

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-DFSSQ-MW**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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

Summary

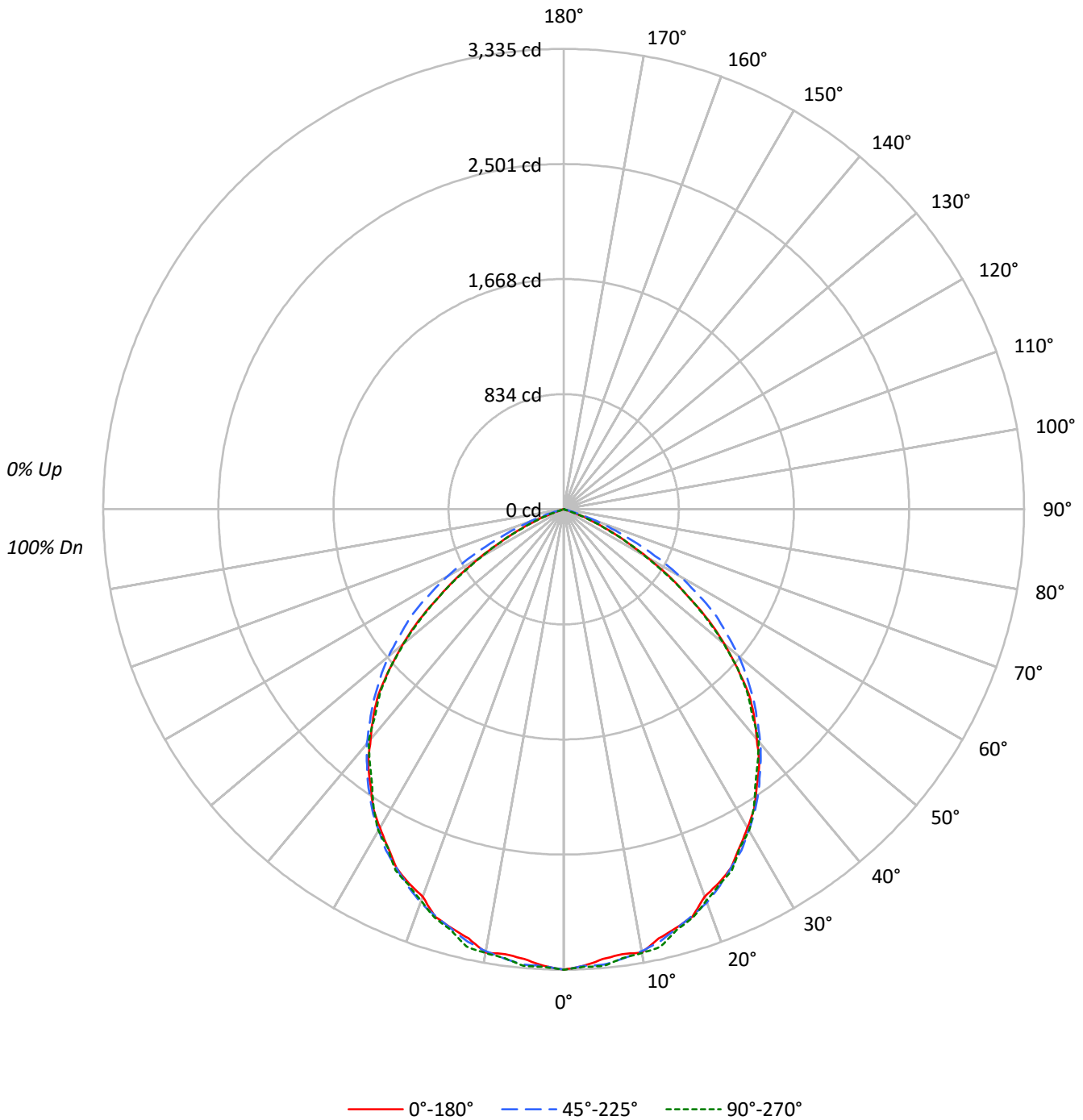
Lumens per Lamp: N/A
 Luminaire Lumens: 7125.0 lumens
 Efficiency: N/A
 Efficacy: 91.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C70D010 FEU4C709050 F4LC-DFSSQ-MW

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C70D010 FEU4C709050 F4LC-DFSSQ-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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C70D010 FEU4C709050 F4LC-DFSSQ-MW

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	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C70D010 FEU4C709050 F4LC-DFSSQ-MW

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



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C70D010 FEU4C709050 F4LC-DFSSQ-MW

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)