

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: P906775

Luminaire Tested: DFN2DIP-SQ4F0-090D060US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906775
REPORT IS A COMBINATION OF REPORTS P901586 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D060US835-RLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

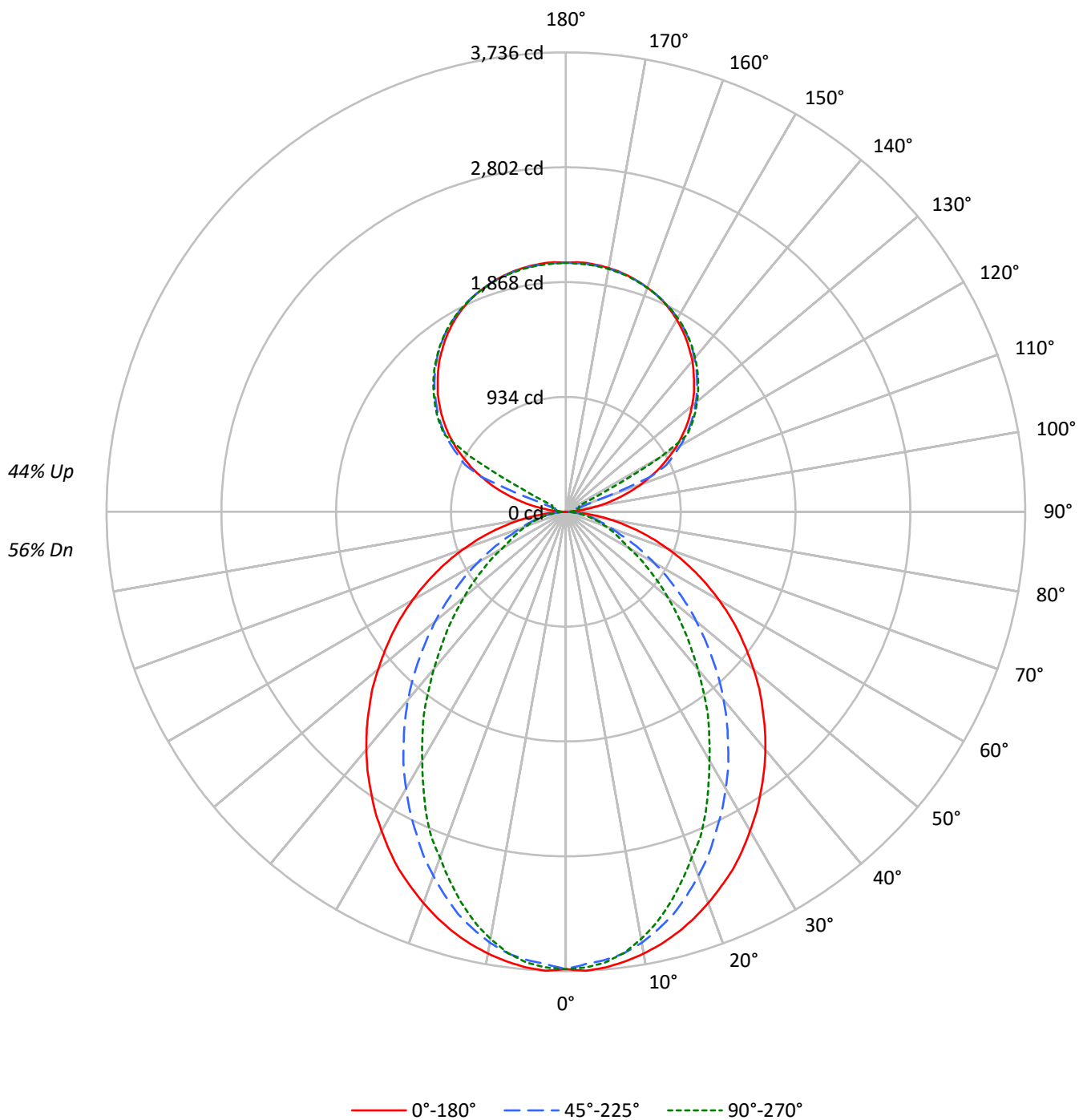
Lumens per Lamp: N/A
Luminaire Lumens: 13590.0 lumens
Efficiency: N/A
Efficacy: 106.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 127.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P906775

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US835-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P906775

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US835-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	74	74	74	62	62	62
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	56	54	53
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	50	48	46
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	31
6	65	54	46	40	61	50	43	38	44	39	34	39	34	31	33	30	27
7	61	49	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2610	2610	2610
5°	2614	2569	2586
10°	2588	2519	2502
15°	2553	2436	2373
20°	2505	2322	2214
25°	2457	2194	2060
30°	2392	2062	1865
35°	2329	1921	1694
40°	2264	1775	1497
45°	2189	1612	1319
50°	2111	1448	1145
55°	2030	1273	978
60°	1936	1089	805
65°	1828	903	726
70°	1697	729	658
75°	1533	643	600
80°	1295	541	523
85°	901	364	398

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2189 cd/sqm

TEST NUMBER: P906775

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US835-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	348.6	2.6
10°-20°	957.0	7.0
20°-30°	1343.6	9.9
30°-40°	1464.6	10.8
40°-50°	1346.2	9.9
50°-60°	1057.2	7.8
60°-70°	688.1	5.1
70°-80°	354.2	2.6
80°-90°	94.0	0.7
90°-100°	66.8	0.5
100°-110°	248.9	1.8
110°-120°	660.2	4.9
120°-130°	1094.9	8.1
130°-140°	1163.0	8.6
140°-150°	1080.9	8.0
150°-160°	869.0	6.4
160°-170°	560.0	4.1
170°-180°	192.7	1.4
0°-30°	2649.2	19.5
0°-40°	4113.9	30.3
0°-60°	6517.2	48.0
0°-90°	7653.6	56.3
90°-120°	975.8	7.2
90°-150°	4314.7	31.7
90°-180°	5936.0	43.7
0°-180°	13590.0	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°	1	18	29	37	40	13
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: P906775

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US835-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°	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: P906775

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US835-RLLONL

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: P906775

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US835-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	11.06	11.95	11.97	12.87	14.05	7.02	7.91	7.93	8.83	10.01
	3H	12.75	13.54	13.67	14.47	15.68	8.22	9.01	9.14	9.94	11.15
	4H	13.36	14.11	14.30	15.05	16.26	8.67	9.42	9.61	10.35	11.57
	6H	13.79	14.48	14.74	15.42	16.65	9.00	9.68	9.94	10.63	11.85
	8H	13.92	14.58	14.88	15.54	16.76	9.09	9.74	10.04	10.70	11.93
	12H	13.99	14.61	14.95	15.56	16.81	9.13	9.76	10.09	10.71	11.96
4H	2H	11.09	11.84	12.03	12.77	13.99	7.63	8.38	8.57	9.31	10.53
	3H	12.93	13.55	13.88	14.52	15.74	8.98	9.61	9.93	10.57	11.80
	4H	13.63	14.19	14.58	15.15	16.41	9.54	10.10	10.50	11.06	12.32
	6H	14.15	14.63	15.12	15.62	16.87	9.96	10.45	10.93	11.43	12.68
	8H	14.33	14.78	15.30	15.76	17.03	10.09	10.54	11.06	11.52	12.79
	12H	14.43	14.84	15.42	15.83	17.10	10.16	10.57	11.15	11.56	12.83
8H	4H	13.60	14.05	14.57	15.03	16.30	9.82	10.28	10.80	11.26	12.52
	6H	14.17	14.54	15.17	15.57	16.83	10.34	10.72	11.34	11.74	13.01
	8H	14.39	14.72	15.40	15.73	17.01	10.54	10.87	11.54	11.88	13.16
	12H	14.53	14.83	15.54	15.83	17.16	10.66	10.95	11.67	11.95	13.28
12H	4H	13.55	13.96	14.54	14.96	16.23	9.83	10.24	10.82	11.24	12.51
	6H	14.15	14.48	15.15	15.49	16.77	10.39	10.73	11.40	11.73	13.02
	8H	14.37	14.66	15.38	15.66	17.00	10.61	10.90	11.62	11.90	13.23