

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: P915013

Luminaire Tested: DFN2DIP-SQ4F0-100D110US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915013
REPORT IS A COMBINATION OF REPORTS P901677 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D110US927-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

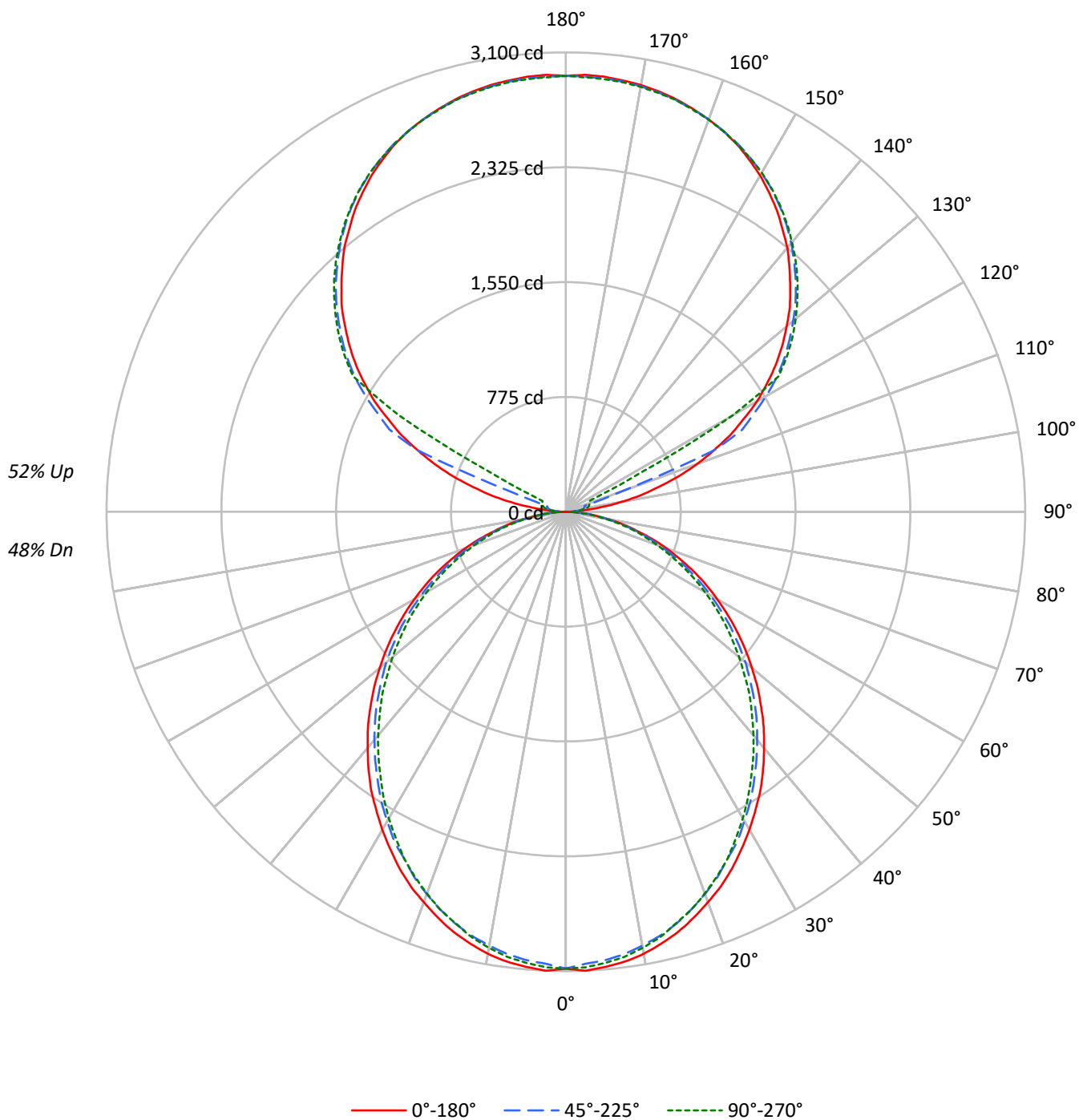
Lumens per Lamp: N/A
Luminaire Lumens: 16469.4 lumens
Efficiency: N/A
Efficacy: 93.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 175.5
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

TEST NUMBER: P915013

CATALOG NUMBER: DFN2DIP-SQ4F0-100D110US927-FLLONL

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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	107	107	107	107	98	98	98	98	82	82	82	67	67	67	54	54	54
1	97	93	89	86	89	86	82	79	72	70	67	59	58	56	48	47	46
2	89	81	75	70	81	75	70	65	63	59	56	52	49	47	42	40	38
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	37	35	33
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	30	28
5	68	56	48	42	62	52	45	40	44	39	34	37	33	29	30	27	25
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	22
7	58	46	38	32	53	42	35	30	36	30	26	30	26	23	25	22	19
8	54	41	34	28	49	38	31	27	33	27	23	28	23	20	23	20	17
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	16
10	47	35	27	23	43	32	26	21	28	23	19	24	19	17	20	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2163	2163	2163
5°	2166	2133	2148
10°	2149	2105	2119
15°	2117	2071	2074
20°	2074	2023	2028
25°	2032	1966	1975
30°	1979	1913	1908
35°	1928	1850	1836
40°	1866	1786	1768
45°	1804	1723	1698
50°	1736	1656	1617
55°	1665	1579	1543
60°	1585	1488	1458
65°	1498	1393	1358
70°	1387	1278	1250
75°	1232	1140	1152
80°	1047	964	963
85°	757	659	647

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1804 cd/sqm

TEST NUMBER: P915013

CATALOG NUMBER: DFN2DIP-SQ4F0-100D110US927-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	290.1	1.8
10°-20°	816.3	5.0
20°-30°	1199.6	7.3
30°-40°	1393.3	8.5
40°-50°	1391.5	8.4
50°-60°	1213.4	7.4
60°-70°	897.0	5.4
70°-80°	507.5	3.1
80°-90°	139.1	0.8
90°-100°	97.0	0.6
100°-110°	361.5	2.2
110°-120°	958.7	5.8
120°-130°	1590.2	9.7
130°-140°	1689.1	10.3
140°-150°	1569.9	9.5
150°-160°	1262.1	7.7
160°-170°	813.3	4.9
170°-180°	279.9	1.7
0°-30°	2306.0	14.0
0°-40°	3699.3	22.5
0°-60°	6304.2	38.3
0°-90°	7847.8	47.7
90°-120°	1417.2	8.6
90°-150°	6266.3	38.0
90°-180°	8622.0	52.4
0°-180°	16469.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3082	3082	3082	3082	3082	
5°	3082	3071	3038	3062	3056	293
15°	2934	2917	2878	2890	2875	826
25°	2656	2632	2582	2587	2582	1222
35°	2291	2262	2214	2196	2181	1431
45°	1864	1844	1799	1767	1755	1439
55°	1411	1393	1358	1322	1307	1262
65°	952	934	904	877	863	941
75°	498	492	477	460	465	531
85°	121	119	116	107	104	135
90°	2	26	42	53	57	15
95°	138	68	83	94	92	164
105°	647	711	130	153	162	691
115°	1224	1260	1313	328	175	1205
125°	1730	1758	1798	1813	1819	1543
135°	2141	2175	2194	2215	2211	1654
145°	2484	2481	2517	2532	2522	1553
155°	2734	2715	2741	2754	2737	1260
165°	2881	2869	2875	2890	2875	814
175°	2947	2932	2936	2952	2930	280
180°	2941	2941	2941	2941	2941	

TEST NUMBER: P915013

CATALOG NUMBER: DFN2DIP-SQ4F0-100D110US927-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3082.5	3082.5	3082.5	3082.5	3082.5
2.5°	3100.4	3085.5	3052.8	3082.5	3076.8
5°	3082.5	3070.8	3038.1	3061.7	3056.0
7.5°	3061.7	3044.0	3011.3	3035.2	3029.3
10°	3029.3	3008.5	2973.0	2996.6	2987.8
12.5°	2984.6	2967.0	2931.5	2946.3	2940.3
15°	2934.3	2916.7	2878.0	2890.0	2875.2
17.5°	2872.1	2854.5	2815.7	2830.5	2815.7
20°	2803.8	2786.2	2744.7	2753.5	2741.8
22.5°	2735.9	2709.2	2670.4	2670.4	2664.5
25°	2655.7	2632.1	2581.8	2587.4	2581.8
27.5°	2566.7	2545.9	2507.6	2498.8	2484.0
30°	2478.0	2454.1	2409.7	2400.9	2389.0
32.5°	2383.0	2365.5	2317.9	2300.0	2288.1
35°	2291.2	2261.7	2214.1	2196.2	2181.4
37.5°	2187.4	2160.7	2113.2	2092.5	2077.7
40°	2080.8	2056.9	2009.4	1983.1	1971.1
42.5°	1977.0	1953.1	1906.0	1876.1	1858.5
45°	1864.5	1843.7	1799.0	1766.6	1754.8
47.5°	1754.8	1734.0	1686.5	1653.8	1636.2
50°	1639.0	1624.2	1582.7	1541.2	1526.5
52.5°	1526.5	1505.7	1467.3	1434.6	1413.9
55°	1411.0	1393.1	1357.6	1322.0	1307.3
57.5°	1295.3	1280.5	1241.8	1206.3	1194.4
60°	1179.6	1167.9	1126.4	1093.7	1084.9
62.5°	1067.0	1046.2	1016.7	987.1	975.2
65°	951.6	933.7	904.1	877.3	862.6
67.5°	833.1	817.9	791.5	770.8	758.8
70°	723.3	711.3	684.6	663.8	652.2
72.5°	610.7	598.7	584.0	563.2	554.4
75°	497.8	492.2	477.1	459.5	465.4
77.5°	397.2	385.2	379.2	370.4	361.6
80°	296.5	293.4	287.4	278.6	272.7
82.5°	201.6	201.6	198.8	186.8	186.8
85°	121.4	118.6	115.7	106.6	103.8
87.5°	53.5	47.5	41.5	32.7	29.5
90°	2.1	25.5	42.5	53.3	57.4
92.5°	53.3	44.8	51.0	55.4	57.4
95°	138.2	68.0	82.9	93.7	91.5
97.5°	248.9	74.5	108.4	114.9	117.0
100°	376.8	85.2	121.3	138.2	142.5
102.5°	517.0	512.9	125.6	148.9	155.4
105°	646.9	710.8	129.9	153.1	161.8
107.5°	798.0	851.0	134.2	157.4	166.0
110°	942.8	987.3	372.5	159.7	168.0

TEST NUMBER: P915013

CATALOG NUMBER: DFN2DIP-SQ4F0-100D110US927-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1079.0	1117.1	1081.0	163.7	170.3
115°	1223.5	1259.6	1313.0	327.7	174.6
117.5°	1349.2	1391.6	1428.0	1123.5	566.0
120°	1489.6	1521.5	1559.9	1585.4	1298.1
122.5°	1608.7	1642.7	1685.4	1698.1	1700.4
125°	1730.0	1757.8	1798.2	1813.1	1819.4
127.5°	1840.6	1870.4	1902.5	1923.7	1925.8
130°	1945.0	1979.1	2002.3	2025.8	2023.9
132.5°	2051.4	2079.2	2102.4	2121.6	2119.6
135°	2140.9	2174.9	2193.9	2215.4	2211.1
137.5°	2234.3	2259.9	2281.3	2302.6	2296.2
140°	2325.8	2343.0	2366.2	2385.4	2374.8
142.5°	2402.6	2417.5	2445.1	2462.0	2451.4
145°	2483.5	2481.2	2517.3	2532.3	2521.7
147.5°	2553.5	2547.2	2583.3	2593.9	2585.6
150°	2621.7	2606.8	2640.9	2653.6	2643.0
152.5°	2679.1	2662.1	2694.0	2706.9	2692.0
155°	2734.5	2715.4	2740.9	2753.6	2736.7
157.5°	2779.1	2762.2	2781.4	2796.3	2779.1
160°	2817.6	2804.6	2817.6	2830.1	2815.3
162.5°	2851.4	2838.8	2849.4	2864.3	2845.1
165°	2881.2	2868.6	2874.9	2889.8	2874.9
167.5°	2904.7	2891.9	2898.4	2913.3	2894.2
170°	2923.9	2911.0	2915.3	2930.3	2911.0
172.5°	2936.5	2923.9	2928.2	2943.1	2923.9
175°	2947.2	2932.3	2936.5	2951.5	2930.3
177.5°	2951.5	2936.5	2938.8	2953.7	2934.6
180°	2940.9	2940.9	2940.9	2940.9	2940.9

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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	9.74	10.58	10.72	11.57	12.88	9.30	10.14	10.28	11.13	12.43
	3H	11.41	12.16	12.39	13.16	14.49	10.92	11.67	11.90	12.67	14.00
	4H	12.00	12.71	13.00	13.71	15.05	11.50	12.22	12.50	13.22	14.55
	6H	12.40	13.06	13.41	14.06	15.41	11.90	12.56	12.91	13.56	14.91
	8H	12.50	13.13	13.52	14.15	15.50	12.00	12.63	13.02	13.65	15.00
	12H	12.55	13.15	13.58	14.17	15.53	12.04	12.64	13.07	13.66	15.02
4H	2H	10.20	10.92	11.21	11.92	13.25	9.85	10.56	10.85	11.56	12.90
	3H	12.07	12.67	13.09	13.70	15.05	11.66	12.26	12.68	13.29	14.64
	4H	12.79	13.33	13.81	14.36	15.73	12.36	12.91	13.39	13.93	15.30
	6H	13.31	13.78	14.34	14.82	16.19	12.87	13.34	13.91	14.39	15.76
	8H	13.46	13.90	14.49	14.94	16.32	13.02	13.46	14.06	14.50	15.88
	12H	13.53	13.93	14.59	14.98	16.37	13.08	13.48	14.14	14.53	15.92
8H	4H	12.98	13.42	14.02	14.46	15.84	12.61	13.04	13.64	14.09	15.47
	6H	13.62	13.98	14.68	15.06	16.44	13.23	13.60	14.29	14.68	16.06
	8H	13.84	14.16	14.91	15.23	16.63	13.45	13.77	14.52	14.83	16.23
	12H	13.98	14.26	15.05	15.32	16.76	13.56	13.84	14.64	14.91	16.35
12H	4H	12.97	13.36	14.02	14.42	15.81	12.60	13.00	13.65	14.05	15.44
	6H	13.65	13.97	14.72	15.03	16.43	13.28	13.60	14.34	14.66	16.06
	8H	13.89	14.17	14.96	15.23	16.68	13.51	13.79	14.58	14.85	16.30