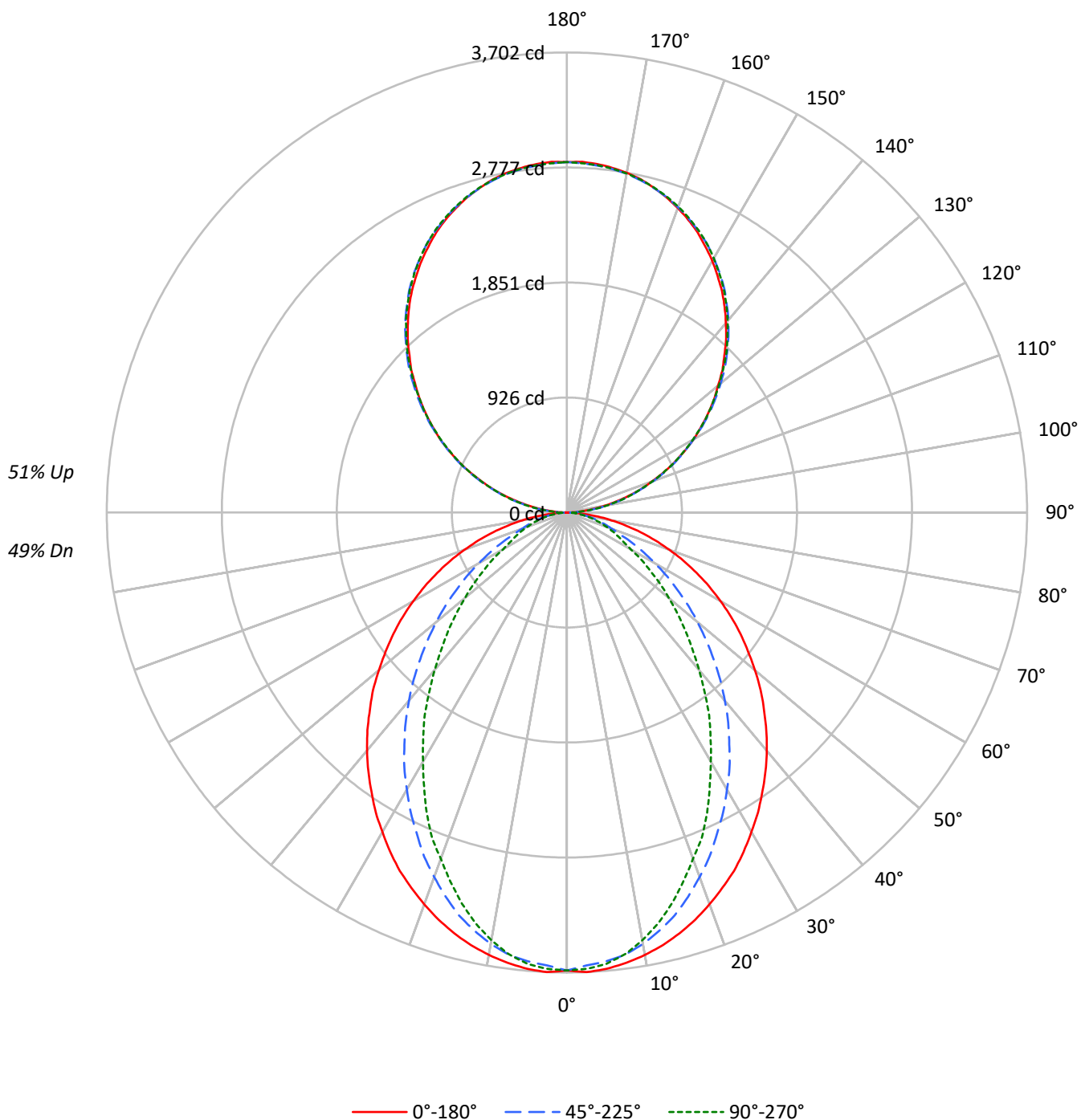
Lumens per Lamp: N/A
Luminaire Lumens: 15471.2 lumens
Efficiency: N/A
Efficacy: 87.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 177.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P923880

CATALOG NUMBER: DFN2DIP-TR4F0-100D100US940-RLLFLL

Luminous Intensity Polar Plot



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CATALOG NUMBER: DFN2DIP-TR4F0-100D100US940-RLLFLL

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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2928	2928	2928
5°	2933	2881	2900
10°	2904	2825	2805
15°	2864	2731	2659
20°	2811	2603	2480
25°	2757	2458	2307
30°	2684	2310	2088
35°	2613	2151	1895
40°	2540	1987	1675
45°	2456	1804	1474
50°	2369	1620	1279
55°	2278	1423	1091
60°	2173	1217	898
65°	2052	1008	808
70°	1905	812	731
75°	1721	716	665
80°	1454	601	577
85°	1013	401	433

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2456 cd/sqm

TEST NUMBER: P923880

CATALOG NUMBER: DFN2DIP-TR4F0-100D100US940-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.4	2.2
10°-20°	948.2	6.1
20°-30°	1331.2	8.6
30°-40°	1451.1	9.4
40°-50°	1333.8	8.6
50°-60°	1047.4	6.8
60°-70°	681.8	4.4
70°-80°	351.0	2.3
80°-90°	97.6	0.6
90°-100°	174.5	1.1
100°-110°	554.5	3.6
110°-120°	948.9	6.1
120°-130°	1247.9	8.1
130°-140°	1400.8	9.1
140°-150°	1373.6	8.9
150°-160°	1152.3	7.4
160°-170°	764.1	4.9
170°-180°	267.1	1.7
0°-30°	2624.8	17.0
0°-40°	4076.0	26.3
0°-60°	6457.2	41.7
0°-90°	7587.5	49.0
90°-120°	1677.9	10.8
90°-150°	5700.1	36.8
90°-180°	7884.0	51.0
0°-180°	15471.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3669	3625	3655	3645	349
15°	3505	3468	3355	3292	3259	988
25°	3182	3075	2855	2718	2668	1463
35°	2742	2572	2278	2068	1994	1716
45°	2241	2018	1668	1431	1351	1731
55°	1704	1444	1084	884	821	1523
65°	1151	880	580	467	457	1141
75°	614	380	267	243	240	649
85°	143	73	63	63	63	164
90°	3	31	83	78	81	15
95°	124	148	152	152	148	138
105°	512	519	524	528	528	540
115°	952	966	962	959	952	942
125°	1385	1406	1400	1392	1389	1238
135°	1791	1818	1823	1820	1814	1385
145°	2175	2192	2206	2208	2199	1359
155°	2487	2494	2501	2513	2506	1145
165°	2705	2703	2703	2720	2708	763
175°	2815	2808	2803	2820	2806	267
180°	2820	2820	2820	2820	2820	

TEST NUMBER: P923880

CATALOG NUMBER: DFN2DIP-TR4F0-100D100US940-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.4	3685.4	3685.4	3685.4	3685.4
2.5°	3702.0	3685.4	3648.6	3682.2	3675.5
5°	3685.4	3668.8	3625.2	3655.4	3645.4
7.5°	3655.4	3635.5	3588.8	3601.9	3585.3
10°	3615.4	3592.0	3525.5	3515.2	3495.4
12.5°	3565.5	3535.4	3445.1	3425.3	3388.5
15°	3505.3	3468.5	3355.2	3291.9	3258.7
17.5°	3435.2	3381.8	3241.7	3168.4	3115.0
20°	3355.2	3288.4	3121.7	3038.6	2964.9
22.5°	3268.6	3191.8	2998.2	2885.0	2835.1
25°	3181.9	3075.1	2854.9	2718.3	2668.1
27.5°	3078.5	2964.9	2721.5	2564.7	2488.0
30°	2968.5	2841.4	2574.6	2404.9	2314.6
32.5°	2861.7	2708.0	2434.9	2234.6	2151.1
35°	2741.7	2571.5	2278.1	2068.0	1994.3
37.5°	2624.9	2441.2	2131.3	1900.9	1817.8
40°	2501.4	2301.5	1977.7	1741.0	1654.3
42.5°	2374.7	2161.3	1824.5	1577.5	1494.3
45°	2241.3	2017.7	1667.8	1430.7	1350.7
47.5°	2114.7	1877.9	1517.7	1280.6	1207.4
50°	1974.5	1737.8	1370.8	1140.5	1070.8
52.5°	1837.5	1587.4	1230.7	1010.6	947.3
55°	1704.1	1444.1	1083.9	884.0	820.6
57.5°	1567.6	1300.7	954.0	767.1	713.7
60°	1427.4	1160.7	817.1	647.2	593.8
62.5°	1290.8	1024.0	700.3	540.4	513.8
65°	1150.8	880.4	580.3	467.1	456.8
67.5°	1017.4	747.0	467.1	410.1	400.2
70°	877.2	617.2	386.7	353.5	340.1
72.5°	743.8	496.8	323.4	296.9	290.2
75°	613.6	380.0	266.8	243.4	240.2
77.5°	483.8	270.0	210.2	196.7	190.0
80°	363.4	193.6	160.0	146.9	146.9
82.5°	253.3	130.2	110.0	103.3	103.3
85°	143.3	73.2	63.3	63.3	63.3
87.5°	53.4	26.6	26.6	23.4	23.4
90°	2.6	30.6	83.3	78.2	80.8
92.5°	52.7	71.4	74.0	76.5	76.5
95°	124.1	147.9	152.2	152.2	147.9
97.5°	206.6	228.7	238.1	238.1	238.1
100°	301.8	321.4	328.1	328.1	325.7
102.5°	402.2	416.6	426.0	428.5	426.0
105°	511.8	518.6	523.7	528.0	528.0
107.5°	620.6	630.9	630.9	632.6	620.6
110°	726.1	739.7	739.7	739.7	732.9

TEST NUMBER: P923880

CATALOG NUMBER: DFN2DIP-TR4F0-100D100US940-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	840.0	854.4	851.9	845.1	840.0
115°	952.3	965.8	961.6	959.0	952.3
117.5°	1063.6	1082.4	1070.4	1063.6	1056.8
120°	1175.8	1194.5	1175.8	1175.8	1168.2
122.5°	1277.8	1301.6	1289.8	1283.0	1277.8
125°	1385.0	1406.2	1399.5	1391.8	1389.3
127.5°	1489.6	1515.9	1506.5	1496.4	1489.6
130°	1587.3	1617.9	1613.7	1608.6	1599.3
132.5°	1697.0	1720.8	1722.5	1710.7	1703.8
135°	1791.4	1817.8	1822.8	1820.3	1813.5
137.5°	1896.8	1918.1	1922.3	1920.7	1910.4
140°	1989.5	2010.7	2022.7	2022.7	2013.3
142.5°	2084.7	2106.0	2112.7	2115.3	2106.0
145°	2174.8	2191.8	2205.5	2208.0	2198.6
147.5°	2255.6	2276.9	2287.1	2291.3	2282.0
150°	2339.0	2353.4	2362.8	2370.3	2362.8
152.5°	2412.9	2427.3	2439.3	2448.6	2439.3
155°	2486.9	2493.7	2501.3	2513.2	2505.5
157.5°	2550.6	2555.7	2560.0	2577.0	2565.1
160°	2607.6	2612.7	2615.2	2629.7	2619.5
162.5°	2660.3	2660.3	2662.8	2679.0	2667.1
165°	2705.4	2702.8	2702.8	2719.8	2707.9
167.5°	2746.2	2738.5	2738.5	2755.6	2743.6
170°	2776.8	2770.0	2767.4	2784.5	2770.0
172.5°	2798.0	2791.2	2788.6	2805.7	2791.2
175°	2815.0	2808.3	2803.2	2820.1	2805.7
177.5°	2824.4	2817.6	2812.5	2826.9	2812.5
180°	2820.1	2820.1	2820.1	2820.1	2820.1

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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	10.78	11.60	11.75	12.59	13.87	6.76	7.58	7.73	8.56	9.85
	3H	12.46	13.19	13.44	14.18	15.49	7.94	8.68	8.93	9.67	10.98
	4H	13.07	13.76	14.06	14.76	16.07	8.40	9.09	9.39	10.08	11.40
	6H	13.49	14.13	14.49	15.13	16.46	8.72	9.36	9.72	10.36	11.69
	8H	13.61	14.22	14.63	15.24	16.56	8.81	9.42	9.82	10.43	11.76
	12H	13.68	14.25	14.69	15.26	16.61	8.85	9.43	9.87	10.44	11.79
4H	2H	10.80	11.49	11.80	12.49	13.81	7.35	8.05	8.35	9.04	10.36
	3H	12.63	13.21	13.64	14.23	15.56	8.70	9.28	9.71	10.30	11.63
	4H	13.32	13.85	14.34	14.86	16.22	9.25	9.78	10.27	10.79	12.15
	6H	13.83	14.29	14.86	15.33	16.68	9.67	10.12	10.70	11.16	12.51
	8H	14.01	14.43	15.04	15.46	16.83	9.80	10.22	10.83	11.25	12.62
	12H	14.10	14.49	15.15	15.53	16.90	9.86	10.25	10.91	11.29	12.66
8H	4H	13.29	13.71	14.32	14.74	16.11	9.53	9.95	10.56	10.98	12.35
	6H	13.85	14.20	14.91	15.28	16.64	10.05	10.40	11.10	11.47	12.83
	8H	14.07	14.38	15.13	15.44	16.82	10.24	10.55	11.30	11.61	12.99
	12H	14.21	14.48	15.27	15.53	16.96	10.36	10.63	11.42	11.68	13.11
12H	4H	13.24	13.62	14.29	14.67	16.04	9.53	9.91	10.58	10.96	12.33
	6H	13.83	14.14	14.89	15.20	16.58	10.10	10.40	11.16	11.46	12.85
	8H	14.05	14.32	15.11	15.37	16.80	10.31	10.58	11.37	11.63	13.06