

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: P912303

Luminaire Tested: DFN2DIP-SQ4F0-110D060US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912303
REPORT IS A COMBINATION OF REPORTS P901590 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D060US850-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

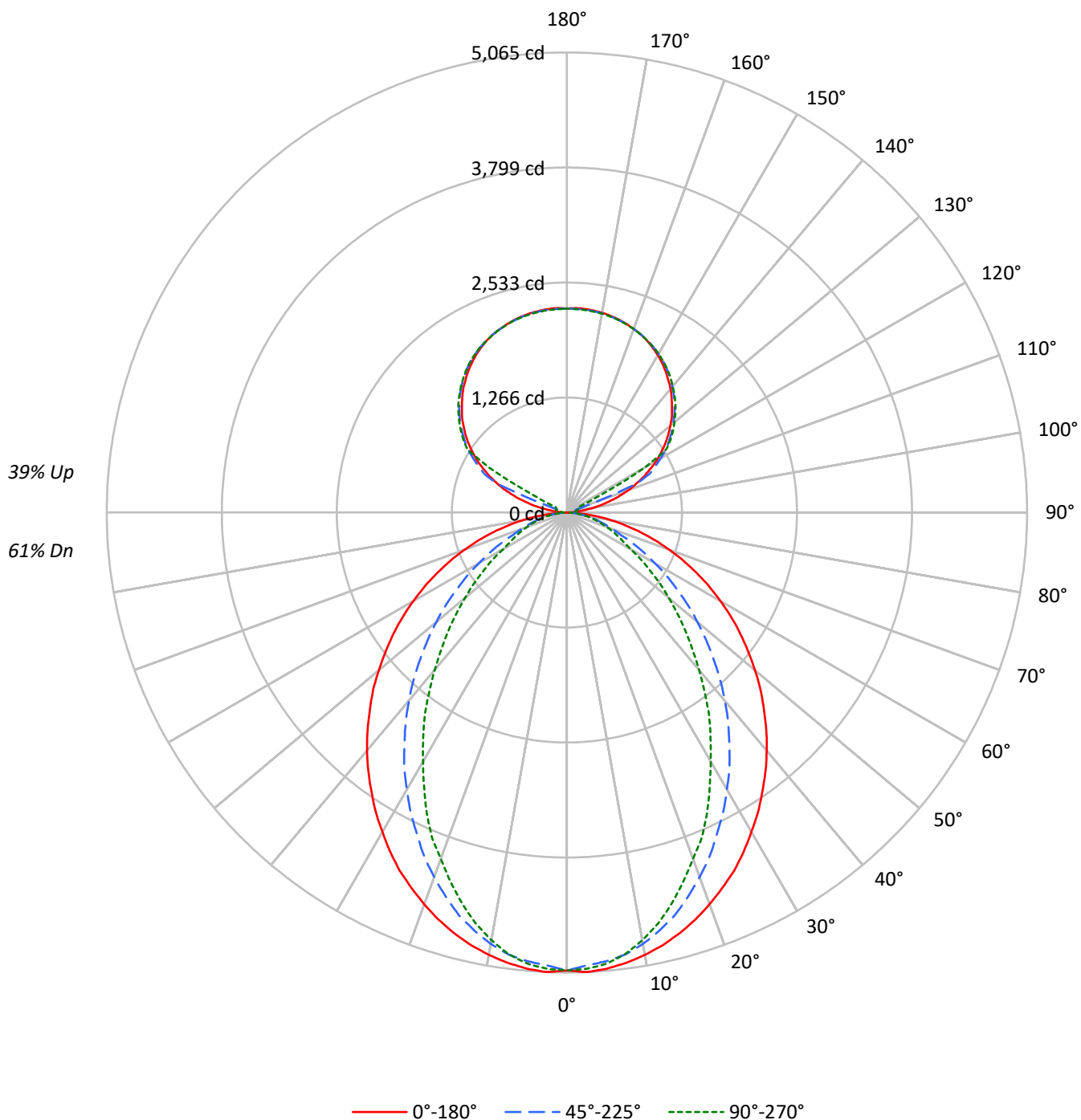
Lumens per Lamp: N/A
Luminaire Lumens: 16956.6 lumens
Efficiency: N/A
Efficacy: 112.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 150.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P912303

CATALOG NUMBER: DFN2DIP-SQ4F0-110D060US850-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P912303

CATALOG NUMBER: DFN2DIP-SQ4F0-110D060US850-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	110	110	110	110	103	103	103	103	90	90	90	77	77	77	66	66	66
1	101	97	93	90	94	91	87	85	79	77	75	69	67	66	60	58	57
2	92	85	79	74	86	80	75	70	70	66	63	61	58	56	53	51	49
3	85	75	68	63	79	71	65	60	63	58	54	55	51	48	48	45	43
4	78	67	59	54	73	63	56	51	56	51	46	49	45	42	43	40	37
5	72	60	52	46	67	57	50	44	51	45	40	45	40	37	39	36	33
6	66	54	46	41	62	51	44	39	46	40	36	41	36	32	36	32	29
7	61	49	41	36	58	47	40	35	42	36	32	37	32	29	33	29	26
8	57	45	37	32	54	43	36	31	38	33	28	34	29	26	30	26	24
9	53	41	34	29	50	39	32	28	35	30	26	32	27	24	28	24	22
10	50	38	31	26	47	36	30	25	33	27	23	29	25	21	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3538	3538	3538
5°	3543	3482	3505
10°	3508	3415	3392
15°	3460	3303	3216
20°	3396	3148	3001
25°	3330	2974	2793
30°	3243	2796	2528
35°	3156	2604	2296
40°	3069	2405	2029
45°	2967	2185	1788
50°	2862	1963	1552
55°	2752	1725	1325
60°	2624	1476	1092
65°	2478	1223	984
70°	2301	988	892
75°	2078	872	814
80°	1755	734	709
85°	1222	494	540

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2967 cd/sqm

TEST NUMBER: P912303

CATALOG NUMBER: DFN2DIP-SQ4F0-110D060US850-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	472.5	2.8
10°-20°	1297.2	7.7
20°-30°	1821.2	10.7
30°-40°	1985.2	11.7
40°-50°	1824.6	10.8
50°-60°	1433.0	8.5
60°-70°	932.7	5.5
70°-80°	480.1	2.8
80°-90°	126.5	0.7
90°-100°	74.1	0.4
100°-110°	276.0	1.6
110°-120°	732.1	4.3
120°-130°	1214.2	7.2
130°-140°	1289.8	7.6
140°-150°	1198.7	7.1
150°-160°	963.8	5.7
160°-170°	621.0	3.7
170°-180°	213.7	1.3
0°-30°	3590.9	21.2
0°-40°	5576.1	32.9
0°-60°	8833.7	52.1
0°-90°	10373.1	61.2
90°-120°	1082.2	6.4
90°-150°	4785.0	28.2
90°-180°	6583.0	38.8
0°-180°	16956.6	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	20	32	41	44	16
95°	106	52	63	72	70	125
105°	494	543	99	117	124	528
115°	934	962	1003	250	133	920
125°	1321	1342	1373	1384	1389	1178
135°	1635	1661	1675	1692	1688	1263
145°	1896	1895	1922	1934	1926	1186
155°	2088	2074	2093	2103	2090	962
165°	2200	2190	2195	2207	2195	622
175°	2250	2239	2242	2254	2238	214
180°	2246	2246	2246	2246	2246	

TEST NUMBER: P912303

CATALOG NUMBER: DFN2DIP-SQ4F0-110D060US850-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°	1.6	19.5	32.4	40.7	43.8
92.5°	40.7	34.2	38.9	42.3	43.8
95°	105.6	51.9	63.3	71.6	69.9
97.5°	190.1	56.9	82.7	87.8	89.4
100°	287.7	65.0	92.6	105.6	108.8
102.5°	394.8	391.7	95.9	113.7	118.7
105°	493.9	542.7	99.1	116.9	123.5
107.5°	609.4	649.9	102.5	120.2	126.8
110°	720.0	753.9	284.5	122.0	128.3

TEST NUMBER: P912303

CATALOG NUMBER: DFN2DIP-SQ4F0-110D060US850-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	823.9	853.0	825.4	125.0	130.1
115°	934.3	961.9	1002.6	250.3	133.3
117.5°	1030.2	1062.6	1090.4	857.9	432.2
120°	1137.5	1161.8	1191.2	1210.6	991.2
122.5°	1228.3	1254.4	1287.0	1296.6	1298.4
125°	1321.0	1342.2	1373.1	1384.5	1389.2
127.5°	1405.5	1428.3	1452.8	1469.0	1470.5
130°	1485.2	1511.2	1529.0	1546.9	1545.4
132.5°	1566.5	1587.6	1605.4	1620.0	1618.5
135°	1634.8	1660.8	1675.3	1691.7	1688.3
137.5°	1706.1	1725.6	1742.0	1758.2	1753.4
140°	1776.0	1789.1	1806.9	1821.5	1813.4
142.5°	1834.6	1846.0	1867.1	1880.0	1871.9
145°	1896.4	1894.6	1922.2	1933.7	1925.6
147.5°	1949.8	1945.0	1972.6	1980.7	1974.4
150°	2002.0	1990.5	2016.6	2026.3	2018.2
152.5°	2045.8	2032.8	2057.1	2067.0	2055.5
155°	2088.0	2073.5	2093.0	2102.7	2089.7
157.5°	2122.2	2109.2	2123.8	2135.3	2122.2
160°	2151.5	2141.6	2151.5	2161.1	2149.8
162.5°	2177.3	2167.7	2175.7	2187.2	2172.5
165°	2200.1	2190.5	2195.3	2206.7	2195.3
167.5°	2218.0	2208.2	2213.2	2224.7	2209.9
170°	2232.7	2222.9	2226.2	2237.5	2222.9
172.5°	2242.4	2232.7	2236.0	2247.4	2232.7
175°	2250.5	2239.1	2242.4	2253.7	2237.5
177.5°	2253.7	2242.4	2244.1	2255.5	2240.8
180°	2245.6	2245.6	2245.6	2245.6	2245.6

TEST NUMBER: P912303

CATALOG NUMBER: DFN2DIP-SQ4F0-110D060US850-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	12.53	13.46	13.40	14.34	15.45	8.49	9.42	9.36	10.30	11.41
	3H	14.22	15.06	15.10	15.94	17.07	9.69	10.52	10.57	11.41	12.54
	4H	14.84	15.62	15.73	16.52	17.66	10.15	10.93	11.04	11.83	12.97
	6H	15.27	15.99	16.17	16.89	18.05	10.47	11.20	11.38	12.10	13.25
	8H	15.40	16.09	16.31	17.01	18.16	10.57	11.25	11.48	12.17	13.33
	12H	15.47	16.12	16.38	17.03	18.21	10.61	11.27	11.53	12.18	13.36
4H	2H	12.56	13.35	13.46	14.24	15.39	9.10	9.89	10.00	10.78	11.93
	3H	14.41	15.06	15.31	15.99	17.14	10.46	11.12	11.37	12.04	13.20
	4H	15.11	15.70	16.02	16.62	17.80	11.02	11.61	11.93	12.53	13.71
	6H	15.63	16.14	16.56	17.09	18.27	11.44	11.95	12.37	12.90	14.08
	8H	15.81	16.29	16.74	17.23	18.42	11.57	12.05	12.51	12.99	14.19
	12H	15.91	16.34	16.87	17.30	18.50	11.64	12.07	12.60	13.03	14.23
8H	4H	15.08	15.56	16.02	16.50	17.70	11.31	11.78	12.24	12.72	13.92
	6H	15.66	16.05	16.62	17.03	18.23	11.83	12.22	12.79	13.21	14.40
	8H	15.88	16.22	16.84	17.20	18.41	12.02	12.37	12.99	13.34	14.56
	12H	16.02	16.33	16.99	17.29	18.56	12.15	12.45	13.12	13.42	14.68
12H	4H	15.04	15.47	15.99	16.43	17.63	11.32	11.75	12.27	12.70	13.91
	6H	15.63	15.98	16.60	16.95	18.17	11.88	12.23	12.85	13.20	14.42
	8H	15.86	16.17	16.83	17.13	18.39	12.10	12.40	13.07	13.37	14.63