

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: P911733

Luminaire Tested: DFN2DIP-SQ2F0-060D050US850-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P911733  
REPORT IS A COMBINATION OF REPORTS P901321 AND P898215  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-060D050US850-FLONL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

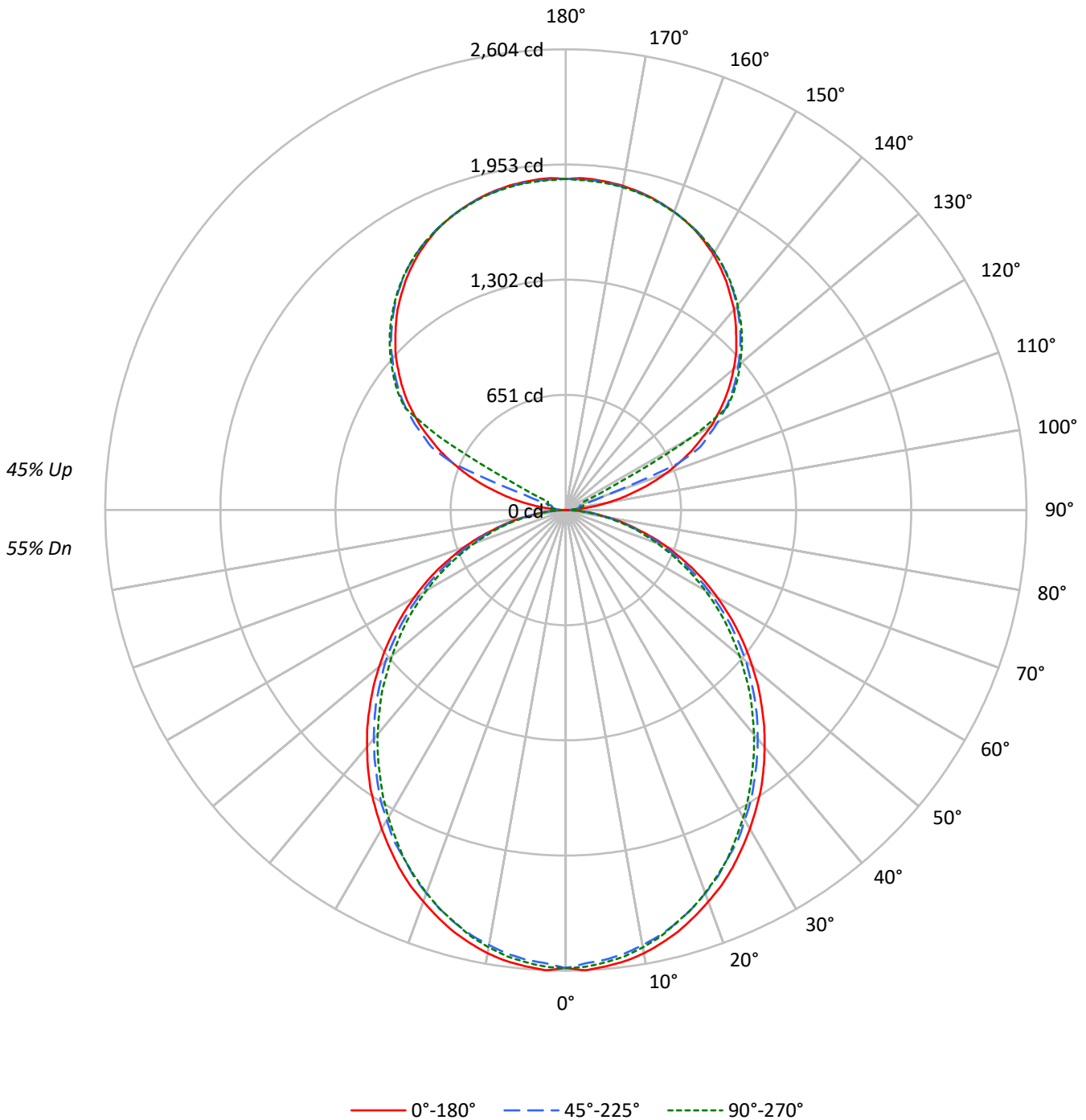
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12077.0 lumens  
Efficiency: N/A  
Efficacy: 130.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')  
CIE Type: General Diffuse

Input Watts (W): 92.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9781  
Total Harmonic Distortion (THDi): 0.075  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P911733  
CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US850-FLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P911733

CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US850-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	0
RCR																					
0	108	108	108	108	100	100	100	100	86	86	86	73	73	73	60	60	60	55			
1	99	94	91	87	92	88	84	81	75	73	71	64	62	60	53	52	51	46			
2	90	82	76	71	83	77	71	67	66	62	58	56	53	51	47	45	43	39			
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37	33			
4	75	64	56	50	69	60	53	47	52	46	42	44	40	37	37	34	32	28			
5	69	57	49	43	64	53	46	41	46	41	36	40	35	32	34	30	27	24			
6	64	51	43	37	59	48	41	35	42	36	32	36	31	28	30	27	24	21			
7	59	46	38	33	54	43	36	31	38	32	28	33	28	25	28	24	22	19			
8	55	42	34	29	51	40	33	28	35	29	25	30	25	22	26	22	19	17			
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	17	15			
10	48	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16	14			

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

	0°	45°	90°
0°	5693	5693	5693
5°	5692	5601	5644
10°	5636	5513	5559
15°	5543	5410	5432
20°	5422	5272	5302
25°	5300	5109	5153
30°	5151	4956	4965
35°	5008	4778	4768
40°	4834	4598	4579
45°	4660	4417	4385
50°	4469	4226	4162
55°	4268	4006	3954
60°	4041	3746	3717
65°	3791	3475	3436
70°	3474	3145	3133
75°	3039	2749	2842
80°	2511	2244	2308
85°	1695	1416	1451

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4660 cd/sqm



TEST NUMBER: P911733

CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US850-FLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	243.7	2.0
10°-20°	685.6	5.7
20°-30°	1007.6	8.3
30°-40°	1170.3	9.7
40°-50°	1168.8	9.7
50°-60°	1019.2	8.4
60°-70°	753.4	6.2
70°-80°	426.3	3.5
80°-90°	115.8	1.0
90°-100°	61.7	0.5
100°-110°	230.0	1.9
110°-120°	610.1	5.1
120°-130°	1011.9	8.4
130°-140°	1074.8	8.9
140°-150°	999.0	8.3
150°-160°	803.1	6.7
160°-170°	517.5	4.3
170°-180°	178.1	1.5
0°-30°	1937.0	16.0
0°-40°	3107.2	25.7
0°-60°	5295.3	43.8
0°-90°	6590.7	54.6
90°-120°	901.9	7.5
90°-150°	3987.5	33.0
90°-180°	5486.0	45.4
0°-180°	12077.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2589	2589	2589	2589	2589	
5°	2589	2579	2552	2572	2567	246
15°	2465	2450	2417	2428	2415	694
25°	2231	2211	2168	2173	2168	1026
35°	1925	1900	1860	1845	1832	1202
45°	1566	1549	1511	1484	1474	1209
55°	1185	1170	1140	1110	1098	1060
65°	799	784	759	737	724	790
75°	418	413	401	386	391	446
85°	102	100	97	90	87	114
90°	1	16	27	34	36	11
95°	88	43	53	60	58	104
105°	412	452	83	98	103	440
115°	779	802	836	209	111	767
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1611	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1833	1825	1829	1839	1829	518
175°	1875	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	



TEST NUMBER: P911733

CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US850-FLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2589.1	2589.1	2589.1	2589.1	2589.1
2.5°	2604.2	2591.7	2564.2	2589.1	2584.3
5°	2589.1	2579.3	2551.8	2571.7	2566.9
7.5°	2571.7	2556.9	2529.4	2549.5	2544.5
10°	2544.5	2527.1	2497.1	2517.0	2509.6
12.5°	2507.0	2492.1	2462.3	2474.7	2469.7
15°	2464.6	2449.9	2417.4	2427.5	2415.1
17.5°	2412.4	2397.7	2365.2	2377.5	2365.2
20°	2355.1	2340.3	2305.4	2312.8	2303.1
22.5°	2298.1	2275.6	2243.1	2243.1	2238.1
25°	2230.6	2210.9	2168.5	2173.3	2168.5
27.5°	2155.9	2138.5	2106.2	2098.9	2086.5
30°	2081.5	2061.3	2024.1	2016.7	2006.6
32.5°	2001.6	1986.9	1947.0	1931.9	1921.9
35°	1924.6	1899.7	1859.8	1844.7	1832.3
37.5°	1837.4	1814.9	1775.1	1757.5	1745.1
40°	1747.8	1727.7	1687.9	1665.7	1655.6
42.5°	1660.6	1640.5	1601.0	1575.9	1561.0
45°	1566.1	1548.6	1511.1	1484.0	1473.9
47.5°	1473.9	1456.4	1416.6	1389.1	1374.3
50°	1376.7	1364.3	1329.5	1294.5	1282.1
52.5°	1282.1	1264.7	1232.4	1205.0	1187.6
55°	1185.2	1170.1	1140.3	1110.4	1098.0
57.5°	1088.0	1075.6	1043.1	1013.3	1003.2
60°	990.8	981.0	946.2	918.7	911.3
62.5°	896.2	878.8	853.9	829.1	819.1
65°	799.3	784.3	759.4	736.9	724.5
67.5°	699.7	687.0	664.8	647.4	637.3
70°	607.5	597.5	575.0	557.6	547.8
72.5°	512.9	502.9	490.5	473.1	465.7
75°	418.1	413.4	400.7	385.9	390.9
77.5°	333.6	323.6	318.5	311.2	303.8
80°	249.1	246.4	241.4	234.0	229.0
82.5°	169.3	169.3	166.9	156.9	156.9
85°	101.9	99.6	97.1	89.5	87.2
87.5°	44.9	39.9	34.8	27.5	24.8
90°	1.3	16.2	27.1	33.9	36.5
92.5°	33.9	28.5	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.4
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.4	80.0	94.7	98.9
105°	411.7	452.4	82.6	97.5	102.9
107.5°	507.8	541.5	85.4	100.1	105.7
110°	600.0	628.2	237.0	101.6	106.9



TEST NUMBER: P911733

CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US850-FLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	686.6	710.9	687.9	104.2	108.3
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.5	885.5	908.7	714.9	360.2
120°	947.9	968.2	992.6	1008.9	826.0
122.5°	1023.6	1045.3	1072.5	1080.6	1082.1
125°	1100.8	1118.5	1144.3	1153.7	1157.8
127.5°	1171.2	1190.2	1210.7	1224.1	1225.4
130°	1237.6	1259.4	1274.1	1289.1	1287.9
132.5°	1305.4	1323.0	1337.8	1350.1	1348.8
135°	1362.3	1384.0	1396.0	1409.8	1407.0
137.5°	1421.7	1438.0	1451.7	1465.2	1461.2
140°	1480.0	1490.9	1505.7	1517.9	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1559.9
145°	1580.3	1578.9	1601.8	1611.4	1604.6
147.5°	1624.9	1620.8	1643.9	1650.6	1645.3
150°	1668.3	1658.8	1680.5	1688.6	1681.8
152.5°	1704.8	1694.0	1714.3	1722.5	1713.0
155°	1740.0	1727.9	1744.1	1752.2	1741.5
157.5°	1768.4	1757.7	1769.9	1779.4	1768.4
160°	1792.9	1784.7	1792.9	1800.9	1791.5
162.5°	1814.4	1806.5	1813.1	1822.6	1810.4
165°	1833.4	1825.4	1829.4	1838.8	1829.4
167.5°	1848.4	1840.2	1844.4	1853.8	1841.6
170°	1860.6	1852.4	1855.1	1864.6	1852.4
172.5°	1868.7	1860.6	1863.3	1872.8	1860.6
175°	1875.4	1865.9	1868.7	1878.1	1864.6
177.5°	1878.1	1868.7	1870.1	1879.5	1867.3
180°	1871.3	1871.3	1871.3	1871.3	1871.3



TEST NUMBER: P911733  
 CATALOG NUMBER: DFN2DIP-SQ2F0-060D050US850-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	13.61	14.52	14.53	15.45	16.66	13.17	14.07	14.08	15.01	16.21
	3H	15.26	16.07	16.18	17.01	18.24	14.77	15.58	15.69	16.52	17.75
	4H	15.83	16.60	16.78	17.55	18.79	15.34	16.11	16.28	17.06	18.29
	6H	16.22	16.93	17.17	17.88	19.13	15.72	16.43	16.67	17.38	18.63
	8H	16.32	16.99	17.28	17.96	19.21	15.82	16.49	16.78	17.46	18.71
	12H	16.36	17.00	17.33	17.97	19.24	15.85	16.49	16.82	17.46	18.73
4H	2H	14.07	14.84	15.02	15.78	17.02	13.71	14.48	14.66	15.43	16.67
	3H	15.91	16.55	16.87	17.53	18.79	15.51	16.15	16.47	17.13	18.38
	4H	16.61	17.20	17.58	18.17	19.45	16.19	16.78	17.16	17.75	19.03
	6H	17.11	17.62	18.09	18.62	19.89	16.68	17.19	17.66	18.18	19.46
	8H	17.26	17.73	18.24	18.72	20.01	16.82	17.29	17.80	18.28	19.57
	12H	17.32	17.75	18.32	18.75	20.05	16.87	17.30	17.87	18.31	19.60
8H	4H	16.80	17.27	17.79	18.27	19.55	16.43	16.90	17.41	17.89	19.18
	6H	17.41	17.80	18.42	18.83	20.12	17.03	17.42	18.04	18.45	19.74
	8H	17.62	17.96	18.64	18.98	20.29	17.23	17.57	18.24	18.59	19.90
	12H	17.74	18.04	18.76	19.06	20.41	17.33	17.63	18.35	18.65	20.00
12H	4H	16.79	17.21	17.79	18.22	19.52	16.42	16.84	17.42	17.85	19.15
	6H	17.44	17.78	18.45	18.80	20.11	17.06	17.41	18.08	18.43	19.73
	8H	17.67	17.97	18.69	18.98	20.33	17.29	17.59	18.31	18.60	19.95