

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 FEU4C659027 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 FEU4C659027 F4LC-SQ-LI
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

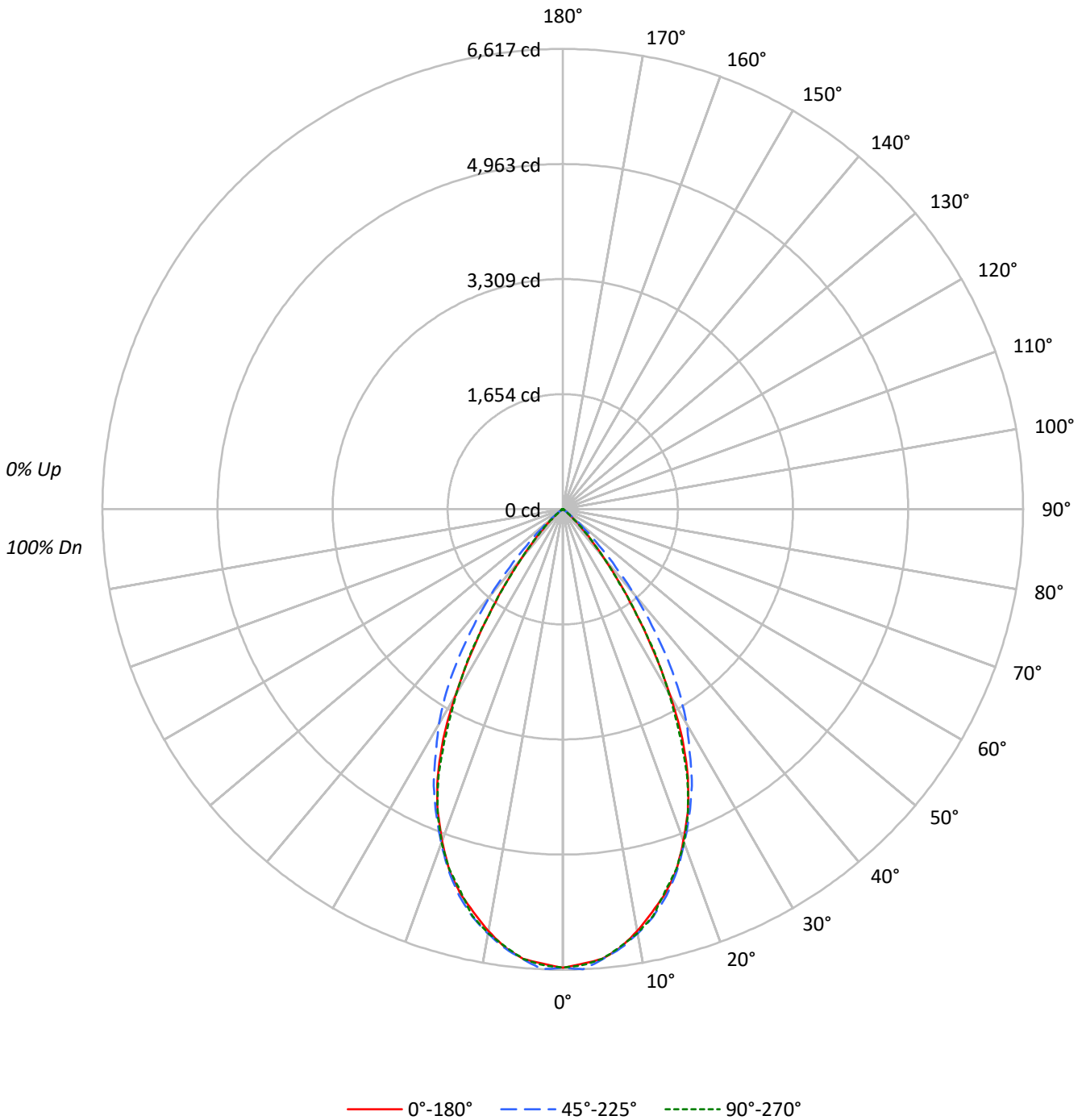
Lumens per Lamp: N/A
 Luminaire Lumens: 6082.0 lumens
 Efficiency: N/A
 Efficacy: 84.0 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	635650	635650	635650
5°	628343	629157	628343
10°	603217	606911	606088
15°	570267	574453	567340
20°	520440	524301	523018
25°	453173	467429	450043
30°	344598	396362	339484
35°	216912	308130	218891
40°	117027	203497	114923
45°	55401	100513	54814
50°	20745	37693	20745
55°	9858	11977	9168
60°	6465	5674	6465
65°	3813	3813	3813
70°	2370	3555	2370
75°	1603	1603	1603
80°	2389	2389	2389
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	610.8	10.0
10°-20°	1600.7	26.3
20°-30°	1955.5	32.2
30°-40°	1367.7	22.5
40°-50°	448.2	7.4
50°-60°	71.3	1.2
60°-70°	19.4	0.3
70°-80°	6.5	0.1
80°-90°	1.8	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°	4167.0	68.5
0°-40°	5534.7	91.0
0°-60°	6054.2	99.5
0°-90°	6082.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6082.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6588	6588	6588	6588	6588	
5°	6487	6489	6496	6456	6487	608
15°	5709	5732	5751	5713	5680	1592
25°	4257	4321	4390	4311	4227	1912
35°	1842	2174	2616	2141	1858	1175
45°	406	500	737	494	402	341
55°	59	63	71	63	54	58
65°	17	21	17	21	17	19
75°	4	4	4	4	4	6
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°	6587.8	6587.8	6587.8	6587.8	6587.8	6587.8	6587.8	6587.8	6587.8	6587.8	6587.8
2.5°	6537.5	6583.7	6571.0	6600.4	6600.4	6566.9	6575.3	6587.8	6604.5	6617.1	6516.5
5°	6487.3	6529.2	6491.4	6533.3	6508.2	6470.6	6533.3	6499.8	6520.8	6495.7	6512.4
7.5°	6353.4	6420.4	6345.1	6395.3	6378.5	6357.5	6382.6	6374.3	6386.9	6365.9	6319.9
10°	6156.7	6211.1	6160.9	6232.0	6198.5	6177.7	6198.5	6219.5	6215.2	6194.4	6219.5
12.5°	5930.7	5993.4	5968.3	6010.1	5972.5	5972.5	6022.8	6010.1	6014.4	5997.7	6026.9
15°	5708.8	5755.0	5717.2	5771.7	5755.0	5708.8	5729.7	5729.7	5763.3	5750.7	5717.2
17.5°	5432.7	5470.2	5428.4	5441.0	5424.3	5415.9	5503.7	5445.1	5478.6	5453.5	5457.8
20°	5068.5	5085.3	5072.6	5106.1	5085.3	5110.4	5102.0	5093.6	5093.6	5106.1	5076.9
22.5°	4700.1	4700.1	4712.8	4721.1	4737.9	4712.8	4763.0	4721.1	4725.2	4754.6	4746.2
25°	4256.6	4243.9	4273.3	4315.1	4331.9	4310.9	4377.8	4344.4	4369.5	4390.5	4344.4
27.5°	3716.7	3716.7	3745.9	3817.1	3829.6	3854.7	3946.7	3946.7	3980.2	3951.0	3984.5
30°	3092.9	3139.0	3176.6	3268.7	3298.1	3352.5	3448.7	3494.8	3570.1	3557.5	3540.8
32.5°	2452.6	2515.5	2519.6	2615.9	2695.3	2787.4	2917.2	3026.0	3080.5	3118.0	3076.2
35°	1841.5	1879.3	1912.7	1979.7	2113.6	2235.0	2352.2	2494.5	2590.8	2615.9	2578.2
37.5°	1347.7	1356.1	1389.6	1452.3	1552.7	1670.0	1812.3	1967.1	2067.6	2105.2	2063.4
40°	929.1	937.5	954.2	1008.7	1092.4	1176.1	1289.2	1448.2	1540.2	1615.6	1561.1
42.5°	623.6	631.9	648.7	690.5	736.6	816.1	904.0	1004.4	1092.4	1125.9	1096.5
45°	406.0	406.0	414.3	443.7	468.8	531.5	594.4	657.1	715.6	736.6	715.6
47.5°	238.6	242.7	251.1	272.1	301.3	326.4	372.5	414.3	431.1	447.8	439.5
50°	138.2	138.2	150.6	163.3	184.1	200.9	217.6	234.3	242.7	251.1	242.7
52.5°	75.3	79.6	83.7	88.0	96.3	113.1	125.5	125.5	129.8	133.9	129.8
55°	58.6	58.6	58.6	58.6	62.8	62.8	62.8	67.0	67.0	71.2	67.0
57.5°	41.8	41.8	41.8	46.1	46.1	46.1	41.8	41.8	41.8	41.8	41.8
60°	33.5	33.5	33.5	33.5	33.5	33.5	33.5	29.4	29.4	29.4	29.4
62.5°	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1
65°	16.7	16.7	21.0	21.0	21.0	21.0	21.0	16.7	16.7	16.7	16.7
67.5°	12.6	12.6	12.6	12.6	16.7	16.7	12.6	12.6	12.6	12.6	12.6
70°	8.4	8.4	8.4	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
72.5°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
75°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
77.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
80°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	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°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
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°	6587.8	6587.8	6587.8	6587.8	6587.8	6587.8	6587.8	6587.8
2.5°	6587.8	6516.5	6524.9	6562.6	6541.6	6562.6	6558.5	6558.5
5°	6516.5	6495.7	6462.2	6449.6	6474.7	6529.2	6520.8	6487.3
7.5°	6382.6	6328.3	6365.9	6382.6	6361.8	6395.3	6412.0	6340.8
10°	6223.6	6202.8	6194.4	6202.8	6194.4	6227.9	6186.0	6186.0
12.5°	5997.7	5964.2	5964.2	6014.4	5985.0	5959.9	5993.4	5989.3
15°	5771.7	5704.6	5704.6	5721.3	5733.9	5717.2	5721.3	5679.5
17.5°	5436.8	5415.9	5386.5	5432.7	5445.1	5428.4	5441.0	5420.0
20°	5122.8	5122.8	5068.5	5089.4	5106.1	5118.7	5127.1	5093.6
22.5°	4721.1	4729.5	4691.8	4733.6	4746.2	4704.4	4712.8	4704.4
25°	4352.7	4348.6	4319.2	4302.5	4310.9	4294.1	4290.0	4227.2
27.5°	3946.7	3904.9	3842.2	3859.0	3787.7	3729.1	3729.1	3632.8
30°	3507.3	3436.2	3352.5	3268.7	3206.0	3139.0	3101.3	3047.0
32.5°	2992.5	2896.3	2791.7	2678.6	2607.5	2507.1	2452.6	2482.0
35°	2482.0	2339.6	2197.3	2084.4	1975.4	1916.8	1849.9	1858.3
37.5°	1988.1	1787.2	1661.7	1540.2	1448.2	1372.9	1343.5	1335.1
40°	1452.3	1293.3	1167.7	1079.8	1017.1	958.5	925.0	912.4
42.5°	1004.4	891.5	791.0	719.9	678.1	640.3	623.6	619.5
45°	652.9	586.0	519.0	468.8	435.4	410.2	406.0	401.7
47.5°	410.2	376.6	334.8	297.2	267.8	251.1	238.6	238.6
50°	234.3	221.9	200.9	180.0	163.3	154.9	142.3	138.2
52.5°	125.5	125.5	117.2	100.4	88.0	79.6	79.6	75.3
55°	67.0	67.0	62.8	62.8	58.6	58.6	58.6	54.5
57.5°	41.8	41.8	46.1	46.1	41.8	41.8	41.8	41.8
60°	29.4	33.5	33.5	33.5	33.5	33.5	33.5	33.5
62.5°	25.1	25.1	25.1	25.1	25.1	25.1	25.1	25.1
65°	16.7	21.0	21.0	21.0	21.0	16.7	16.7	16.7
67.5°	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
70°	12.6	12.6	12.6	12.6	12.6	8.4	8.4	8.4
72.5°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
75°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
77.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
80°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
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°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)