

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: **FLDSQ4C15D010 FEU4C159040 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: FLDSQ4C15D010 FEU4C159040 F4LC-SQ-LI
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

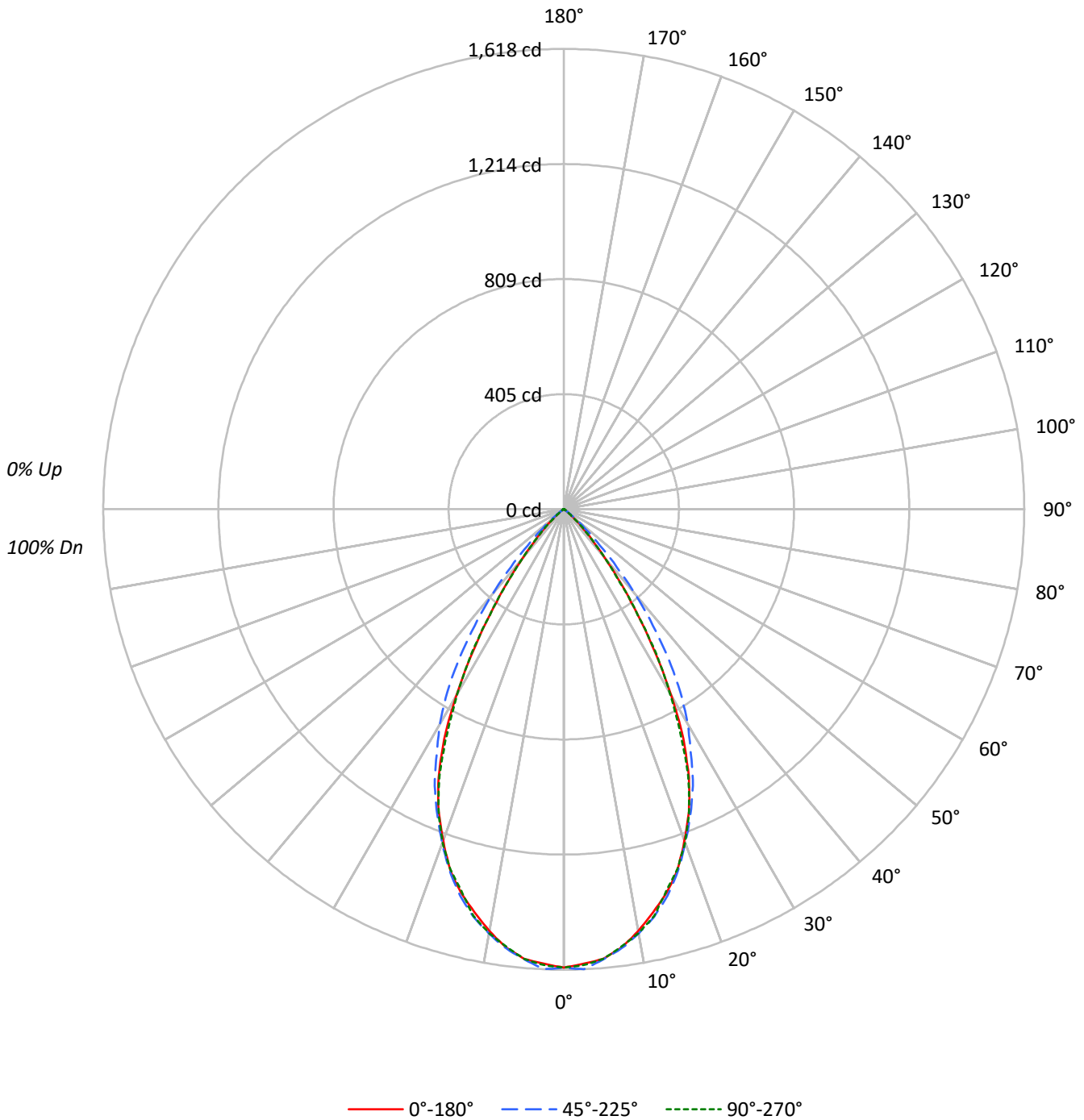
Lumens per Lamp: N/A
 Luminaire Lumens: 1486.9 lumens
 Efficiency: N/A
 Efficacy: 94.1 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 15.8
 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	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	65
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°	155415	155415	155415
5°	153626	153819	153626
10°	147485	148387	148181
15°	139430	140449	138711
20°	127243	128187	127879
25°	110797	114278	110030
30°	84253	96909	83005
35°	53030	75339	53513
40°	28617	49753	28101
45°	13550	24576	13400
50°	5074	9217	5074
55°	2406	2927	2237
60°	1582	1389	1582
65°	936	936	936
70°	564	875	564
75°	373	373	373
80°	556	556	556
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.3	10.0
10°-20°	391.4	26.3
20°-30°	478.1	32.2
30°-40°	334.4	22.5
40°-50°	109.6	7.4
50°-60°	17.4	1.2
60°-70°	4.7	0.3
70°-80°	1.6	0.1
80°-90°	0.4	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°	1018.8	68.5
0°-40°	1353.2	91.0
0°-60°	1480.2	99.5
0°-90°	1486.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1486.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1611	1611	1611	1611	1611	
5°	1586	1587	1588	1578	1586	149
15°	1396	1401	1406	1397	1389	389
25°	1041	1057	1073	1054	1034	467
35°	450	532	640	523	454	287
45°	99	122	180	121	98	83
55°	14	15	17	15	13	14
65°	4	5	4	5	4	5
75°	1	1	1	1	1	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159040 F4LC-SQ-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1610.7	1610.7	1610.7	1610.7	1610.7	1610.7	1610.7	1610.7	1610.7	1610.7	1610.7
2.5°	1598.4	1609.6	1606.6	1613.7	1613.7	1605.6	1607.6	1610.7	1614.7	1617.8	1593.2
5°	1586.1	1596.3	1587.1	1597.3	1591.2	1582.0	1597.3	1589.1	1594.3	1588.1	1592.2
7.5°	1553.4	1569.7	1551.3	1563.6	1559.5	1554.4	1560.5	1558.5	1561.5	1556.4	1545.2
10°	1505.3	1518.6	1506.3	1523.7	1515.5	1510.4	1515.5	1520.6	1519.6	1514.5	1520.6
12.5°	1450.0	1465.3	1459.2	1469.4	1460.2	1460.2	1472.5	1469.4	1470.5	1466.4	1473.5
15°	1395.8	1407.0	1397.8	1411.1	1407.0	1395.8	1400.9	1400.9	1409.1	1406.0	1397.8
17.5°	1328.2	1337.4	1327.2	1330.3	1326.2	1324.1	1345.6	1331.3	1339.5	1333.3	1334.4
20°	1239.2	1243.3	1240.2	1248.4	1243.3	1249.4	1247.4	1245.4	1245.4	1248.4	1241.3
22.5°	1149.1	1149.1	1152.2	1154.3	1158.4	1152.2	1164.5	1154.3	1155.3	1162.5	1160.4
25°	1040.7	1037.6	1044.8	1055.0	1059.1	1054.0	1070.3	1062.2	1068.3	1073.4	1062.2
27.5°	908.7	908.7	915.8	933.3	936.3	942.4	964.9	964.9	973.1	966.0	974.2
30°	756.2	767.5	776.7	799.2	806.3	819.7	843.2	854.5	872.9	869.8	865.7
32.5°	599.6	615.0	616.0	639.6	659.0	681.5	713.2	739.8	753.1	762.3	752.1
35°	450.2	459.5	467.6	484.0	516.8	546.4	575.1	609.9	633.4	639.6	630.3
37.5°	329.5	331.6	339.7	355.1	379.6	408.3	443.1	480.9	505.5	514.7	504.5
40°	227.2	229.2	233.3	246.6	267.1	287.5	315.2	354.1	376.6	395.0	381.7
42.5°	152.5	154.5	158.6	168.8	180.1	199.5	221.0	245.6	267.1	275.3	268.1
45°	99.3	99.3	101.3	108.5	114.6	130.0	145.3	160.6	175.0	180.1	175.0
47.5°	58.3	59.3	61.4	66.5	73.7	79.8	91.1	101.3	105.4	109.5	107.4
50°	33.8	33.8	36.8	39.9	45.0	49.1	53.2	57.3	59.3	61.4	59.3
52.5°	18.4	19.5	20.5	21.5	23.6	27.6	30.7	30.7	31.7	32.7	31.7
55°	14.3	14.3	14.3	14.3	15.4	15.4	15.4	16.4	16.4	17.4	16.4
57.5°	10.2	10.2	10.2	11.3	11.3	11.3	10.2	10.2	10.2	10.2	10.2
60°	8.2	8.2	8.2	8.2	8.2	8.2	8.2	7.2	7.2	7.2	7.2
62.5°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
65°	4.1	4.1	5.1	5.1	5.1	5.1	5.1	4.1	4.1	4.1	4.1
67.5°	3.1	3.1	3.1	3.1	4.1	4.1	3.1	3.1	3.1	3.1	3.1
70°	2.0	2.0	2.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	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°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1610.7	1610.7	1610.7	1610.7	1610.7	1610.7	1610.7	1610.7
2.5°	1610.7	1593.2	1595.3	1604.5	1599.4	1604.5	1603.5	1603.5
5°	1593.2	1588.1	1580.0	1576.9	1583.0	1596.3	1594.3	1586.1
7.5°	1560.5	1547.2	1556.4	1560.5	1555.4	1563.6	1567.7	1550.3
10°	1521.6	1516.5	1514.5	1516.5	1514.5	1522.7	1512.4	1512.4
12.5°	1466.4	1458.2	1458.2	1470.5	1463.3	1457.2	1465.3	1464.3
15°	1411.1	1394.7	1394.7	1398.8	1401.9	1397.8	1398.8	1388.6
17.5°	1329.2	1324.1	1317.0	1328.2	1331.3	1327.2	1330.3	1325.2
20°	1252.5	1252.5	1239.2	1244.3	1248.4	1251.5	1253.5	1245.4
22.5°	1154.3	1156.3	1147.1	1157.3	1160.4	1150.2	1152.2	1150.2
25°	1064.2	1063.2	1056.0	1051.9	1054.0	1049.9	1048.9	1033.5
27.5°	964.9	954.7	939.4	943.5	926.1	911.7	911.7	888.2
30°	857.5	840.1	819.7	799.2	783.8	767.5	758.2	745.0
32.5°	731.6	708.1	682.5	654.9	637.5	613.0	599.6	606.8
35°	606.8	572.0	537.2	509.6	483.0	468.7	452.3	454.3
37.5°	486.1	437.0	406.3	376.6	354.1	335.7	328.5	326.4
40°	355.1	316.2	285.5	264.0	248.7	234.3	226.2	223.1
42.5°	245.6	218.0	193.4	176.0	165.8	156.6	152.5	151.5
45°	159.6	143.3	126.9	114.6	106.4	100.3	99.3	98.2
47.5°	100.3	92.1	81.8	72.7	65.5	61.4	58.3	58.3
50°	57.3	54.2	49.1	44.0	39.9	37.9	34.8	33.8
52.5°	30.7	30.7	28.6	24.6	21.5	19.5	19.5	18.4
55°	16.4	16.4	15.4	15.4	14.3	14.3	14.3	13.3
57.5°	10.2	10.2	11.3	11.3	10.2	10.2	10.2	10.2
60°	7.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
62.5°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
65°	4.1	5.1	5.1	5.1	5.1	4.1	4.1	4.1
67.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
70°	3.1	3.1	3.1	3.1	3.1	2.0	2.0	2.0
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)