

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: **FLDSQ4C25D010 FEU4C259040 F4LC-CSSQ-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: FLDSQ4C25D010 FEU4C259040 F4LC-CSSQ-MW  
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

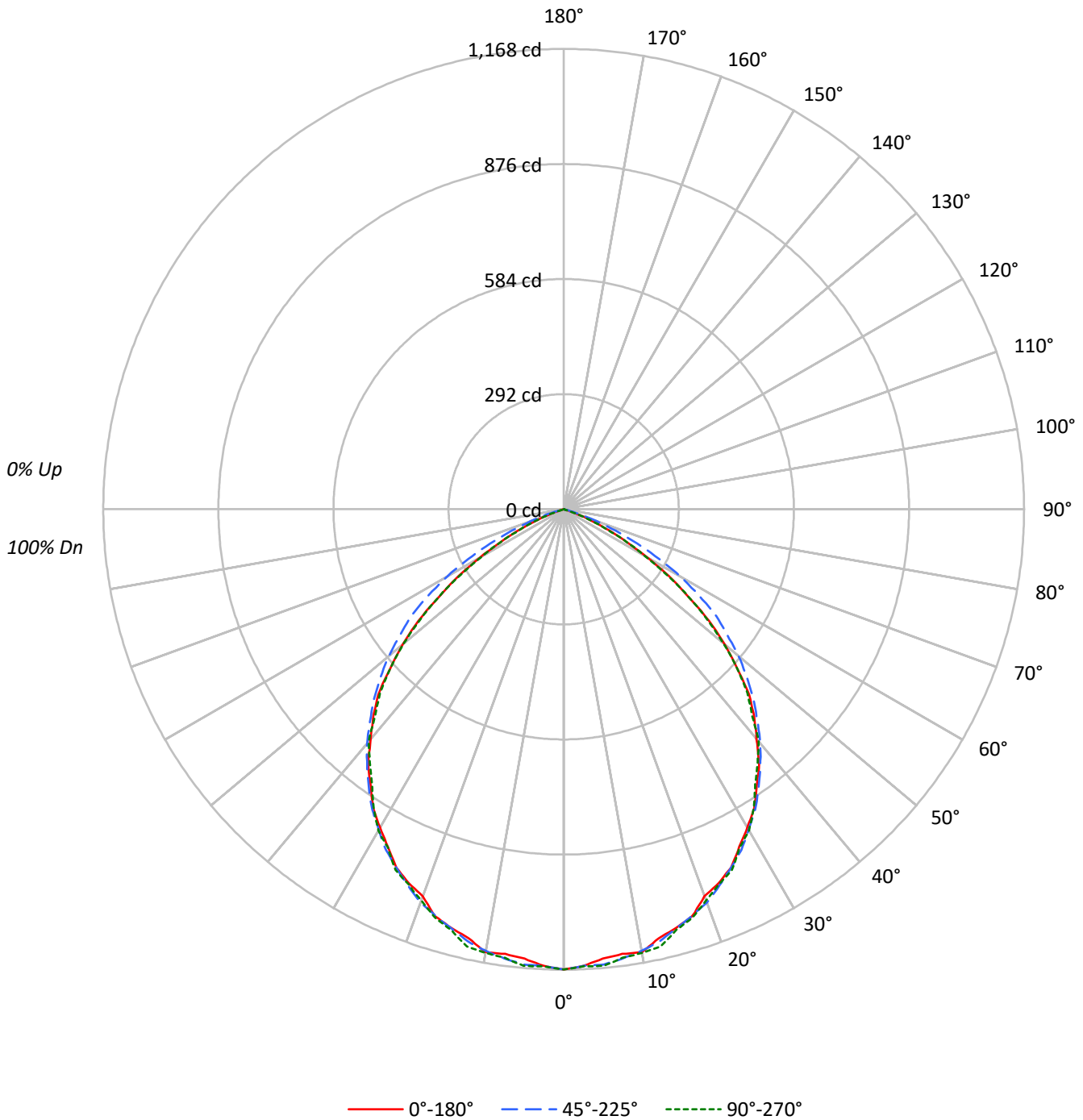
Lumens per Lamp: N/A  
 Luminaire Lumens: 2494.0 lumens  
 Efficiency: N/A  
 Efficacy: 79.2 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 31.5  
 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: FLDSQ4C25D010 FEU4C259040 F4LC-CSSQ-MW

### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C25D010 FEU4C259040 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°	112651	112651	112651
5°	110834	112277	112597
10°	111792	111469	111949
15°	109832	109992	110331
20°	107281	108986	108473
25°	106815	106815	107518
30°	103840	104575	104764
35°	100594	101583	99816
40°	95879	97755	96924
45°	90743	92776	89843
50°	79919	86884	79423
55°	64715	79502	65001
60°	47357	65921	46411
65°	28790	46941	28014
70°	11228	25277	10777
75°	1230	6822	1230
80°	945	945	945
85°	0	0	0

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259040 F4LC-CSSQ-MW

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	110.2	4.4
10°-20°	311.8	12.5
20°-30°	462.7	18.6
30°-40°	536.1	21.5
40°-50°	514.0	20.6
50°-60°	378.0	15.2
60°-70°	163.2	6.5
70°-80°	17.6	0.7
80°-90°	0.2	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°	884.8	35.5
0°-40°	1420.9	57.0
0°-60°	2312.9	92.7
0°-90°	2494.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2494.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1168	1168	1168	1168	1168	
5°	1144	1156	1159	1161	1162	109
15°	1100	1106	1101	1103	1104	310
25°	1003	1002	1003	1005	1010	459
35°	854	859	862	861	847	534
45°	665	667	680	670	658	506
55°	385	424	473	423	386	346
65°	126	158	206	156	123	130
75°	3	5	18	3	3	10
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259040 F4LC-CSSQ-MW

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5
2.5°	1159.2	1172.5	1174.1	1165.8	1162.5	1157.6	1169.1	1160.9	1164.2	1160.9	1159.2
5°	1144.3	1159.2	1160.9	1160.9	1157.6	1155.9	1160.9	1159.2	1157.6	1154.3	1159.2
7.5°	1137.7	1145.9	1154.3	1144.3	1149.3	1147.6	1159.2	1154.3	1152.6	1152.6	1149.3
10°	1141.0	1139.3	1145.9	1136.0	1139.3	1136.0	1145.9	1145.9	1142.6	1139.3	1137.7
12.5°	1114.4	1127.7	1127.7	1126.0	1122.7	1117.7	1127.7	1134.4	1124.4	1124.4	1122.7
15°	1099.5	1102.8	1104.5	1104.5	1102.8	1106.1	1111.1	1104.5	1106.1	1097.8	1101.1
17.5°	1082.9	1076.3	1081.2	1077.9	1079.6	1082.9	1089.6	1089.6	1079.6	1077.9	1081.2
20°	1044.8	1064.7	1066.4	1056.4	1058.0	1058.0	1069.7	1059.7	1066.4	1058.0	1061.4
22.5°	1026.5	1039.8	1041.5	1028.2	1036.5	1026.5	1038.1	1023.2	1039.8	1028.2	1033.1
25°	1003.3	1001.7	1006.6	1000.0	1001.7	1001.7	1009.9	1003.3	1008.3	1001.7	1003.3
27.5°	965.2	978.5	976.8	970.1	973.5	971.8	988.4	970.1	980.1	971.8	975.2
30°	932.0	943.6	940.3	933.7	933.7	928.7	946.9	941.9	940.3	940.3	938.6
32.5°	898.8	900.5	897.2	898.8	900.5	893.9	908.8	902.1	900.5	902.1	903.8
35°	854.0	854.0	857.4	852.4	859.0	859.0	872.3	864.0	862.4	857.4	862.4
37.5°	814.3	809.3	810.9	810.9	814.3	817.6	824.2	820.9	820.9	815.9	819.3
40°	761.2	757.9	762.8	762.8	767.8	767.8	774.5	771.2	776.1	776.1	776.1
42.5°	714.8	714.8	711.5	716.4	718.1	716.4	728.0	726.4	728.0	724.7	726.4
45°	665.0	665.0	661.7	660.0	668.3	666.7	679.9	674.9	681.6	678.3	679.9
47.5°	597.0	605.3	600.3	605.3	615.3	616.9	625.2	621.9	628.5	623.6	630.2
50°	532.4	532.4	537.3	543.9	553.9	555.6	565.5	572.2	575.5	577.1	578.8
52.5°	464.4	462.7	467.7	475.9	484.3	490.9	500.8	510.8	517.4	527.4	522.4
55°	384.7	388.0	393.1	403.0	416.3	424.5	432.8	446.1	457.7	462.7	472.6
57.5°	316.7	313.4	316.7	330.0	344.9	351.6	363.2	376.5	393.1	403.0	406.3
60°	245.4	247.1	250.4	262.1	273.6	283.6	288.6	310.1	325.1	335.0	341.6
62.5°	180.8	184.1	187.4	197.4	208.9	217.3	225.5	243.8	257.1	267.0	273.6
65°	126.1	127.7	132.7	137.6	149.3	157.5	164.2	179.1	192.4	200.7	205.6
67.5°	77.9	79.6	82.9	89.6	97.8	104.5	111.1	121.0	132.7	140.9	142.6
70°	39.8	41.5	43.1	48.1	54.7	58.1	63.0	71.3	79.6	86.2	89.6
72.5°	13.3	13.3	15.0	18.3	21.6	24.9	26.5	34.8	41.5	44.8	46.4
75°	3.3	3.3	3.3	3.3	3.3	5.0	5.0	9.9	13.3	16.6	18.3
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	3.3	3.3
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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: FLDSQ4C25D010 FEU4C259040 F4LC-CSSQ-MW

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5	1167.5
2.5°	1167.5	1164.2	1162.5	1164.2	1164.2	1162.5	1167.5	1174.1	1182.4	1160.9
5°	1165.8	1162.5	1165.8	1155.9	1160.9	1157.6	1164.2	1162.5	1169.1	1162.5
7.5°	1160.9	1154.3	1155.9	1150.9	1157.6	1149.3	1154.3	1164.2	1157.6	1147.6
10°	1144.3	1141.0	1152.6	1136.0	1132.7	1139.3	1152.6	1142.6	1139.3	1142.6
12.5°	1127.7	1127.7	1132.7	1119.4	1121.0	1124.4	1131.0	1124.4	1127.7	1136.0
15°	1109.5	1106.1	1114.4	1104.5	1102.8	1099.5	1106.1	1106.1	1109.5	1104.5
17.5°	1087.9	1082.9	1082.9	1079.6	1077.9	1086.3	1089.6	1091.2	1092.9	1086.3
20°	1061.4	1059.7	1064.7	1059.7	1061.4	1063.0	1063.0	1059.7	1074.6	1056.4
22.5°	1033.1	1038.1	1031.5	1028.2	1031.5	1034.8	1034.8	1036.5	1033.1	1029.8
25°	1005.0	1008.3	1009.9	1000.0	1005.0	1000.0	1011.6	1013.2	1006.6	1009.9
27.5°	980.1	975.2	973.5	966.8	970.1	968.5	970.1	970.1	980.1	966.8
30°	941.9	937.0	938.6	933.7	935.3	933.7	935.3	935.3	941.9	940.3
32.5°	905.5	900.5	902.1	897.2	897.2	898.8	895.5	895.5	900.5	897.2
35°	870.6	859.0	860.7	859.0	860.7	854.0	854.0	852.4	855.7	847.4
37.5°	820.9	815.9	814.3	812.6	814.3	810.9	814.3	809.3	814.3	807.6
40°	776.1	772.8	774.5	764.5	764.5	766.1	762.8	761.2	762.8	769.5
42.5°	731.4	724.7	721.4	718.1	719.7	714.8	713.1	709.8	713.1	706.5
45°	678.3	678.3	676.6	668.3	670.0	670.0	663.4	656.7	658.4	658.4
47.5°	630.2	626.9	625.2	616.9	615.3	613.6	606.9	602.0	602.0	597.0
50°	577.1	573.8	568.8	560.5	557.2	547.3	542.3	535.7	529.1	529.1
52.5°	527.4	515.7	509.1	495.8	490.9	485.9	472.6	467.7	462.7	457.7
55°	467.7	457.7	444.5	429.5	422.9	414.6	401.3	391.4	384.7	386.4
57.5°	409.6	393.1	379.8	359.9	351.6	346.6	333.3	320.0	313.4	313.4
60°	338.3	325.1	308.5	290.2	283.6	275.3	258.7	250.4	245.4	240.5
62.5°	270.3	260.4	245.4	222.2	217.3	208.9	197.4	187.4	182.4	182.4
65°	202.3	192.4	179.1	162.5	155.9	149.3	139.3	129.4	124.4	122.7
67.5°	142.6	131.0	119.4	106.2	101.2	97.8	87.9	81.3	77.9	76.3
70°	86.2	79.6	71.3	61.4	56.4	53.0	46.4	41.5	39.8	38.2
72.5°	44.8	39.8	33.2	26.5	23.2	19.9	16.6	13.3	11.6	11.6
75°	16.6	13.3	8.3	5.0	3.3	3.3	3.3	3.3	3.3	3.3
77.5°	3.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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)