

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 FEU4C259050 F4LC-DFSSQ-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: FLDSQ4C25D010 FEU4C259050 F4LC-DFSSQ-MW  
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

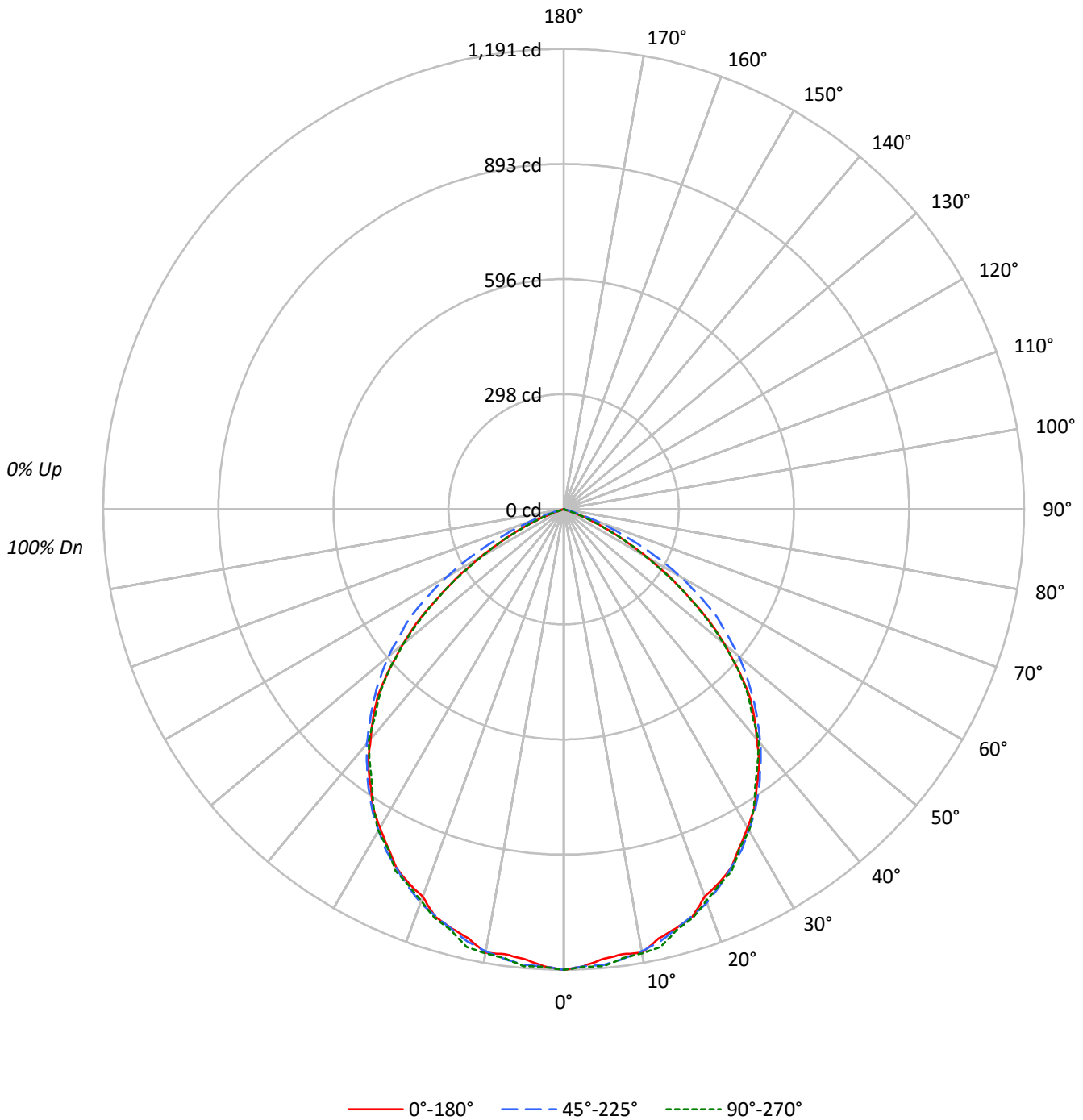
Lumens per Lamp: N/A  
 Luminaire Lumens: 2545.0 lumens  
 Efficiency: N/A  
 Efficacy: 80.8 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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

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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	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°	114957	114957	114957
5°	113100	114573	114902
10°	114075	113742	114242
15°	112080	112249	112579
20°	109469	111214	110690
25°	108998	108998	109722
30°	105956	106714	106903
35°	102655	103656	101854
40°	97844	99758	98902
45°	92599	94673	91671
50°	81555	88655	81044
55°	66044	81134	66330
60°	48322	67272	47357
65°	29361	47900	28585
70°	11454	25785	10974
75°	1268	6934	1268
80°	945	945	945
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	112.5	4.4
10°-20°	318.2	12.5
20°-30°	472.2	18.6
30°-40°	547.1	21.5
40°-50°	524.6	20.6
50°-60°	385.7	15.2
60°-70°	166.6	6.5
70°-80°	18.0	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°	902.9	35.5
0°-40°	1450.0	57.0
0°-60°	2360.2	92.7
0°-90°	2545.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2545.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1191	1191	1191	1191	1191	
5°	1168	1180	1183	1185	1186	111
15°	1122	1129	1124	1125	1127	316
25°	1024	1022	1024	1026	1031	469
35°	872	877	880	878	865	545
45°	679	680	694	684	672	516
55°	393	433	482	432	394	353
65°	129	161	210	159	125	132
75°	3	5	19	3	3	10
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#  
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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4
2.5°	1182.9	1196.4	1198.2	1189.7	1186.3	1181.2	1193.1	1184.6	1188.0	1184.6	1182.9
5°	1167.7	1182.9	1184.6	1184.6	1181.2	1179.5	1184.6	1182.9	1181.2	1177.9	1182.9
7.5°	1160.9	1169.4	1177.9	1167.7	1172.8	1171.1	1182.9	1177.9	1176.1	1176.1	1172.8
10°	1164.3	1162.6	1169.4	1159.2	1162.6	1159.2	1169.4	1169.4	1166.0	1162.6	1160.9
12.5°	1137.2	1150.7	1150.7	1149.1	1145.7	1140.6	1150.7	1157.6	1147.3	1147.3	1145.7
15°	1122.0	1125.4	1127.0	1127.0	1125.4	1128.8	1133.8	1127.0	1128.8	1120.3	1123.7
17.5°	1105.1	1098.3	1103.4	1100.0	1101.7	1105.1	1111.9	1111.9	1101.7	1100.0	1103.4
20°	1066.1	1086.4	1088.2	1078.0	1079.7	1079.7	1091.6	1081.4	1088.2	1079.7	1083.1
22.5°	1047.5	1061.0	1062.8	1049.2	1057.7	1047.5	1059.4	1044.1	1061.0	1049.2	1054.3
25°	1023.8	1022.2	1027.2	1020.4	1022.2	1022.2	1030.6	1023.8	1028.9	1022.2	1023.8
27.5°	984.9	998.5	996.8	990.0	993.4	991.7	1008.6	990.0	1000.1	991.7	995.1
30°	951.0	962.9	959.5	952.8	952.8	947.7	966.3	961.2	959.5	959.5	957.8
32.5°	917.2	918.9	915.6	917.2	918.9	912.2	927.4	920.6	918.9	920.6	922.3
35°	871.5	871.5	874.9	869.8	876.6	876.6	890.1	881.7	880.0	874.9	880.0
37.5°	830.9	825.9	827.5	827.5	830.9	834.3	841.1	837.7	837.7	832.6	836.0
40°	776.8	773.4	778.4	778.4	783.5	783.5	790.3	786.9	792.0	792.0	792.0
42.5°	729.4	729.4	726.0	731.1	732.8	731.1	742.9	741.2	742.9	739.6	741.2
45°	678.6	678.6	675.2	673.5	682.0	680.3	693.8	688.7	695.5	692.1	693.8
47.5°	609.2	617.7	612.6	617.7	627.8	629.6	638.0	634.6	641.4	636.3	643.1
50°	543.3	543.3	548.3	555.1	565.2	566.9	577.1	583.9	587.2	588.9	590.6
52.5°	473.9	472.1	477.2	485.7	494.2	500.9	511.1	521.2	528.0	538.1	533.0
55°	392.6	396.0	401.1	411.2	424.8	433.2	441.7	455.2	467.1	472.1	482.3
57.5°	323.2	319.8	323.2	336.7	352.0	358.8	370.6	384.2	401.1	411.2	414.6
60°	250.4	252.2	255.5	267.4	279.2	289.4	294.5	316.4	331.7	341.8	348.6
62.5°	184.5	187.9	191.3	201.4	213.2	221.7	230.1	248.8	262.3	272.5	279.2
65°	128.6	130.3	135.4	140.4	152.3	160.7	167.5	182.8	196.3	204.8	209.8
67.5°	79.5	81.2	84.6	91.4	99.8	106.6	113.4	123.5	135.4	143.8	145.5
70°	40.6	42.3	44.0	49.1	55.9	59.2	64.3	72.8	81.2	88.0	91.4
72.5°	13.5	13.5	15.3	18.6	22.0	25.4	27.1	35.6	42.3	45.7	47.4
75°	3.4	3.4	3.4	3.4	3.4	5.1	5.1	10.1	13.5	16.9	18.6
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	3.4	3.4
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



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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4	1191.4
2.5°	1191.4	1188.0	1186.3	1188.0	1188.0	1186.3	1191.4	1198.2	1206.6	1184.6
5°	1189.7	1186.3	1189.7	1179.5	1184.6	1181.2	1188.0	1186.3	1193.1	1186.3
7.5°	1184.6	1177.9	1179.5	1174.5	1181.2	1172.8	1177.9	1188.0	1181.2	1171.1
10°	1167.7	1164.3	1176.1	1159.2	1155.8	1162.6	1176.1	1166.0	1162.6	1166.0
12.5°	1150.7	1150.7	1155.8	1142.3	1144.0	1147.3	1154.1	1147.3	1150.7	1159.2
15°	1132.2	1128.8	1137.2	1127.0	1125.4	1122.0	1128.8	1128.8	1132.2	1127.0
17.5°	1110.1	1105.1	1105.1	1101.7	1100.0	1108.5	1111.9	1113.5	1115.2	1108.5
20°	1083.1	1081.4	1086.4	1081.4	1083.1	1084.8	1084.8	1081.4	1096.6	1078.0
22.5°	1054.3	1059.4	1052.6	1049.2	1052.6	1056.0	1056.0	1057.7	1054.3	1050.9
25°	1025.5	1028.9	1030.6	1020.4	1025.5	1020.4	1032.3	1034.0	1027.2	1030.6
27.5°	1000.1	995.1	993.4	986.6	990.0	988.3	990.0	990.0	1000.1	986.6
30°	961.2	956.2	957.8	952.8	954.4	952.8	954.4	954.4	961.2	959.5
32.5°	924.0	918.9	920.6	915.6	915.6	917.2	913.8	913.8	918.9	915.6
35°	888.4	876.6	878.3	876.6	878.3	871.5	871.5	869.8	873.2	864.7
37.5°	837.7	832.6	830.9	829.2	830.9	827.5	830.9	825.9	830.9	824.1
40°	792.0	788.6	790.3	780.2	780.2	781.8	778.4	776.8	778.4	785.2
42.5°	746.3	739.6	736.2	732.8	734.4	729.4	727.7	724.3	727.7	720.9
45°	692.1	692.1	690.5	682.0	683.7	683.7	676.9	670.2	671.8	671.8
47.5°	643.1	639.7	638.0	629.6	627.8	626.2	619.3	614.3	614.3	609.2
50°	588.9	585.5	580.5	572.0	568.6	558.4	553.4	546.6	539.9	539.9
52.5°	538.1	526.3	519.5	506.0	500.9	495.8	482.3	477.2	472.1	467.1
55°	477.2	467.1	453.6	438.3	431.5	423.0	409.5	399.4	392.6	394.3
57.5°	418.0	401.1	387.6	367.3	358.8	353.7	340.1	326.6	319.8	319.8
60°	345.2	331.7	314.8	296.1	289.4	280.9	264.0	255.5	250.4	245.4
62.5°	275.8	265.7	250.4	226.7	221.7	213.2	201.4	191.3	186.1	186.1
65°	206.4	196.3	182.8	165.8	159.1	152.3	142.2	132.0	126.9	125.2
67.5°	145.5	133.7	121.9	108.3	103.2	99.8	89.7	82.9	79.5	77.8
70°	88.0	81.2	72.8	62.6	57.5	54.1	47.4	42.3	40.6	38.9
72.5°	45.7	40.6	33.8	27.1	23.7	20.3	16.9	13.5	11.9	11.9
75°	16.9	13.5	8.5	5.1	3.4	3.4	3.4	3.4	3.4	3.4
77.5°	3.4	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)