

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: P907459

Luminaire Tested: DFN2DIP-TR4F0-090D060US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907459
REPORT IS A COMBINATION OF REPORTS P901935 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D060US835-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

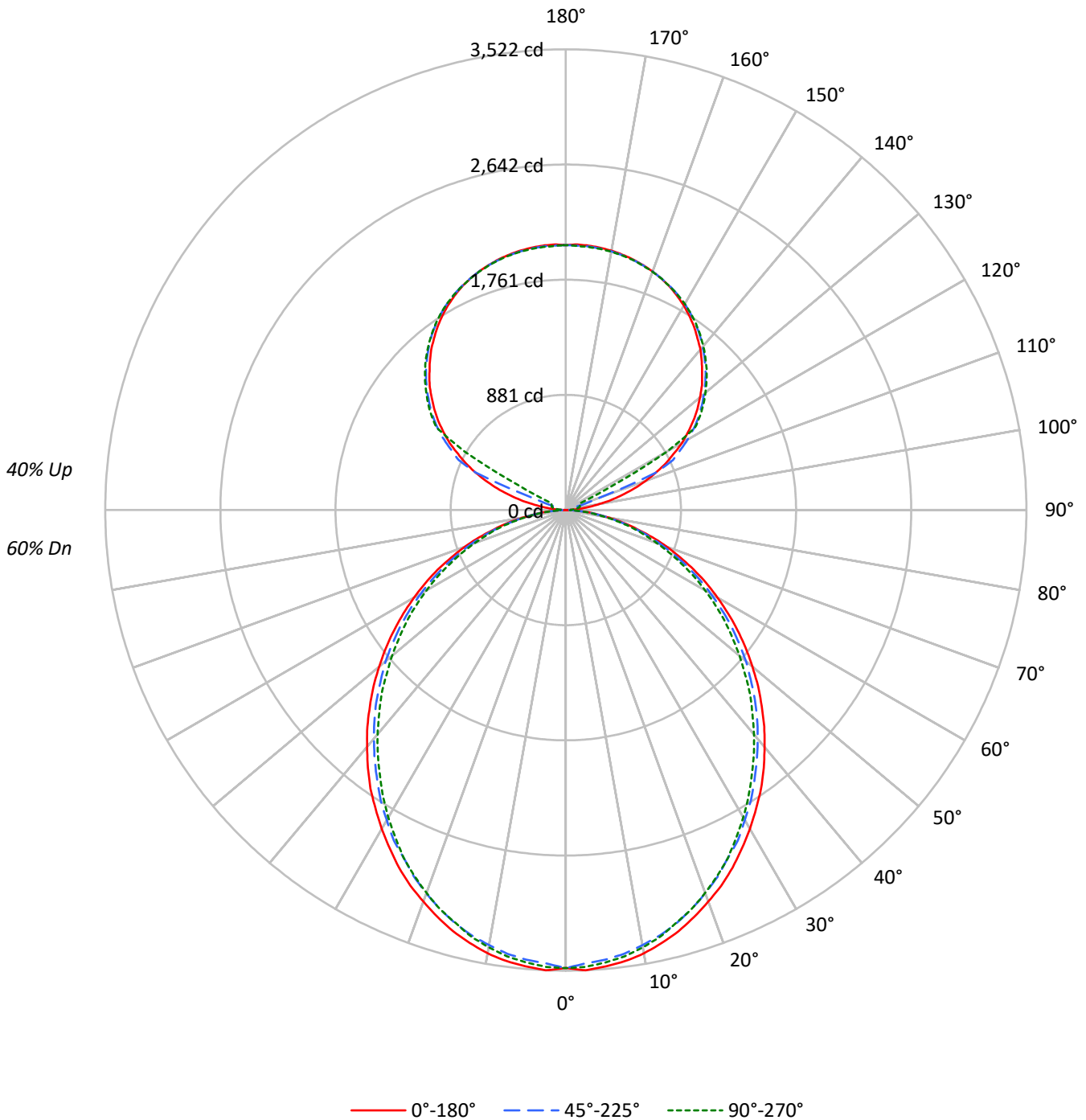
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14850.0 lumens
Efficiency: N/A
Efficacy: 112.3 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: Semi-Direct

Input Watts (W): 132.2
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: P907459
CATALOG NUMBER: DFN2DIP-TR4F0-090D060US835-FLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P907459
 CATALOG NUMBER: DFN2DIP-TR4F0-090D060US835-FLLONL

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	50	30	10
RCR																				
0	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65	60		
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55	51		
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47	42		
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40	36		
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34	31		
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30	27		
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26	24		
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23	21		
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21	19		
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19	17		
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17	15		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2782	2782	2782
5°	2786	2743	2762
10°	2764	2706	2724
15°	2723	2662	2666
20°	2668	2600	2606
25°	2614	2526	2537
30°	2545	2457	2449
35°	2481	2376	2355
40°	2401	2293	2267
45°	2321	2211	2176
50°	2234	2125	2071
55°	2143	2025	1975
60°	2040	1906	1864
65°	1928	1783	1734
70°	1785	1634	1593
75°	1586	1455	1464
80°	1348	1226	1216
85°	975	832	806

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2321 cd/sqm



TEST NUMBER: P907459

CATALOG NUMBER: DFN2DIP-TR4F0-090D060US835-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	329.6	2.2
10°-20°	927.4	6.2
20°-30°	1362.9	9.2
30°-40°	1582.9	10.7
40°-50°	1580.9	10.6
50°-60°	1378.5	9.3
60°-70°	1019.0	6.9
70°-80°	576.6	3.9
80°-90°	155.7	1.0
90°-100°	66.8	0.4
100°-110°	248.9	1.7
110°-120°	660.2	4.4
120°-130°	1094.9	7.4
130°-140°	1163.0	7.8
140°-150°	1080.9	7.3
150°-160°	869.0	5.9
160°-170°	560.0	3.8
170°-180°	192.7	1.3
0°-30°	2619.9	17.6
0°-40°	4202.8	28.3
0°-60°	7162.3	48.2
0°-90°	8913.6	60.0
90°-120°	975.8	6.6
90°-150°	4314.7	29.1
90°-180°	5936.0	40.0
0°-180°	14850.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3502	3502	3502	3502	3502	
5°	3502	3489	3452	3478	3472	332
15°	3334	3314	3270	3283	3266	939
25°	3017	2990	2933	2940	2933	1388
35°	2603	2570	2516	2495	2478	1626
45°	2118	2095	2044	2007	1994	1635
55°	1603	1583	1542	1502	1485	1433
65°	1081	1061	1027	997	980	1069
75°	566	559	542	522	529	604
85°	138	135	132	121	118	154
90°	1	18	29	37	40	14
95°	95	47	57	65	63	113
105°	445	489	89	105	111	476
115°	842	867	904	226	120	829
125°	1191	1210	1238	1248	1253	1062
135°	1474	1498	1511	1525	1522	1139
145°	1710	1708	1733	1744	1736	1069
155°	1883	1870	1887	1896	1884	868
165°	1984	1975	1980	1990	1980	560
175°	2029	2019	2022	2032	2018	193
180°	2025	2025	2025	2025	2025	



TEST NUMBER: P907459

CATALOG NUMBER: DFN2DIP-TR4F0-090D060US835-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3501.9	3501.9	3501.9	3501.9	3501.9
2.5°	3522.3	3505.5	3468.4	3501.9	3495.5
5°	3501.9	3488.7	3451.6	3478.4	3471.9
7.5°	3478.4	3458.4	3421.2	3448.4	3441.6
10°	3441.6	3418.0	3377.6	3404.4	3394.4
12.5°	3390.8	3370.8	3330.5	3347.2	3340.5
15°	3333.7	3313.7	3269.7	3283.3	3266.5
17.5°	3262.9	3242.9	3199.0	3215.8	3199.0
20°	3185.4	3165.4	3118.2	3128.2	3115.0
22.5°	3108.2	3077.9	3033.9	3033.9	3027.1
25°	3017.1	2990.3	2933.2	2939.6	2933.2
27.5°	2916.0	2892.4	2848.9	2838.9	2822.1
30°	2815.3	2788.1	2737.7	2727.7	2714.2
32.5°	2707.4	2687.4	2633.4	2613.1	2599.5
35°	2603.1	2569.5	2515.5	2495.2	2478.4
37.5°	2485.2	2454.8	2400.8	2377.3	2360.5
40°	2364.0	2336.9	2282.9	2252.9	2239.4
42.5°	2246.1	2219.0	2165.4	2131.5	2111.5
45°	2118.2	2094.7	2043.9	2007.1	1993.6
47.5°	1993.6	1970.0	1916.0	1878.9	1858.9
50°	1862.1	1845.3	1798.1	1751.0	1734.2
52.5°	1734.2	1710.6	1667.0	1629.9	1606.3
55°	1603.1	1582.7	1542.3	1502.0	1485.2
57.5°	1471.6	1454.8	1410.9	1370.5	1356.9
60°	1340.1	1326.9	1279.7	1242.6	1232.6
62.5°	1212.2	1188.6	1155.0	1121.5	1107.9
65°	1081.1	1060.7	1027.1	996.8	980.0
67.5°	946.4	929.3	899.2	875.7	862.1
70°	821.7	808.1	777.8	754.2	741.0
72.5°	693.8	680.2	663.4	639.9	629.9
75°	565.6	559.1	542.0	522.0	528.8
77.5°	451.2	437.7	430.9	420.9	410.9
80°	336.9	333.3	326.5	316.5	309.8
82.5°	229.0	229.0	225.8	212.2	212.2
85°	137.9	134.7	131.5	121.1	117.9
87.5°	60.7	53.9	47.2	37.2	33.6
90°	1.4	17.6	29.2	36.7	39.5
92.5°	36.7	30.8	35.1	38.1	39.5
95°	95.2	46.8	57.1	64.6	63.0
97.5°	171.4	51.3	74.6	79.2	80.6
100°	259.4	58.6	83.5	95.2	98.1
102.5°	356.0	353.2	86.5	102.5	107.0
105°	445.4	489.4	89.4	105.4	111.4
107.5°	549.5	586.0	92.4	108.4	114.3
110°	649.2	679.8	256.5	110.0	115.7



TEST NUMBER: P907459

CATALOG NUMBER: DFN2DIP-TR4F0-090D060US835-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	742.9	769.2	744.3	112.7	117.3
115°	842.5	867.4	904.1	225.7	120.2
117.5°	928.9	958.2	983.2	773.6	389.7
120°	1025.7	1047.6	1074.1	1091.6	893.8
122.5°	1107.6	1131.1	1160.5	1169.2	1170.8
125°	1191.2	1210.3	1238.1	1248.4	1252.7
127.5°	1267.4	1287.9	1310.0	1324.6	1326.0
130°	1339.2	1362.7	1378.7	1394.9	1393.5
132.5°	1412.5	1431.6	1447.6	1460.8	1459.4
135°	1474.1	1497.6	1510.6	1525.4	1522.4
137.5°	1538.4	1556.0	1570.8	1585.4	1581.1
140°	1601.4	1613.3	1629.3	1642.5	1635.2
142.5°	1654.3	1664.6	1683.6	1695.2	1687.9
145°	1710.0	1708.4	1733.3	1743.6	1736.3
147.5°	1758.2	1753.8	1778.7	1786.0	1780.3
150°	1805.2	1794.9	1818.4	1827.1	1819.8
152.5°	1844.7	1833.0	1854.9	1863.8	1853.5
155°	1882.8	1869.7	1887.3	1896.0	1884.3
157.5°	1913.6	1901.9	1915.1	1925.4	1913.6
160°	1940.0	1931.1	1940.0	1948.7	1938.5
162.5°	1963.3	1954.6	1961.9	1972.2	1959.0
165°	1983.9	1975.2	1979.5	1989.8	1979.5
167.5°	2000.0	1991.2	1995.7	2006.0	1992.7
170°	2013.3	2004.4	2007.4	2017.6	2004.4
172.5°	2022.0	2013.3	2016.2	2026.5	2013.3
175°	2029.3	2019.0	2022.0	2032.2	2017.6
177.5°	2032.2	2022.0	2023.5	2033.8	2020.6
180°	2024.9	2024.9	2024.9	2024.9	2024.9



TEST NUMBER: P907459
 CATALOG NUMBER: DFN2DIP-TR4F0-090D060US835-FLLONL

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	11.70	12.66	12.56	13.55	14.67	11.27	12.23	12.13	13.11	14.23
	3H	13.37	14.23	14.24	15.12	16.27	12.89	13.75	13.77	14.65	15.80
	4H	13.96	14.77	14.85	15.67	16.83	13.48	14.30	14.38	15.20	16.36
	6H	14.36	15.11	15.27	16.02	17.19	13.89	14.64	14.79	15.55	16.72
	8H	14.47	15.18	15.38	16.11	17.28	14.00	14.71	14.91	15.64	16.81
	12H	14.52	15.20	15.44	16.12	17.32	14.04	14.72	14.96	15.64	16.84
4H	2H	12.17	12.99	13.07	13.89	15.05	11.83	12.64	12.73	13.54	14.70
	3H	14.05	14.73	14.96	15.66	16.83	13.65	14.33	14.56	15.27	16.44
	4H	14.76	15.38	15.69	16.31	17.51	14.36	14.98	15.28	15.91	17.11
	6H	15.29	15.82	16.22	16.77	17.97	14.88	15.41	15.81	16.37	17.56
	8H	15.44	15.94	16.37	16.88	18.10	15.03	15.53	15.96	16.47	17.68
	12H	15.51	15.97	16.47	16.93	18.15	15.09	15.54	16.05	16.51	17.73
8H	4H	14.97	15.47	15.91	16.42	17.63	14.61	15.11	15.55	16.06	17.27
	6H	15.60	16.02	16.57	17.01	18.22	15.24	15.66	16.21	16.65	17.86
	8H	15.83	16.19	16.80	17.17	18.40	15.46	15.82	16.43	16.80	18.03
	12H	15.96	16.28	16.94	17.26	18.53	15.58	15.90	16.55	16.87	18.15
12H	4H	14.96	15.41	15.92	16.38	17.59	14.61	15.06	15.56	16.02	17.24
	6H	15.64	16.00	16.61	16.98	18.21	15.28	15.65	16.26	16.63	17.86
	8H	15.88	16.20	16.86	17.18	18.45	15.53	15.85	16.50	16.82	18.10