

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: **FLDSQ4C65D010 FEU4C659050 F4LC-SQ-LI**

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: FLDSQ4C65D010 FEU4C659050 F4LC-SQ-LI
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

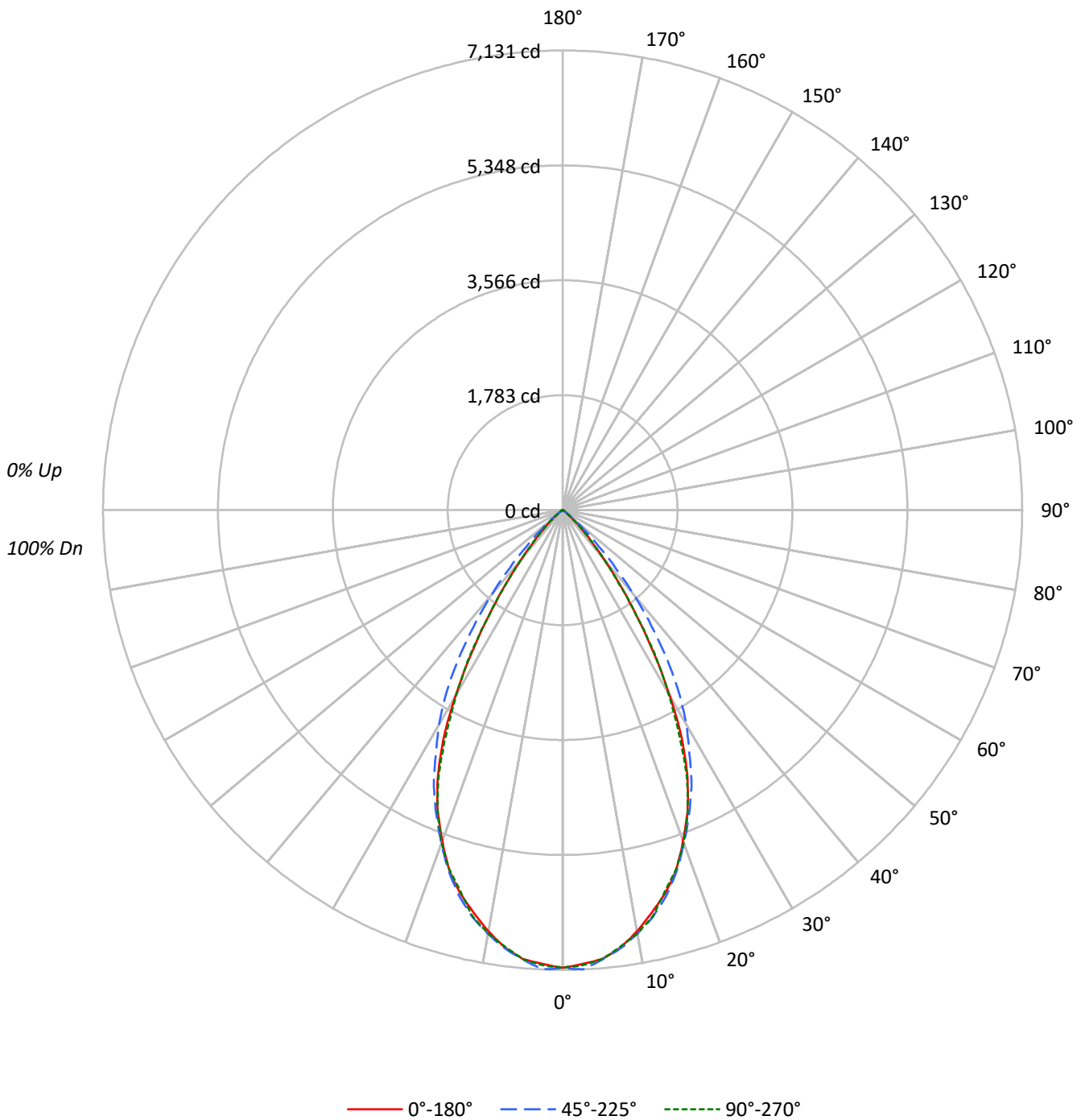
Lumens per Lamp: N/A
 Luminaire Lumens: 6554.0 lumens
 Efficiency: N/A
 Efficacy: 90.5 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 72.4
 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	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	113	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95	93				
2	108	103	99	95	105	101	97	94	98	95	92	95	92	90	92	90	88	87				
3	102	96	91	87	100	94	90	86	92	88	84	89	86	83	87	84	82	80				
4	97	89	84	79	95	88	83	79	86	81	78	84	80	77	82	79	76	75				
5	92	83	77	73	90	82	77	73	81	76	72	79	75	71	77	74	71	69				
6	87	78	72	68	86	77	71	67	76	71	67	74	70	66	73	69	66	64				
7	83	73	67	63	81	73	67	63	71	66	62	70	65	62	69	65	62	60				
8	79	69	63	59	77	68	62	58	67	62	58	66	61	58	65	61	58	56				
9	75	65	59	55	74	64	59	55	63	58	55	63	58	54	62	57	54	53				
10	71	61	55	51	70	61	55	51	60	55	51	59	54	51	58	54	51	50				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	684975	684975	684975
5°	677111	677983	677111
10°	650031	654009	653127
15°	614530	619035	611363
20°	560835	564994	563608
25°	488338	503701	484964
30°	371349	427124	365834
35°	233745	332042	235877
40°	126108	219279	123841
45°	59699	108319	59072
50°	22351	40620	22351
55°	10615	12903	9875
60°	6966	6117	6966
65°	4110	4110	4110
70°	2539	3837	2539
75°	1715	1715	1715
80°	2556	2556	2556
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	658.2	10.0
10°-20°	1725.0	26.3
20°-30°	2107.2	32.2
30°-40°	1473.8	22.5
40°-50°	483.0	7.4
50°-60°	76.8	1.2
60°-70°	21.0	0.3
70°-80°	7.0	0.1
80°-90°	2.0	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°	4490.4	68.5
0°-40°	5964.3	91.0
0°-60°	6524.1	99.5
0°-90°	6554.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6554.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	7099	7099	7099	7099	7099	
5°	6991	6993	7000	6957	6991	656
15°	6152	6177	6197	6156	6120	1716
25°	4587	4657	4731	4645	4555	2060
35°	1984	2343	2819	2307	2002	1266
45°	438	539	794	532	433	367
55°	63	68	77	68	59	62
65°	18	23	18	23	18	20
75°	5	5	5	5	5	7
85°	0	0	0	0	0	2
90°	0	0	0	0	0	

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	7099.0	7099.0	7099.0	7099.0	7099.0	7099.0	7099.0	7099.0	7099.0	7099.0	7099.0
2.5°	7044.9	7094.6	7081.0	7112.6	7112.6	7076.5	7085.6	7099.0	7117.0	7130.7	7022.3
5°	6990.8	7035.9	6995.2	7040.3	7013.2	6972.7	7040.3	7004.2	7026.9	6999.8	7017.8
7.5°	6846.5	6918.6	6837.5	6891.6	6873.5	6850.9	6878.0	6868.9	6882.6	6859.9	6810.4
10°	6634.5	6693.2	6639.1	6715.6	6679.6	6657.1	6679.6	6702.2	6697.6	6675.1	6702.2
12.5°	6391.0	6458.5	6431.5	6476.5	6436.1	6436.1	6490.2	6476.5	6481.1	6463.1	6494.6
15°	6151.9	6201.6	6160.9	6219.6	6201.6	6151.9	6174.3	6174.3	6210.6	6197.0	6160.9
17.5°	5854.3	5894.8	5849.7	5863.3	5845.2	5836.2	5930.8	5867.7	5903.8	5876.7	5881.3
20°	5461.9	5479.9	5466.3	5502.4	5479.9	5507.0	5497.9	5488.9	5488.9	5502.4	5470.9
22.5°	5064.9	5064.9	5078.5	5087.5	5105.6	5078.5	5132.6	5087.5	5091.9	5123.6	5114.6
25°	4586.9	4573.3	4604.9	4650.0	4668.1	4645.4	4717.6	4681.5	4708.6	4731.2	4681.5
27.5°	4005.1	4005.1	4036.6	4113.3	4126.8	4153.8	4253.0	4253.0	4289.1	4257.6	4293.7
30°	3333.0	3382.7	3423.2	3522.4	3554.0	3612.7	3716.3	3766.0	3847.2	3833.6	3815.5
32.5°	2643.0	2710.7	2715.1	2818.9	2904.5	3003.7	3143.6	3260.8	3319.5	3360.0	3314.9
35°	1984.4	2025.1	2061.2	2133.3	2277.6	2408.5	2534.7	2688.1	2791.9	2818.9	2778.2
37.5°	1452.3	1461.4	1497.4	1565.0	1673.2	1799.6	1953.0	2119.7	2228.1	2268.6	2223.5
40°	1001.2	1010.3	1028.3	1087.0	1177.2	1267.4	1389.2	1560.6	1659.8	1740.9	1682.2
42.5°	672.0	681.0	699.0	744.1	793.8	879.4	974.2	1082.4	1177.2	1213.3	1181.6
45°	437.5	437.5	446.5	478.2	505.2	572.8	640.5	708.0	771.2	793.8	771.2
47.5°	257.1	261.5	270.6	293.2	324.7	351.7	401.4	446.5	464.5	482.6	473.6
50°	148.9	148.9	162.3	175.9	198.4	216.4	234.5	252.5	261.5	270.6	261.5
52.5°	81.2	85.8	90.2	94.8	103.8	121.8	135.3	135.3	139.9	144.3	139.9
55°	63.1	63.1	63.1	63.1	67.7	67.7	67.7	72.1	72.1	76.7	72.1
57.5°	45.1	45.1	45.1	49.7	49.7	49.7	45.1	45.1	45.1	45.1	45.1
60°	36.1	36.1	36.1	36.1	36.1	36.1	36.1	31.7	31.7	31.7	31.7
62.5°	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1
65°	18.0	18.0	22.6	22.6	22.6	22.6	22.6	18.0	18.0	18.0	18.0
67.5°	13.6	13.6	13.6	13.6	13.6	18.0	13.6	13.6	13.6	13.6	13.6
70°	9.0	9.0	9.0	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
72.5°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
75°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
77.5°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
80°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	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°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
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):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	7099.0	7099.0	7099.0	7099.0	7099.0	7099.0	7099.0	7099.0
2.5°	7099.0	7022.3	7031.3	7071.9	7049.3	7071.9	7067.5	7067.5
5°	7022.3	6999.8	6963.7	6950.1	6977.2	7035.9	7026.9	6990.8
7.5°	6878.0	6819.4	6859.9	6878.0	6855.5	6891.6	6909.6	6832.9
10°	6706.6	6684.1	6675.1	6684.1	6675.1	6711.2	6666.1	6666.1
12.5°	6463.1	6427.0	6427.0	6481.1	6449.5	6422.4	6458.5	6454.1
15°	6219.6	6147.3	6147.3	6165.3	6178.9	6160.9	6165.3	6120.2
17.5°	5858.7	5836.2	5804.6	5854.3	5867.7	5849.7	5863.3	5840.7
20°	5520.4	5520.4	5461.9	5484.3	5502.4	5516.0	5525.0	5488.9
22.5°	5087.5	5096.5	5055.9	5101.0	5114.6	5069.5	5078.5	5069.5
25°	4690.5	4686.1	4654.4	4636.4	4645.4	4627.4	4623.0	4555.2
27.5°	4253.0	4207.9	4140.4	4158.4	4081.7	4018.6	4018.6	3914.8
30°	3779.5	3702.9	3612.7	3522.4	3454.8	3382.7	3342.0	3283.5
32.5°	3224.7	3121.1	3008.3	2886.5	2809.9	2701.7	2643.0	2674.6
35°	2674.6	2521.1	2367.8	2246.1	2128.7	2065.6	1993.5	2002.5
37.5°	2142.3	1925.9	1790.6	1659.8	1560.6	1479.4	1447.7	1438.7
40°	1565.0	1393.6	1258.4	1163.6	1096.0	1032.9	996.8	983.2
42.5°	1082.4	960.7	852.3	775.8	730.7	690.0	672.0	667.5
45°	703.6	631.5	559.3	505.2	469.1	442.1	437.5	432.9
47.5°	442.1	405.8	360.7	320.2	288.6	270.6	257.1	257.1
50°	252.5	239.1	216.4	194.0	175.9	166.9	153.3	148.9
52.5°	135.3	135.3	126.3	108.2	94.8	85.8	85.8	81.2
55°	72.1	72.1	67.7	67.7	63.1	63.1	63.1	58.7
57.5°	45.1	45.1	49.7	49.7	45.1	45.1	45.1	45.1
60°	31.7	36.1	36.1	36.1	36.1	36.1	36.1	36.1
62.5°	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1
65°	18.0	22.6	22.6	22.6	22.6	18.0	18.0	18.0
67.5°	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
70°	13.6	13.6	13.6	13.6	13.6	9.0	9.0	9.0
72.5°	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
75°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
77.5°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
80°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
82.5°	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
87.5°	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)