

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: P925776

Luminaire Tested: DFN2DIP-SQ4F0-060D100US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925776
REPORT IS A COMBINATION OF REPORTS P900131 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D100US950-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

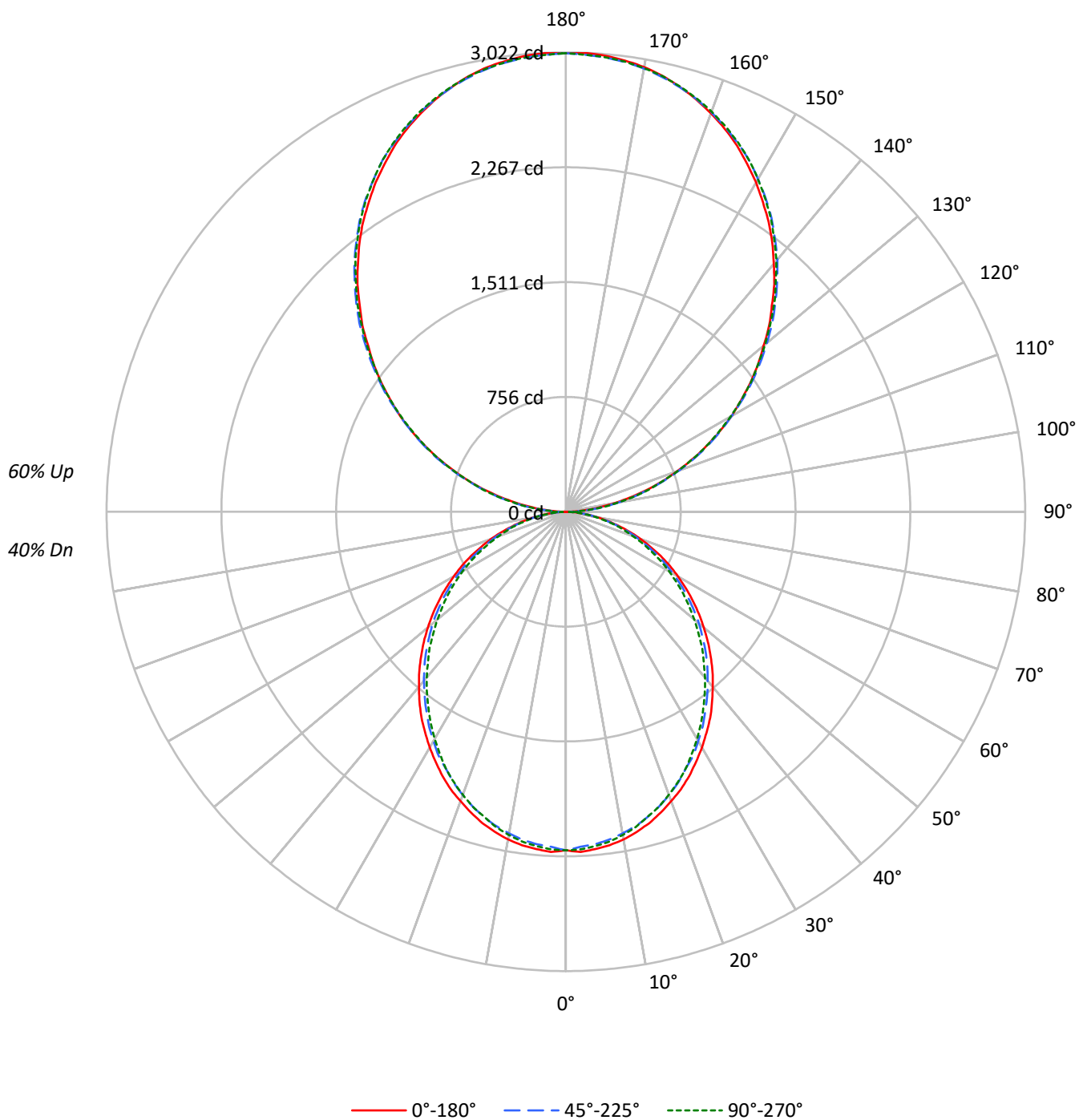
Lumens per Lamp: N/A
Luminaire Lumens: 14109.7 lumens
Efficiency: N/A
Efficacy: 113.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 124.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	42	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	38	34	31	29	27	25
5	67	55	47	41	60	51	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	27	24	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	28	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	16	14
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1563	1563	1563
5°	1565	1541	1552
10°	1553	1521	1531
15°	1530	1496	1499
20°	1499	1462	1466
25°	1468	1420	1427
30°	1430	1382	1378
35°	1393	1337	1326
40°	1348	1291	1277
45°	1304	1245	1227
50°	1255	1197	1168
55°	1203	1141	1115
60°	1145	1075	1054
65°	1082	1007	981
70°	1002	923	904
75°	890	824	832
80°	756	697	695
85°	547	476	467

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2374 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.6	1.5
10°-20°	589.8	4.2
20°-30°	866.8	6.1
30°-40°	1006.7	7.1
40°-50°	1005.5	7.1
50°-60°	876.7	6.2
60°-70°	648.1	4.6
70°-80°	366.7	2.6
80°-90°	105.4	0.7
90°-100°	186.7	1.3
100°-110°	593.2	4.2
110°-120°	1015.2	7.2
120°-130°	1335.1	9.5
130°-140°	1498.6	10.6
140°-150°	1469.5	10.4
150°-160°	1232.7	8.7
160°-170°	817.5	5.8
170°-180°	285.7	2.0
0°-30°	1666.2	11.8
0°-40°	2673.0	18.9
0°-60°	4555.2	32.3
0°-90°	5675.3	40.2
90°-120°	1795.1	12.7
90°-150°	6098.3	43.2
90°-180°	8434.0	59.8
0°-180°	14109.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2227	2227	2227	2227	2227	
5°	2227	2219	2195	2212	2208	211
15°	2120	2108	2080	2088	2078	597
25°	1919	1902	1866	1870	1866	883
35°	1656	1634	1600	1587	1576	1034
45°	1347	1332	1300	1276	1268	1040
55°	1020	1007	981	955	945	912
65°	688	675	653	634	623	680
75°	360	356	345	332	336	384
85°	88	86	84	77	75	98
90°	3	33	89	84	86	14
95°	133	158	163	163	158	148
105°	548	555	560	565	565	578
115°	1019	1033	1029	1026	1019	1008
125°	1482	1504	1497	1489	1486	1324
135°	1916	1945	1950	1948	1940	1481
145°	2327	2345	2360	2362	2352	1454
155°	2661	2668	2676	2689	2680	1225
165°	2894	2892	2892	2910	2897	817
175°	3012	3004	2999	3017	3002	286
180°	3017	3017	3017	3017	3017	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2227.2	2227.2	2227.2	2227.2	2227.2
2.5°	2240.2	2229.5	2205.8	2227.2	2223.1
5°	2227.2	2218.8	2195.2	2212.2	2208.1
7.5°	2212.2	2199.5	2175.9	2193.2	2188.9
10°	2188.9	2173.9	2148.1	2165.2	2158.8
12.5°	2156.6	2143.8	2118.2	2128.9	2124.6
15°	2120.2	2107.5	2079.5	2088.2	2077.5
17.5°	2075.2	2062.5	2034.6	2045.2	2034.6
20°	2025.9	2013.2	1983.2	1989.6	1981.2
22.5°	1976.9	1957.5	1929.6	1929.6	1925.3
25°	1918.9	1901.9	1865.5	1869.6	1865.5
27.5°	1854.6	1839.6	1811.8	1805.5	1794.9
30°	1790.6	1773.2	1741.2	1734.8	1726.2
32.5°	1721.9	1709.2	1674.8	1661.9	1653.3
35°	1655.6	1634.2	1599.9	1586.9	1576.2
37.5°	1580.6	1561.2	1527.0	1511.9	1501.2
40°	1503.5	1486.2	1452.0	1432.9	1424.2
42.5°	1428.5	1411.3	1377.2	1355.6	1342.9
45°	1347.2	1332.2	1299.9	1276.5	1267.9
47.5°	1267.9	1252.9	1218.6	1195.0	1182.2
50°	1184.3	1173.6	1143.7	1113.6	1102.9
52.5°	1102.9	1087.9	1060.2	1036.6	1021.6
55°	1019.5	1006.6	980.9	955.2	944.6
57.5°	936.0	925.3	897.3	871.7	863.0
60°	852.3	843.9	814.0	790.3	783.9
62.5°	770.9	755.9	734.6	713.2	704.6
65°	687.5	674.7	653.3	633.9	623.2
67.5°	601.9	591.0	571.9	556.9	548.3
70°	522.6	514.0	494.6	479.7	471.3
72.5°	441.2	432.6	422.0	407.0	400.6
75°	359.7	355.7	344.7	332.0	336.3
77.5°	287.0	278.4	274.0	267.7	261.3
80°	214.3	212.0	207.7	201.3	197.0
82.5°	145.7	145.7	143.6	135.0	135.0
85°	87.7	85.7	83.6	77.0	75.0
87.5°	38.6	34.3	30.0	23.7	21.4
90°	2.8	32.7	89.1	83.7	86.4
92.5°	56.4	76.4	79.2	81.9	81.9
95°	132.8	158.3	162.8	162.8	158.3
97.5°	221.0	244.7	254.7	254.7	254.7
100°	322.9	343.8	351.1	351.1	348.4
102.5°	430.3	445.7	455.7	458.4	455.7
105°	547.6	554.8	560.3	564.9	564.9
107.5°	664.0	675.0	675.0	676.8	664.0
110°	776.8	791.3	791.3	791.3	784.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	898.7	914.1	911.5	904.1	898.7
115°	1018.8	1033.3	1028.8	1026.0	1018.8
117.5°	1137.9	1158.0	1145.2	1137.9	1130.6
120°	1257.9	1278.0	1257.9	1257.9	1249.8
122.5°	1367.1	1392.6	1379.9	1372.6	1367.1
125°	1481.8	1504.5	1497.2	1489.0	1486.3
127.5°	1593.7	1621.8	1611.8	1600.9	1593.7
130°	1698.2	1730.9	1726.5	1720.9	1711.0
132.5°	1815.6	1841.0	1842.8	1830.2	1822.8
135°	1916.5	1944.7	1950.2	1947.5	1940.1
137.5°	2029.3	2052.1	2056.6	2054.8	2043.8
140°	2128.5	2151.2	2164.0	2164.0	2153.9
142.5°	2230.4	2253.1	2260.3	2263.1	2253.1
145°	2326.7	2344.9	2359.5	2362.2	2352.2
147.5°	2413.1	2435.9	2446.8	2451.4	2441.4
150°	2502.3	2517.8	2527.8	2535.9	2527.8
152.5°	2581.4	2596.9	2609.7	2619.7	2609.7
155°	2660.6	2667.9	2676.1	2688.8	2680.5
157.5°	2728.8	2734.3	2738.8	2757.0	2744.3
160°	2789.8	2795.2	2797.9	2813.3	2802.5
162.5°	2846.2	2846.2	2848.8	2866.1	2853.4
165°	2894.3	2891.6	2891.6	2909.8	2897.1
167.5°	2938.0	2929.8	2929.8	2948.1	2935.3
170°	2970.8	2963.5	2960.7	2979.0	2963.5
172.5°	2993.5	2986.2	2983.4	3001.7	2986.2
175°	3011.7	3004.4	2999.0	3017.1	3001.7
177.5°	3021.7	3014.4	3008.9	3024.4	3008.9
180°	3017.1	3017.1	3017.1	3017.1	3017.1

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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	7.86	8.64	8.89	9.68	11.08	7.41	8.19	8.45	9.24	10.64
	3H	9.52	10.21	10.56	11.27	12.69	9.03	9.72	10.07	10.78	12.20
	4H	10.10	10.76	11.16	11.82	13.25	9.61	10.27	10.67	11.32	12.76
	6H	10.50	11.11	11.57	12.17	13.61	10.00	10.61	11.07	11.67	13.11
	8H	10.61	11.19	11.68	12.26	13.70	10.10	10.68	11.18	11.76	13.20
	12H	10.65	11.20	11.73	12.27	13.73	10.14	10.69	11.22	11.76	13.22
4H	2H	8.31	8.97	9.37	10.03	11.46	7.95	8.62	9.02	9.67	11.10
	3H	10.17	10.72	11.24	11.81	13.25	9.76	10.32	10.84	11.40	12.84
	4H	10.89	11.39	11.96	12.47	13.93	10.46	10.97	11.54	12.04	13.51
	6H	11.40	11.84	12.49	12.93	14.39	10.97	11.40	12.06	12.50	13.96
	8H	11.55	11.96	12.64	13.05	14.52	11.11	11.52	12.20	12.61	14.08
	12H	11.62	11.99	12.73	13.09	14.57	11.17	11.54	12.28	12.64	14.12
8H	4H	11.08	11.48	12.16	12.57	14.05	10.70	11.11	11.79	12.19	13.67
	6H	11.71	12.05	12.82	13.17	14.65	11.33	11.66	12.44	12.79	14.26
	8H	11.93	12.23	13.05	13.34	14.83	11.54	11.83	12.66	12.95	14.44
	12H	12.06	12.32	13.18	13.43	14.96	11.65	11.91	12.77	13.02	14.55
12H	4H	11.06	11.43	12.16	12.53	14.01	10.69	11.06	11.80	12.16	13.64
	6H	11.74	12.03	12.85	13.15	14.64	11.37	11.66	12.48	12.77	14.26
	8H	11.98	12.24	13.10	13.35	14.88	11.60	11.86	12.72	12.97	14.50