

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: P903743

Luminaire Tested: DFN2DIP-SQ3F0-070D090US830-RLLONL

Issue Date: 11/21/2024

**Test Information**

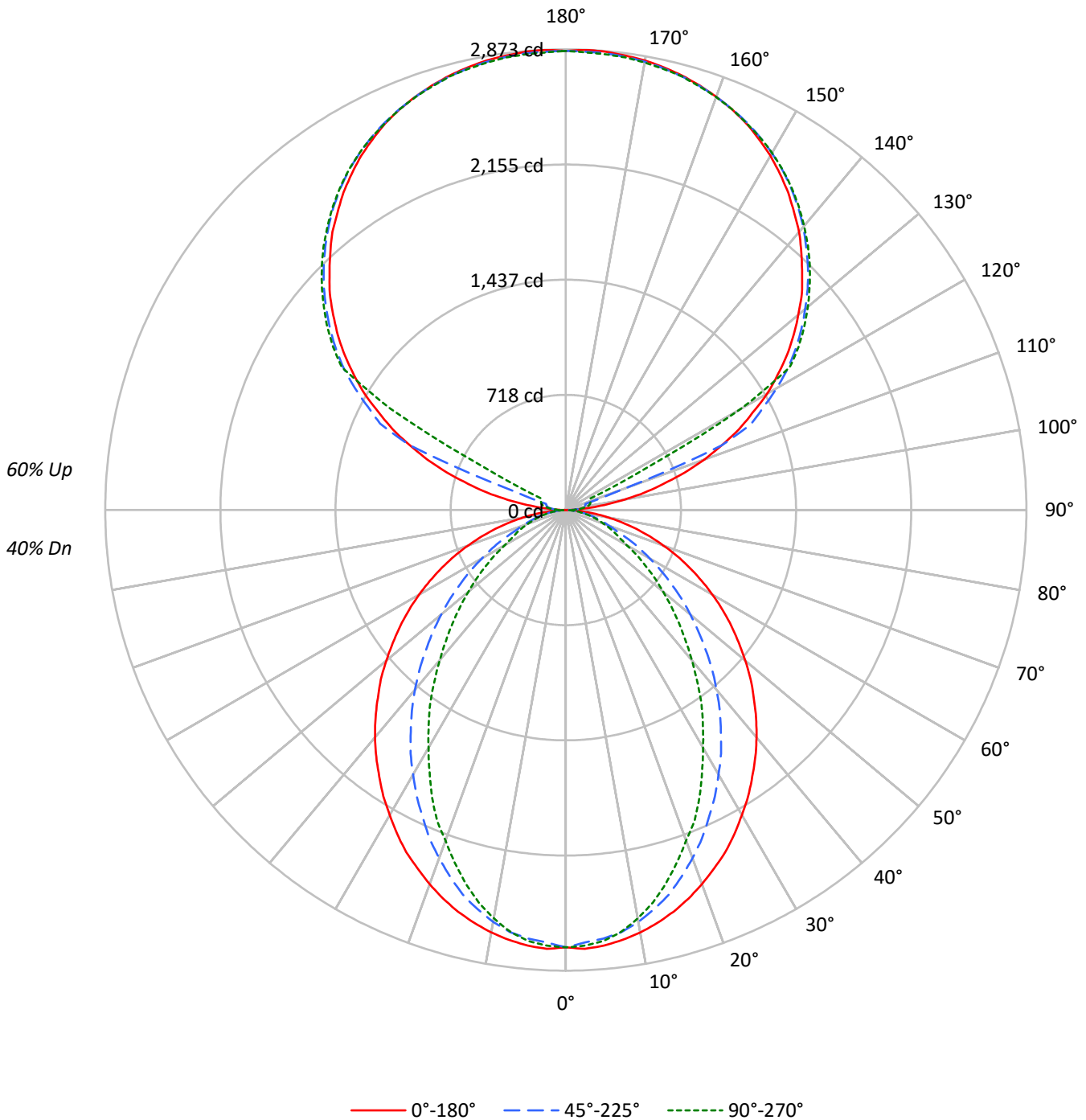
Test Method: LM-79-2019  
Report Number: P903743  
REPORT IS A COMBINATION OF REPORTS P901478 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-070D090US830-RLLONL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14006.1 lumens  
Efficiency: N/A  
Efficacy: 104.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 134.1  
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: P903743  
CATALOG NUMBER: DFN2DIP-SQ3F0-070D090US830-RLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P903743

CATALOG NUMBER: DFN2DIP-SQ3F0-070D090US830-RLLONL

**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	95	95	95	95	78	78	78	62	62	62	47	47	47	47	47	47	47	40
1	96	92	88	85	87	84	81	78	69	67	65	55	53	52	42	41	40	40	40	40	40	35
2	88	81	75	70	80	74	69	64	61	57	54	49	46	44	38	36	35	35	35	35	35	30
3	80	71	64	59	73	65	59	54	54	49	46	43	40	38	34	32	30	30	30	30	30	25
4	74	63	56	50	67	58	51	46	48	43	39	39	35	33	30	28	26	26	26	26	26	22
5	68	56	49	43	61	52	45	40	43	38	34	35	31	28	27	25	23	23	23	23	23	20
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	22	20	20	20	20	20	17
7	58	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18	18	18	18	18	16
8	54	42	34	29	49	38	32	27	32	27	24	27	23	20	21	18	16	16	16	16	16	14
9	50	38	31	26	45	35	29	24	30	25	21	24	21	18	20	17	15	15	15	15	15	13
10	47	35	28	23	43	32	26	22	27	22	19	23	19	16	18	16	14	14	14	14	14	12

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

	0°	45°	90°
0°	3124	3124	3124
5°	3127	3073	3094
10°	3094	3010	2992
15°	3050	2909	2835
20°	2992	2770	2644
25°	2932	2614	2458
30°	2852	2455	2224
35°	2774	2284	2018
40°	2695	2107	1782
45°	2602	1911	1568
50°	2507	1714	1359
55°	2407	1503	1159
60°	2291	1283	953
65°	2157	1059	856
70°	1995	851	774
75°	1792	746	702
80°	1497	619	605
85°	1015	403	448

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2602 cd/sqm



TEST NUMBER: P903743

CATALOG NUMBER: DFN2DIP-SQ3F0-070D090US830-RLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	255.6	1.8
10°-20°	701.6	5.0
20°-30°	985.0	7.0
30°-40°	1073.7	7.7
40°-50°	986.9	7.0
50°-60°	775.0	5.5
60°-70°	504.5	3.6
70°-80°	259.7	1.9
80°-90°	71.3	0.5
90°-100°	94.4	0.7
100°-110°	351.9	2.5
110°-120°	933.3	6.7
120°-130°	1548.0	11.1
130°-140°	1644.3	11.7
140°-150°	1528.2	10.9
150°-160°	1228.6	8.8
160°-170°	791.7	5.7
170°-180°	272.5	1.9
0°-30°	1942.1	13.9
0°-40°	3015.8	21.5
0°-60°	4777.7	34.1
0°-90°	5613.1	40.1
90°-120°	1379.6	9.9
90°-150°	6100.2	43.6
90°-180°	8393.0	59.9
0°-180°	14006.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2727	2727	2727	2727	2727	
5°	2727	2714	2682	2705	2697	259
15°	2594	2566	2483	2436	2411	731
25°	2354	2275	2112	2011	1974	1083
35°	2028	1903	1686	1530	1476	1270
45°	1658	1493	1234	1059	999	1281
55°	1261	1068	802	654	607	1127
65°	851	651	429	346	338	844
75°	454	281	197	180	178	480
85°	106	54	47	47	47	122
90°	2	25	41	52	56	13
95°	135	66	81	91	89	159
105°	630	692	126	149	157	673
115°	1191	1226	1278	319	170	1173
125°	1684	1711	1750	1765	1771	1502
135°	2084	2117	2136	2157	2152	1610
145°	2418	2415	2451	2465	2455	1512
155°	2662	2644	2668	2681	2664	1227
165°	2805	2792	2799	2813	2799	792
175°	2869	2854	2859	2873	2852	273
180°	2863	2863	2863	2863	2863	



TEST NUMBER: P903743

CATALOG NUMBER: DFN2DIP-SQ3F0-070D090US830-RLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2726.9	2726.9	2726.9	2726.9	2726.9
2.5°	2739.1	2726.9	2699.6	2724.5	2719.5
5°	2726.9	2714.5	2682.4	2704.6	2697.3
7.5°	2704.6	2689.9	2655.4	2665.0	2652.8
10°	2675.0	2657.8	2608.5	2600.9	2586.2
12.5°	2638.1	2615.8	2549.1	2534.4	2507.2
15°	2593.6	2566.4	2482.6	2435.7	2411.1
17.5°	2541.8	2502.3	2398.6	2344.3	2304.8
20°	2482.6	2433.1	2309.8	2248.2	2193.8
22.5°	2418.5	2361.6	2218.4	2134.6	2097.7
25°	2354.3	2275.2	2112.3	2011.3	1974.2
27.5°	2277.8	2193.8	2013.6	1897.7	1840.9
30°	2196.4	2102.4	1905.0	1779.3	1712.6
32.5°	2117.3	2003.8	1801.6	1653.4	1591.6
35°	2028.5	1902.6	1685.6	1530.1	1475.6
37.5°	1942.2	1806.3	1577.0	1406.5	1345.0
40°	1850.8	1702.9	1463.3	1288.2	1224.0
42.5°	1757.1	1599.2	1349.9	1167.2	1105.7
45°	1658.4	1492.9	1234.0	1058.6	999.4
47.5°	1564.6	1389.5	1122.9	947.5	893.3
50°	1460.9	1285.8	1014.3	843.9	792.3
52.5°	1359.6	1174.5	910.6	747.7	700.9
55°	1260.9	1068.5	801.9	654.0	607.2
57.5°	1159.9	962.4	705.9	567.6	528.1
60°	1056.2	858.8	604.5	478.9	439.3
62.5°	955.1	757.7	518.1	399.8	380.1
65°	851.4	651.4	429.4	345.6	338.0
67.5°	752.7	552.7	345.6	303.4	296.1
70°	649.0	456.6	286.2	261.6	251.6
72.5°	550.4	367.6	239.3	219.7	214.7
75°	454.0	281.2	197.4	180.1	177.8
77.5°	357.9	199.7	155.5	145.5	140.6
80°	268.9	143.2	118.4	108.7	108.7
82.5°	187.5	96.3	81.4	76.4	76.4
85°	106.0	54.2	46.8	46.8	46.8
87.5°	39.5	19.6	19.6	17.2	17.2
90°	2.0	24.9	41.3	51.9	55.8
92.5°	51.9	43.5	49.7	53.9	55.8
95°	134.6	66.2	80.7	91.2	89.1
97.5°	242.3	72.6	105.6	111.9	113.9
100°	366.7	82.9	118.1	134.6	138.7
102.5°	503.3	499.4	122.2	144.9	151.3
105°	629.7	692.0	126.4	149.1	157.4
107.5°	776.8	828.5	130.6	153.3	161.6
110°	917.8	961.1	362.6	155.4	163.6



TEST NUMBER: P903743

CATALOG NUMBER: DFN2DIP-SQ3F0-070D090US830-RLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1050.4	1087.5	1052.3	159.4	165.8
115°	1191.1	1226.2	1278.2	319.1	169.9
117.5°	1313.3	1354.7	1390.1	1093.7	551.0
120°	1450.1	1481.1	1518.5	1543.3	1263.7
122.5°	1566.0	1599.2	1640.8	1653.0	1655.3
125°	1684.0	1711.1	1750.5	1765.0	1771.1
127.5°	1791.8	1820.8	1852.1	1872.7	1874.7
130°	1893.4	1926.7	1949.3	1972.1	1970.2
132.5°	1997.0	2024.0	2046.6	2065.4	2063.4
135°	2084.1	2117.2	2135.7	2156.6	2152.5
137.5°	2175.1	2199.9	2220.8	2241.5	2235.3
140°	2264.1	2280.9	2303.5	2322.1	2311.9
142.5°	2338.9	2353.4	2380.2	2396.7	2386.4
145°	2417.6	2415.4	2450.6	2465.1	2454.8
147.5°	2485.8	2479.6	2514.8	2525.2	2517.0
150°	2552.2	2537.7	2570.9	2583.1	2572.9
152.5°	2608.0	2591.5	2622.5	2635.1	2620.6
155°	2661.9	2643.5	2668.2	2680.6	2664.1
157.5°	2705.5	2689.0	2707.6	2722.2	2705.5
160°	2742.8	2730.3	2742.8	2755.1	2740.6
162.5°	2775.8	2763.4	2773.8	2788.3	2769.7
165°	2804.8	2792.5	2798.7	2813.2	2798.7
167.5°	2827.7	2815.2	2821.5	2836.0	2817.4
170°	2846.4	2833.8	2838.0	2852.5	2833.8
172.5°	2858.7	2846.4	2850.5	2865.0	2846.4
175°	2869.0	2854.5	2858.7	2873.2	2852.5
177.5°	2873.2	2858.7	2860.9	2875.4	2856.8
180°	2862.9	2862.9	2862.9	2862.9	2862.9



TEST NUMBER: P903743  
 CATALOG NUMBER: DFN2DIP-SQ3F0-070D090US830-RLONL

**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	10.07	10.82	11.11	11.87	13.28	6.03	6.78	7.07	7.83	9.24
	3H	11.74	12.41	12.79	13.47	14.89	7.21	7.88	8.26	8.93	10.36
	4H	12.34	12.98	13.40	14.03	15.47	7.65	8.29	8.71	9.34	10.78
	6H	12.75	13.34	13.83	14.40	15.85	7.96	8.55	9.03	9.61	11.05
	8H	12.87	13.43	13.95	14.51	15.95	8.04	8.60	9.12	9.68	11.12
	12H	12.93	13.46	14.02	14.53	16.00	8.08	8.61	9.17	9.68	11.15
4H	2H	10.08	10.72	11.15	11.77	13.21	6.61	7.25	7.69	8.31	9.74
	3H	11.89	12.42	12.97	13.51	14.96	7.95	8.48	9.03	9.56	11.01
	4H	12.58	13.07	13.66	14.14	15.61	8.49	8.98	9.57	10.05	11.52
	6H	13.08	13.50	14.18	14.60	16.06	8.90	9.31	9.99	10.41	11.88
	8H	13.26	13.65	14.35	14.74	16.21	9.02	9.41	10.11	10.50	11.98
	12H	13.34	13.70	14.45	14.80	16.28	9.08	9.43	10.19	10.53	12.02
8H	4H	12.54	12.93	13.63	14.02	15.50	8.76	9.15	9.85	10.24	11.72
	6H	13.10	13.42	14.21	14.55	16.03	9.27	9.59	10.38	10.72	12.20
	8H	13.31	13.59	14.43	14.71	16.20	9.45	9.73	10.57	10.85	12.34
	12H	13.44	13.69	14.57	14.80	16.33	9.56	9.81	10.69	10.92	12.45
12H	4H	12.49	12.84	13.60	13.94	15.43	8.76	9.11	9.87	10.22	11.70
	6H	13.07	13.35	14.19	14.47	15.96	9.32	9.60	10.44	10.71	12.21
	8H	13.29	13.53	14.41	14.64	16.18	9.52	9.76	10.64	10.87	12.41