

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: P922800

Luminaire Tested: DFN2DIP-SQ3F0-060D090US940-FLLFLL

Issue Date: 11/21/2024

**Test Information**

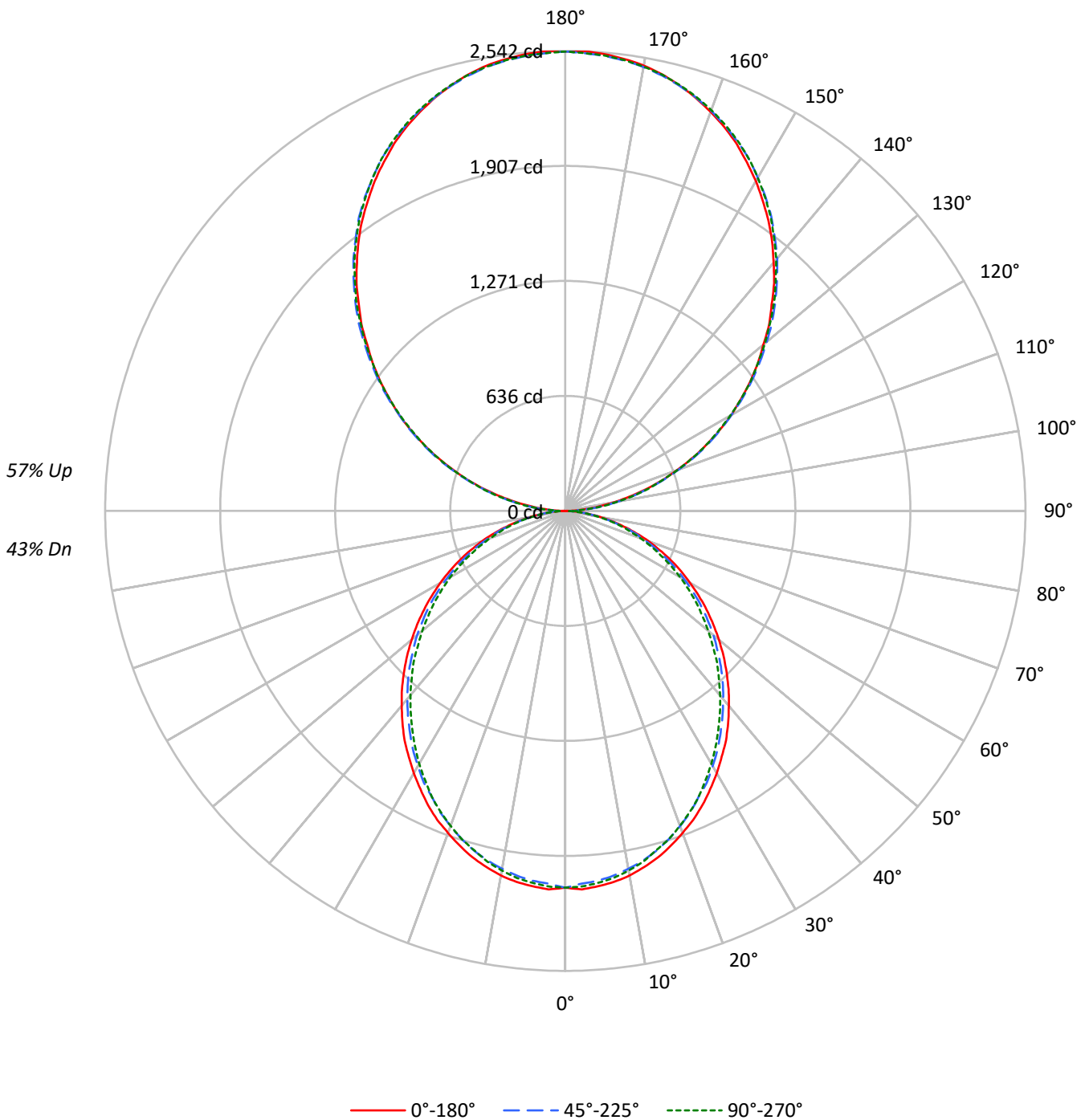
Test Method: LM-79-2019  
Report Number: P922800  
REPORT IS A COMBINATION OF REPORTS P899955 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-060D090US940-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12399.3 lumens  
Efficiency: N/A  
Efficacy: 101.7 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): 121.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P922800  
CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US940-FLLFLL

### Luminous Intensity Polar Plot





TEST NUMBER: P922800

CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US940-FLLFLL

**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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49	49	49	49	43
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42	42	42	42	36
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35	35	35	35	30
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30	30	30	30	26
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26	26	26	26	22
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22	22	22	22	19
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20	20	20	20	17
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18	18	18	18	15
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16	16	16	16	13
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14	14	14	14	12
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13	13	13	13	11

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

	0°	45°	90°
0°	2385	2385	2385
5°	2388	2350	2367
10°	2367	2317	2334
15°	2330	2278	2284
20°	2282	2223	2231
25°	2234	2158	2171
30°	2173	2097	2095
35°	2116	2026	2015
40°	2046	1954	1938
45°	1976	1882	1860
50°	1899	1806	1769
55°	1819	1718	1685
60°	1728	1614	1589
65°	1629	1506	1476
70°	1502	1375	1354
75°	1327	1217	1240
80°	1115	1015	1025
85°	784	672	671

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2553 cd/sqm



TEST NUMBER: P922800

CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US940-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	195.9	1.6
10°-20°	551.3	4.4
20°-30°	810.2	6.5
30°-40°	941.0	7.6
40°-50°	939.8	7.6
50°-60°	819.5	6.6
60°-70°	605.8	4.9
70°-80°	342.7	2.8
80°-90°	97.7	0.8
90°-100°	157.1	1.3
100°-110°	499.0	4.0
110°-120°	854.0	6.9
120°-130°	1123.1	9.1
130°-140°	1260.7	10.2
140°-150°	1236.2	10.0
150°-160°	1037.0	8.4
160°-170°	687.7	5.5
170°-180°	240.4	1.9
0°-30°	1557.4	12.6
0°-40°	2498.4	20.1
0°-60°	4257.8	34.3
0°-90°	5304.0	42.8
90°-120°	1510.1	12.2
90°-150°	5130.1	41.4
90°-180°	7095.0	57.2
0°-180°	12399.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2082	2082	2082	2082	2082	
5°	2082	2074	2052	2068	2064	198
15°	1982	1970	1944	1952	1942	558
25°	1794	1778	1744	1748	1744	825
35°	1548	1528	1495	1483	1473	966
45°	1259	1245	1215	1193	1185	972
55°	953	941	917	893	883	852
65°	643	631	611	592	583	635
75°	336	332	322	310	314	359
85°	82	80	78	72	70	91
90°	2	28	75	70	73	12
95°	112	133	137	137	133	124
105°	461	467	471	475	475	486
115°	857	869	865	863	857	848
125°	1246	1266	1260	1253	1250	1114
135°	1612	1636	1641	1638	1632	1246
145°	1957	1973	1985	1987	1979	1223
155°	2238	2244	2251	2262	2255	1030
165°	2435	2432	2432	2448	2437	687
175°	2534	2527	2523	2538	2525	241
180°	2538	2538	2538	2538	2538	



TEST NUMBER: P922800

CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US940-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2081.8	2081.8	2081.8	2081.8	2081.8
2.5°	2093.9	2083.9	2061.8	2081.8	2078.0
5°	2081.8	2073.9	2051.8	2067.8	2064.0
7.5°	2067.8	2055.9	2033.8	2050.0	2045.9
10°	2045.9	2031.9	2007.9	2023.8	2017.9
12.5°	2015.8	2003.9	1979.9	1989.9	1985.8
15°	1981.7	1969.9	1943.8	1951.9	1941.9
17.5°	1939.7	1927.9	1901.8	1911.6	1901.8
20°	1893.6	1881.8	1853.7	1859.7	1851.8
22.5°	1847.8	1829.7	1803.6	1803.6	1799.6
25°	1793.6	1777.7	1743.7	1747.5	1743.7
27.5°	1733.5	1719.5	1693.5	1687.7	1677.7
30°	1673.7	1657.4	1627.5	1621.6	1613.5
32.5°	1609.4	1597.6	1565.5	1553.4	1545.3
35°	1547.5	1527.5	1495.4	1483.3	1473.3
37.5°	1477.4	1459.3	1427.3	1413.2	1403.2
40°	1405.3	1389.2	1357.2	1339.3	1331.2
42.5°	1335.2	1319.1	1287.3	1267.1	1255.2
45°	1259.3	1245.2	1215.0	1193.2	1185.1
47.5°	1185.1	1171.1	1139.1	1117.0	1105.0
50°	1107.0	1097.0	1069.0	1040.9	1030.9
52.5°	1030.9	1016.9	991.0	968.9	954.9
55°	953.0	940.8	916.9	892.9	882.9
57.5°	874.9	864.9	838.7	814.8	806.6
60°	796.7	788.8	760.8	738.7	732.7
62.5°	720.6	706.6	686.6	666.6	658.6
65°	642.7	630.6	610.6	592.5	582.6
67.5°	562.6	552.4	534.6	520.6	512.5
70°	488.5	480.5	462.4	448.4	440.5
72.5°	412.4	404.4	394.4	380.4	374.4
75°	336.2	332.4	322.2	310.3	314.3
77.5°	268.2	260.2	256.1	250.2	244.2
80°	200.3	198.1	194.1	188.2	184.1
82.5°	136.2	136.2	134.2	126.2	126.2
85°	81.9	80.1	78.1	72.0	70.1
87.5°	36.1	32.1	28.0	22.1	20.0
90°	2.3	27.6	75.0	70.4	72.7
92.5°	47.4	64.3	66.6	68.8	68.8
95°	111.7	133.1	137.0	137.0	133.1
97.5°	185.9	205.8	214.3	214.3	214.3
100°	271.6	289.3	295.3	295.3	293.1
102.5°	361.9	375.0	383.3	385.7	383.3
105°	460.7	466.7	471.4	475.2	475.2
107.5°	558.6	567.8	567.8	569.3	558.6
110°	653.4	665.8	665.8	665.8	659.6



TEST NUMBER: P922800

CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US940-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	756.0	769.0	766.7	760.6	756.0
115°	857.0	869.2	865.4	863.2	857.0
117.5°	957.3	974.1	963.4	957.3	951.1
120°	1058.3	1075.0	1058.3	1058.3	1051.3
122.5°	1150.0	1171.5	1160.8	1154.7	1150.0
125°	1246.5	1265.6	1259.5	1252.6	1250.4
127.5°	1340.6	1364.3	1355.9	1346.8	1340.6
130°	1428.6	1456.2	1452.3	1447.7	1439.3
132.5°	1527.3	1548.7	1550.2	1539.5	1533.5
135°	1612.2	1635.9	1640.6	1638.3	1632.2
137.5°	1707.1	1726.3	1730.1	1728.6	1719.4
140°	1790.6	1809.6	1820.3	1820.3	1812.0
142.5°	1876.2	1895.3	1901.5	1903.8	1895.3
145°	1957.4	1972.6	1984.9	1987.2	1978.8
147.5°	2030.1	2049.2	2058.3	2062.2	2053.8
150°	2105.1	2118.1	2126.5	2133.3	2126.5
152.5°	2171.6	2184.6	2195.3	2203.8	2195.3
155°	2238.2	2244.3	2251.2	2261.9	2255.0
157.5°	2295.5	2300.2	2304.0	2319.2	2308.5
160°	2346.8	2351.4	2353.8	2366.7	2357.5
162.5°	2394.2	2394.2	2396.6	2411.1	2400.4
165°	2434.8	2432.5	2432.5	2447.8	2437.1
167.5°	2471.6	2464.7	2464.7	2479.9	2469.2
170°	2499.1	2493.0	2490.7	2506.0	2493.0
172.5°	2518.2	2512.1	2509.8	2525.1	2512.1
175°	2533.5	2527.4	2522.8	2538.2	2525.1
177.5°	2541.9	2535.8	2531.2	2544.2	2531.2
180°	2538.2	2538.2	2538.2	2538.2	2538.2



TEST NUMBER: P922800  
 CATALOG NUMBER: DFN2DIP-SQ3F0-060D090US940-FLLFLL

**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	9.55	10.35	10.57	11.38	12.75	9.11	9.91	10.12	10.93	12.30
	3H	11.20	11.92	12.23	12.95	14.34	10.71	11.43	11.74	12.46	13.85
	4H	11.78	12.46	12.82	13.50	14.90	11.29	11.97	12.33	13.01	14.40
	6H	12.18	12.80	13.23	13.84	15.25	11.68	12.30	12.72	13.34	14.75
	8H	12.28	12.87	13.33	13.93	15.34	11.78	12.37	12.83	13.43	14.83
	12H	12.32	12.89	13.38	13.94	15.37	11.81	12.38	12.87	13.43	14.86
4H	2H	10.00	10.68	11.05	11.72	13.11	9.64	10.32	10.69	11.36	12.76
	3H	11.85	12.42	12.91	13.49	14.90	11.45	12.01	12.50	13.08	14.49
	4H	12.56	13.08	13.62	14.14	15.57	12.14	12.66	13.20	13.71	15.15
	6H	13.07	13.52	14.14	14.60	16.02	12.64	13.08	13.71	14.16	15.59
	8H	13.22	13.63	14.29	14.70	16.15	12.78	13.20	13.85	14.27	15.71
	12H	13.28	13.66	14.37	14.75	16.20	12.83	13.21	13.92	14.30	15.75
8H	4H	12.75	13.17	13.82	14.24	15.68	12.37	12.79	13.44	13.86	15.31
	6H	13.37	13.72	14.47	14.83	16.27	12.99	13.33	14.08	14.45	15.89
	8H	13.59	13.89	14.69	14.99	16.45	13.20	13.50	14.30	14.60	16.06
	12H	13.71	13.98	14.82	15.07	16.57	13.30	13.57	14.41	14.66	16.16
12H	4H	12.73	13.11	13.82	14.19	15.64	12.36	12.74	13.45	13.83	15.28
	6H	13.40	13.70	14.50	14.80	16.26	13.03	13.33	14.13	14.43	15.89
	8H	13.63	13.90	14.74	14.99	16.49	13.25	13.52	14.36	14.61	16.11