

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P#

Luminaire Tested: **FLDSQ4C65D010 FEU4C659030 F4LC-DFSSQ-MW**

Issue Date: 12/13/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P#
 Test Lab: INNOVATION CENTER
 Issue Date: 12/13/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: FAIL-SAFE
 Catalog Number: FLDSQ4C65D010 FEU4C659030 F4LC-DFSSQ-MW
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

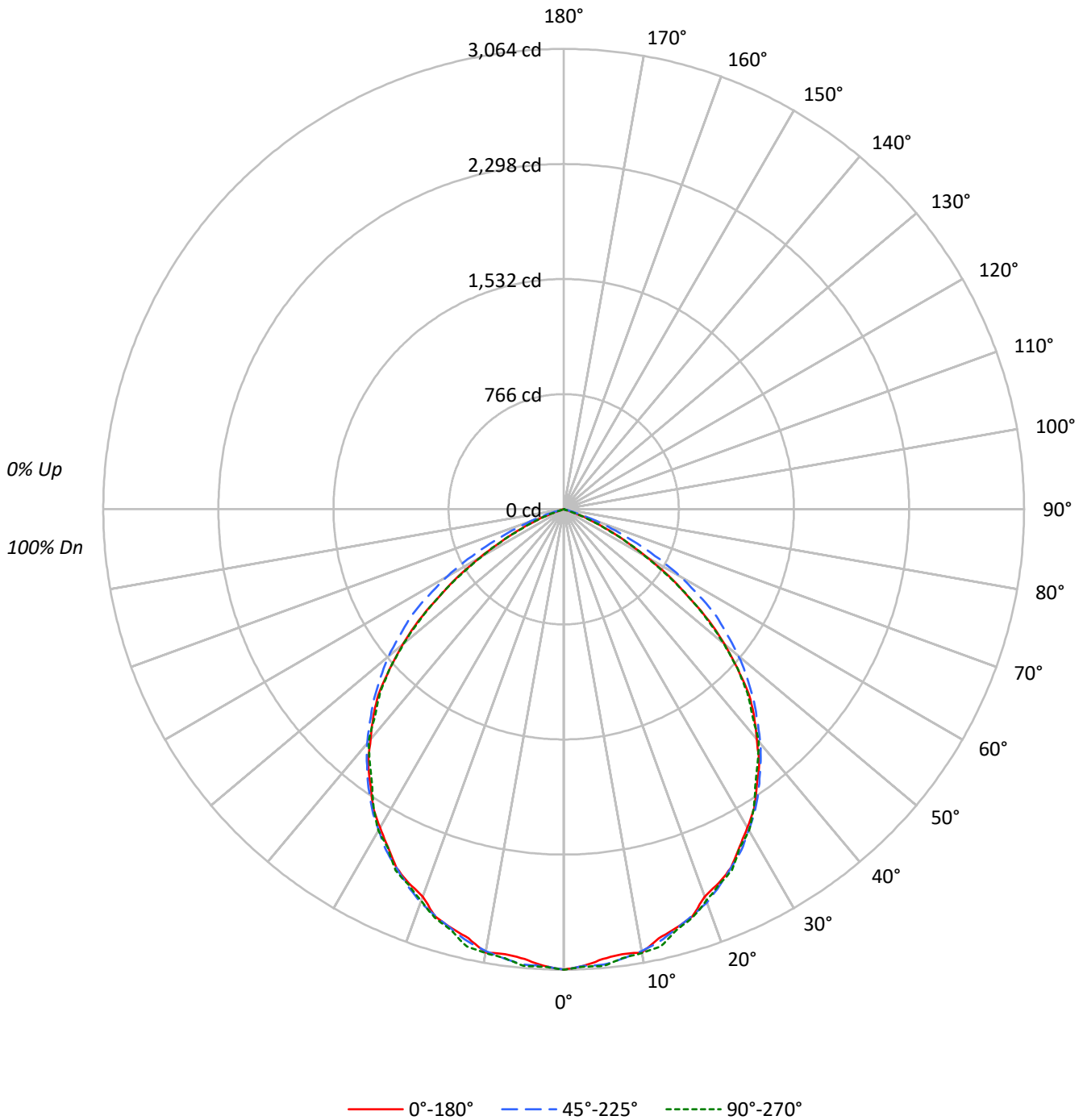
Lumens per Lamp: N/A
 Luminaire Lumens: 6545.0 lumens
 Efficiency: N/A
 Efficacy: 90.4 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 72.4
 Input Voltage (V):
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	GONIO 1 IN0055	4/22/2021	10/22/2021
Power Meter	XITRON 2801 IN0197	12/1/2020	12/1/2021
AC Power Source	CHROMA 61505 IN0196	12/1/2020	12/1/2021
DC Power Supply	AGILENT E3634A IN0198	11/30/2020	11/30/2021
Room Thermometer	ONSET IN0143	12/1/2020	12/1/2021

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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	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	295632	295632	295632
5°	290863	294650	295493
10°	293374	292521	293795
15°	288240	288660	289529
20°	281532	285998	284674
25°	280319	280319	282171
30°	272501	274439	274930
35°	264005	266573	261956
40°	251612	256537	254346
45°	238129	243492	235755
50°	209719	228002	208413
55°	169838	208647	170595
60°	124278	173005	121788
65°	75526	123197	73539
70°	29453	66325	28240
75°	3243	17857	3243
80°	2445	2445	2445
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	289.2	4.4
10°-20°	818.4	12.5
20°-30°	1214.3	18.6
30°-40°	1407.0	21.5
40°-50°	1349.0	20.6
50°-60°	991.9	15.2
60°-70°	428.4	6.5
70°-80°	46.2	0.7
80°-90°	0.6	0.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	2321.9	35.5
0°-40°	3728.9	57.0
0°-60°	6069.8	92.7
0°-90°	6545.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6545.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3064	3064	3064	3064	3064	
5°	3003	3033	3042	3046	3051	286
15°	2886	2903	2890	2894	2898	813
25°	2633	2629	2633	2637	2650	1206
35°	2241	2254	2263	2259	2224	1401
45°	1745	1750	1784	1758	1728	1327
55°	1010	1114	1240	1110	1014	909
65°	331	413	540	409	322	340
75°	9	13	48	9	9	27
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9
2.5°	3042.1	3076.9	3081.3	3059.5	3050.8	3037.8	3068.2	3046.5	3055.2	3046.5	3042.1
5°	3003.0	3042.1	3046.5	3046.5	3037.8	3033.4	3046.5	3042.1	3037.8	3029.1	3042.1
7.5°	2985.6	3007.3	3029.1	3003.0	3016.0	3011.7	3042.1	3029.1	3024.7	3024.7	3016.0
10°	2994.3	2989.9	3007.3	2981.2	2989.9	2981.2	3007.3	3007.3	2998.6	2989.9	2985.6
12.5°	2924.5	2959.3	2959.3	2955.1	2946.4	2933.2	2959.3	2976.9	2950.6	2950.6	2946.4
15°	2885.5	2894.2	2898.4	2898.4	2894.2	2902.9	2915.8	2898.4	2902.9	2881.0	2889.7
17.5°	2842.0	2824.6	2837.5	2828.8	2833.3	2842.0	2859.4	2859.4	2833.3	2828.8	2837.5
20°	2741.8	2794.0	2798.5	2772.4	2776.6	2776.6	2807.2	2781.1	2798.5	2776.6	2785.3
22.5°	2693.9	2728.7	2733.1	2698.3	2720.0	2693.9	2724.4	2685.2	2728.7	2698.3	2711.3
25°	2633.0	2628.7	2641.7	2624.3	2628.7	2628.7	2650.4	2633.0	2646.1	2628.7	2633.0
27.5°	2533.0	2567.8	2563.4	2546.0	2554.7	2550.4	2593.9	2546.0	2572.1	2550.4	2559.1
30°	2445.8	2476.3	2467.6	2450.2	2450.2	2437.1	2485.0	2471.9	2467.6	2467.6	2463.2
32.5°	2358.8	2363.2	2354.5	2358.8	2363.2	2345.8	2384.9	2367.5	2363.2	2367.5	2371.9
35°	2241.3	2241.3	2250.0	2237.0	2254.4	2254.4	2289.2	2267.4	2263.1	2250.0	2263.1
37.5°	2136.8	2123.9	2128.1	2128.1	2136.8	2145.5	2162.9	2154.2	2154.2	2141.3	2150.0
40°	1997.6	1988.9	2001.9	2001.9	2015.0	2015.0	2032.4	2023.7	2036.7	2036.7	2036.7
42.5°	1875.8	1875.8	1867.1	1880.1	1884.5	1880.1	1910.6	1906.2	1910.6	1901.9	1906.2
45°	1745.1	1745.1	1736.4	1732.2	1753.8	1749.6	1784.4	1771.2	1788.6	1779.9	1784.4
47.5°	1566.7	1588.5	1575.4	1588.5	1614.6	1619.1	1640.7	1632.0	1649.4	1636.5	1653.9
50°	1397.1	1397.1	1410.1	1427.5	1453.6	1458.0	1484.1	1501.5	1510.2	1514.5	1518.9
52.5°	1218.6	1214.2	1227.3	1249.0	1270.8	1288.2	1314.4	1340.5	1357.9	1384.0	1370.8
55°	1009.6	1018.3	1031.5	1057.6	1092.4	1114.1	1135.9	1170.7	1201.2	1214.2	1240.3
57.5°	831.2	822.5	831.2	866.0	905.2	922.6	953.2	988.0	1031.5	1057.6	1066.3
60°	644.0	648.5	657.2	687.7	718.1	744.2	757.3	813.8	853.0	879.1	896.5
62.5°	474.5	483.2	491.9	518.0	548.3	570.2	591.8	639.8	674.6	700.7	718.1
65°	330.8	335.1	348.2	361.2	391.7	413.4	430.8	470.0	504.8	526.7	539.6
67.5°	204.6	208.8	217.5	235.1	256.8	274.2	291.6	317.7	348.2	369.9	374.3
70°	104.4	108.8	113.1	126.2	143.7	152.4	165.3	187.2	208.8	226.2	235.1
72.5°	34.8	34.8	39.2	47.9	56.6	65.3	69.6	91.4	108.8	117.5	121.8
75°	8.7	8.7	8.7	8.7	8.7	13.1	13.1	26.1	34.8	43.5	47.9
77.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	8.7	8.7
80°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9	3063.9
2.5°	3063.9	3055.2	3050.8	3055.2	3055.2	3050.8	3063.9	3081.3	3103.0	3046.5
5°	3059.5	3050.8	3059.5	3033.4	3046.5	3037.8	3055.2	3050.8	3068.2	3050.8
7.5°	3046.5	3029.1	3033.4	3020.4	3037.8	3016.0	3029.1	3055.2	3037.8	3011.7
10°	3003.0	2994.3	3024.7	2981.2	2972.5	2989.9	3024.7	2998.6	2989.9	2998.6
12.5°	2959.3	2959.3	2972.5	2937.7	2941.9	2950.6	2968.0	2950.6	2959.3	2981.2
15°	2911.6	2902.9	2924.5	2898.4	2894.2	2885.5	2902.9	2902.9	2911.6	2898.4
17.5°	2854.9	2842.0	2842.0	2833.3	2828.8	2850.7	2859.4	2863.6	2868.1	2850.7
20°	2785.3	2781.1	2794.0	2781.1	2785.3	2789.8	2789.8	2781.1	2820.1	2772.4
22.5°	2711.3	2724.4	2707.0	2698.3	2707.0	2715.7	2715.7	2720.0	2711.3	2702.6
25°	2637.4	2646.1	2650.4	2624.3	2637.4	2624.3	2654.8	2659.1	2641.7	2650.4
27.5°	2572.1	2559.1	2554.7	2537.3	2546.0	2541.7	2546.0	2546.0	2572.1	2537.3
30°	2471.9	2458.9	2463.2	2450.2	2454.5	2450.2	2454.5	2454.5	2471.9	2467.6
32.5°	2376.2	2363.2	2367.5	2354.5	2354.5	2358.8	2350.1	2350.1	2363.2	2354.5
35°	2284.8	2254.4	2258.7	2254.4	2258.7	2241.3	2241.3	2237.0	2245.7	2223.9
37.5°	2154.2	2141.3	2136.8	2132.6	2136.8	2128.1	2136.8	2123.9	2136.8	2119.4
40°	2036.7	2028.0	2032.4	2006.3	2006.3	2010.6	2001.9	1997.6	2001.9	2019.3
42.5°	1919.3	1901.9	1893.2	1884.5	1888.8	1875.8	1871.4	1862.7	1871.4	1854.0
45°	1779.9	1779.9	1775.7	1753.8	1758.3	1758.3	1740.9	1723.5	1727.7	1727.7
47.5°	1653.9	1645.2	1640.7	1619.1	1614.6	1610.4	1592.8	1579.8	1579.8	1566.7
50°	1514.5	1505.8	1492.8	1471.0	1462.3	1436.2	1423.2	1405.8	1388.4	1388.4
52.5°	1384.0	1353.4	1336.0	1301.2	1288.2	1275.1	1240.3	1227.3	1214.2	1201.2
55°	1227.3	1201.2	1166.4	1127.2	1109.8	1088.0	1053.2	1027.0	1009.6	1014.1
57.5°	1075.0	1031.5	996.7	944.5	922.6	909.5	874.7	839.9	822.5	822.5
60°	887.8	853.0	809.5	761.6	744.2	722.5	678.8	657.2	644.0	631.1
62.5°	709.4	683.3	644.0	583.1	570.2	548.3	518.0	491.9	478.7	478.7
65°	530.9	504.8	470.0	426.5	409.1	391.7	365.6	339.5	326.4	322.1
67.5°	374.3	343.8	313.4	278.6	265.5	256.8	230.7	213.3	204.6	200.1
70°	226.2	208.8	187.2	161.1	147.9	139.2	121.8	108.8	104.4	100.1
72.5°	117.5	104.4	87.0	69.6	60.9	52.2	43.5	34.8	30.5	30.5
75°	43.5	34.8	21.8	13.1	8.7	8.7	8.7	8.7	8.7	8.7
77.5°	8.7	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
80°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)