

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 FEU4C659035 F4LC-CSSQ-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 FEU4C659035 F4LC-CSSQ-MW
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

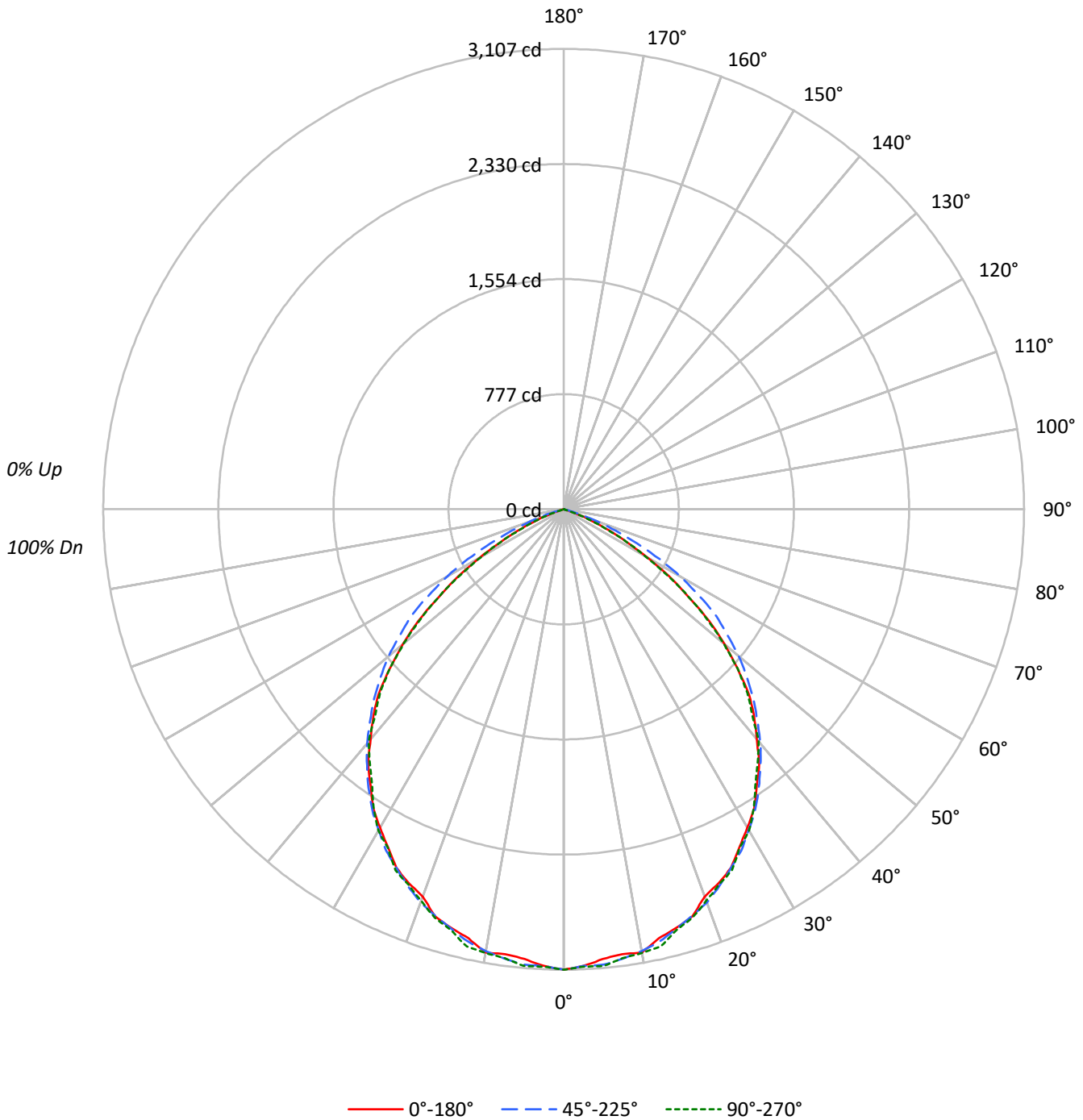
Lumens per Lamp: N/A
 Luminaire Lumens: 6637.0 lumens
 Efficiency: N/A
 Efficacy: 91.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89				89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77				77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67				67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59				59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52				52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46				46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41				41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37				37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33				33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31				31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	299791	299791	299791
5°	294950	298786	299648
10°	297499	296636	297920
15°	292286	292715	293604
20°	285495	290023	288668
25°	284258	284258	286132
30°	276333	278294	278796
35°	267716	270319	265631
40°	255152	260140	257923
45°	241486	246917	239071
50°	212661	231215	211340
55°	172227	211574	172984
60°	126034	175436	123486
65°	76599	124932	74567
70°	29876	67256	28663
75°	3281	18118	3281
80°	2500	2500	2500
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.3	4.4
10°-20°	829.9	12.5
20°-30°	1231.4	18.6
30°-40°	1426.8	21.5
40°-50°	1368.0	20.6
50°-60°	1005.8	15.2
60°-70°	434.4	6.5
70°-80°	46.9	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°	2354.5	35.5
0°-40°	3781.3	57.0
0°-60°	6155.1	92.7
0°-90°	6637.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6637.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3107	3107	3107	3107	3107	
5°	3045	3076	3085	3089	3094	291
15°	2926	2944	2930	2935	2939	825
25°	2670	2666	2670	2674	2688	1222
35°	2273	2286	2295	2290	2255	1421
45°	1770	1774	1810	1783	1752	1345
55°	1024	1130	1258	1125	1028	921
65°	336	419	547	415	327	345
75°	9	13	49	9	9	27
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0
2.5°	3084.8	3120.1	3124.6	3102.5	3093.7	3080.5	3111.3	3089.3	3098.2	3089.3	3084.8
5°	3045.2	3084.8	3089.3	3089.3	3080.5	3076.0	3089.3	3084.8	3080.5	3071.7	3084.8
7.5°	3027.6	3049.5	3071.7	3045.2	3058.4	3054.0	3084.8	3071.7	3067.2	3067.2	3058.4
10°	3036.4	3031.9	3049.5	3023.1	3031.9	3023.1	3049.5	3049.5	3040.7	3031.9	3027.6
12.5°	2965.6	3000.9	3000.9	2996.6	2987.8	2974.5	3000.9	3018.8	2992.1	2992.1	2987.8
15°	2926.0	2934.8	2939.2	2939.2	2934.8	2943.7	2956.8	2939.2	2943.7	2921.5	2930.3
17.5°	2881.9	2864.3	2877.4	2868.6	2873.1	2881.9	2899.6	2899.6	2873.1	2868.6	2877.4
20°	2780.4	2833.3	2837.8	2811.3	2815.6	2815.6	2846.6	2820.1	2837.8	2815.6	2824.5
22.5°	2731.7	2767.0	2771.5	2736.2	2758.2	2731.7	2762.7	2722.9	2767.0	2736.2	2749.4
25°	2670.0	2665.7	2678.8	2661.2	2665.7	2665.7	2687.6	2670.0	2683.3	2665.7	2670.0
27.5°	2568.6	2603.9	2599.4	2581.7	2590.6	2586.2	2630.4	2581.7	2608.2	2586.2	2595.1
30°	2480.2	2511.2	2502.3	2484.7	2484.7	2471.4	2520.0	2506.7	2502.3	2502.3	2497.8
32.5°	2392.0	2396.5	2387.6	2392.0	2396.5	2378.8	2418.4	2400.8	2396.5	2400.8	2405.3
35°	2272.8	2272.8	2281.6	2268.4	2286.1	2286.1	2321.4	2299.2	2294.9	2281.6	2294.9
37.5°	2166.9	2153.7	2158.1	2158.1	2166.9	2175.7	2193.3	2184.5	2184.5	2171.4	2180.2
40°	2025.7	2016.9	2030.0	2030.0	2043.4	2043.4	2061.0	2052.2	2065.3	2065.3	2065.3
42.5°	1902.2	1902.2	1893.4	1906.5	1911.0	1906.5	1937.5	1933.0	1937.5	1928.7	1933.0
45°	1769.7	1769.7	1760.8	1756.5	1778.5	1774.2	1809.5	1796.1	1813.8	1805.0	1809.5
47.5°	1588.7	1610.8	1597.5	1610.8	1637.3	1641.8	1663.8	1655.0	1672.6	1659.5	1677.1
50°	1416.7	1416.7	1429.9	1447.5	1474.0	1478.5	1505.0	1522.6	1531.4	1535.8	1540.3
52.5°	1235.8	1231.3	1244.6	1266.6	1288.7	1306.4	1332.8	1359.3	1376.9	1403.4	1390.1
55°	1023.8	1032.7	1046.0	1072.5	1107.7	1129.7	1151.9	1187.2	1218.1	1231.3	1257.7
57.5°	842.9	834.1	842.9	878.2	918.0	935.6	966.6	1001.9	1046.0	1072.5	1081.3
60°	653.1	657.6	666.4	697.4	728.2	754.6	768.0	825.2	865.0	891.5	909.1
62.5°	481.1	489.9	498.8	525.2	556.0	578.2	600.2	648.8	684.1	710.5	728.2
65°	335.5	339.8	353.1	366.3	397.2	419.2	436.8	476.6	511.9	534.1	547.2
67.5°	207.4	211.8	220.6	238.4	260.4	278.0	295.7	322.1	353.1	375.1	379.6
70°	105.9	110.4	114.7	128.0	145.7	154.5	167.6	189.8	211.8	229.4	238.4
72.5°	35.3	35.3	39.8	48.6	57.4	66.3	70.6	92.7	110.4	119.2	123.5
75°	8.8	8.8	8.8	8.8	8.8	13.3	13.3	26.5	35.3	44.1	48.6
77.5°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	8.8	8.8
80°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
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°	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0	3107.0
2.5°	3107.0	3098.2	3093.7	3098.2	3098.2	3093.7	3107.0	3124.6	3146.6	3089.3
5°	3102.5	3093.7	3102.5	3076.0	3089.3	3080.5	3098.2	3093.7	3111.3	3093.7
7.5°	3089.3	3071.7	3076.0	3062.9	3080.5	3058.4	3071.7	3098.2	3080.5	3054.0
10°	3045.2	3036.4	3067.2	3023.1	3014.3	3031.9	3067.2	3040.7	3031.9	3040.7
12.5°	3000.9	3000.9	3014.3	2979.0	2983.3	2992.1	3009.8	2992.1	3000.9	3023.1
15°	2952.5	2943.7	2965.6	2939.2	2934.8	2926.0	2943.7	2943.7	2952.5	2939.2
17.5°	2895.1	2881.9	2881.9	2873.1	2868.6	2890.7	2899.6	2903.9	2908.4	2890.7
20°	2824.5	2820.1	2833.3	2820.1	2824.5	2829.0	2829.0	2820.1	2859.8	2811.3
22.5°	2749.4	2762.7	2745.1	2736.2	2745.1	2753.9	2753.9	2758.2	2749.4	2740.6
25°	2674.5	2683.3	2687.6	2661.2	2674.5	2661.2	2692.1	2696.4	2678.8	2687.6
27.5°	2608.2	2595.1	2590.6	2572.9	2581.7	2577.4	2581.7	2581.7	2608.2	2572.9
30°	2506.7	2493.5	2497.8	2484.7	2489.0	2484.7	2489.0	2489.0	2506.7	2502.3
32.5°	2409.6	2396.5	2400.8	2387.6	2387.6	2392.0	2383.1	2383.1	2396.5	2387.6
35°	2316.9	2286.1	2290.4	2286.1	2290.4	2272.8	2272.8	2268.4	2277.3	2255.1
37.5°	2184.5	2171.4	2166.9	2162.6	2166.9	2158.1	2166.9	2153.7	2166.9	2149.2
40°	2065.3	2056.5	2061.0	2034.5	2034.5	2038.9	2030.0	2025.7	2030.0	2047.7
42.5°	1946.3	1928.7	1919.8	1911.0	1915.3	1902.2	1897.7	1888.9	1897.7	1880.0
45°	1805.0	1805.0	1800.6	1778.5	1783.0	1783.0	1765.3	1747.7	1752.0	1752.0
47.5°	1677.1	1668.3	1663.8	1641.8	1637.3	1633.0	1615.2	1602.0	1602.0	1588.7
50°	1535.8	1526.9	1513.8	1491.6	1482.8	1456.4	1443.2	1425.6	1407.9	1407.9
52.5°	1403.4	1372.4	1354.8	1319.5	1306.4	1293.0	1257.7	1244.6	1231.3	1218.1
55°	1244.6	1218.1	1182.8	1143.0	1125.4	1103.2	1068.0	1041.5	1023.8	1028.3
57.5°	1090.1	1046.0	1010.7	957.8	935.6	922.3	887.0	851.7	834.1	834.1
60°	900.3	865.0	820.9	772.3	754.6	732.7	688.4	666.4	653.1	639.9
62.5°	719.4	692.9	653.1	591.3	578.2	556.0	525.2	498.8	485.5	485.5
65°	538.4	511.9	476.6	432.5	414.9	397.2	370.7	344.3	331.0	326.6
67.5°	379.6	348.6	317.8	282.5	269.2	260.4	233.9	216.3	207.4	202.9
70°	229.4	211.8	189.8	163.3	150.0	141.2	123.5	110.4	105.9	101.6
72.5°	119.2	105.9	88.2	70.6	61.8	52.9	44.1	35.3	31.0	31.0
75°	44.1	35.3	22.1	13.3	8.8	8.8	8.8	8.8	8.8	8.8
77.5°	8.8	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
80°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
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)