

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: P925944

Luminaire Tested: DFN2DIP-SQ4F0-110D070US950-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P925944  
REPORT IS A COMBINATION OF REPORTS P900087 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-110D070US950-FLLFLL  
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

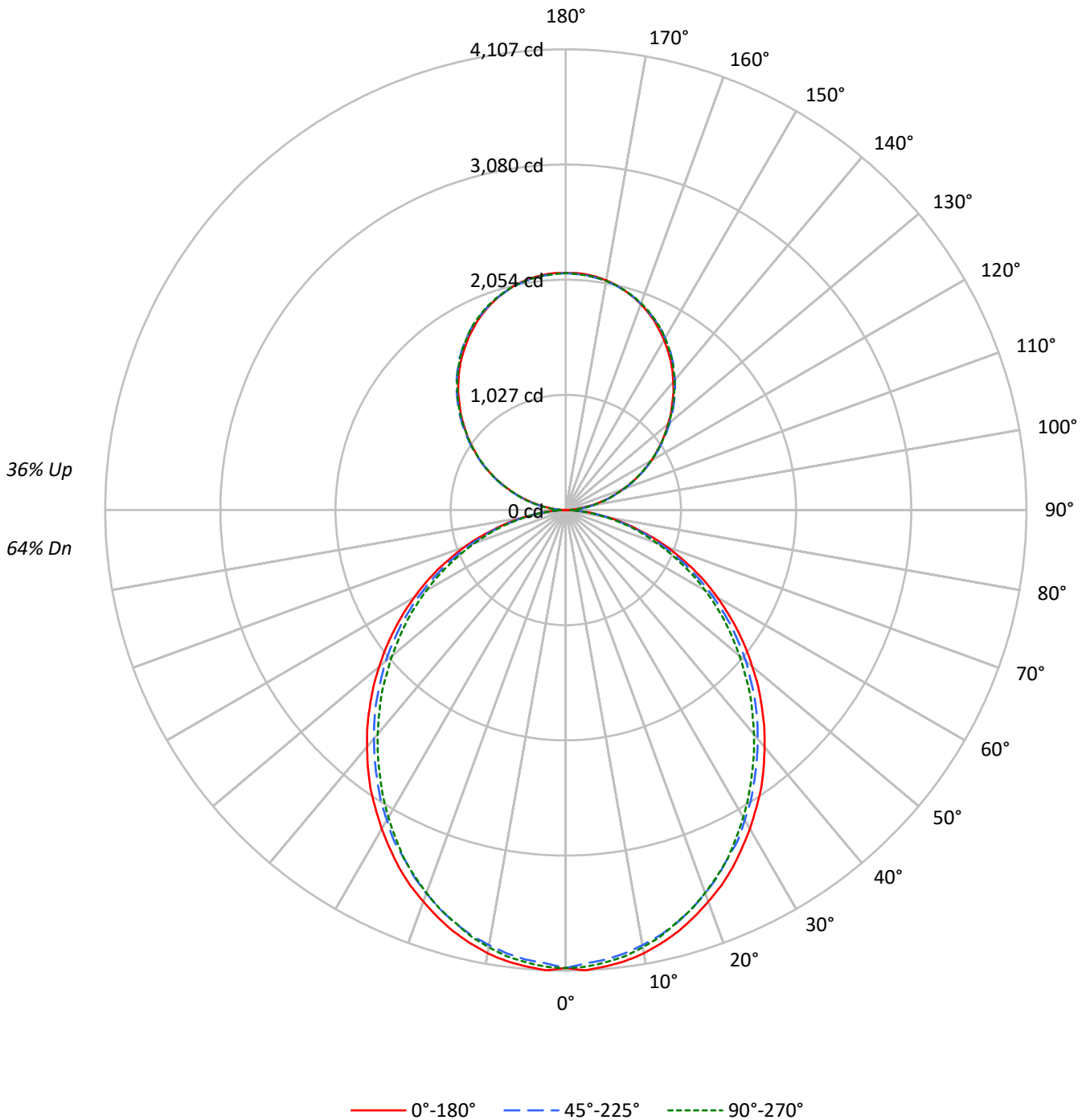
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 16299.1 lumens  
Efficiency: N/A  
Efficacy: 103.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')  
CIE Type: Semi-Direct

Input Watts (W): 157.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P925944  
CATALOG NUMBER: DFN2DIP-SQ4F0-110D070US950-FLLFL

### Luminous Intensity Polar Plot





TEST NUMBER: P925944

CATALOG NUMBER: DFN2DIP-SQ4F0-110D070US950-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
RCR																				
0	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69	64		
1	101	96	92	89	95	91	87	84	80	77	75	70	68	66	61	59	58	54		
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	54	51	49	45		
3	84	74	67	61	78	70	63	58	62	57	52	54	50	47	47	44	42	38		
4	77	66	58	51	72	62	55	49	55	49	45	48	44	40	42	39	36	33		
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	38	34	31	28		
6	65	53	44	38	61	50	42	37	44	38	34	39	34	31	35	31	28	25		
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	32	28	25	22		
8	56	43	35	30	52	41	34	29	37	31	27	33	28	24	29	25	22	20		
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20	18		
10	49	36	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18	16		

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

	0°	45°	90°
0°	2865	2865	2865
5°	2870	2826	2845
10°	2846	2788	2807
15°	2805	2743	2748
20°	2748	2680	2687
25°	2692	2604	2617
30°	2621	2534	2527
35°	2554	2451	2432
40°	2472	2367	2342
45°	2390	2282	2249
50°	2300	2194	2142
55°	2206	2092	2044
60°	2100	1971	1931
65°	1984	1846	1799
70°	1837	1693	1656
75°	1632	1510	1526
80°	1387	1277	1275
85°	1002	874	857

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2390 cd/sqm



TEST NUMBER: P925944

CATALOG NUMBER: DFN2DIP-SQ4F0-110D070US950-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	384.3	2.4
10°-20°	1081.3	6.6
20°-30°	1589.1	9.7
30°-40°	1845.7	11.3
40°-50°	1843.4	11.3
50°-60°	1607.4	9.9
60°-70°	1188.2	7.3
70°-80°	672.3	4.1
80°-90°	183.4	1.1
90°-100°	130.7	0.8
100°-110°	415.3	2.5
110°-120°	710.6	4.4
120°-130°	934.6	5.7
130°-140°	1049.0	6.4
140°-150°	1028.7	6.3
150°-160°	862.9	5.3
160°-170°	572.3	3.5
170°-180°	200.0	1.2
0°-30°	3054.8	18.7
0°-40°	4900.4	30.1
0°-60°	8351.2	51.2
0°-90°	10395.1	63.8
90°-120°	1256.6	7.7
90°-150°	4268.9	26.2
90°-180°	5904.0	36.2
0°-180°	16299.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4083	4083	4083	4083	4083	
5°	4083	4068	4024	4056	4048	388
15°	3887	3864	3812	3828	3809	1095
25°	3518	3487	3420	3428	3420	1619
35°	3035	2996	2933	2909	2890	1895
45°	2470	2442	2383	2340	2324	1906
55°	1869	1845	1798	1751	1732	1671
65°	1260	1237	1198	1162	1143	1246
75°	659	652	632	609	617	704
85°	161	157	153	141	138	179
90°	2	23	62	59	60	16
95°	93	111	114	114	111	103
105°	383	388	392	395	395	405
115°	713	723	720	718	713	705
125°	1037	1053	1048	1042	1040	927
135°	1342	1361	1365	1363	1358	1037
145°	1629	1642	1652	1654	1647	1018
155°	1862	1868	1873	1882	1876	857
165°	2026	2024	2024	2037	2028	572
175°	2108	2103	2099	2112	2101	200
180°	2112	2112	2112	2112	2112	



TEST NUMBER: P925944

CATALOG NUMBER: DFN2DIP-SQ4F0-110D070US950-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4083.3	4083.3	4083.3	4083.3	4083.3
2.5°	4107.0	4087.4	4044.1	4083.3	4075.8
5°	4083.3	4067.9	4024.5	4055.7	4048.3
7.5°	4055.7	4032.5	3989.2	4020.8	4012.9
10°	4012.9	3985.3	3938.3	3969.5	3957.9
12.5°	3953.8	3930.4	3883.4	3902.9	3895.0
15°	3887.1	3863.7	3812.5	3828.3	3808.7
17.5°	3804.6	3781.3	3730.0	3749.6	3730.0
20°	3714.2	3690.8	3635.9	3647.5	3632.2
22.5°	3624.2	3588.8	3537.5	3537.5	3529.6
25°	3518.0	3486.8	3420.1	3427.6	3420.1
27.5°	3400.1	3372.6	3321.7	3310.1	3290.5
30°	3282.6	3250.9	3192.2	3180.5	3164.7
32.5°	3156.8	3133.5	3070.5	3046.8	3031.0
35°	3035.2	2996.0	2933.1	2909.3	2889.8
37.5°	2897.7	2862.3	2799.4	2771.8	2752.3
40°	2756.5	2724.8	2661.9	2626.9	2611.1
42.5°	2619.0	2587.3	2524.9	2485.3	2462.0
45°	2469.9	2442.3	2383.2	2340.4	2324.5
47.5°	2324.5	2297.0	2234.1	2190.8	2167.4
50°	2171.2	2151.7	2096.6	2041.7	2022.1
52.5°	2022.1	1994.5	1943.8	1900.4	1872.9
55°	1869.2	1845.4	1798.4	1751.3	1731.7
57.5°	1715.9	1696.3	1645.1	1597.9	1582.1
60°	1562.6	1547.2	1492.2	1448.8	1437.2
62.5°	1413.4	1386.0	1346.8	1307.6	1291.8
65°	1260.5	1236.8	1197.7	1162.3	1142.7
67.5°	1103.5	1083.6	1048.5	1021.1	1005.2
70°	958.1	942.3	906.9	879.4	863.9
72.5°	809.0	793.2	773.6	746.1	734.4
75°	659.4	652.0	631.9	608.7	616.6
77.5°	526.1	510.3	502.4	490.7	479.1
80°	392.9	388.7	380.7	369.1	361.2
82.5°	267.0	267.0	263.3	247.5	247.5
85°	160.8	157.0	153.3	141.2	137.5
87.5°	70.8	62.9	55.0	43.3	39.1
90°	1.9	22.9	62.4	58.6	60.5
92.5°	39.5	53.5	55.4	57.3	57.3
95°	92.9	110.8	114.0	114.0	110.8
97.5°	154.7	171.2	178.3	178.3	178.3
100°	226.0	240.7	245.8	245.8	243.8
102.5°	301.2	312.0	319.0	320.9	319.0
105°	383.3	388.4	392.2	395.4	395.4
107.5°	464.8	472.4	472.4	473.8	464.8
110°	543.8	554.0	554.0	554.0	548.8



TEST NUMBER: P925944

CATALOG NUMBER: DFN2DIP-SQ4F0-110D070US950-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	629.1	639.9	638.0	632.9	629.1
115°	713.1	723.3	720.2	718.3	713.1
117.5°	796.5	810.5	801.6	796.5	791.4
120°	880.5	894.6	880.5	880.5	874.8
122.5°	957.0	974.8	965.9	960.8	957.0
125°	1037.2	1053.1	1048.1	1042.3	1040.4
127.5°	1115.5	1135.3	1128.3	1120.7	1115.5
130°	1188.8	1211.7	1208.5	1204.7	1197.7
132.5°	1270.9	1288.8	1290.0	1281.1	1276.0
135°	1341.6	1361.3	1365.2	1363.2	1358.1
137.5°	1420.5	1436.4	1439.6	1438.3	1430.7
140°	1490.0	1505.9	1514.8	1514.8	1507.8
142.5°	1561.2	1577.2	1582.2	1584.1	1577.2
145°	1628.8	1641.5	1651.7	1653.6	1646.6
147.5°	1689.2	1705.2	1712.8	1716.0	1709.0
150°	1751.6	1762.4	1769.5	1775.2	1769.5
152.5°	1807.0	1817.8	1826.7	1833.8	1826.7
155°	1862.4	1867.5	1873.3	1882.1	1876.4
157.5°	1910.2	1914.0	1917.2	1929.9	1921.0
160°	1952.8	1956.7	1958.6	1969.3	1961.7
162.5°	1992.3	1992.3	1994.2	2006.3	1997.4
165°	2026.0	2024.1	2024.1	2036.9	2027.9
167.5°	2056.6	2050.9	2050.9	2063.6	2054.7
170°	2079.5	2074.5	2072.6	2085.3	2074.5
172.5°	2095.5	2090.3	2088.4	2101.2	2090.3
175°	2108.1	2103.1	2099.3	2112.0	2101.2
177.5°	2115.2	2110.1	2106.2	2117.1	2106.2
180°	2112.0	2112.0	2112.0	2112.0	2112.0



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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	12.12	13.12	12.95	13.98	15.04	11.68	12.68	12.51	13.53	14.59
	3H	13.80	14.70	14.64	15.56	16.65	13.31	14.21	14.15	15.07	16.15
	4H	14.39	15.24	15.25	16.11	17.21	13.90	14.75	14.76	15.62	16.72
	6H	14.81	15.59	15.68	16.46	17.58	14.31	15.09	15.18	15.96	17.07
	8H	14.92	15.66	15.80	16.56	17.67	14.41	15.16	15.29	16.05	17.16
	12H	14.97	15.68	15.86	16.57	17.71	14.46	15.17	15.35	16.06	17.20
4H	2H	12.60	13.45	13.46	14.32	15.42	12.25	13.10	13.11	13.96	15.06
	3H	14.48	15.19	15.36	16.09	17.21	14.08	14.79	14.95	15.69	16.80
	4H	15.21	15.85	16.09	16.75	17.89	14.78	15.43	15.67	16.33	17.47
	6H	15.74	16.29	16.64	17.21	18.36	15.30	15.86	16.20	16.78	17.92
	8H	15.89	16.41	16.79	17.33	18.48	15.45	15.97	16.36	16.89	18.05
	12H	15.97	16.44	16.90	17.38	18.54	15.52	15.99	16.45	16.93	18.09
8H	4H	15.42	15.94	16.32	16.85	18.01	15.04	15.56	15.94	16.48	17.63
	6H	16.06	16.49	16.99	17.45	18.60	15.67	16.11	16.61	17.06	18.22
	8H	16.28	16.67	17.22	17.61	18.79	15.89	16.27	16.83	17.22	18.39
	12H	16.42	16.76	17.37	17.70	18.92	16.01	16.35	16.96	17.29	18.51
12H	4H	15.41	15.88	16.33	16.81	17.97	15.04	15.51	15.96	16.45	17.61
	6H	16.09	16.47	17.03	17.42	18.59	15.72	16.10	16.66	17.05	18.22
	8H	16.34	16.68	17.29	17.62	18.84	15.96	16.30	16.91	17.24	18.46