

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: P907473

Luminaire Tested: DFN2DIP-TR4F0-090D090US835-RLONL

Issue Date: 11/21/2024

**Test Information**

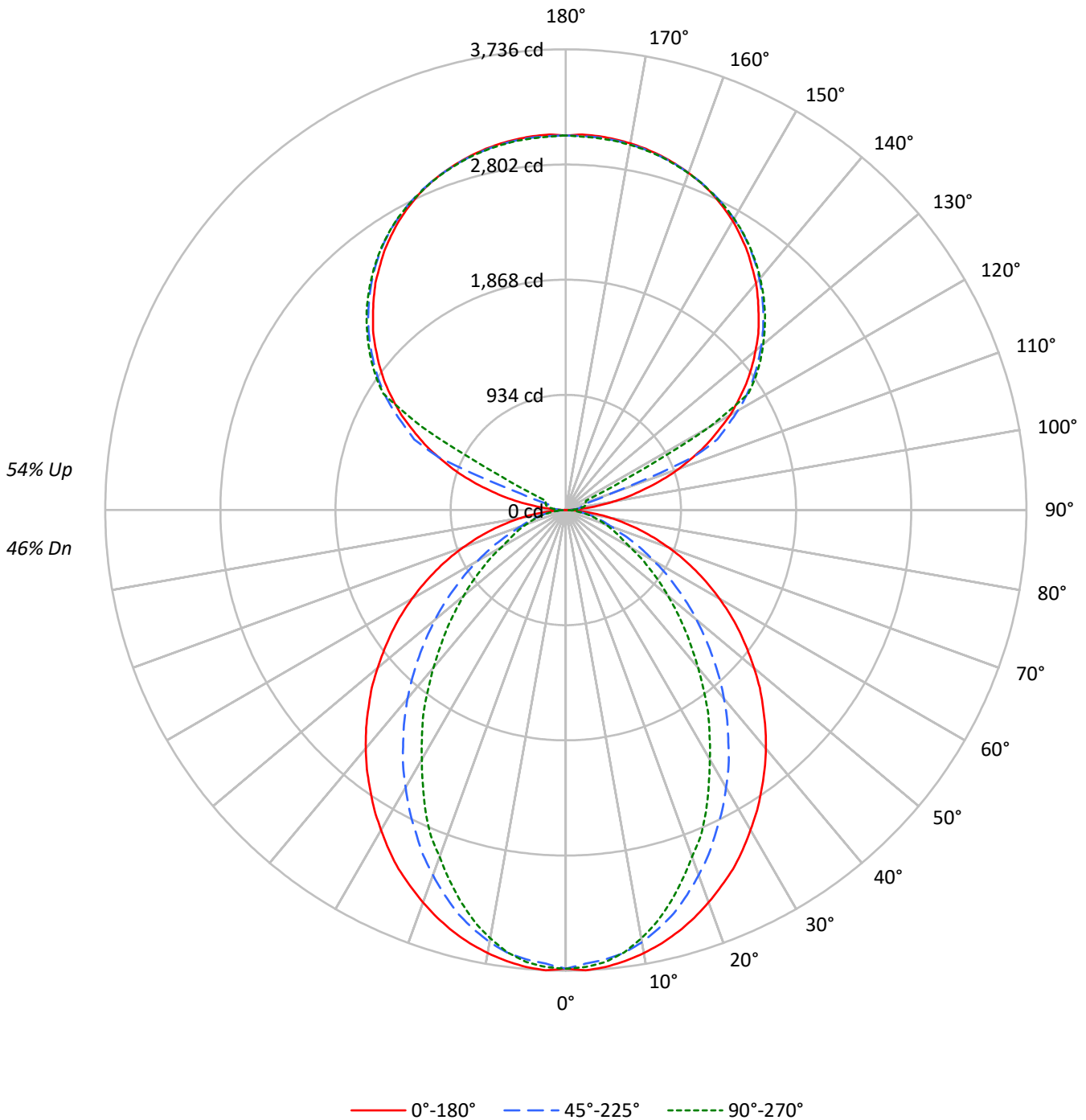
Test Method: LM-79-2019  
Report Number: P907473  
REPORT IS A COMBINATION OF REPORTS P901990 AND P898849  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-090D090US835-RLLONL  
Description: 4 foot, 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: 16560.0 lumens  
Efficiency: N/A  
Efficacy: 106.8 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): 155.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.099  
Total Harmonic Distortion (THDi): 0.979  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P907473  
CATALOG NUMBER: DFN2DIP-TR4F0-090D090US835-RLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P907473

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US835-RLLONL

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				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	50	30	10	0
RCR																					
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13			13

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2955	2955	2955
5°	2960	2908	2927
10°	2931	2851	2831
15°	2890	2757	2684
20°	2837	2627	2503
25°	2782	2481	2329
30°	2709	2332	2107
35°	2637	2171	1913
40°	2564	2005	1690
45°	2479	1821	1488
50°	2391	1635	1291
55°	2299	1436	1101
60°	2193	1228	906
65°	2071	1017	816
70°	1923	820	738
75°	1737	723	671
80°	1468	606	582
85°	1023	404	437

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2479 cd/sqm



TEST NUMBER: P907473

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US835-RLLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	348.6	2.1
10°-20°	957.0	5.8
20°-30°	1343.6	8.1
30°-40°	1464.6	8.8
40°-50°	1346.2	8.1
50°-60°	1057.2	6.4
60°-70°	688.1	4.2
70°-80°	354.2	2.1
80°-90°	95.8	0.6
90°-100°	100.2	0.6
100°-110°	373.4	2.3
110°-120°	990.2	6.0
120°-130°	1642.4	9.9
130°-140°	1744.6	10.5
140°-150°	1621.4	9.8
150°-160°	1303.5	7.9
160°-170°	840.0	5.1
170°-180°	289.1	1.7
0°-30°	2649.2	16.0
0°-40°	4113.9	24.8
0°-60°	6517.2	39.4
0°-90°	7655.4	46.2
90°-120°	1463.7	8.8
90°-150°	6472.0	39.1
90°-180°	8905.0	53.8
0°-180°	16560.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3720	3720	3720	3720	3720	
5°	3720	3703	3659	3689	3679	353
15°	3538	3501	3386	3322	3289	997
25°	3212	3104	2882	2744	2693	1477
35°	2767	2595	2299	2087	2013	1732
45°	2262	2036	1683	1444	1363	1747
55°	1720	1458	1094	892	828	1537
65°	1161	889	586	471	461	1151
75°	619	384	269	246	242	655
85°	145	74	64	64	64	166
90°	2	26	44	55	59	16
95°	143	70	86	97	94	169
105°	668	734	134	158	167	714
115°	1264	1301	1356	338	180	1244
125°	1787	1815	1857	1873	1879	1594
135°	2211	2246	2266	2288	2284	1708
145°	2565	2563	2600	2615	2604	1604
155°	2824	2805	2831	2844	2826	1301
165°	2976	2963	2969	2985	2969	841
175°	3044	3028	3033	3048	3026	290
180°	3037	3037	3037	3037	3037	



TEST NUMBER: P907473

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US835-RLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3719.7	3719.7	3719.7	3719.7	3719.7
2.5°	3736.5	3719.7	3682.5	3716.5	3709.7
5°	3719.7	3702.9	3659.0	3689.3	3679.3
7.5°	3689.3	3669.3	3622.2	3635.4	3618.6
10°	3649.0	3625.4	3558.3	3547.9	3527.9
12.5°	3598.6	3568.3	3477.2	3457.2	3420.0
15°	3537.9	3500.8	3386.5	3322.5	3289.0
17.5°	3467.2	3413.3	3271.8	3197.9	3144.0
20°	3386.5	3319.0	3150.7	3066.8	2992.5
22.5°	3299.0	3221.5	3026.1	2911.8	2861.5
25°	3211.5	3103.6	2881.5	2743.6	2692.9
27.5°	3107.2	2992.5	2746.8	2588.6	2511.1
30°	2996.1	2867.9	2598.6	2427.2	2336.1
32.5°	2888.2	2733.2	2457.5	2255.4	2171.1
35°	2767.2	2595.4	2299.3	2087.2	2012.9
37.5°	2649.3	2464.0	2151.1	1918.6	1834.7
40°	2524.7	2322.9	1996.1	1757.2	1669.7
42.5°	2396.8	2181.5	1841.4	1592.2	1508.2
45°	2262.2	2036.5	1683.2	1443.9	1363.2
47.5°	2134.3	1895.4	1531.8	1292.5	1218.6
50°	1992.9	1753.9	1383.6	1151.1	1080.7
52.5°	1854.7	1602.2	1242.2	1020.0	956.1
55°	1720.0	1457.5	1093.9	892.2	828.2
57.5°	1582.2	1312.9	962.9	774.3	720.4
60°	1440.7	1171.4	824.7	653.2	599.3
62.5°	1302.9	1033.6	706.8	545.4	518.6
65°	1161.4	888.6	585.7	471.4	461.1
67.5°	1026.8	753.9	471.4	413.9	403.9
70°	885.4	622.9	390.4	356.8	343.2
72.5°	750.7	501.4	326.4	299.6	292.9
75°	619.3	383.6	269.3	245.7	242.5
77.5°	488.2	272.5	212.1	198.6	191.8
80°	366.8	195.4	161.4	148.2	148.2
82.5°	255.7	131.4	111.1	104.3	104.3
85°	144.6	73.9	63.9	63.9	63.9
87.5°	53.9	26.8	26.8	23.6	23.6
90°	2.1	26.4	43.8	55.1	59.2
92.5°	55.1	46.2	52.7	57.2	59.2
95°	142.8	70.2	85.6	96.8	94.5
97.5°	257.1	77.0	112.0	118.7	120.8
100°	389.1	88.0	125.3	142.8	147.2
102.5°	534.0	529.8	129.7	153.7	160.5
105°	668.1	734.2	134.1	158.2	167.0
107.5°	824.2	879.0	138.6	162.6	171.5
110°	973.7	1019.7	384.7	164.9	173.6



TEST NUMBER: P907473

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US835-RLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1114.4	1153.8	1116.5	169.1	175.9
115°	1263.7	1301.0	1356.1	338.5	180.3
117.5°	1393.4	1437.3	1474.8	1160.4	584.6
120°	1538.5	1571.4	1611.1	1637.4	1340.7
122.5°	1661.5	1696.7	1740.8	1753.8	1756.2
125°	1786.7	1815.4	1857.2	1872.6	1879.1
127.5°	1901.0	1931.8	1965.0	1986.9	1989.0
130°	2008.8	2044.1	2068.1	2092.3	2090.3
132.5°	2118.7	2147.4	2171.4	2191.3	2189.2
135°	2211.1	2246.3	2265.9	2288.1	2283.7
137.5°	2307.7	2334.0	2356.2	2378.1	2371.6
140°	2402.1	2419.9	2443.9	2463.7	2452.8
142.5°	2481.5	2496.9	2525.3	2542.8	2531.9
145°	2565.0	2562.6	2600.0	2615.4	2604.4
147.5°	2637.3	2630.8	2668.1	2679.1	2670.4
150°	2707.8	2692.4	2727.6	2740.6	2729.7
152.5°	2767.0	2749.5	2782.4	2795.7	2780.3
155°	2824.2	2804.6	2830.9	2844.0	2826.5
157.5°	2870.4	2852.9	2872.7	2888.1	2870.4
160°	2910.0	2896.7	2910.0	2923.1	2907.7
162.5°	2945.0	2931.9	2942.9	2958.3	2938.5
165°	2975.8	2962.7	2969.3	2984.7	2969.3
167.5°	3000.1	2986.8	2993.5	3008.9	2989.1
170°	3019.9	3006.6	3011.0	3026.4	3006.6
172.5°	3033.0	3019.9	3024.3	3039.7	3019.9
175°	3043.9	3028.5	3033.0	3048.3	3026.4
177.5°	3048.3	3033.0	3035.3	3050.7	3030.9
180°	3037.4	3037.4	3037.4	3037.4	3037.4



TEST NUMBER: P907473  
 CATALOG NUMBER: DFN2DIP-TR4F0-090D090US835-RLONL

**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	10.54	11.34	11.54	12.35	13.67	6.52	7.32	7.51	8.32	9.65
	3H	12.22	12.93	13.22	13.95	15.29	7.70	8.42	8.71	9.43	10.78
	4H	12.83	13.50	13.84	14.52	15.87	8.15	8.83	9.17	9.85	11.20
	6H	13.25	13.87	14.27	14.89	16.25	8.47	9.10	9.50	10.12	11.48
	8H	13.37	13.96	14.41	15.00	16.36	8.56	9.16	9.60	10.19	11.56
	12H	13.43	13.99	14.47	15.02	16.41	8.61	9.17	9.65	10.20	11.59
4H	2H	10.56	11.23	11.58	12.25	13.61	7.11	7.79	8.13	8.80	10.16
	3H	12.38	12.95	13.42	13.99	15.36	8.46	9.02	9.49	10.06	11.43
	4H	13.08	13.59	14.12	14.62	16.02	9.00	9.52	10.04	10.55	11.95
	6H	13.59	14.03	14.64	15.09	16.48	9.42	9.86	10.47	10.92	12.31
	8H	13.76	14.18	14.81	15.23	16.63	9.55	9.96	10.60	11.02	12.42
	12H	13.86	14.23	14.93	15.29	16.70	9.62	9.99	10.68	11.05	12.46
8H	4H	13.04	13.45	14.09	14.50	15.91	9.28	9.69	10.33	10.75	12.15
	6H	13.61	13.95	14.68	15.04	16.44	9.80	10.14	10.87	11.23	12.63
	8H	13.82	14.12	14.90	15.20	16.62	9.99	10.29	11.07	11.37	12.79
	12H	13.96	14.22	15.04	15.29	16.75	10.11	10.37	11.20	11.45	12.91
12H	4H	12.99	13.36	14.06	14.43	15.84	9.29	9.66	10.35	10.72	12.13
	6H	13.58	13.88	14.66	14.96	16.38	9.85	10.15	10.93	11.23	12.64
	8H	13.80	14.06	14.88	15.14	16.60	10.06	10.32	11.14	11.39	12.85