

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: P926016

Luminaire Tested: DFN2DIP-SQ4F0-140D070US950-FLLFLL

Issue Date: 11/21/2024

**Test Information**

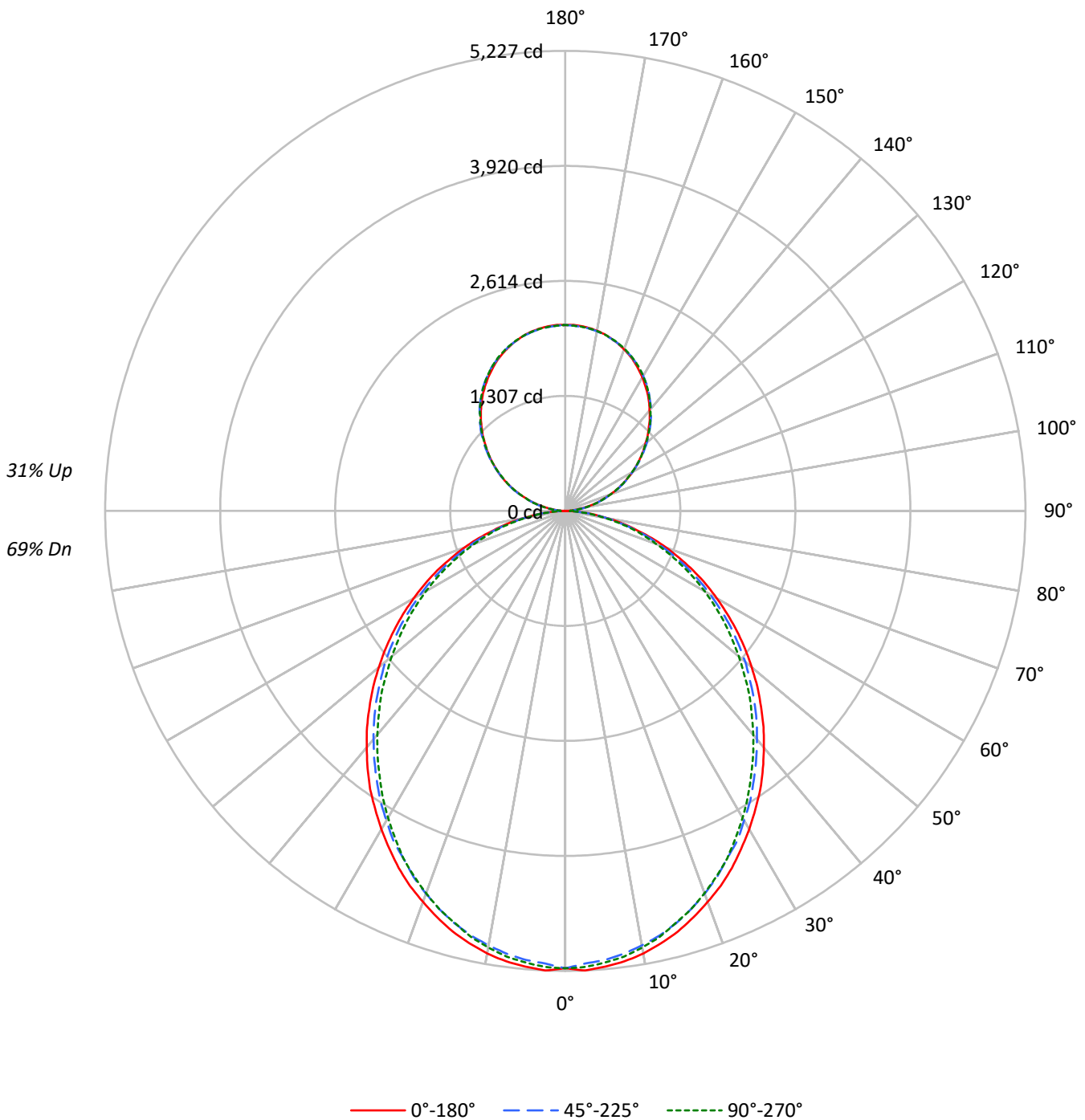
Test Method: LM-79-2019  
Report Number: P926016  
REPORT IS A COMBINATION OF REPORTS P900091 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-140D070US950-FLLFLL  
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 19132.5 lumens  
Efficiency: N/A  
Efficacy: 97.6 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): 196  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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### Luminous Intensity Polar Plot





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**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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74	69			
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62	58			
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52	49			
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45	41			
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39	35			
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34	31			
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30	27			
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	26	24			
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24	22			
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21	19			
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20	18			

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

	0°	45°	90°
0°	3647	3647	3647
5°	3652	3596	3621
10°	3623	3549	3573
15°	3569	3491	3497
20°	3497	3411	3420
25°	3426	3314	3330
30°	3336	3225	3216
35°	3251	3119	3095
40°	3146	3012	2980
45°	3042	2905	2863
50°	2927	2793	2726
55°	2808	2663	2601
60°	2673	2508	2458
65°	2525	2349	2289
70°	2338	2154	2108
75°	2077	1922	1942
80°	1765	1625	1622
85°	1275	1112	1091

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3042 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	489.1	2.6
10°-20°	1376.2	7.2
20°-30°	2022.5	10.6
30°-40°	2349.0	12.3
40°-50°	2346.1	12.3
50°-60°	2045.7	10.7
60°-70°	1512.2	7.9
70°-80°	855.6	4.5
80°-90°	231.8	1.2
90°-100°	130.7	0.7
100°-110°	415.3	2.2
110°-120°	710.6	3.7
120°-130°	934.6	4.9
130°-140°	1049.0	5.5
140°-150°	1028.7	5.4
150°-160°	862.9	4.5
160°-170°	572.3	3.0
170°-180°	200.0	1.0
0°-30°	3887.9	20.3
0°-40°	6236.9	32.6
0°-60°	10628.8	55.6
0°-90°	13228.4	69.1
90°-120°	1256.6	6.6
90°-150°	4268.9	22.3
90°-180°	5904.0	30.9
0°-180°	19132.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	5197	5197	5197	5197	5197	
5°	5197	5177	5122	5162	5152	493
15°	4947	4918	4852	4872	4848	1393
25°	4477	4438	4353	4362	4353	2060
35°	3863	3813	3733	3703	3678	2412
45°	3143	3108	3033	2979	2958	2426
55°	2379	2349	2289	2229	2204	2127
65°	1604	1574	1524	1479	1454	1586
75°	839	830	804	775	785	896
85°	205	200	195	180	175	228
90°	2	23	62	59	60	18
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	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5196.9	5196.9	5196.9	5196.9	5196.9
2.5°	5227.1	5202.2	5147.0	5196.9	5187.4
5°	5196.9	5177.3	5122.1	5161.9	5152.4
7.5°	5161.9	5132.2	5077.1	5117.4	5107.2
10°	5107.2	5072.3	5012.4	5052.2	5037.3
12.5°	5032.0	5002.3	4942.4	4967.3	4957.3
15°	4947.2	4917.5	4852.2	4872.5	4847.5
17.5°	4842.2	4812.5	4747.3	4772.2	4747.3
20°	4727.2	4697.5	4627.5	4642.4	4622.7
22.5°	4612.6	4567.6	4502.3	4502.3	4492.3
25°	4477.4	4437.6	4352.8	4362.4	4352.8
27.5°	4327.3	4292.4	4227.7	4212.9	4188.0
30°	4177.9	4137.6	4062.8	4048.0	4027.8
32.5°	4017.8	3988.1	3908.0	3877.8	3857.6
35°	3862.9	3813.1	3733.0	3702.9	3677.9
37.5°	3688.0	3642.9	3562.8	3527.9	3502.9
40°	3508.2	3468.0	3387.8	3343.4	3323.2
42.5°	3333.3	3293.0	3213.5	3163.1	3133.4
45°	3143.4	3108.5	3033.2	2978.6	2958.4
47.5°	2958.4	2923.4	2843.4	2788.3	2758.6
50°	2763.4	2738.5	2668.4	2598.4	2573.5
52.5°	2573.5	2538.5	2473.8	2418.7	2383.8
55°	2379.0	2348.7	2288.8	2228.9	2204.0
57.5°	2183.8	2158.9	2093.7	2033.8	2013.6
60°	1988.7	1969.2	1899.1	1844.0	1829.1
62.5°	1799.0	1763.9	1714.1	1664.3	1644.1
65°	1604.3	1574.1	1524.3	1479.2	1454.3
67.5°	1404.5	1379.0	1334.5	1299.4	1279.3
70°	1219.4	1199.3	1154.2	1119.2	1099.6
72.5°	1029.7	1009.4	984.5	949.6	934.7
75°	839.3	829.8	804.3	774.6	784.7
77.5°	669.6	649.5	639.4	624.6	609.7
80°	500.0	494.6	484.6	469.7	459.6
82.5°	339.8	339.8	335.0	314.9	314.9
85°	204.6	199.9	195.1	179.7	175.0
87.5°	90.2	80.0	70.0	55.1	49.8
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



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**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	13.38	14.45	14.16	15.24	16.21	12.94	14.00	13.71	14.80	15.77
	3H	15.06	16.02	15.85	16.82	17.82	14.57	15.53	15.36	16.33	17.33
	4H	15.66	16.56	16.47	17.38	18.39	15.17	16.07	15.97	16.88	17.89
	6H	16.08	16.91	16.89	17.73	18.75	15.57	16.41	16.39	17.23	18.25
	8H	16.19	16.98	17.01	17.82	18.85	15.69	16.48	16.51	17.32	18.34
	12H	16.24	17.00	17.08	17.84	18.89	15.73	16.49	16.57	17.33	18.38
4H	2H	13.87	14.77	14.68	15.58	16.59	13.51	14.42	14.32	15.23	16.24
	3H	15.76	16.51	16.58	17.36	18.38	15.35	16.10	16.17	16.95	17.98
	4H	16.48	17.17	17.32	18.02	19.07	16.06	16.74	16.89	17.59	18.64
	6H	17.01	17.61	17.86	18.48	19.54	16.58	17.18	17.43	18.05	19.10
	8H	17.17	17.73	18.02	18.59	19.66	16.73	17.29	17.59	18.15	19.22
	12H	17.26	17.76	18.13	18.64	19.72	16.81	17.31	17.68	18.19	19.27
8H	4H	16.70	17.25	17.55	18.12	19.19	16.32	16.87	17.17	17.74	18.81
	6H	17.34	17.80	18.22	18.71	19.78	16.96	17.42	17.84	18.32	19.40
	8H	17.57	17.97	18.46	18.88	19.96	17.17	17.58	18.07	18.48	19.57
	12H	17.71	18.07	18.60	18.96	20.10	17.30	17.66	18.19	18.55	19.69
12H	4H	16.69	17.19	17.56	18.08	19.15	16.32	16.82	17.20	17.71	18.79
	6H	17.37	17.78	18.26	18.68	19.77	17.00	17.41	17.89	18.31	19.40
	8H	17.63	17.99	18.52	18.88	20.02	17.25	17.61	18.14	18.50	19.64