

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: P917368

Luminaire Tested: DFN2DIP-SQ3F0-070D060US930-FLLFLL

Issue Date: 11/21/2024

**Test Information**

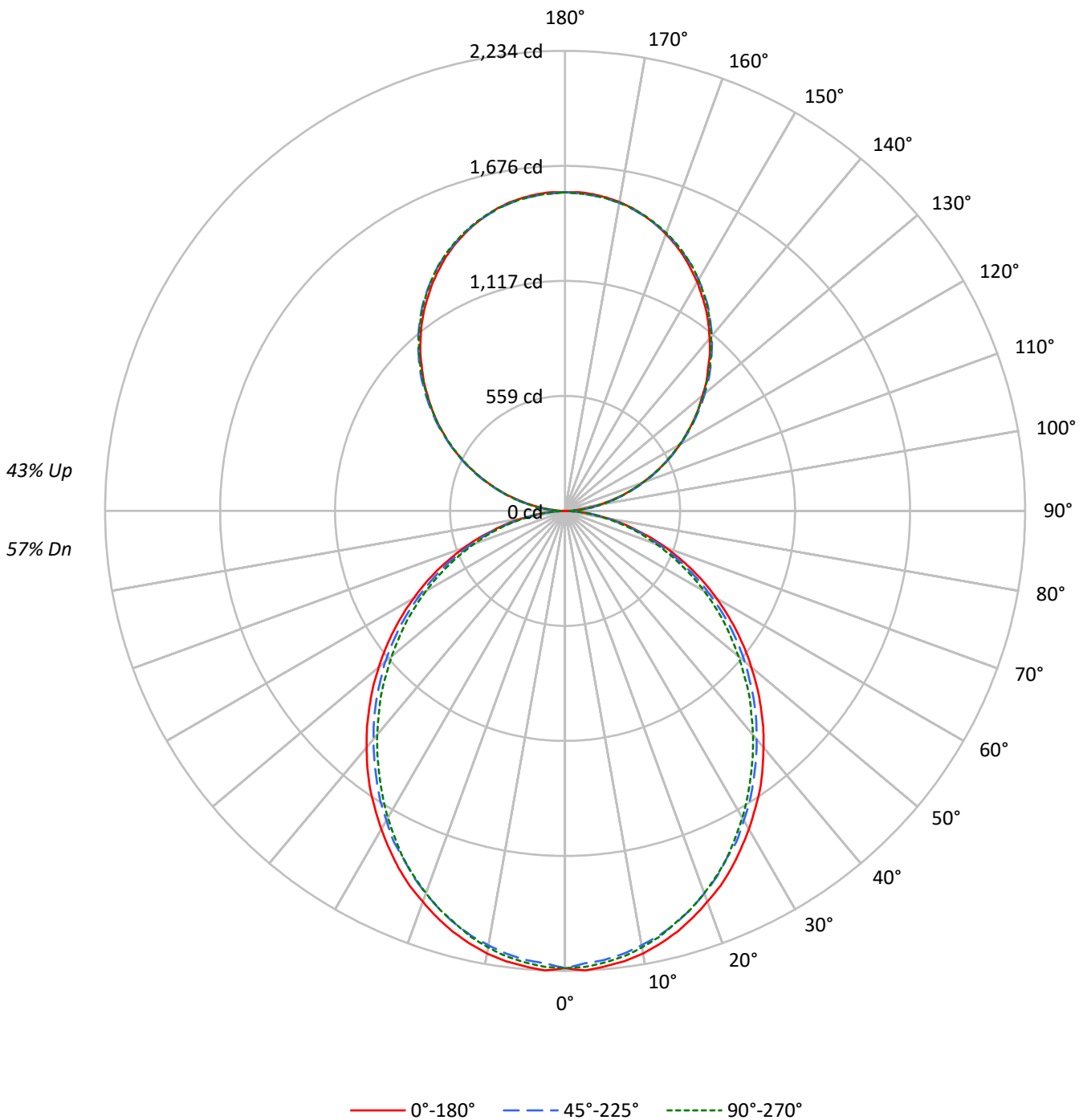
Test Method: LM-79-2019  
Report Number: P917368  
REPORT IS A COMBINATION OF REPORTS P899903 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-070D060US930-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9979.3 lumens  
Efficiency: N/A  
Efficacy: 90.1 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): 110.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9963  
Total Harmonic Distortion (THDi): 0.065  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P917368  
CATALOG NUMBER: DFN2DIP-SQ3F0-070D060US930-FLLFL

### Luminous Intensity Polar Plot





TEST NUMBER: P917368

CATALOG NUMBER: DFN2DIP-SQ3F0-070D060US930-FLLFLL

**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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	57	57	57	57
1	99	95	91	87	92	88	85	82	76	74	72	65	63	62	55	54	53	48	48	48	48
2	90	83	77	71	84	77	72	67	67	63	59	57	54	52	48	46	44	40	40	40	40
3	82	73	65	60	76	68	62	56	59	54	50	51	47	44	43	40	38	34	34	34	34
4	75	65	57	50	70	60	53	48	53	47	43	45	41	37	38	35	33	29	29	29	29
5	69	58	49	43	64	54	47	41	47	41	37	41	36	32	35	31	28	25	25	25	25
6	64	52	43	38	59	48	41	36	42	36	32	37	32	28	31	28	25	22	22	22	22
7	59	47	39	33	55	44	37	31	38	33	28	33	29	25	29	25	22	20	20	20	20
8	55	42	35	29	51	40	33	28	35	29	25	31	26	23	26	23	20	18	18	18	18
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	24	21	18	16	16	16	16
10	48	36	28	23	45	34	27	22	30	24	20	26	22	18	23	19	16	14	14	14	14

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

	0°	45°	90°
0°	2544	2544	2544
5°	2547	2507	2525
10°	2525	2472	2490
15°	2486	2429	2436
20°	2434	2371	2380
25°	2383	2302	2316
30°	2318	2237	2235
35°	2257	2161	2149
40°	2183	2085	2067
45°	2108	2008	1984
50°	2026	1927	1887
55°	1940	1833	1798
60°	1843	1722	1695
65°	1737	1607	1575
70°	1602	1466	1445
75°	1415	1298	1323
80°	1189	1083	1094
85°	838	718	716

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2108 cd/sqm



TEST NUMBER: P917368

CATALOG NUMBER: DFN2DIP-SQ3F0-070D060US930-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	209.0	2.1
10°-20°	588.1	5.9
20°-30°	864.2	8.7
30°-40°	1003.7	10.1
40°-50°	1002.5	10.0
50°-60°	874.2	8.8
60°-70°	646.2	6.5
70°-80°	365.6	3.7
80°-90°	100.9	1.0
90°-100°	95.7	1.0
100°-110°	304.2	3.0
110°-120°	520.6	5.2
120°-130°	684.6	6.9
130°-140°	768.4	7.7
140°-150°	753.5	7.6
150°-160°	632.1	6.3
160°-170°	419.2	4.2
170°-180°	146.5	1.5
0°-30°	1661.3	16.6
0°-40°	2665.1	26.7
0°-60°	4541.7	45.5
0°-90°	5654.4	56.7
90°-120°	920.5	9.2
90°-150°	3127.0	31.3
90°-180°	4325.0	43.3
0°-180°	9979.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2221	2221	2221	2221	2221	
5°	2221	2212	2189	2206	2202	211
15°	2114	2101	2073	2082	2071	595
25°	1913	1896	1860	1864	1860	880
35°	1651	1629	1595	1582	1572	1031
45°	1343	1328	1296	1273	1264	1037
55°	1016	1004	978	952	942	909
65°	686	673	651	632	621	678
75°	359	355	344	331	335	383
85°	88	85	83	77	75	98
90°	1	17	46	43	44	10
95°	68	81	84	84	81	76
105°	281	284	287	290	290	296
115°	522	530	528	526	522	517
125°	760	771	768	764	762	679
135°	983	997	1000	999	995	760
145°	1193	1202	1210	1211	1206	745
155°	1364	1368	1372	1379	1374	628
165°	1484	1483	1483	1492	1486	419
175°	1544	1541	1538	1547	1539	147
180°	1547	1547	1547	1547	1547	



TEST NUMBER: P917368

CATALOG NUMBER: DFN2DIP-SQ3F0-070D060US930-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2220.6	2220.6	2220.6	2220.6	2220.6
2.5°	2233.6	2222.9	2199.3	2220.6	2216.6
5°	2220.6	2212.3	2188.7	2205.7	2201.6
7.5°	2205.7	2193.0	2169.4	2186.7	2182.4
10°	2182.4	2167.4	2141.8	2158.8	2152.5
12.5°	2150.2	2137.5	2111.9	2122.5	2118.2
15°	2114.0	2101.3	2073.4	2082.0	2071.3
17.5°	2069.1	2056.4	2028.5	2039.2	2028.5
20°	2019.9	2007.3	1977.3	1983.7	1975.3
22.5°	1971.0	1951.7	1923.9	1923.9	1919.5
25°	1913.3	1896.2	1860.0	1864.1	1860.0
27.5°	1849.1	1834.2	1806.5	1800.2	1789.5
30°	1785.3	1768.0	1736.1	1729.7	1721.1
32.5°	1716.8	1704.1	1669.9	1657.0	1648.4
35°	1650.7	1629.4	1595.1	1582.2	1571.6
37.5°	1575.9	1556.6	1522.4	1507.5	1496.8
40°	1499.1	1481.9	1447.6	1428.6	1420.0
42.5°	1424.3	1407.1	1373.1	1351.6	1338.9
45°	1343.2	1328.3	1296.1	1272.8	1264.1
47.5°	1264.1	1249.2	1215.0	1191.4	1178.8
50°	1180.8	1170.1	1140.2	1110.4	1099.7
52.5°	1099.7	1084.8	1057.1	1033.6	1018.6
55°	1016.5	1003.6	978.0	952.4	941.8
57.5°	933.2	922.5	894.6	869.0	860.5
60°	849.8	841.4	811.5	788.0	781.6
62.5°	768.7	753.7	732.5	711.2	702.5
65°	685.6	672.6	651.3	632.1	621.4
67.5°	600.1	589.3	570.2	555.3	546.7
70°	521.1	512.5	493.2	478.3	469.9
72.5°	439.9	431.4	420.7	405.8	399.4
75°	358.6	354.6	343.6	331.0	335.3
77.5°	286.2	277.5	273.2	266.8	260.6
80°	213.6	211.4	207.1	200.7	196.4
82.5°	145.2	145.2	143.2	134.6	134.6
85°	87.5	85.4	83.4	76.8	74.8
87.5°	38.5	34.2	29.9	23.6	21.3
90°	1.4	16.8	45.7	42.9	44.3
92.5°	28.9	39.2	40.6	42.0	42.0
95°	68.1	81.1	83.5	83.5	81.1
97.5°	113.3	125.5	130.6	130.6	130.6
100°	165.6	176.3	180.0	180.0	178.6
102.5°	220.6	228.5	233.7	235.1	233.7
105°	280.8	284.5	287.3	289.7	289.7
107.5°	340.5	346.1	346.1	347.0	340.5
110°	398.4	405.8	405.8	405.8	402.0



TEST NUMBER: P917368

CATALOG NUMBER: DFN2DIP-SQ3F0-070D060US930-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	460.8	468.7	467.3	463.6	460.8
115°	522.4	529.9	527.5	526.1	522.4
117.5°	583.5	593.8	587.2	583.5	579.8
120°	645.1	655.3	645.1	645.1	640.8
122.5°	701.0	714.0	707.5	703.8	701.0
125°	759.8	771.4	767.7	763.5	762.1
127.5°	817.2	831.6	826.5	820.9	817.2
130°	870.8	887.6	885.3	882.5	877.3
132.5°	931.0	944.0	944.9	938.4	934.7
135°	982.8	997.2	1000.0	998.6	994.8
137.5°	1040.6	1052.2	1054.6	1053.6	1048.1
140°	1091.4	1103.1	1109.6	1109.6	1104.5
142.5°	1143.6	1155.3	1159.0	1160.4	1155.3
145°	1193.1	1202.4	1209.9	1211.3	1206.2
147.5°	1237.4	1249.0	1254.7	1256.9	1251.8
150°	1283.1	1291.0	1296.2	1300.3	1296.2
152.5°	1323.6	1331.6	1338.1	1343.3	1338.1
155°	1364.2	1368.0	1372.1	1378.8	1374.5
157.5°	1399.2	1402.1	1404.4	1413.7	1407.2
160°	1430.5	1433.3	1434.7	1442.6	1437.0
162.5°	1459.4	1459.4	1460.8	1469.7	1463.1
165°	1484.1	1482.7	1482.7	1492.1	1485.6
167.5°	1506.5	1502.4	1502.4	1511.6	1505.1
170°	1523.3	1519.6	1518.2	1527.5	1519.6
172.5°	1535.0	1531.2	1529.8	1539.1	1531.2
175°	1544.3	1540.6	1537.7	1547.1	1539.1
177.5°	1549.4	1545.7	1542.9	1550.8	1542.9
180°	1547.1	1547.1	1547.1	1547.1	1547.1



TEST NUMBER: P917368  
 CATALOG NUMBER: DFN2DIP-SQ3F0-070D060US930-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	11.07	12.00	11.97	12.92	14.09	10.63	11.55	11.53	12.47	13.65
	3H	12.74	13.57	13.65	14.49	15.69	12.25	13.08	13.15	14.00	15.20
	4H	13.32	14.11	14.25	15.04	16.25	12.83	13.61	13.75	14.55	15.75
	6H	13.72	14.45	14.66	15.38	16.60	13.22	13.95	14.16	14.88	16.10
	8H	13.83	14.52	14.77	15.47	16.69	13.33	14.01	14.27	14.97	16.19
	12H	13.88	14.53	14.83	15.48	16.73	13.37	14.02	14.32	14.97	16.22
4H	2H	11.54	12.32	12.47	13.26	14.46	11.18	11.97	12.11	12.90	14.11
	3H	13.41	14.06	14.35	15.02	16.25	13.00	13.65	13.94	14.62	15.84
	4H	14.12	14.72	15.07	15.67	16.92	13.70	14.29	14.65	15.25	16.50
	6H	14.63	15.15	15.60	16.13	17.38	14.20	14.72	15.16	15.70	16.94
	8H	14.78	15.26	15.75	16.24	17.50	14.35	14.83	15.31	15.80	17.06
	12H	14.86	15.29	15.84	16.28	17.55	14.41	14.84	15.39	15.83	17.10
8H	4H	14.32	14.80	15.28	15.77	17.03	13.94	14.42	14.91	15.40	16.66
	6H	14.94	15.34	15.94	16.36	17.62	14.56	14.96	15.55	15.98	17.23
	8H	15.16	15.51	16.16	16.52	17.80	14.77	15.12	15.77	16.13	17.40
	12H	15.29	15.60	16.30	16.60	17.92	14.88	15.19	15.89	16.19	17.51
12H	4H	14.30	14.74	15.29	15.73	17.00	13.94	14.37	14.92	15.36	16.63
	6H	14.97	15.33	15.97	16.33	17.61	14.60	14.95	15.60	15.96	17.23
	8H	15.21	15.52	16.22	16.52	17.85	14.83	15.14	15.84	16.14	17.46