

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: **FLDSQ4C70D010 FEU4C709050 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: FLDSQ4C70D010 FEU4C709050 F4LC-CSSQ-MW
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

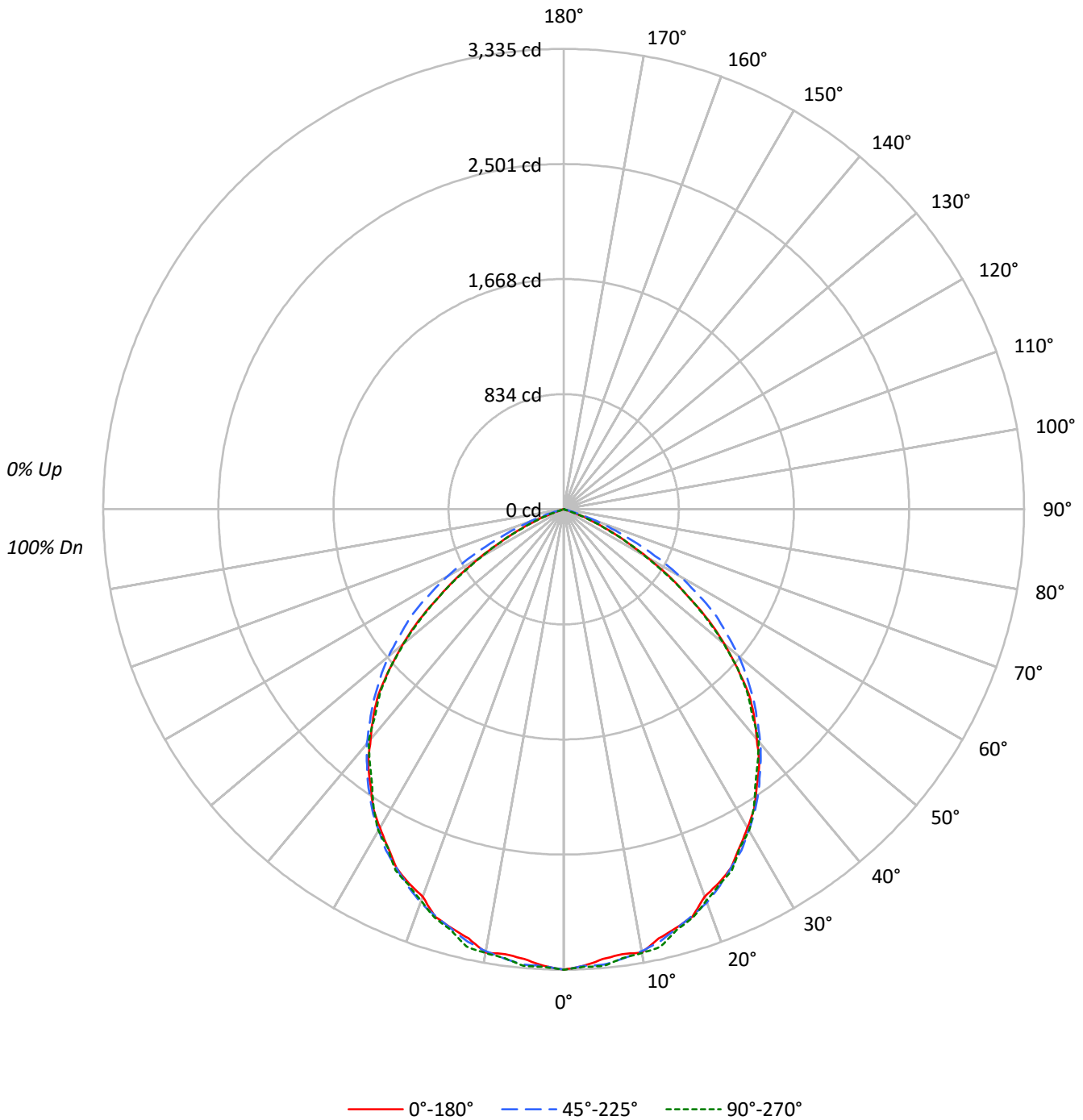
Lumens per Lamp: N/A
 Luminaire Lumens: 7125.0 lumens
 Efficiency: N/A
 Efficacy: 91.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 78
 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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CATALOG NUMBER: FLDSQ4C70D010 FEU4C709050 F4LC-CSSQ-MW

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°	321829	321829	321829
5°	316637	320763	321673
10°	319377	318446	319828
15°	313783	314242	315191
20°	306483	311340	309892
25°	305157	305157	307169
30°	296656	298761	299296
35°	287399	290190	285161
40°	273919	279273	276879
45°	259239	265066	256646
50°	228302	248207	226876
55°	184894	227135	185702
60°	135297	188346	132576
65°	82215	134111	80046
70°	32076	72193	30750
75°	3542	19460	3542
80°	2667	2667	2667
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	314.8	4.4
10°-20°	890.9	12.5
20°-30°	1321.9	18.6
30°-40°	1531.7	21.5
40°-50°	1468.6	20.6
50°-60°	1079.8	15.2
60°-70°	466.4	6.5
70°-80°	50.3	0.7
80°-90°	0.7	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°	2527.6	35.5
0°-40°	4059.3	57.0
0°-60°	6607.6	92.7
0°-90°	7125.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7125.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3335	3335	3335	3335	3335	
5°	3269	3302	3312	3316	3321	312
15°	3141	3160	3146	3151	3155	885
25°	2866	2862	2866	2871	2885	1312
35°	2440	2454	2464	2459	2421	1526
45°	1900	1905	1942	1914	1881	1444
55°	1099	1213	1350	1208	1104	989
65°	360	450	587	445	351	370
75°	10	14	52	10	10	29
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°	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4
2.5°	3311.7	3349.5	3354.4	3330.6	3321.1	3307.0	3340.1	3316.5	3326.0	3316.5	3311.7
5°	3269.1	3311.7	3316.5	3316.5	3307.0	3302.2	3316.5	3311.7	3307.0	3297.5	3311.7
7.5°	3250.2	3273.8	3297.5	3269.1	3283.2	3278.6	3311.7	3297.5	3292.7	3292.7	3283.2
10°	3259.7	3254.8	3273.8	3245.4	3254.8	3245.4	3273.8	3273.8	3264.3	3254.8	3250.2
12.5°	3183.7	3221.6	3221.6	3216.9	3207.5	3193.2	3221.6	3240.7	3212.1	3212.1	3207.5
15°	3141.2	3150.6	3155.3	3155.3	3150.6	3160.1	3174.2	3155.3	3160.1	3136.3	3145.8
17.5°	3093.8	3074.9	3089.0	3079.5	3084.3	3093.8	3112.7	3112.7	3084.3	3079.5	3089.0
20°	2984.8	3041.6	3046.4	3018.0	3022.7	3022.7	3055.9	3027.5	3046.4	3022.7	3032.1
22.5°	2932.6	2970.5	2975.3	2937.4	2961.0	2932.6	2965.8	2923.1	2970.5	2937.4	2951.5
25°	2866.3	2861.6	2875.8	2856.8	2861.6	2861.6	2885.2	2866.3	2880.6	2861.6	2866.3
27.5°	2757.5	2795.3	2790.5	2771.6	2781.0	2776.4	2823.8	2771.6	2800.0	2776.4	2785.9
30°	2662.6	2695.8	2686.3	2667.4	2667.4	2653.1	2705.3	2691.0	2686.3	2686.3	2681.5
32.5°	2567.8	2572.7	2563.2	2567.8	2572.7	2553.7	2596.2	2577.3	2572.7	2577.3	2582.1
35°	2439.9	2439.9	2449.3	2435.2	2454.2	2454.2	2492.1	2468.3	2463.6	2449.3	2463.6
37.5°	2326.2	2312.1	2316.7	2316.7	2326.2	2335.7	2354.6	2345.1	2345.1	2331.0	2340.5
40°	2174.7	2165.2	2179.3	2179.3	2193.6	2193.6	2212.5	2203.1	2217.2	2217.2	2217.2
42.5°	2042.0	2042.0	2032.6	2046.7	2051.5	2046.7	2079.9	2075.1	2079.9	2070.5	2075.1
45°	1899.8	1899.8	1890.3	1885.7	1909.3	1904.6	1942.5	1928.2	1947.1	1937.7	1942.5
47.5°	1705.5	1729.3	1715.0	1729.3	1757.7	1762.5	1786.1	1776.6	1795.6	1781.5	1800.4
50°	1520.9	1520.9	1535.0	1554.0	1582.4	1587.2	1615.6	1634.6	1644.0	1648.7	1653.5
52.5°	1326.6	1321.8	1336.1	1359.7	1383.5	1402.4	1430.8	1459.2	1478.2	1506.6	1492.3
55°	1099.1	1108.6	1122.9	1151.3	1189.2	1212.8	1236.6	1274.4	1307.7	1321.8	1350.2
57.5°	904.9	895.4	904.9	942.7	985.5	1004.4	1037.6	1075.5	1122.9	1151.3	1160.8
60°	701.1	705.9	715.4	748.7	781.7	810.1	824.4	885.9	928.6	957.0	976.0
62.5°	516.5	526.0	535.4	563.9	596.9	620.7	644.3	696.5	734.4	762.8	781.7
65°	360.1	364.8	379.1	393.2	426.4	450.0	469.0	511.7	549.6	573.3	587.4
67.5°	222.7	227.3	236.8	255.9	279.5	298.5	317.4	345.8	379.1	402.7	407.5
70°	113.7	118.5	123.1	137.4	156.4	165.9	180.0	203.7	227.3	246.3	255.9
72.5°	37.9	37.9	42.7	52.2	61.7	71.1	75.8	99.5	118.5	128.0	132.6
75°	9.5	9.5	9.5	9.5	9.5	14.3	14.3	28.4	37.9	47.4	52.2
77.5°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	9.5	9.5
80°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
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°	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4	3335.4
2.5°	3335.4	3326.0	3321.1	3326.0	3326.0	3321.1	3335.4	3354.4	3378.0	3316.5
5°	3330.6	3321.1	3330.6	3302.2	3316.5	3307.0	3326.0	3321.1	3340.1	3321.1
7.5°	3316.5	3297.5	3302.2	3288.1	3307.0	3283.2	3297.5	3326.0	3307.0	3278.6
10°	3269.1	3259.7	3292.7	3245.4	3235.9	3254.8	3292.7	3264.3	3254.8	3264.3
12.5°	3221.6	3221.6	3235.9	3198.0	3202.6	3212.1	3231.1	3212.1	3221.6	3245.4
15°	3169.6	3160.1	3183.7	3155.3	3150.6	3141.2	3160.1	3160.1	3169.6	3155.3
17.5°	3107.9	3093.8	3093.8	3084.3	3079.5	3103.3	3112.7	3117.4	3122.2	3103.3
20°	3032.1	3027.5	3041.6	3027.5	3032.1	3037.0	3037.0	3027.5	3070.0	3018.0
22.5°	2951.5	2965.8	2946.9	2937.4	2946.9	2956.4	2956.4	2961.0	2951.5	2942.1
25°	2871.1	2880.6	2885.2	2856.8	2871.1	2856.8	2890.1	2894.7	2875.8	2885.2
27.5°	2800.0	2785.9	2781.0	2762.1	2771.6	2766.9	2771.6	2771.6	2800.0	2762.1
30°	2691.0	2676.9	2681.5	2667.4	2672.0	2667.4	2672.0	2672.0	2691.0	2686.3
32.5°	2586.8	2572.7	2577.3	2563.2	2563.2	2567.8	2558.4	2558.4	2572.7	2563.2
35°	2487.2	2454.2	2458.8	2454.2	2458.8	2439.9	2439.9	2435.2	2444.7	2420.9
37.5°	2345.1	2331.0	2326.2	2321.6	2326.2	2316.7	2326.2	2312.1	2326.2	2307.3
40°	2217.2	2207.7	2212.5	2184.1	2184.1	2188.8	2179.3	2174.7	2179.3	2198.2
42.5°	2089.4	2070.5	2061.0	2051.5	2056.2	2042.0	2037.2	2027.7	2037.2	2018.3
45°	1937.7	1937.7	1933.0	1909.3	1914.1	1914.1	1895.1	1876.2	1880.8	1880.8
47.5°	1800.4	1790.9	1786.1	1762.5	1757.7	1753.1	1733.9	1719.8	1719.8	1705.5
50°	1648.7	1639.2	1625.1	1601.3	1591.8	1563.4	1549.3	1530.4	1511.4	1511.4
52.5°	1506.6	1473.4	1454.4	1416.5	1402.4	1388.1	1350.2	1336.1	1321.8	1307.7
55°	1336.1	1307.7	1269.8	1227.1	1208.1	1184.4	1146.5	1118.1	1099.1	1103.9
57.5°	1170.3	1122.9	1085.0	1028.2	1004.4	990.1	952.2	914.3	895.4	895.4
60°	966.5	928.6	881.3	829.1	810.1	786.5	739.0	715.4	701.1	687.0
62.5°	772.2	743.8	701.1	634.8	620.7	596.9	563.9	535.4	521.1	521.1
65°	578.0	549.6	511.7	464.3	445.4	426.4	398.0	369.6	355.3	350.6
67.5°	407.5	374.2	341.2	303.3	289.0	279.5	251.1	232.2	222.7	217.9
70°	246.3	227.3	203.7	175.3	161.0	151.6	132.6	118.5	113.7	109.0
72.5°	128.0	113.7	94.7	75.8	66.3	56.8	47.4	37.9	33.2	33.2
75°	47.4	37.9	23.8	14.3	9.5	9.5	9.5	9.5	9.5	9.5
77.5°	9.5	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
80°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
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)