

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: P925381

Luminaire Tested: DFN2DIP-SQ2F0-060D070US950-FLLONL

Issue Date: 11/21/2024

**Test Information**

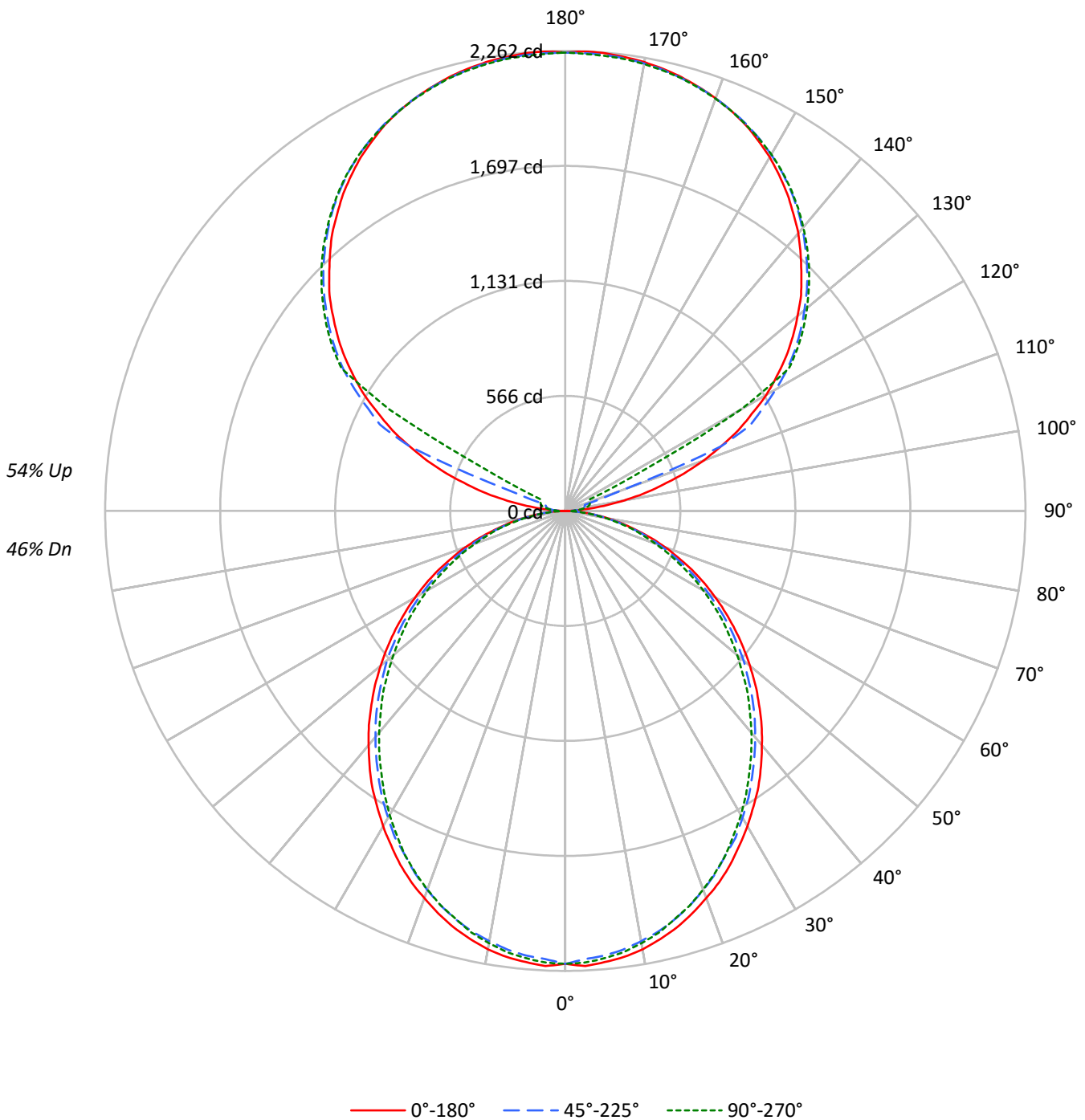
Test Method: LM-79-2019  
Report Number: P925381  
REPORT IS A COMBINATION OF REPORTS P901345 AND P898215  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ2F0-060D070US950-FLLONL  
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12278.0 lumens  
Efficiency: N/A  
Efficacy: 112.1 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): 109.5  
Input Voltage (V):  
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

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### Luminous Intensity Polar Plot





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**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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46			46
1	97	93	89	85	89	85	82	79	71	69	67	58	57	55	46	45	44	39			39
2	88	81	75	70	81	74	69	65	62	59	55	51	48	46	41	39	37	33			33
3	81	71	64	58	74	66	59	54	55	50	46	45	42	39	36	34	32	28			28
4	74	63	55	49	67	58	51	46	49	44	40	40	37	33	32	30	27	24			24
5	68	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24	21			21
6	62	50	42	36	57	46	39	34	39	34	30	33	29	25	26	23	21	18			18
7	58	45	37	32	53	42	35	30	36	30	26	30	26	22	24	21	19	16			16
8	53	41	33	28	49	38	31	26	33	27	23	27	23	20	22	19	17	14			14
9	50	38	30	25	46	35	28	24	30	24	21	25	21	18	21	17	15	13			13
10	46	34	27	22	43	32	26	21	27	22	19	23	19	16	19	16	14	12			12

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

	0°	45°	90°
0°	4897	4897	4897
5°	4897	4818	4855
10°	4849	4743	4782
15°	4769	4654	4673
20°	4664	4535	4561
25°	4560	4395	4433
30°	4431	4264	4271
35°	4308	4111	4101
40°	4158	3956	3939
45°	4008	3799	3772
50°	3844	3636	3580
55°	3671	3446	3402
60°	3476	3223	3197
65°	3261	2989	2956
70°	2989	2705	2695
75°	2615	2364	2445
80°	2160	1930	1986
85°	1459	1219	1248

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4008 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	209.6	1.7
10°-20°	589.8	4.8
20°-30°	866.8	7.1
30°-40°	1006.7	8.2
40°-50°	1005.5	8.2
50°-60°	876.7	7.1
60°-70°	648.1	5.3
70°-80°	366.7	3.0
80°-90°	100.8	0.8
90°-100°	74.3	0.6
100°-110°	277.0	2.3
110°-120°	734.8	6.0
120°-130°	1218.6	9.9
130°-140°	1294.5	10.5
140°-150°	1203.1	9.8
150°-160°	967.2	7.9
160°-170°	623.3	5.1
170°-180°	214.5	1.7
0°-30°	1666.2	13.6
0°-40°	2673.0	21.8
0°-60°	4555.2	37.1
0°-90°	5670.7	46.2
90°-120°	1086.1	8.8
90°-150°	4802.2	39.1
90°-180°	6607.0	53.8
0°-180°	12278.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2227	2227	2227	2227	2227	
5°	2227	2219	2195	2212	2208	211
15°	2120	2108	2080	2088	2078	597
25°	1919	1902	1866	1870	1866	883
35°	1656	1634	1600	1587	1576	1034
45°	1347	1332	1300	1276	1268	1040
55°	1020	1007	981	955	945	912
65°	688	675	653	634	623	680
75°	360	356	345	332	336	384
85°	88	86	84	77	75	98
90°	2	20	32	41	44	11
95°	106	52	64	72	70	125
105°	496	545	100	117	124	530
115°	938	965	1006	251	134	923
125°	1326	1347	1378	1390	1394	1182
135°	1641	1667	1681	1698	1694	1267
145°	1903	1902	1929	1941	1932	1190
155°	2096	2081	2100	2110	2097	966
165°	2208	2198	2203	2215	2203	624
175°	2259	2247	2250	2262	2246	215
180°	2254	2254	2254	2254	2254	



TEST NUMBER: P925381

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2227.2	2227.2	2227.2	2227.2	2227.2
2.5°	2240.2	2229.5	2205.8	2227.2	2223.1
5°	2227.2	2218.8	2195.2	2212.2	2208.1
7.5°	2212.2	2199.5	2175.9	2193.2	2188.9
10°	2188.9	2173.9	2148.1	2165.2	2158.8
12.5°	2156.6	2143.8	2118.2	2128.9	2124.6
15°	2120.2	2107.5	2079.5	2088.2	2077.5
17.5°	2075.2	2062.5	2034.6	2045.2	2034.6
20°	2025.9	2013.2	1983.2	1989.6	1981.2
22.5°	1976.9	1957.5	1929.6	1929.6	1925.3
25°	1918.9	1901.9	1865.5	1869.6	1865.5
27.5°	1854.6	1839.6	1811.8	1805.5	1794.9
30°	1790.6	1773.2	1741.2	1734.8	1726.2
32.5°	1721.9	1709.2	1674.8	1661.9	1653.3
35°	1655.6	1634.2	1599.9	1586.9	1576.2
37.5°	1580.6	1561.2	1527.0	1511.9	1501.2
40°	1503.5	1486.2	1452.0	1432.9	1424.2
42.5°	1428.5	1411.3	1377.2	1355.6	1342.9
45°	1347.2	1332.2	1299.9	1276.5	1267.9
47.5°	1267.9	1252.9	1218.6	1195.0	1182.2
50°	1184.3	1173.6	1143.7	1113.6	1102.9
52.5°	1102.9	1087.9	1060.2	1036.6	1021.6
55°	1019.5	1006.6	980.9	955.2	944.6
57.5°	936.0	925.3	897.3	871.7	863.0
60°	852.3	843.9	814.0	790.3	783.9
62.5°	770.9	755.9	734.6	713.2	704.6
65°	687.5	674.7	653.3	633.9	623.2
67.5°	601.9	591.0	571.9	556.9	548.3
70°	522.6	514.0	494.6	479.7	471.3
72.5°	441.2	432.6	422.0	407.0	400.6
75°	359.7	355.7	344.7	332.0	336.3
77.5°	287.0	278.4	274.0	267.7	261.3
80°	214.3	212.0	207.7	201.3	197.0
82.5°	145.7	145.7	143.6	135.0	135.0
85°	87.7	85.7	83.6	77.0	75.0
87.5°	38.6	34.3	30.0	23.7	21.4
90°	1.5	19.6	32.5	40.8	44.0
92.5°	40.8	34.2	39.1	42.5	44.0
95°	105.9	52.1	63.5	71.8	70.1
97.5°	190.7	57.1	83.1	88.1	89.7
100°	288.8	65.3	92.9	105.9	109.2
102.5°	396.2	393.1	96.3	114.1	119.1
105°	495.8	544.7	99.5	117.3	123.9
107.5°	611.5	652.2	102.8	120.7	127.3
110°	722.6	756.6	285.4	122.4	128.8



TEST NUMBER: P925381

CATALOG NUMBER: DFN2DIP-SQ2F0-060D070US950-FLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	826.9	856.1	828.5	125.5	130.5
115°	937.7	965.4	1006.2	251.2	133.8
117.5°	1033.9	1066.5	1094.3	861.0	433.8
120°	1141.6	1166.0	1195.5	1215.0	994.8
122.5°	1232.8	1258.9	1291.7	1301.4	1303.1
125°	1325.8	1347.0	1378.1	1389.5	1394.3
127.5°	1410.6	1433.4	1458.0	1474.3	1475.8
130°	1490.5	1516.7	1534.5	1552.5	1551.0
132.5°	1572.1	1593.4	1611.2	1625.9	1624.4
135°	1640.6	1666.7	1681.3	1697.7	1694.5
137.5°	1712.2	1731.9	1748.3	1764.6	1759.7
140°	1782.4	1795.5	1813.4	1828.1	1819.9
142.5°	1841.2	1852.7	1873.8	1886.7	1878.6
145°	1903.2	1901.5	1929.2	1940.6	1932.5
147.5°	1956.8	1952.1	1979.7	1987.8	1981.5
150°	2009.1	1997.8	2023.9	2033.5	2025.4
152.5°	2053.1	2040.1	2064.6	2074.4	2063.0
155°	2095.6	2081.0	2100.5	2110.2	2097.3
157.5°	2129.8	2116.8	2131.5	2143.0	2129.8
160°	2159.3	2149.4	2159.3	2168.9	2157.5
162.5°	2185.2	2175.5	2183.6	2195.1	2180.4
165°	2208.0	2198.4	2203.2	2214.6	2203.2
167.5°	2226.1	2216.1	2221.2	2232.6	2218.0
170°	2240.8	2230.9	2234.2	2245.6	2230.9
172.5°	2250.5	2240.8	2244.1	2255.4	2240.8
175°	2258.6	2247.1	2250.5	2261.8	2245.6
177.5°	2261.8	2250.5	2252.2	2263.7	2248.9
180°	2253.7	2253.7	2253.7	2253.7	2253.7



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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	12.31	13.14	13.30	14.14	15.47	11.87	12.70	12.86	13.70	15.02
	3H	13.95	14.69	14.95	15.70	17.05	13.46	14.20	14.46	15.21	16.56
	4H	14.53	15.23	15.54	16.24	17.60	14.03	14.73	15.04	15.75	17.10
	6H	14.91	15.56	15.93	16.57	17.94	14.41	15.06	15.43	16.07	17.44
	8H	15.00	15.62	16.03	16.66	18.02	14.50	15.12	15.53	16.15	17.52
	12H	15.04	15.63	16.08	16.66	18.05	14.54	15.12	15.57	16.15	17.54
4H	2H	12.76	13.46	13.78	14.48	15.83	12.40	13.11	13.42	14.12	15.47
	3H	14.60	15.19	15.63	16.23	17.60	14.19	14.78	15.22	15.82	17.19
	4H	15.30	15.83	16.33	16.87	18.26	14.87	15.41	15.91	16.44	17.83
	6H	15.79	16.25	16.84	17.31	18.70	15.36	15.82	16.40	16.88	18.26
	8H	15.93	16.36	16.98	17.41	18.81	15.49	15.93	16.54	16.98	18.38
	12H	15.99	16.38	17.06	17.45	18.85	15.55	15.94	16.61	17.00	18.41
8H	4H	15.48	15.91	16.53	16.96	18.36	15.10	15.53	16.15	16.58	17.98
	6H	16.09	16.44	17.16	17.53	18.93	15.70	16.06	16.77	17.15	18.55
	8H	16.29	16.61	17.37	17.68	19.10	15.90	16.21	16.98	17.29	18.71
	12H	16.41	16.69	17.49	17.76	19.22	16.00	16.28	17.08	17.35	18.80
12H	4H	15.46	15.85	16.53	16.92	18.32	15.09	15.48	16.16	16.55	17.95
	6H	16.11	16.42	17.19	17.50	18.92	15.74	16.05	16.81	17.13	18.54
	8H	16.34	16.61	17.42	17.68	19.14	15.95	16.23	17.03	17.30	18.76