

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: P912124

Luminaire Tested: DFN2DIP-SQ4F0-060D070US850-FLLFLL

Issue Date: 11/21/2024

**Test Information**

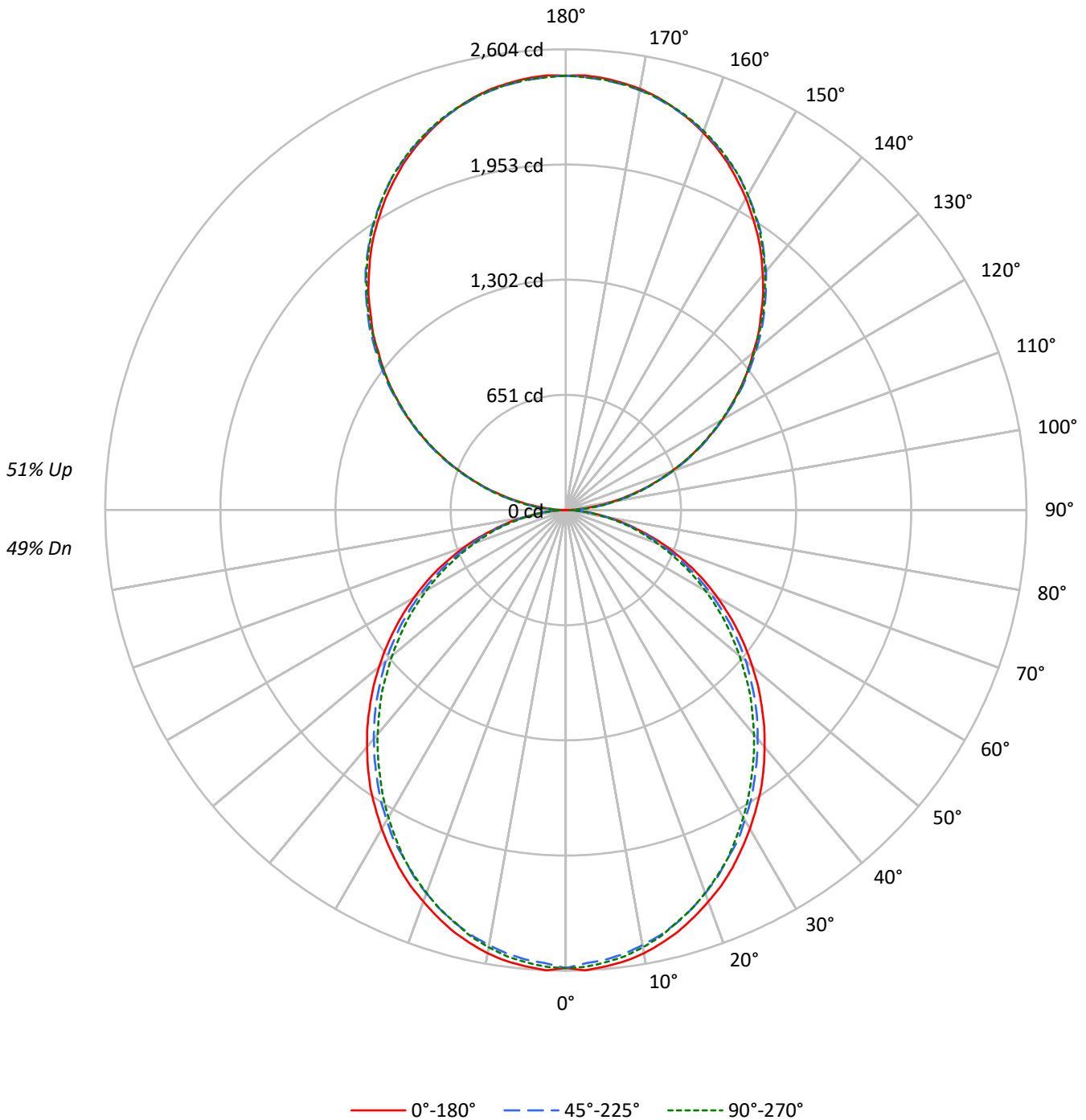
Test Method: LM-79-2019  
Report Number: P912124  
REPORT IS A COMBINATION OF REPORTS P900077 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-060D070US850-FLLFLL  
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13457.7 lumens  
Efficiency: N/A  
Efficacy: 131.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 102.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.946  
Total Harmonic Distortion (THDi): 0.132  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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### Luminous Intensity Polar Plot





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**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	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55	49				49
1	98	93	89	86	90	86	83	80	73	70	68	60	59	57	49	48	47	41				41
2	89	81	75	70	82	75	70	65	64	60	56	53	50	48	43	41	39	35				35
3	81	72	64	58	74	66	60	55	56	51	47	47	43	40	38	36	33	29				29
4	74	63	55	49	68	59	52	46	50	45	40	42	38	34	34	31	29	25				25
5	68	56	48	42	62	52	45	40	45	39	35	37	33	30	31	28	25	22				22
6	63	51	43	37	58	47	40	35	40	35	30	34	29	26	28	25	22	19				19
7	58	46	38	32	53	42	35	30	36	31	27	31	26	23	25	22	20	17				17
8	54	41	34	28	49	39	32	27	33	28	24	28	24	21	23	20	18	15				15
9	50	38	30	25	46	35	29	24	30	25	21	26	22	19	22	18	16	14				14
10	47	35	28	23	43	32	26	22	28	23	19	24	20	17	20	17	14	12				12

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

	0°	45°	90°
0°	1817	1817	1817
5°	1820	1792	1804
10°	1805	1768	1780
15°	1778	1739	1742
20°	1742	1699	1704
25°	1707	1651	1659
30°	1662	1606	1602
35°	1620	1554	1542
40°	1567	1501	1485
45°	1515	1447	1426
50°	1458	1391	1358
55°	1399	1327	1296
60°	1332	1250	1225
65°	1258	1170	1140
70°	1165	1073	1050
75°	1035	957	968
80°	879	810	808
85°	635	553	543

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1932 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	243.7	1.8
10°-20°	685.6	5.1
20°-30°	1007.6	7.5
30°-40°	1170.3	8.7
40°-50°	1168.8	8.7
50°-60°	1019.2	7.6
60°-70°	753.4	5.6
70°-80°	426.3	3.2
80°-90°	119.5	0.9
90°-100°	151.9	1.1
100°-110°	482.7	3.6
110°-120°	826.1	6.1
120°-130°	1086.4	8.1
130°-140°	1219.5	9.1
140°-150°	1195.8	8.9
150°-160°	1003.1	7.5
160°-170°	665.3	4.9
170°-180°	232.5	1.7
0°-30°	1937.0	14.4
0°-40°	3107.2	23.1
0°-60°	5295.3	39.3
0°-90°	6594.4	49.0
90°-120°	1460.7	10.9
90°-150°	4962.4	36.9
90°-180°	6863.0	51.0
0°-180°	13457.7	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°	2	27	72	68	70	13
95°	108	129	132	132	129	120
105°	446	452	456	460	460	470
115°	829	841	837	835	829	820
125°	1206	1224	1218	1212	1210	1077
135°	1560	1582	1587	1585	1579	1205
145°	1893	1908	1920	1922	1914	1183
155°	2165	2171	2178	2188	2181	997
165°	2355	2353	2353	2368	2357	664
175°	2451	2445	2440	2455	2443	233
180°	2455	2455	2455	2455	2455	



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**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°	2.2	26.6	72.5	68.1	70.3
92.5°	45.9	62.2	64.4	66.7	66.7
95°	108.0	128.8	132.5	132.5	128.8
97.5°	179.9	199.1	207.3	207.3	207.3
100°	262.7	279.8	285.7	285.7	283.5
102.5°	350.1	362.6	370.8	373.1	370.8
105°	445.6	451.5	455.9	459.7	459.7
107.5°	540.3	549.2	549.2	550.7	540.3
110°	632.1	644.0	644.0	644.0	638.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	731.3	743.9	741.7	735.7	731.3
115°	829.0	840.8	837.2	835.0	829.0
117.5°	925.9	942.2	931.9	925.9	920.0
120°	1023.6	1039.9	1023.6	1023.6	1017.0
122.5°	1112.4	1133.2	1122.9	1116.9	1112.4
125°	1205.7	1224.2	1218.3	1211.7	1209.5
127.5°	1296.8	1319.7	1311.6	1302.7	1296.8
130°	1381.9	1408.5	1404.9	1400.4	1392.2
132.5°	1477.4	1498.1	1499.6	1489.3	1483.3
135°	1559.6	1582.4	1587.0	1584.7	1578.8
137.5°	1651.3	1669.8	1673.5	1672.0	1663.2
140°	1732.0	1750.6	1760.9	1760.9	1752.8
142.5°	1814.9	1833.4	1839.3	1841.5	1833.4
145°	1893.4	1908.1	1920.0	1922.2	1914.1
147.5°	1963.7	1982.2	1991.1	1994.8	1986.7
150°	2036.2	2048.8	2057.0	2063.6	2057.0
152.5°	2100.6	2113.2	2123.5	2131.7	2123.5
155°	2165.0	2170.9	2177.6	2187.9	2181.3
157.5°	2220.6	2225.0	2228.6	2243.5	2233.1
160°	2270.1	2274.6	2276.8	2289.3	2280.4
162.5°	2316.0	2316.0	2318.3	2332.2	2321.9
165°	2355.2	2353.0	2353.0	2367.8	2357.4
167.5°	2390.8	2384.1	2384.1	2398.9	2388.6
170°	2417.4	2411.5	2409.3	2424.1	2411.5
172.5°	2435.9	2429.9	2427.7	2442.6	2429.9
175°	2450.7	2444.8	2440.4	2455.1	2442.6
177.5°	2458.9	2452.9	2448.5	2461.1	2448.5
180°	2455.1	2455.1	2455.1	2455.1	2455.1



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**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	9.26	10.12	10.23	11.10	12.38	8.82	9.67	9.79	10.65	11.94
	3H	10.93	11.69	11.90	12.68	13.99	10.44	11.20	11.41	12.19	13.50
	4H	11.52	12.24	12.51	13.23	14.55	11.02	11.75	12.01	12.74	14.06
	6H	11.92	12.59	12.92	13.59	14.91	11.42	12.09	12.42	13.09	14.41
	8H	12.03	12.66	13.03	13.68	15.00	11.53	12.16	12.53	13.18	14.50
	12H	12.08	12.68	13.09	13.69	15.04	11.57	12.17	12.58	13.18	14.53
4H	2H	9.72	10.45	10.72	11.44	12.76	9.37	10.09	10.37	11.09	12.40
	3H	11.59	12.20	12.60	13.22	14.55	11.19	11.79	12.19	12.81	14.14
	4H	12.31	12.86	13.32	13.88	15.23	11.89	12.44	12.90	13.46	14.81
	6H	12.83	13.31	13.85	14.34	15.69	12.40	12.87	13.42	13.91	15.26
	8H	12.98	13.43	14.01	14.46	15.82	12.54	12.99	13.57	14.02	15.38
	12H	13.06	13.46	14.10	14.50	15.87	12.61	13.01	13.65	14.06	15.43
8H	4H	12.51	12.95	13.53	13.98	15.35	12.13	12.58	13.16	13.61	14.97
	6H	13.14	13.51	14.19	14.58	15.95	12.76	13.13	13.81	14.20	15.56
	8H	13.37	13.69	14.42	14.75	16.13	12.97	13.30	14.03	14.36	15.74
	12H	13.50	13.79	14.56	14.84	16.26	13.09	13.37	14.15	14.43	15.85
12H	4H	12.49	12.89	13.54	13.94	15.31	12.13	12.53	13.17	13.57	14.94
	6H	13.17	13.50	14.23	14.56	15.94	12.80	13.13	13.86	14.18	15.56
	8H	13.42	13.70	14.48	14.76	16.18	13.04	13.32	14.10	14.38	15.80