

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: P914789

Luminaire Tested: DFN2DIP-SQ3F0-110D070US927-FLLONL

Issue Date: 11/21/2024

**Test Information**

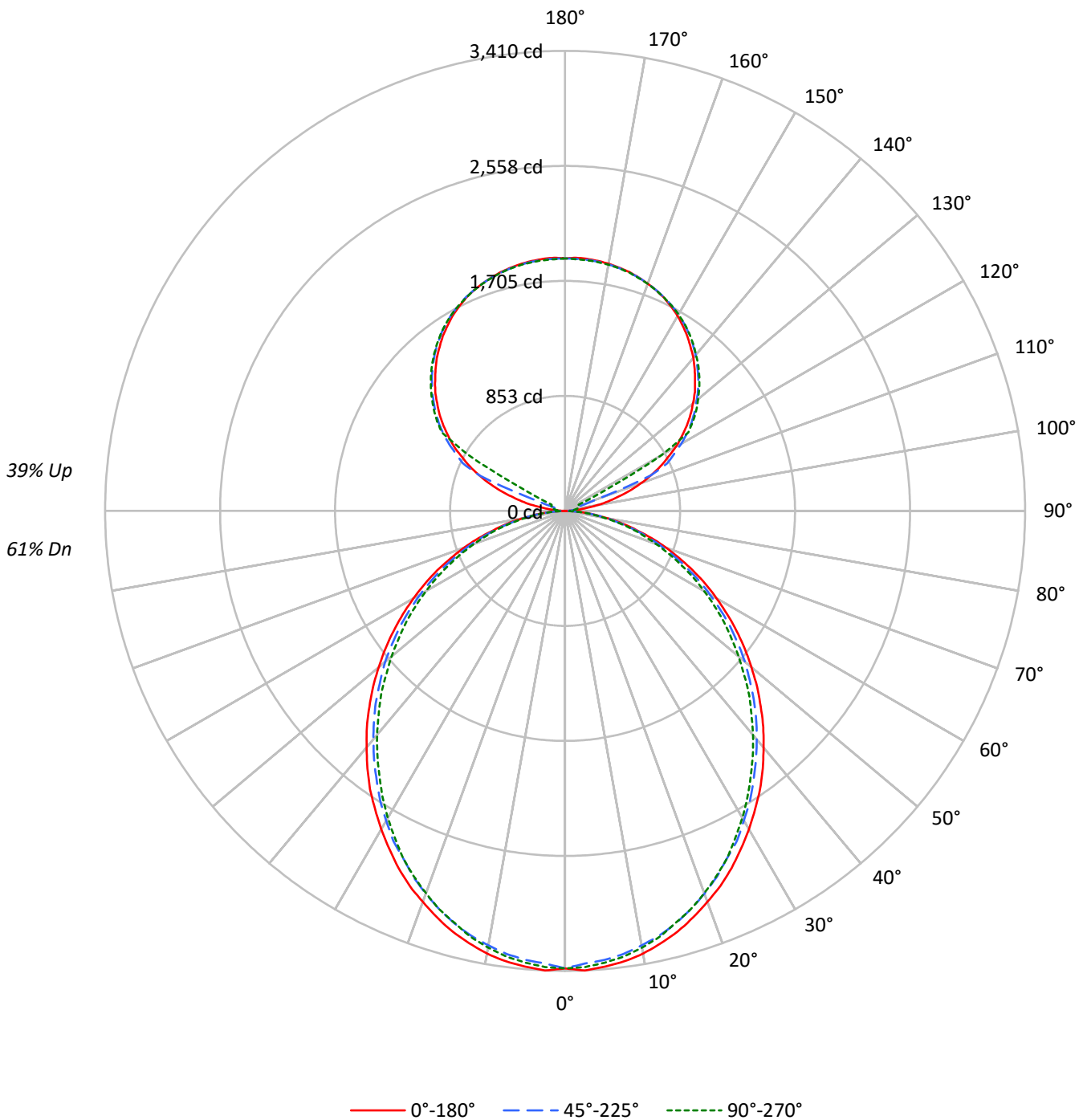
Test Method: LM-79-2019  
Report Number: P914789  
REPORT IS A COMBINATION OF REPORTS P901449 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-110D070US927-FLLONL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14116.7 lumens  
Efficiency: N/A  
Efficacy: 85.9 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: Semi-Direct  
  
Input Watts (W): 164.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9977  
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: P914789  
CATALOG NUMBER: DFN2DIP-SQ3F0-110D070US927-FLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P914789

CATALOG NUMBER: DFN2DIP-SQ3F0-110D070US927-FLLONL

**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	110	110	110	110	103	103	103	103	90	90	90	77	77	77	66	66	66	66	66	66	61
1	100	96	92	88	94	90	86	83	79	76	74	68	66	65	59	57	56	56	56	56	52
2	91	84	77	72	85	79	73	68	69	65	61	60	57	54	52	49	47	47	47	47	43
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40	40	40	40	37
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	38	35	35	35	35	31
5	70	58	50	44	65	55	47	42	48	42	38	42	38	34	37	33	30	30	30	30	27
6	65	52	44	38	60	49	42	36	44	38	33	38	34	30	34	30	27	27	27	27	24
7	60	47	39	33	56	45	37	32	40	34	29	35	30	26	31	27	24	24	24	24	21
8	56	43	35	30	52	41	33	28	36	30	26	32	27	24	28	24	21	21	21	21	19
9	52	39	32	27	48	37	30	25	33	27	23	30	25	21	26	22	19	19	19	19	17
10	48	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	18	18	18	18	16

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

	0°	45°	90°
0°	3885	3885	3885
5°	3889	3828	3855
10°	3855	3774	3802
15°	3796	3709	3719
20°	3717	3621	3634
25°	3638	3515	3537
30°	3540	3416	3413
35°	3447	3300	3282
40°	3332	3183	3157
45°	3218	3065	3029
50°	3093	2942	2881
55°	2963	2799	2745
60°	2814	2629	2589
65°	2652	2454	2404
70°	2446	2239	2206
75°	2161	1982	2021
80°	1816	1654	1670
85°	1279	1096	1094

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3218 cd/sqm



TEST NUMBER: P914789

CATALOG NUMBER: DFN2DIP-SQ3F0-110D070US927-FLLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	319.1	2.3
10°-20°	897.9	6.4
20°-30°	1319.6	9.3
30°-40°	1532.6	10.9
40°-50°	1530.7	10.8
50°-60°	1334.7	9.5
60°-70°	986.7	7.0
70°-80°	558.2	4.0
80°-90°	150.6	1.1
90°-100°	61.7	0.4
100°-110°	230.0	1.6
110°-120°	610.1	4.3
120°-130°	1011.9	7.2
130°-140°	1074.9	7.6
140°-150°	999.0	7.1
150°-160°	803.2	5.7
160°-170°	517.5	3.7
170°-180°	178.1	1.3
0°-30°	2536.6	18.0
0°-40°	4069.2	28.8
0°-60°	6934.6	49.1
0°-90°	8630.1	61.1
90°-120°	901.9	6.4
90°-150°	3987.7	28.2
90°-180°	5487.0	38.9
0°-180°	14116.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3391	3391	3391	3391	3391	
5°	3391	3378	3342	3368	3362	322
15°	3228	3208	3166	3179	3163	909
25°	2921	2895	2840	2846	2840	1344
35°	2520	2488	2436	2416	2400	1574
45°	2051	2028	1979	1943	1930	1583
55°	1552	1532	1493	1454	1438	1388
65°	1047	1027	994	965	949	1035
75°	548	541	525	505	512	585
85°	134	130	127	117	114	149
90°	1	16	27	34	36	13
95°	88	43	53	60	58	104
105°	412	452	83	97	103	440
115°	779	802	836	209	111	767
125°	1101	1119	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1612	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1834	1826	1830	1839	1830	518
175°	1876	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	



TEST NUMBER: P914789

CATALOG NUMBER: DFN2DIP-SQ3F0-110D070US927-FLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3390.7	3390.7	3390.7	3390.7	3390.7
2.5°	3410.3	3394.1	3358.1	3390.7	3384.4
5°	3390.7	3377.9	3341.9	3367.8	3361.6
7.5°	3367.8	3348.5	3312.5	3338.8	3332.2
10°	3332.2	3309.3	3270.3	3296.2	3286.5
12.5°	3283.1	3263.7	3224.7	3240.9	3234.3
15°	3227.7	3208.3	3165.8	3178.9	3162.7
17.5°	3159.2	3139.9	3097.3	3113.6	3097.3
20°	3084.2	3064.8	3019.2	3028.8	3016.1
22.5°	3009.5	2980.0	2937.5	2937.5	2930.9
25°	2921.2	2895.3	2840.0	2846.2	2840.0
27.5°	2823.3	2800.5	2758.3	2748.6	2732.4
30°	2725.8	2699.5	2650.7	2641.1	2627.9
32.5°	2621.3	2602.0	2549.7	2530.0	2516.8
35°	2520.3	2487.8	2435.6	2415.8	2399.6
37.5°	2406.2	2376.8	2324.6	2301.7	2285.4
40°	2288.9	2262.6	2210.4	2181.4	2168.2
42.5°	2174.8	2148.5	2096.6	2063.7	2044.4
45°	2051.0	2028.1	1978.9	1943.4	1930.2
47.5°	1930.2	1907.4	1855.1	1819.2	1799.8
50°	1802.9	1786.7	1741.0	1695.3	1679.1
52.5°	1679.1	1656.2	1614.1	1578.0	1555.2
55°	1552.1	1532.4	1493.3	1454.2	1438.0
57.5°	1424.8	1408.6	1366.0	1326.9	1313.8
60°	1297.5	1284.8	1239.1	1203.1	1193.4
62.5°	1173.7	1150.9	1118.3	1085.8	1072.7
65°	1046.7	1027.0	994.5	965.1	948.9
67.5°	916.3	899.8	870.7	847.9	834.7
70°	795.6	782.4	753.0	730.2	717.4
72.5°	671.8	658.6	642.4	619.6	609.8
75°	547.6	541.4	524.7	505.4	512.0
77.5°	436.9	423.7	417.2	407.5	397.8
80°	326.2	322.7	316.2	306.5	299.9
82.5°	221.7	221.7	218.6	205.5	205.5
85°	133.6	130.4	127.3	117.2	114.2
87.5°	58.8	52.2	45.6	36.0	32.5
90°	1.3	16.2	27.0	33.9	36.5
92.5°	33.9	28.4	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.5
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.5	79.9	94.7	98.9
105°	411.7	452.3	82.6	97.4	102.9
107.5°	507.8	541.6	85.4	100.2	105.7
110°	600.0	628.3	237.0	101.6	106.9



TEST NUMBER: P914789

CATALOG NUMBER: DFN2DIP-SQ3F0-110D070US927-FLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	686.7	710.9	687.9	104.2	108.4
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.6	885.6	908.7	714.9	360.2
120°	947.9	968.2	992.7	1008.9	826.1
122.5°	1023.7	1045.4	1072.6	1080.6	1082.0
125°	1100.9	1118.6	1144.3	1153.8	1157.8
127.5°	1171.3	1190.3	1210.7	1224.2	1225.5
130°	1237.7	1259.4	1274.2	1289.2	1287.9
132.5°	1305.4	1323.1	1337.9	1350.1	1348.8
135°	1362.3	1384.0	1396.1	1409.8	1407.1
137.5°	1421.8	1438.1	1451.8	1465.3	1461.3
140°	1480.0	1491.0	1505.8	1518.0	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1560.0
145°	1580.4	1579.0	1601.9	1611.5	1604.7
147.5°	1624.9	1621.0	1643.9	1650.7	1645.4
150°	1668.3	1658.9	1680.6	1688.6	1681.9
152.5°	1704.9	1694.1	1714.4	1722.5	1713.1
155°	1740.1	1728.0	1744.2	1752.3	1741.5
157.5°	1768.5	1757.8	1770.0	1779.5	1768.5
160°	1793.0	1784.8	1793.0	1801.0	1791.5
162.5°	1814.6	1806.5	1813.2	1822.7	1810.5
165°	1833.5	1825.5	1829.5	1839.0	1829.5
167.5°	1848.5	1840.2	1844.4	1853.9	1841.7
170°	1860.7	1852.5	1855.2	1864.7	1852.5
172.5°	1868.8	1860.7	1863.4	1872.9	1860.7
175°	1875.5	1866.0	1868.8	1878.2	1864.7
177.5°	1878.2	1868.8	1870.2	1879.7	1867.4
180°	1871.4	1871.4	1871.4	1871.4	1871.4



TEST NUMBER: P914789  
 CATALOG NUMBER: DFN2DIP-SQ3F0-110D070US927-FLLONL

**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	12.92	13.89	13.78	14.77	15.87	12.48	13.45	13.33	14.33	15.43
	3H	14.59	15.46	15.45	16.34	17.47	14.10	14.97	14.96	15.85	16.98
	4H	15.18	16.00	16.06	16.89	18.03	14.68	15.50	15.56	16.40	17.54
	6H	15.58	16.34	16.47	17.24	18.39	15.08	15.84	15.97	16.74	17.89
	8H	15.68	16.41	16.59	17.32	18.48	15.18	15.91	16.09	16.82	17.97
	12H	15.73	16.42	16.64	17.33	18.51	15.22	15.91	16.13	16.82	18.00
4H	2H	13.39	14.22	14.28	15.11	16.25	13.04	13.86	13.93	14.75	15.89
	3H	15.26	15.95	16.16	16.87	18.03	14.85	15.54	15.75	16.47	17.62
	4H	15.98	16.60	16.89	17.52	18.71	15.55	16.18	16.46	17.10	18.28
	6H	16.49	17.04	17.42	17.98	19.16	16.06	16.60	16.99	17.55	18.73
	8H	16.64	17.15	17.57	18.09	19.28	16.21	16.71	17.13	17.65	18.85
	12H	16.72	17.18	17.67	18.13	19.33	16.27	16.73	17.22	17.68	18.88
8H	4H	16.18	16.68	17.11	17.62	18.82	15.80	16.31	16.73	17.25	18.44
	6H	16.81	17.23	17.76	18.21	19.40	16.42	16.84	17.38	17.82	19.02
	8H	17.03	17.40	17.99	18.37	19.58	16.63	17.00	17.60	17.97	19.19
	12H	17.16	17.49	18.13	18.45	19.71	16.75	17.08	17.72	18.04	19.30
12H	4H	16.17	16.62	17.12	17.58	18.78	15.80	16.26	16.75	17.21	18.41
	6H	16.84	17.21	17.80	18.18	19.39	16.46	16.84	17.43	17.81	19.02
	8H	17.08	17.41	18.05	18.37	19.63	16.70	17.03	17.67	17.99	19.25