

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: **FLDSQ4C55D010 FEU4C559027 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: FLDSQ4C55D010 FEU4C559027 F4LC-DFSSQ-MW  
 Description: 4 INCH 5500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

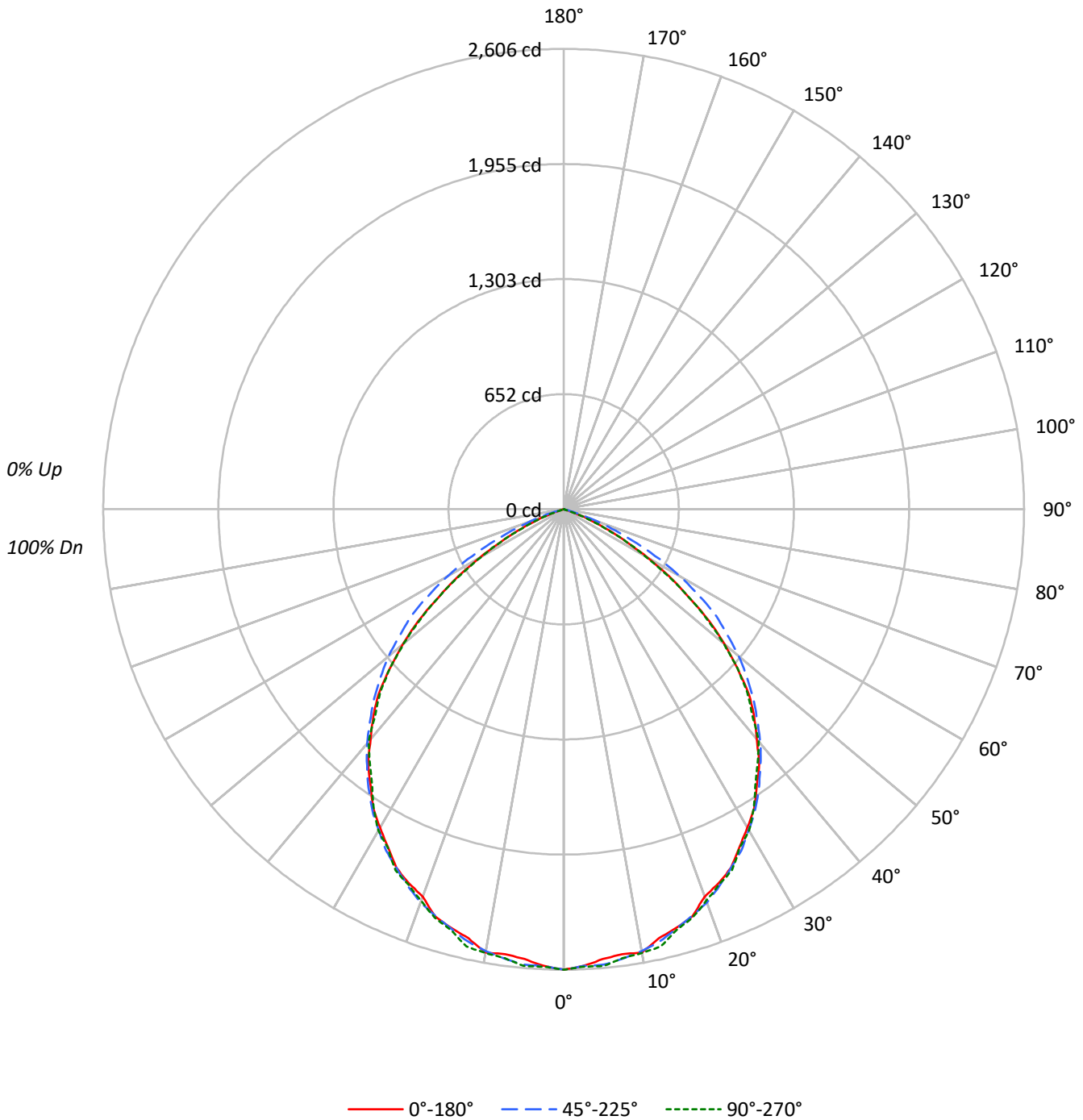
Lumens per Lamp: N/A  
 Luminaire Lumens: 5567.0 lumens  
 Efficiency: N/A  
 Efficacy: 87.1 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 63.9  
 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: FLDSQ4C55D010 FEU4C559027 F4LC-DFSSQ-MW

### Luminous Intensity Polar Plot



TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C55D010 FEU4C559027 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	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°	251460	251460	251460
5°	247403	250619	251335
10°	249539	248814	249891
15°	245167	245526	246265
20°	239463	243262	242133
25°	238425	238425	240001
30°	231778	233427	233851
35°	224545	226736	222802
40°	214014	218208	216344
45°	202555	207099	200536
50°	178376	193927	177265
55°	144470	177476	145109
60°	105713	147165	103590
65°	64247	104795	62558
70°	25052	56423	24036
75°	2759	15210	2759
80°	2111	2111	2111
85°	0	0	0

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C55D010 FEU4C559027 F4LC-DFSSQ-MW

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	246.0	4.4
10°-20°	696.1	12.5
20°-30°	1032.8	18.6
30°-40°	1196.8	21.5
40°-50°	1147.4	20.6
50°-60°	843.7	15.2
60°-70°	364.4	6.5
70°-80°	39.4	0.7
80°-90°	0.5	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°	1974.9	35.5
0°-40°	3171.7	57.0
0°-60°	5162.8	92.7
0°-90°	5567.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5567.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2606	2606	2606	2606	2606	
5°	2554	2580	2588	2591	2595	244
15°	2454	2469	2458	2462	2465	692
25°	2240	2236	2240	2243	2254	1025
35°	1906	1918	1925	1921	1892	1192
45°	1484	1488	1518	1496	1470	1128
55°	859	948	1055	944	863	773
65°	281	352	459	348	274	289
75°	7	11	41	7	7	23
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C55D010 FEU4C559027 F4LC-DFSSQ-MW

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1
2.5°	2587.5	2617.1	2620.9	2602.3	2594.9	2583.9	2609.7	2591.3	2598.7	2591.3	2587.5
5°	2554.3	2587.5	2591.3	2591.3	2583.9	2580.1	2591.3	2587.5	2583.9	2576.5	2587.5
7.5°	2539.5	2557.9	2576.5	2554.3	2565.3	2561.7	2587.5	2576.5	2572.7	2572.7	2565.3
10°	2546.9	2543.1	2557.9	2535.7	2543.1	2535.7	2557.9	2557.9	2550.5	2543.1	2539.5
12.5°	2487.5	2517.1	2517.1	2513.5	2506.1	2494.9	2517.1	2532.1	2509.7	2509.7	2506.1
15°	2454.3	2461.7	2465.3	2465.3	2461.7	2469.1	2480.1	2465.3	2469.1	2450.5	2457.9
17.5°	2417.3	2402.5	2413.5	2406.1	2409.9	2417.3	2432.1	2432.1	2409.9	2406.1	2413.5
20°	2332.1	2376.5	2380.3	2358.1	2361.7	2361.7	2387.7	2365.5	2380.3	2361.7	2369.1
22.5°	2291.3	2320.9	2324.7	2295.1	2313.5	2291.3	2317.3	2283.9	2320.9	2295.1	2306.1
25°	2239.5	2235.9	2246.9	2232.1	2235.9	2235.9	2254.3	2239.5	2250.7	2235.9	2239.5
27.5°	2154.5	2184.1	2180.3	2165.5	2172.9	2169.3	2206.3	2165.5	2187.7	2169.3	2176.7
30°	2080.3	2106.3	2098.9	2084.1	2084.1	2072.9	2113.7	2102.5	2098.9	2098.9	2095.1
32.5°	2006.3	2010.1	2002.7	2006.3	2010.1	1995.3	2028.5	2013.7	2010.1	2013.7	2017.5
35°	1906.3	1906.3	1913.8	1902.7	1917.5	1917.5	1947.1	1928.6	1924.9	1913.8	1924.9
37.5°	1817.5	1806.5	1810.1	1810.1	1817.5	1824.9	1839.7	1832.3	1832.3	1821.3	1828.7
40°	1699.1	1691.7	1702.8	1702.8	1713.9	1713.9	1728.7	1721.3	1732.4	1732.4	1732.4
42.5°	1595.5	1595.5	1588.1	1599.1	1602.9	1599.1	1625.1	1621.3	1625.1	1617.7	1621.3
45°	1484.4	1484.4	1477.0	1473.3	1491.8	1488.1	1517.7	1506.6	1521.4	1514.0	1517.7
47.5°	1332.6	1351.1	1340.0	1351.1	1373.3	1377.1	1395.6	1388.2	1403.0	1391.9	1406.7
50°	1188.3	1188.3	1199.4	1214.2	1236.4	1240.1	1262.3	1277.1	1284.5	1288.2	1291.9
52.5°	1036.5	1032.8	1043.9	1062.4	1080.9	1095.7	1118.0	1140.2	1155.0	1177.2	1166.0
55°	858.8	866.2	877.4	899.6	929.2	947.6	966.2	995.8	1021.7	1032.8	1055.0
57.5°	707.0	699.6	707.0	736.6	770.0	784.8	810.7	840.3	877.4	899.6	907.0
60°	547.8	551.6	559.0	585.0	610.8	633.0	644.2	692.2	725.6	747.8	762.6
62.5°	403.6	411.0	418.4	440.6	466.4	485.0	503.4	544.2	573.8	596.0	610.8
65°	281.4	285.0	296.2	307.2	333.2	351.6	366.4	399.8	429.4	448.0	459.0
67.5°	174.0	177.6	185.0	200.0	218.4	233.2	248.0	270.2	296.2	314.6	318.4
70°	88.8	92.6	96.2	107.4	122.2	129.6	140.6	159.2	177.6	192.4	200.0
72.5°	29.6	29.6	33.4	40.8	48.2	55.6	59.2	77.8	92.6	100.0	103.6
75°	7.4	7.4	7.4	7.4	7.4	11.2	11.2	22.2	29.6	37.0	40.8
77.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	7.4	7.4
80°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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: FLDSQ4C55D010 FEU4C559027 F4LC-DFSSQ-MW

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1
2.5°	2606.1	2598.7	2594.9	2598.7	2598.7	2594.9	2606.1	2620.9	2639.3	2591.3
5°	2602.3	2594.9	2602.3	2580.1	2591.3	2583.9	2598.7	2594.9	2609.7	2594.9
7.5°	2591.3	2576.5	2580.1	2569.1	2583.9	2565.3	2576.5	2598.7	2583.9	2561.7
10°	2554.3	2546.9	2572.7	2535.7	2528.3	2543.1	2572.7	2550.5	2543.1	2550.5
12.5°	2517.1	2517.1	2528.3	2498.7	2502.3	2509.7	2524.5	2509.7	2517.1	2535.7
15°	2476.5	2469.1	2487.5	2465.3	2461.7	2454.3	2469.1	2469.1	2476.5	2465.3
17.5°	2428.3	2417.3	2417.3	2409.9	2406.1	2424.7	2432.1	2435.7	2439.5	2424.7
20°	2369.1	2365.5	2376.5	2365.5	2369.1	2372.9	2372.9	2365.5	2398.7	2358.1
22.5°	2306.1	2317.3	2302.5	2295.1	2302.5	2309.9	2309.9	2313.5	2306.1	2298.7
25°	2243.3	2250.7	2254.3	2232.1	2243.3	2232.1	2258.1	2261.7	2246.9	2254.3
27.5°	2187.7	2176.7	2172.9	2158.1	2165.5	2161.9	2165.5	2165.5	2187.7	2158.1
30°	2102.5	2091.5	2095.1	2084.1	2087.7	2084.1	2087.7	2087.7	2102.5	2098.9
32.5°	2021.1	2010.1	2013.7	2002.7	2002.7	2006.3	1998.9	1998.9	2010.1	2002.7
35°	1943.4	1917.5	1921.2	1917.5	1921.2	1906.3	1906.3	1902.7	1910.1	1891.5
37.5°	1832.3	1821.3	1817.5	1813.9	1817.5	1810.1	1817.5	1806.5	1817.5	1802.7
40°	1732.4	1725.0	1728.7	1706.5	1706.5	1710.2	1702.8	1699.1	1702.8	1717.6
42.5°	1632.5	1617.7	1610.3	1602.9	1606.5	1595.5	1591.7	1584.3	1591.7	1576.9
45°	1514.0	1514.0	1510.3	1491.8	1495.5	1495.5	1480.7	1465.9	1469.6	1469.6
47.5°	1406.7	1399.3	1395.6	1377.1	1373.3	1369.7	1354.8	1343.7	1343.7	1332.6
50°	1288.2	1280.8	1269.7	1251.2	1243.8	1221.6	1210.5	1195.7	1180.9	1180.9
52.5°	1177.2	1151.2	1136.4	1106.8	1095.7	1084.6	1055.0	1043.9	1032.8	1021.7
55°	1043.9	1021.7	992.1	958.8	944.0	925.4	895.8	873.6	858.8	862.6
57.5°	914.4	877.4	847.8	803.3	784.8	773.6	744.0	714.4	699.6	699.6
60°	755.2	725.6	688.6	647.8	633.0	614.6	577.4	559.0	547.8	536.8
62.5°	603.4	581.2	547.8	496.0	485.0	466.4	440.6	418.4	407.2	407.2
65°	451.6	429.4	399.8	362.8	348.0	333.2	311.0	288.8	277.6	274.0
67.5°	318.4	292.4	266.6	237.0	225.8	218.4	196.2	181.4	174.0	170.2
70°	192.4	177.6	159.2	137.0	125.8	118.4	103.6	92.6	88.8	85.2
72.5°	100.0	88.8	74.0	59.2	51.8	44.4	37.0	29.6	26.0	26.0
75°	37.0	29.6	18.6	11.2	7.4	7.4	7.4	7.4	7.4	7.4
77.5°	7.4	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
80°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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)