

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: P912157

Luminaire Tested: DFN2DIP-SQ4F0-070D060US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912157
REPORT IS A COMBINATION OF REPORTS P901581 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D060US850-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

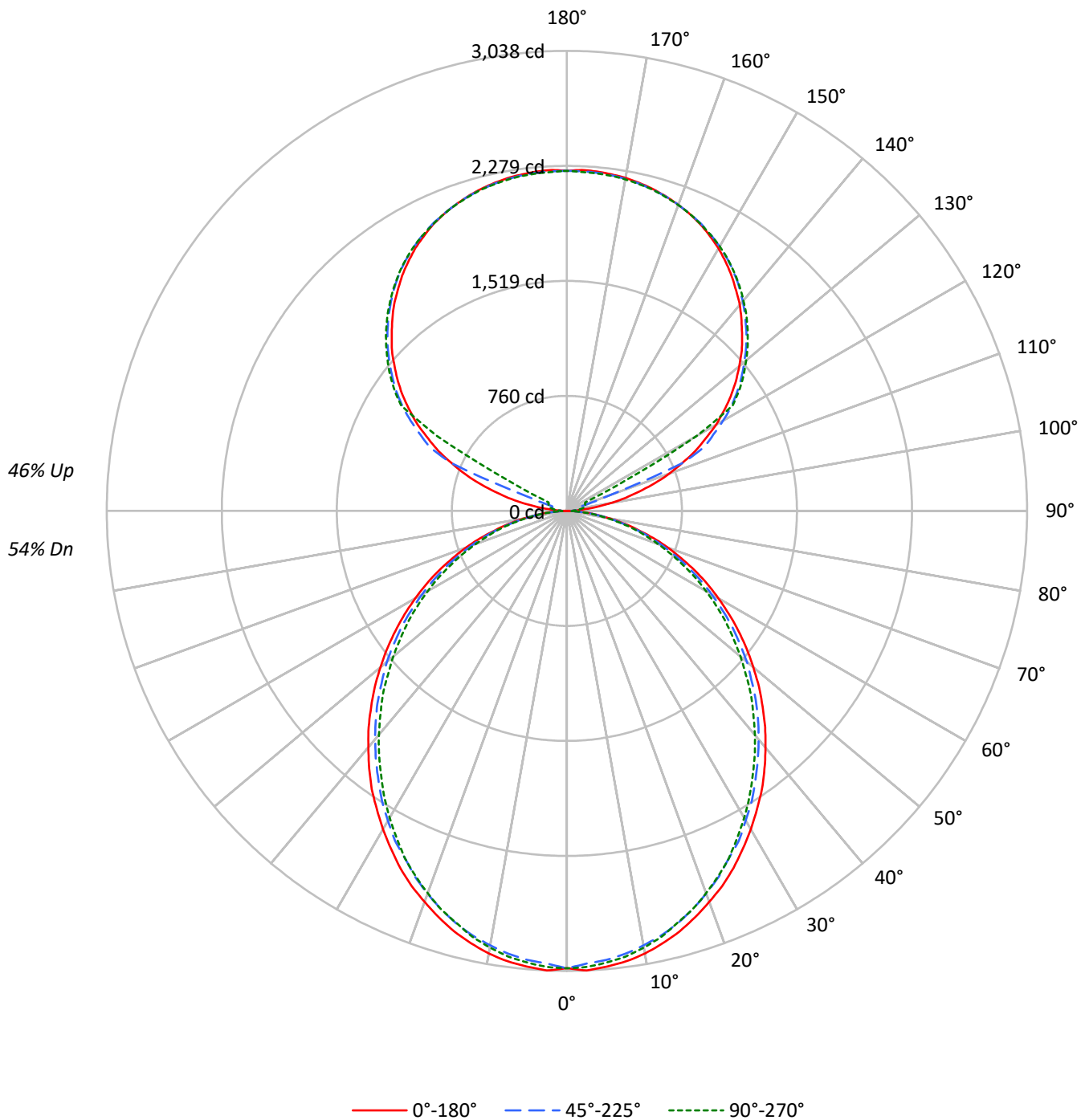
Lumens per Lamp: N/A
Luminaire Lumens: 14272.8 lumens
Efficiency: N/A
Efficacy: 134.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 106.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	60	60	60
1	99	94	90	87	91	88	84	81	75	73	70	63	62	60	53	52	50
2	90	82	76	71	83	77	71	67	66	62	58	56	53	50	46	44	42
3	82	72	65	59	76	67	61	56	58	53	49	49	46	42	41	38	36
4	75	64	56	50	69	60	53	47	52	46	42	44	40	36	37	34	31
5	69	57	49	43	64	53	46	41	46	40	36	39	35	32	33	30	27
6	63	51	43	37	59	48	41	35	42	36	31	36	31	28	30	27	24
7	59	46	38	33	54	43	36	31	38	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	28	34	29	25	30	25	22	25	22	19
9	51	38	31	26	47	36	29	25	32	26	22	27	23	20	23	20	17
10	47	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2119	2119	2119
5°	2123	2090	2105
10°	2106	2063	2077
15°	2075	2029	2033
20°	2033	1982	1988
25°	1991	1926	1936
30°	1939	1874	1869
35°	1890	1813	1799
40°	1829	1751	1732
45°	1768	1688	1664
50°	1702	1623	1585
55°	1632	1548	1512
60°	1553	1458	1429
65°	1468	1365	1331
70°	1359	1252	1225
75°	1207	1117	1129
80°	1026	945	943
85°	742	647	634

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1768 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.3	2.0
10°-20°	799.9	5.6
20°-30°	1175.6	8.2
30°-40°	1365.3	9.6
40°-50°	1363.6	9.6
50°-60°	1189.1	8.3
60°-70°	879.0	6.2
70°-80°	497.3	3.5
80°-90°	135.2	0.9
90°-100°	74.1	0.5
100°-110°	276.0	1.9
110°-120°	732.1	5.1
120°-130°	1214.2	8.5
130°-140°	1289.8	9.0
140°-150°	1198.7	8.4
150°-160°	963.8	6.8
160°-170°	621.0	4.4
170°-180°	213.7	1.5
0°-30°	2259.8	15.8
0°-40°	3625.1	25.4
0°-60°	6177.8	43.3
0°-90°	7689.3	53.9
90°-120°	1082.2	7.6
90°-150°	4785.0	33.5
90°-180°	6583.0	46.1
0°-180°	14272.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3021	3021	3021	3021	3021	
5°	3021	3009	2977	3000	2995	287
15°	2876	2858	2820	2832	2818	810
25°	2602	2579	2530	2536	2530	1198
35°	2245	2216	2170	2152	2138	1402
45°	1827	1807	1763	1731	1720	1410
55°	1383	1365	1330	1296	1281	1236
65°	933	915	886	860	845	922
75°	488	482	467	450	456	521
85°	119	116	114	104	102	133
90°	2	20	32	41	44	13
95°	106	52	63	72	70	125
105°	494	543	99	117	124	528
115°	934	962	1003	250	133	920
125°	1321	1342	1373	1384	1389	1178
135°	1635	1661	1675	1692	1688	1263
145°	1896	1895	1922	1934	1926	1186
155°	2088	2074	2093	2103	2090	962
165°	2200	2190	2195	2207	2195	622
175°	2250	2239	2242	2254	2238	214
180°	2246	2246	2246	2246	2246	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3020.6	3020.6	3020.6	3020.6	3020.6
2.5°	3038.2	3023.7	2991.6	3020.6	3015.0
5°	3020.6	3009.3	2977.2	3000.3	2994.7
7.5°	3000.3	2983.0	2950.9	2974.4	2968.6
10°	2968.6	2948.2	2913.3	2936.5	2927.9
12.5°	2924.8	2907.6	2872.8	2887.2	2881.3
15°	2875.5	2858.2	2820.3	2832.1	2817.5
17.5°	2814.4	2797.2	2759.3	2773.8	2759.3
20°	2747.5	2730.4	2689.7	2698.3	2686.9
22.5°	2681.0	2654.8	2616.9	2616.9	2611.0
25°	2602.5	2579.3	2530.1	2535.6	2530.1
27.5°	2515.2	2494.9	2457.3	2448.7	2434.1
30°	2428.4	2404.9	2361.5	2352.9	2341.1
32.5°	2335.2	2318.0	2271.5	2253.9	2242.2
35°	2245.3	2216.3	2169.8	2152.2	2137.7
37.5°	2143.6	2117.4	2070.8	2050.5	2036.0
40°	2039.1	2015.7	1969.1	1943.3	1931.5
42.5°	1937.4	1914.0	1867.8	1838.5	1821.2
45°	1827.1	1806.8	1763.0	1731.3	1719.5
47.5°	1719.5	1699.2	1652.6	1620.6	1603.4
50°	1606.2	1591.6	1550.9	1510.3	1495.8
52.5°	1495.8	1475.5	1437.9	1405.9	1385.5
55°	1382.7	1365.2	1330.4	1295.5	1281.0
57.5°	1269.4	1254.8	1216.9	1182.1	1170.4
60°	1155.9	1144.5	1103.9	1071.8	1063.2
62.5°	1045.6	1025.3	996.3	967.4	955.6
65°	932.6	914.9	886.0	859.8	845.3
67.5°	816.3	801.6	775.6	755.3	743.6
70°	708.8	697.1	670.8	650.5	639.1
72.5°	598.4	586.8	572.2	551.9	543.3
75°	487.8	482.3	467.4	450.3	456.1
77.5°	389.3	377.5	371.6	363.0	354.4
80°	290.6	287.6	281.7	273.0	267.2
82.5°	197.5	197.5	194.7	183.1	183.1
85°	119.0	116.2	113.5	104.5	101.7
87.5°	52.3	46.6	40.7	32.1	28.9
90°	1.6	19.5	32.4	40.7	43.8
92.5°	40.7	34.2	38.9	42.3	43.8
95°	105.6	51.9	63.3	71.6	69.9
97.5°	190.1	56.9	82.7	87.8	89.4
100°	287.7	65.0	92.6	105.6	108.8
102.5°	394.8	391.7	95.9	113.7	118.7
105°	493.9	542.7	99.1	116.9	123.5
107.5°	609.4	649.9	102.5	120.2	126.8
110°	720.0	753.9	284.5	122.0	128.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	823.9	853.0	825.4	125.0	130.1
115°	934.3	961.9	1002.6	250.3	133.3
117.5°	1030.2	1062.6	1090.4	857.9	432.2
120°	1137.5	1161.8	1191.2	1210.6	991.2
122.5°	1228.3	1254.4	1287.0	1296.6	1298.4
125°	1321.0	1342.2	1373.1	1384.5	1389.2
127.5°	1405.5	1428.3	1452.8	1469.0	1470.5
130°	1485.2	1511.2	1529.0	1546.9	1545.4
132.5°	1566.5	1587.6	1605.4	1620.0	1618.5
135°	1634.8	1660.8	1675.3	1691.7	1688.3
137.5°	1706.1	1725.6	1742.0	1758.2	1753.4
140°	1776.0	1789.1	1806.9	1821.5	1813.4
142.5°	1834.6	1846.0	1867.1	1880.0	1871.9
145°	1896.4	1894.6	1922.2	1933.7	1925.6
147.5°	1949.8	1945.0	1972.6	1980.7	1974.4
150°	2002.0	1990.5	2016.6	2026.3	2018.2
152.5°	2045.8	2032.8	2057.1	2067.0	2055.5
155°	2088.0	2073.5	2093.0	2102.7	2089.7
157.5°	2122.2	2109.2	2123.8	2135.3	2122.2
160°	2151.5	2141.6	2151.5	2161.1	2149.8
162.5°	2177.3	2167.7	2175.7	2187.2	2172.5
165°	2200.1	2190.5	2195.3	2206.7	2195.3
167.5°	2218.0	2208.2	2213.2	2224.7	2209.9
170°	2232.7	2222.9	2226.2	2237.5	2222.9
172.5°	2242.4	2232.7	2236.0	2247.4	2232.7
175°	2250.5	2239.1	2242.4	2253.7	2237.5
177.5°	2253.7	2242.4	2244.1	2255.5	2240.8
180°	2245.6	2245.6	2245.6	2245.6	2245.6

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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	10.25	11.14	11.17	12.08	13.30	9.80	10.70	10.72	11.64	12.85
	3H	11.91	12.72	12.85	13.67	14.91	11.42	12.23	12.36	13.18	14.42
	4H	12.50	13.27	13.45	14.22	15.47	12.01	12.77	12.96	13.73	14.97
	6H	12.91	13.61	13.87	14.57	15.83	12.41	13.11	13.37	14.07	15.33
	8H	13.02	13.69	13.99	14.66	15.92	12.52	13.18	13.48	14.16	15.42
	12H	13.07	13.71	14.04	14.68	15.96	12.56	13.20	13.53	14.17	15.45
4H	2H	10.71	11.47	11.67	12.43	13.68	10.36	11.12	11.31	12.07	13.32
	3H	12.59	13.22	13.55	14.21	15.47	12.18	12.81	13.14	13.80	15.06
	4H	13.30	13.89	14.28	14.86	16.15	12.88	13.46	13.85	14.44	15.73
	6H	13.83	14.33	14.81	15.33	16.61	13.39	13.89	14.38	14.90	16.18
	8H	13.98	14.45	14.97	15.44	16.74	13.54	14.01	14.53	15.00	16.30
	12H	14.06	14.48	15.06	15.49	16.79	13.61	14.03	14.61	15.04	16.34
8H	4H	13.50	13.97	14.49	14.97	16.27	13.13	13.60	14.12	14.59	15.89
	6H	14.14	14.53	15.16	15.57	16.86	13.76	14.15	14.77	15.18	16.48
	8H	14.37	14.71	15.39	15.73	17.05	13.97	14.31	15.00	15.34	16.65
	12H	14.50	14.80	15.53	15.82	17.18	14.09	14.39	15.12	15.41	16.77
12H	4H	13.49	13.91	14.50	14.93	16.23	13.12	13.55	14.13	14.56	15.86
	6H	14.17	14.51	15.19	15.54	16.85	13.80	14.14	14.82	15.17	16.48
	8H	14.42	14.72	15.44	15.74	17.10	14.04	14.34	15.06	15.36	16.72