

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: P911844

Luminaire Tested: DFN2DIP-SQ3F0-050D070US850-FLLFLL

Issue Date: 11/21/2024

**Test Information**

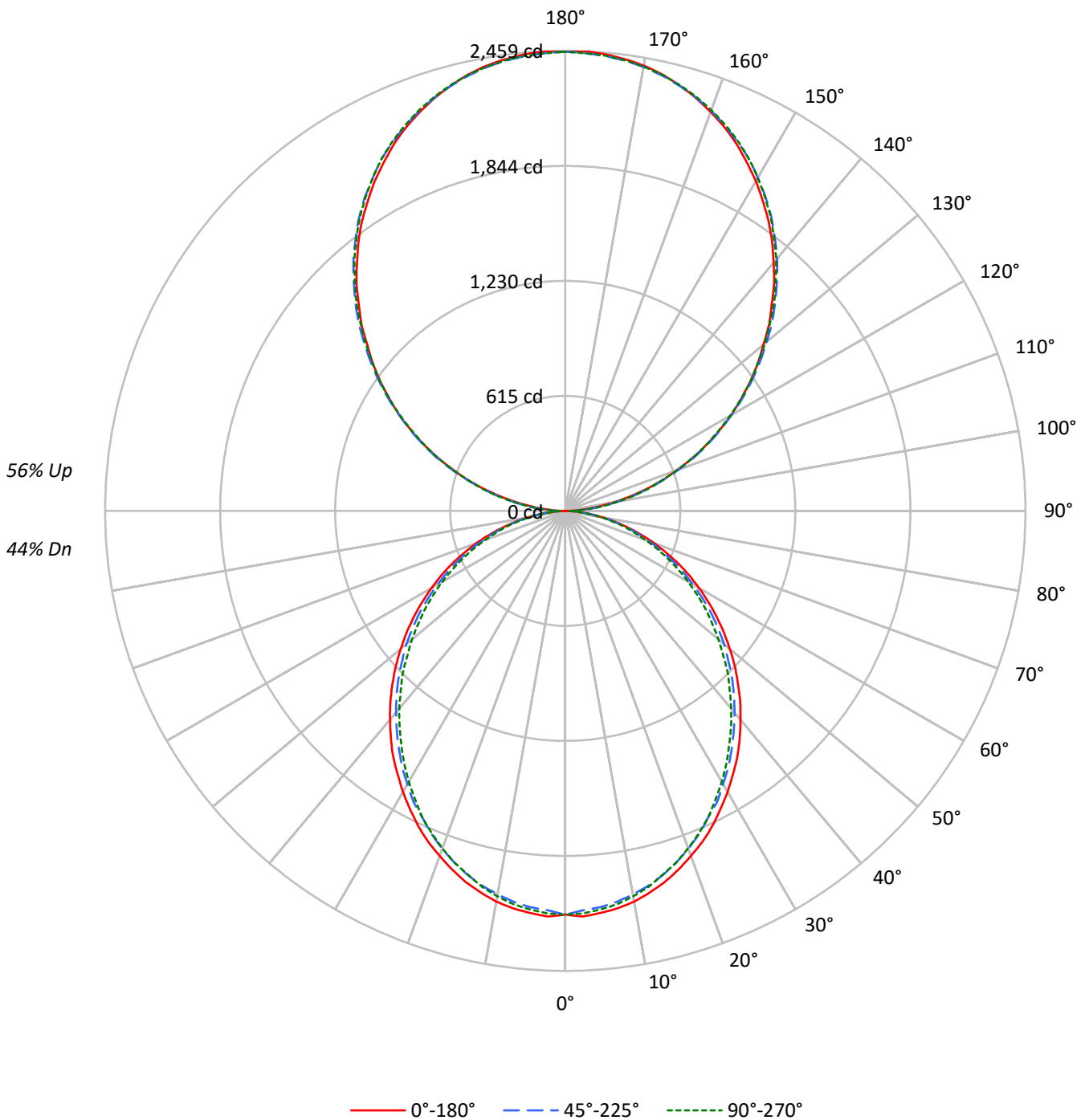
Test Method: LM-79-2019  
Report Number: P911844  
REPORT IS A COMBINATION OF REPORTS P899917 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-050D070US850-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12359.9 lumens  
Efficiency: N/A  
Efficacy: 130.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 94.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44			44
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43	37			37
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36	31			31
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31	27			27
4	73	63	55	49	67	58	51	45	48	43	39	40	36	33	31	29	27	23			23
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23	20			20
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20	17			17
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18	15			15
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14			14
9	49	37	30	25	45	35	28	23	29	24	20	24	20	18	20	17	15	12			12
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13	11			11

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

	0°	45°	90°
0°	2472	2472	2472
5°	2475	2436	2453
10°	2453	2402	2419
15°	2415	2360	2367
20°	2365	2304	2313
25°	2315	2237	2250
30°	2252	2174	2172
35°	2193	2100	2088
40°	2121	2025	2009
45°	2048	1951	1927
50°	1969	1872	1833
55°	1885	1781	1746
60°	1791	1673	1647
65°	1688	1561	1530
70°	1557	1425	1404
75°	1375	1261	1286
80°	1156	1052	1063
85°	813	697	695

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2469 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	203.1	1.6
10°-20°	571.4	4.6
20°-30°	839.7	6.8
30°-40°	975.2	7.9
40°-50°	974.0	7.9
50°-60°	849.3	6.9
60°-70°	627.9	5.1
70°-80°	355.2	2.9
80°-90°	100.7	0.8
90°-100°	151.9	1.2
100°-110°	482.7	3.9
110°-120°	826.1	6.7
120°-130°	1086.4	8.8
130°-140°	1219.5	9.9
140°-150°	1195.8	9.7
150°-160°	1003.1	8.1
160°-170°	665.3	5.4
170°-180°	232.5	1.9
0°-30°	1614.1	13.1
0°-40°	2589.4	20.9
0°-60°	4412.7	35.7
0°-90°	5496.5	44.5
90°-120°	1460.7	11.8
90°-150°	4962.4	40.1
90°-180°	6863.0	55.5
0°-180°	12359.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2158	2158	2158	2158	2158	
5°	2158	2150	2126	2143	2139	205
15°	2054	2042	2014	2023	2012	578
25°	1859	1842	1807	1811	1807	855
35°	1604	1583	1550	1537	1527	1001
45°	1305	1290	1259	1237	1228	1007
55°	988	975	950	925	915	883
65°	666	654	633	614	604	659
75°	348	344	334	322	326	372
85°	85	83	81	75	73	95
90°	2	27	72	68	70	12
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°	2157.6	2157.6	2157.6	2157.6	2157.6
2.5°	2170.1	2159.8	2136.9	2157.6	2153.7
5°	2157.6	2149.5	2126.5	2143.0	2139.2
7.5°	2143.0	2130.7	2107.9	2124.6	2120.4
10°	2120.4	2105.9	2081.0	2097.5	2091.4
12.5°	2089.1	2076.8	2052.0	2062.3	2058.1
15°	2053.9	2041.6	2014.5	2022.9	2012.5
17.5°	2010.3	1998.0	1970.9	1981.2	1970.9
20°	1962.6	1950.3	1921.2	1927.3	1919.2
22.5°	1915.0	1896.3	1869.2	1869.2	1865.0
25°	1858.9	1842.4	1807.1	1811.1	1807.1
27.5°	1796.6	1782.1	1755.2	1749.0	1738.7
30°	1734.5	1717.8	1686.8	1680.6	1672.3
32.5°	1668.0	1655.7	1622.5	1609.9	1601.6
35°	1603.7	1583.1	1549.8	1537.3	1527.0
37.5°	1531.1	1512.5	1479.2	1464.7	1454.3
40°	1456.6	1439.8	1406.5	1388.0	1379.7
42.5°	1383.9	1367.2	1334.1	1313.2	1300.9
45°	1305.1	1290.5	1259.3	1236.6	1228.2
47.5°	1228.2	1213.7	1180.5	1157.6	1145.3
50°	1147.3	1136.9	1107.9	1078.8	1068.4
52.5°	1068.4	1053.9	1027.0	1004.2	989.7
55°	987.7	975.1	950.2	925.3	915.0
57.5°	906.6	896.3	869.2	844.4	836.0
60°	825.7	817.6	788.5	765.5	759.4
62.5°	746.9	732.4	711.6	690.9	682.6
65°	666.1	653.5	632.8	614.2	603.7
67.5°	583.1	572.6	554.1	539.5	531.1
70°	506.3	497.9	479.2	464.7	456.6
72.5°	427.5	419.1	408.8	394.2	388.0
75°	348.4	344.5	333.9	321.6	325.8
77.5°	278.0	269.6	265.5	259.3	253.2
80°	207.6	205.4	201.2	195.1	190.9
82.5°	141.1	141.1	139.1	130.8	130.8
85°	84.9	83.0	81.0	74.6	72.6
87.5°	37.4	33.3	29.1	22.8	20.7
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



TEST NUMBER: P911844

CATALOG NUMBER: DFN2DIP-SQ3F0-050D070US850-FLLFLL

**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	9.85	10.66	10.85	11.67	13.02	9.40	10.22	10.41	11.23	12.58
	3H	11.50	12.23	12.51	13.25	14.62	11.01	11.74	12.02	12.76	14.13
	4H	12.08	12.77	13.11	13.80	15.17	11.59	12.28	12.61	13.30	14.68
	6H	12.48	13.11	13.51	14.14	15.53	11.98	12.61	13.01	13.64	15.03
	8H	12.58	13.18	13.62	14.23	15.61	12.08	12.68	13.12	13.73	15.11
	12H	12.62	13.20	13.67	14.24	15.65	12.11	12.69	13.16	13.73	15.14
4H	2H	10.30	10.99	11.33	12.02	13.39	9.94	10.63	10.98	11.66	13.04
	3H	12.15	12.73	13.20	13.79	15.17	11.75	12.32	12.79	13.38	14.77
	4H	12.86	13.39	13.91	14.44	15.85	12.44	12.97	13.49	14.01	15.42
	6H	13.37	13.83	14.43	14.89	16.30	12.94	13.39	14.00	14.46	15.87
	8H	13.52	13.94	14.58	15.00	16.43	13.08	13.50	14.14	14.57	15.99
	12H	13.59	13.97	14.66	15.05	16.47	13.14	13.52	14.21	14.60	16.02
8H	4H	13.05	13.48	14.11	14.54	15.96	12.67	13.10	13.73	14.16	15.58
	6H	13.67	14.03	14.76	15.13	16.55	13.29	13.64	14.37	14.75	16.16
	8H	13.89	14.20	14.98	15.29	16.73	13.50	13.81	14.59	14.89	16.33
	12H	14.02	14.29	15.11	15.37	16.85	13.61	13.88	14.70	14.96	16.44
12H	4H	13.03	13.42	14.11	14.49	15.92	12.67	13.05	13.74	14.12	15.55
	6H	13.70	14.01	14.79	15.10	16.54	13.33	13.64	14.42	14.73	16.16
	8H	13.94	14.21	15.03	15.29	16.77	13.56	13.83	14.65	14.91	16.39