

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: P917489

Luminaire Tested: DFN2DIP-SQ3F0-100D090US930-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P917489  
REPORT IS A COMBINATION OF REPORTS P901483 AND P898289  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-100D090US930-FLLONL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

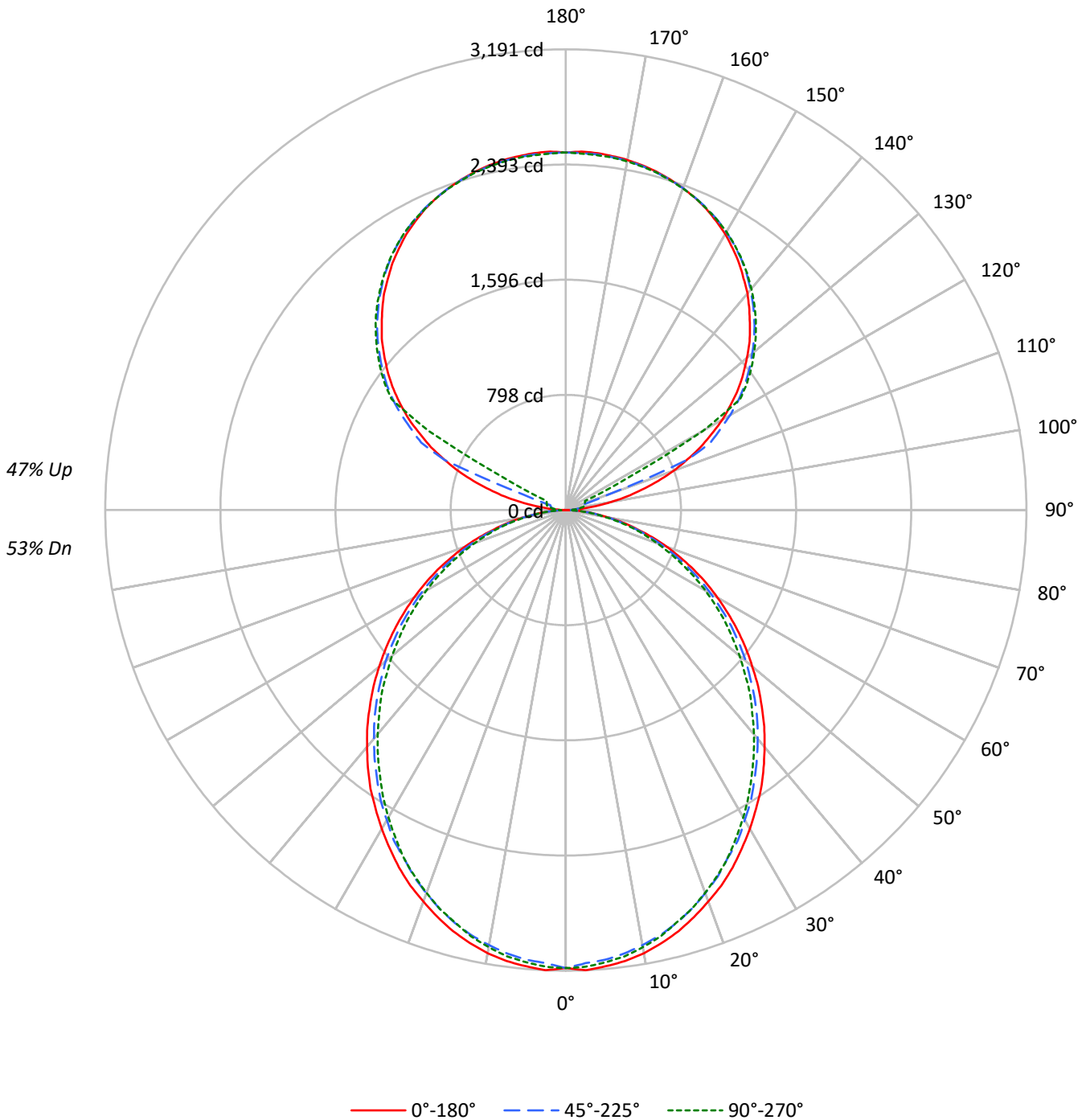
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15335.7 lumens  
Efficiency: N/A  
Efficacy: 91.8 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): 167  
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

TEST NUMBER: P917489  
CATALOG NUMBER: DFN2DIP-SQ3F0-100D090US930-FLLONL

### Luminous Intensity Polar Plot





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**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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	53			
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	49	44			
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	37			
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	40	38	35	31			
4	75	64	56	50	69	59	52	47	51	46	41	43	39	36	36	33	31	27			
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27	23			
6	63	51	43	37	58	48	40	35	41	35	31	35	31	27	30	26	23	21			
7	59	46	38	33	54	43	36	31	37	32	27	32	28	24	27	24	21	18			
8	54	42	34	29	50	39	32	27	34	28	24	29	25	22	25	21	19	16			
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	19	17	15			
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15	13			

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

	0°	45°	90°
0°	3635	3635	3635
5°	3638	3582	3607
10°	3607	3531	3557
15°	3551	3471	3480
20°	3477	3387	3400
25°	3404	3288	3309
30°	3312	3196	3193
35°	3225	3088	3070
40°	3118	2978	2953
45°	3011	2868	2834
50°	2894	2752	2696
55°	2772	2619	2568
60°	2633	2460	2422
65°	2481	2296	2250
70°	2289	2095	2064
75°	2022	1854	1890
80°	1699	1547	1562
85°	1196	1025	1023

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3011 cd/sqm



TEST NUMBER: P917489

CATALOG NUMBER: DFN2DIP-SQ3F0-100D090US930-FLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	298.6	1.9
10°-20°	840.1	5.5
20°-30°	1234.6	8.1
30°-40°	1433.9	9.4
40°-50°	1432.1	9.3
50°-60°	1248.8	8.1
60°-70°	923.1	6.0
70°-80°	522.3	3.4
80°-90°	142.2	0.9
90°-100°	81.7	0.5
100°-110°	304.4	2.0
110°-120°	807.3	5.3
120°-130°	1339.0	8.7
130°-140°	1422.3	9.3
140°-150°	1321.9	8.6
150°-160°	1062.8	6.9
160°-170°	684.8	4.5
170°-180°	235.7	1.5
0°-30°	2373.3	15.5
0°-40°	3807.2	24.8
0°-60°	6488.2	42.3
0°-90°	8075.8	52.7
90°-120°	1193.4	7.8
90°-150°	5276.6	34.4
90°-180°	7260.0	47.3
0°-180°	15335.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3172	3172	3172	3172	3172	
5°	3172	3160	3127	3151	3145	301
15°	3020	3002	2962	2974	2959	851
25°	2733	2709	2657	2663	2657	1258
35°	2358	2328	2279	2260	2245	1473
45°	1919	1898	1852	1818	1806	1481
55°	1452	1434	1397	1361	1345	1298
65°	979	961	930	903	888	968
75°	512	506	491	473	479	547
85°	125	122	119	110	107	139
90°	2	22	36	45	48	14
95°	116	57	70	79	77	138
105°	545	599	109	129	136	582
115°	1030	1061	1106	276	147	1014
125°	1457	1480	1514	1527	1532	1299
135°	1803	1831	1847	1866	1862	1393
145°	2091	2089	2120	2132	2123	1308
155°	2303	2287	2308	2319	2304	1061
165°	2426	2416	2421	2433	2421	685
175°	2482	2469	2473	2485	2467	236
180°	2476	2476	2476	2476	2476	



TEST NUMBER: P917489

CATALOG NUMBER: DFN2DIP-SQ3F0-100D090US930-FLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3172.4	3172.4	3172.4	3172.4	3172.4
2.5°	3190.8	3175.6	3141.9	3172.4	3166.5
5°	3172.4	3160.4	3126.8	3151.0	3145.2
7.5°	3151.0	3132.9	3099.2	3123.8	3117.7
10°	3117.7	3096.3	3059.7	3084.0	3075.0
12.5°	3071.7	3053.6	3017.0	3032.3	3026.1
15°	3019.9	3001.8	2962.0	2974.3	2959.1
17.5°	2955.9	2937.8	2897.9	2913.1	2897.9
20°	2885.6	2867.5	2824.8	2833.8	2821.8
22.5°	2815.7	2788.2	2748.4	2748.4	2742.3
25°	2733.2	2708.9	2657.1	2662.9	2657.1
27.5°	2641.6	2620.2	2580.7	2571.7	2556.4
30°	2550.3	2525.7	2480.1	2471.0	2458.7
32.5°	2452.6	2434.5	2385.6	2367.1	2354.8
35°	2358.1	2327.7	2278.8	2260.3	2245.1
37.5°	2251.3	2223.7	2174.9	2153.5	2138.3
40°	2141.5	2116.9	2068.1	2040.9	2028.6
42.5°	2034.7	2010.1	1961.6	1930.9	1912.8
45°	1918.9	1897.5	1851.5	1818.2	1806.0
47.5°	1806.0	1784.6	1735.7	1702.0	1683.9
50°	1686.9	1671.6	1628.9	1586.2	1571.0
52.5°	1571.0	1549.6	1510.1	1476.5	1455.1
55°	1452.2	1433.8	1397.2	1360.6	1345.4
57.5°	1333.1	1317.8	1278.1	1241.5	1229.2
60°	1214.0	1202.0	1159.3	1125.6	1116.6
62.5°	1098.1	1076.8	1046.4	1015.9	1003.6
65°	979.3	960.9	930.5	902.9	887.8
67.5°	857.4	841.8	814.6	793.3	781.0
70°	744.4	732.1	704.6	683.2	671.2
72.5°	628.5	616.2	601.0	579.7	570.5
75°	512.3	506.5	491.0	472.9	479.0
77.5°	408.8	396.5	390.3	381.2	372.2
80°	305.2	302.0	295.8	286.7	280.6
82.5°	207.5	207.5	204.6	192.2	192.2
85°	124.9	122.1	119.1	109.7	106.8
87.5°	55.0	48.8	42.7	33.7	30.4
90°	1.7	21.5	35.7	44.9	48.3
92.5°	44.9	37.7	43.0	46.6	48.3
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.6	62.8	91.3	96.8	98.5
100°	317.2	71.7	102.2	116.4	120.0
102.5°	435.4	431.9	105.7	125.3	130.9
105°	544.7	598.6	109.3	129.0	136.2
107.5°	672.0	716.6	113.0	132.6	139.8
110°	793.9	831.4	313.6	134.4	141.5



TEST NUMBER: P917489

CATALOG NUMBER: DFN2DIP-SQ3F0-100D090US930-FLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	908.6	940.7	910.3	137.9	143.4
115°	1030.3	1060.7	1105.6	276.0	147.0
117.5°	1136.0	1171.8	1202.4	946.1	476.6
120°	1254.3	1281.2	1313.5	1335.0	1093.1
122.5°	1354.6	1383.3	1419.3	1429.9	1431.8
125°	1456.7	1480.1	1514.2	1526.7	1532.0
127.5°	1549.9	1575.0	1602.1	1619.9	1621.6
130°	1637.8	1666.6	1686.1	1705.8	1704.2
132.5°	1727.4	1750.8	1770.3	1786.6	1784.9
135°	1802.7	1831.4	1847.4	1865.5	1861.9
137.5°	1881.5	1902.9	1921.0	1938.9	1933.6
140°	1958.4	1972.9	1992.5	2008.7	1999.8
142.5°	2023.2	2035.7	2058.9	2073.1	2064.3
145°	2091.2	2089.3	2119.8	2132.3	2123.4
147.5°	2150.2	2144.9	2175.3	2184.3	2177.2
150°	2207.7	2195.1	2223.8	2234.4	2225.5
152.5°	2255.8	2241.7	2268.5	2279.3	2266.8
155°	2302.6	2286.6	2308.0	2318.7	2304.4
157.5°	2340.2	2326.0	2342.1	2354.7	2340.2
160°	2372.5	2361.7	2372.5	2383.2	2370.6
162.5°	2401.1	2390.4	2399.3	2411.9	2395.8
165°	2426.2	2415.5	2420.9	2433.4	2420.9
167.5°	2446.0	2435.1	2440.6	2453.2	2437.0
170°	2462.1	2451.3	2454.9	2467.4	2451.3
172.5°	2472.8	2462.1	2465.7	2478.3	2462.1
175°	2481.7	2469.1	2472.8	2485.3	2467.4
177.5°	2485.3	2472.8	2474.7	2487.2	2471.1
180°	2476.4	2476.4	2476.4	2476.4	2476.4



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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	11.96	12.85	12.90	13.80	15.03	11.52	12.41	12.45	13.36	14.59
	3H	13.62	14.42	14.57	15.38	16.63	13.13	13.93	14.08	14.89	16.14
	4H	14.21	14.96	15.17	15.92	17.19	13.71	14.47	14.67	15.43	16.70
	6H	14.61	15.30	15.58	16.27	17.55	14.11	14.80	15.08	15.77	17.05
	8H	14.71	15.37	15.69	16.36	17.63	14.21	14.87	15.19	15.85	17.13
	12H	14.76	15.38	15.74	16.37	17.67	14.25	14.88	15.23	15.86	17.16
4H	2H	12.42	13.18	13.39	14.14	15.41	12.07	12.82	13.04	13.79	15.05
	3H	14.29	14.91	15.26	15.91	17.19	13.88	14.51	14.85	15.50	16.78
	4H	15.00	15.57	15.98	16.56	17.86	14.58	15.15	15.56	16.14	17.44
	6H	15.51	16.01	16.51	17.02	18.32	15.08	15.57	16.08	16.58	17.89
	8H	15.66	16.12	16.66	17.13	18.44	15.22	15.68	16.22	16.69	18.00
	12H	15.73	16.15	16.75	17.17	18.49	15.28	15.70	16.30	16.72	18.04
8H	4H	15.19	15.66	16.19	16.66	17.98	14.82	15.28	15.81	16.28	17.60
	6H	15.82	16.20	16.84	17.25	18.56	15.44	15.82	16.46	16.86	18.18
	8H	16.04	16.37	17.07	17.41	18.74	15.64	15.98	16.68	17.01	18.35
	12H	16.17	16.46	17.20	17.49	18.87	15.76	16.05	16.79	17.08	18.46
12H	4H	15.18	15.60	16.20	16.62	17.94	14.81	15.23	15.83	16.25	17.57
	6H	15.85	16.19	16.88	17.22	18.55	15.48	15.81	16.51	16.85	18.18
	8H	16.09	16.38	17.12	17.41	18.79	15.71	16.00	16.74	17.03	18.41