

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: P920457

Luminaire Tested: DFN2DIP-SQ4F0-100D080US935-FLLONL

Issue Date: 11/21/2024

**Test Information**

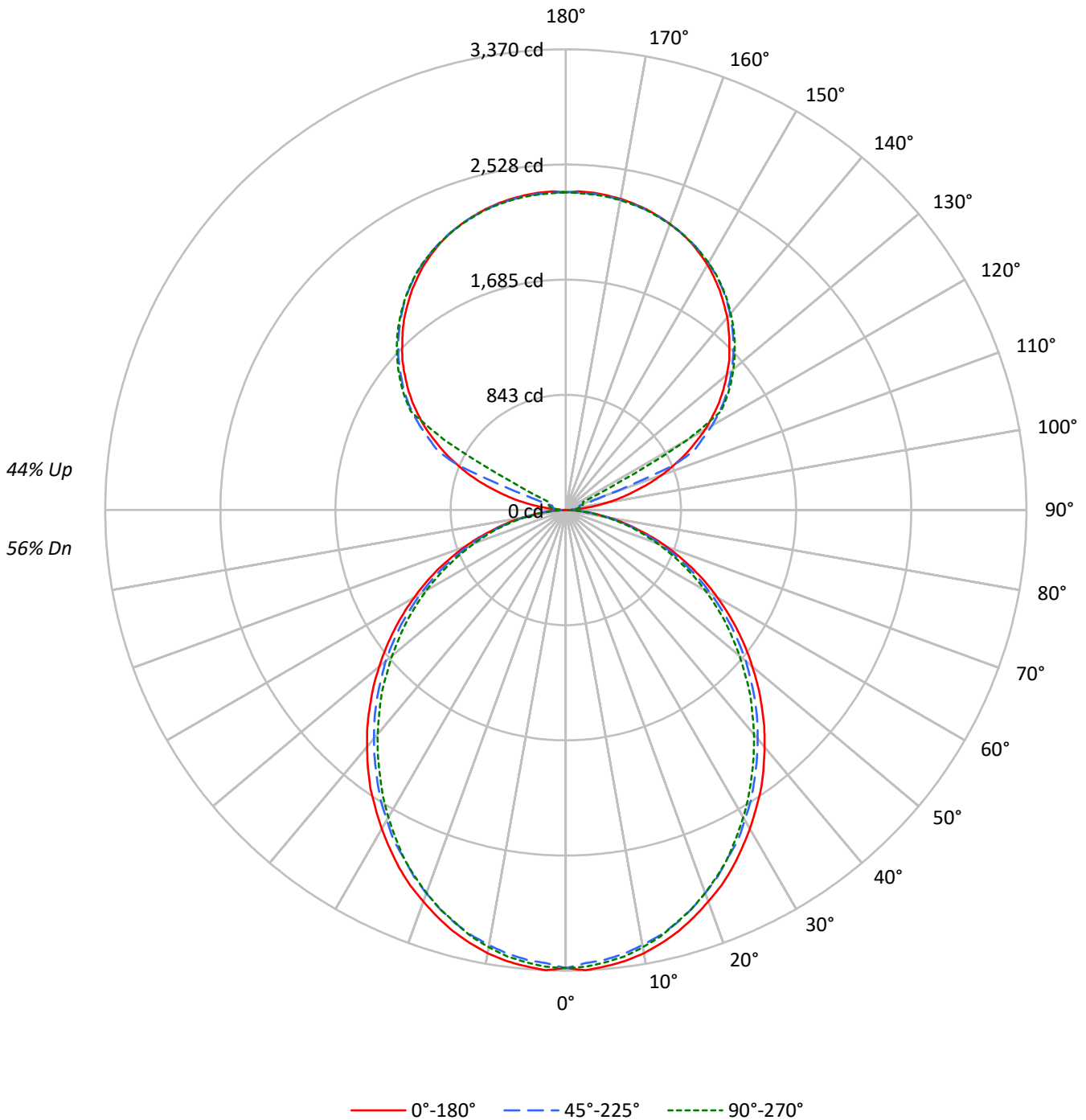
Test Method: LM-79-2019  
Report Number: P920457  
REPORT IS A COMBINATION OF REPORTS P901623 AND P898471  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-100D080US935-FLLONL  
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15343.0 lumens  
Efficiency: N/A  
Efficacy: 100.8 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: General Diffuse  
  
Input Watts (W): 152.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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				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	101	101	101	101	86	86	86	73	73	73	61	61	61	56				56
1	99	95	91	87	92	88	85	82	76	73	71	65	63	61	54	53	52	47				47
2	90	83	76	71	84	77	72	67	66	62	59	57	54	51	48	46	44	39				39
3	82	73	65	59	76	68	61	56	59	54	50	50	46	43	42	39	37	33				33
4	75	64	56	50	70	60	53	48	52	47	42	45	40	37	38	35	32	29				29
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	31	28	25				25
6	64	52	43	37	59	48	41	36	42	36	32	36	32	28	31	27	25	22				22
7	59	47	39	33	55	44	36	31	38	32	28	33	28	25	28	25	22	19				19
8	55	42	34	29	51	40	33	28	35	29	25	30	26	22	26	22	20	17				17
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18	16				16
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16	14				14

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

	0°	45°	90°
0°	2351	2351	2351
5°	2354	2318	2334
10°	2335	2288	2303
15°	2301	2250	2255
20°	2254	2199	2205
25°	2208	2137	2147
30°	2150	2079	2073
35°	2096	2011	1995
40°	2028	1942	1921
45°	1961	1873	1845
50°	1887	1800	1758
55°	1810	1717	1677
60°	1723	1617	1585
65°	1628	1514	1476
70°	1507	1389	1359
75°	1339	1239	1252
80°	1138	1048	1046
85°	822	717	703

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1961 cd/sqm



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CATALOG NUMBER: DFN2DIP-SQ4F0-100D080US935-FLLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	315.3	2.1
10°-20°	887.2	5.8
20°-30°	1303.8	8.5
30°-40°	1514.3	9.9
40°-50°	1512.4	9.9
50°-60°	1318.8	8.6
60°-70°	974.9	6.4
70°-80°	551.6	3.6
80°-90°	149.7	1.0
90°-100°	76.7	0.5
100°-110°	285.7	1.9
110°-120°	757.9	4.9
120°-130°	1256.9	8.2
130°-140°	1335.2	8.7
140°-150°	1240.9	8.1
150°-160°	997.6	6.5
160°-170°	642.8	4.2
170°-180°	221.3	1.4
0°-30°	2506.3	16.3
0°-40°	4020.6	26.2
0°-60°	6851.8	44.7
0°-90°	8528.0	55.6
90°-120°	1120.2	7.3
90°-150°	4953.3	32.3
90°-180°	6815.0	44.4
0°-180°	15343.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3350	3350	3350	3350	3350	
5°	3350	3338	3302	3328	3322	318
15°	3189	3170	3128	3141	3125	898
25°	2886	2861	2806	2812	2806	1328
35°	2490	2458	2406	2387	2371	1555
45°	2026	2004	1955	1920	1907	1564
55°	1534	1514	1476	1437	1421	1371
65°	1034	1015	983	954	938	1023
75°	541	535	518	499	506	578
85°	132	129	126	116	113	147
90°	2	20	34	42	45	14
95°	109	54	66	74	72	129
105°	511	562	103	121	128	546
115°	967	996	1038	259	138	952
125°	1367	1389	1421	1433	1438	1220
135°	1692	1719	1734	1751	1748	1307
145°	1963	1961	1990	2002	1993	1228
155°	2161	2146	2167	2177	2163	996
165°	2278	2268	2272	2284	2272	643
175°	2330	2318	2321	2333	2316	222
180°	2325	2325	2325	2325	2325	



TEST NUMBER: P920457

CATALOG NUMBER: DFN2DIP-SQ4F0-100D080US935-FLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3350.2	3350.2	3350.2	3350.2	3350.2
2.5°	3369.7	3353.6	3318.0	3350.2	3344.0
5°	3350.2	3337.6	3302.0	3327.7	3321.5
7.5°	3327.7	3308.5	3272.9	3298.9	3292.5
10°	3292.5	3269.9	3231.2	3256.9	3247.3
12.5°	3243.9	3224.8	3186.1	3202.2	3195.7
15°	3189.2	3170.1	3128.0	3141.0	3125.0
17.5°	3121.5	3102.4	3060.3	3076.4	3060.3
20°	3047.3	3028.2	2983.1	2992.7	2980.0
22.5°	2973.5	2944.5	2902.4	2902.4	2896.0
25°	2886.4	2860.8	2806.1	2812.2	2806.1
27.5°	2789.6	2767.1	2725.4	2715.8	2699.7
30°	2693.3	2667.3	2619.1	2609.5	2596.5
32.5°	2590.1	2570.9	2519.3	2499.8	2486.8
35°	2490.3	2458.1	2406.5	2387.0	2370.9
37.5°	2377.5	2348.4	2296.8	2274.2	2258.1
40°	2261.6	2235.6	2184.0	2155.3	2142.3
42.5°	2148.8	2122.8	2071.6	2039.1	2020.0
45°	2026.4	2003.9	1955.3	1920.1	1907.2
47.5°	1907.2	1884.6	1833.0	1797.4	1778.3
50°	1781.4	1765.3	1720.2	1675.1	1659.1
52.5°	1659.1	1636.5	1594.7	1559.3	1536.7
55°	1533.6	1514.2	1475.5	1436.8	1420.8
57.5°	1407.8	1391.7	1349.7	1311.1	1298.1
60°	1282.0	1269.4	1224.3	1188.7	1179.1
62.5°	1159.7	1137.1	1105.0	1072.9	1059.9
65°	1034.2	1014.8	982.7	953.6	937.5
67.5°	905.4	889.0	860.3	837.8	824.7
70°	786.1	773.1	744.1	721.5	708.9
72.5°	663.7	650.7	634.7	612.2	602.5
75°	541.1	534.9	518.5	499.4	505.8
77.5°	431.7	418.7	412.2	402.6	393.0
80°	322.3	318.9	312.4	302.8	296.4
82.5°	219.1	219.1	216.0	203.0	203.0
85°	131.9	128.9	125.8	115.9	112.8
87.5°	58.1	51.6	45.1	35.6	32.1
90°	1.6	20.1	33.6	42.1	45.4
92.5°	42.1	35.4	40.4	43.7	45.4
95°	109.3	53.7	65.5	74.1	72.3
97.5°	196.7	58.9	85.7	90.9	92.5
100°	297.8	67.3	95.9	109.3	112.6
102.5°	408.7	405.4	99.3	117.6	122.9
105°	511.3	561.9	102.6	121.1	127.9
107.5°	630.8	672.7	106.1	124.4	131.2
110°	745.3	780.4	294.5	126.2	132.9



TEST NUMBER: P920457

CATALOG NUMBER: DFN2DIP-SQ4F0-100D080US935-FLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	852.9	883.0	854.5	129.4	134.7
115°	967.2	995.7	1037.8	259.1	138.0
117.5°	1066.4	1100.0	1128.8	888.0	447.5
120°	1177.5	1202.6	1233.0	1253.2	1026.1
122.5°	1271.5	1298.6	1332.3	1342.3	1344.1
125°	1367.4	1389.4	1421.3	1433.1	1438.1
127.5°	1454.9	1478.5	1503.9	1520.6	1522.2
130°	1537.4	1564.3	1582.8	1601.4	1599.7
132.5°	1621.5	1643.5	1661.9	1677.1	1675.4
135°	1692.2	1719.2	1734.1	1751.2	1747.7
137.5°	1766.2	1786.3	1803.3	1820.1	1815.1
140°	1838.4	1852.0	1870.4	1885.6	1877.1
142.5°	1899.2	1910.9	1932.7	1946.1	1937.7
145°	1963.1	1961.3	1989.9	2001.6	1993.2
147.5°	2018.4	2013.4	2041.9	2050.4	2043.8
150°	2072.3	2060.5	2087.5	2097.5	2089.1
152.5°	2117.7	2104.3	2129.4	2139.7	2127.9
155°	2161.4	2146.5	2166.6	2176.6	2163.3
157.5°	2196.7	2183.4	2198.6	2210.4	2196.7
160°	2227.1	2217.0	2227.1	2237.1	2225.3
162.5°	2253.9	2243.9	2252.3	2264.1	2248.9
165°	2277.5	2267.5	2272.5	2284.2	2272.5
167.5°	2296.0	2285.9	2291.0	2302.8	2287.7
170°	2311.3	2301.0	2304.5	2316.3	2301.0
172.5°	2321.3	2311.3	2314.6	2326.4	2311.3
175°	2329.6	2317.8	2321.3	2333.0	2316.3
177.5°	2333.0	2321.3	2323.0	2334.8	2319.6
180°	2324.6	2324.6	2324.6	2324.6	2324.6



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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	10.75	11.67	11.66	12.60	13.78	10.31	11.22	11.22	12.15	13.34
	3H	12.42	13.24	13.34	14.18	15.39	11.93	12.75	12.85	13.69	14.90
	4H	13.02	13.79	13.95	14.73	15.96	12.52	13.30	13.46	14.24	15.46
	6H	13.42	14.14	14.37	15.08	16.32	12.92	13.64	13.87	14.58	15.82
	8H	13.53	14.21	14.48	15.18	16.41	13.03	13.71	13.98	14.67	15.91
	12H	13.58	14.23	14.54	15.19	16.45	13.07	13.72	14.03	14.68	15.94
4H	2H	11.22	12.00	12.16	12.94	14.16	10.87	11.64	11.81	12.58	13.81
	3H	13.10	13.75	14.05	14.72	15.95	12.69	13.34	13.64	14.31	15.55
	4H	13.82	14.41	14.78	15.37	16.64	13.39	13.99	14.35	14.95	16.21
	6H	14.34	14.85	15.31	15.84	17.10	13.91	14.42	14.88	15.41	16.67
	8H	14.49	14.97	15.47	15.95	17.23	14.06	14.53	15.03	15.52	16.79
	12H	14.57	15.00	15.56	16.00	17.28	14.12	14.55	15.12	15.55	16.83
8H	4H	14.02	14.50	14.99	15.48	16.75	13.64	14.12	14.62	15.10	16.38
	6H	14.66	15.05	15.66	16.08	17.35	14.27	14.67	15.27	15.69	16.97
	8H	14.88	15.23	15.89	16.24	17.53	14.49	14.84	15.50	15.85	17.14
	12H	15.02	15.32	16.03	16.33	17.67	14.61	14.91	15.62	15.92	17.26
12H	4H	14.01	14.44	15.00	15.44	16.72	13.64	14.07	14.63	15.07	16.35
	6H	14.69	15.04	15.70	16.05	17.34	14.32	14.66	15.32	15.68	16.97
	8H	14.94	15.24	15.95	16.25	17.59	14.56	14.86	15.57	15.87	17.21