

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 FEU4C159050 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 FEU4C159050 F4LC-SQ-LI
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

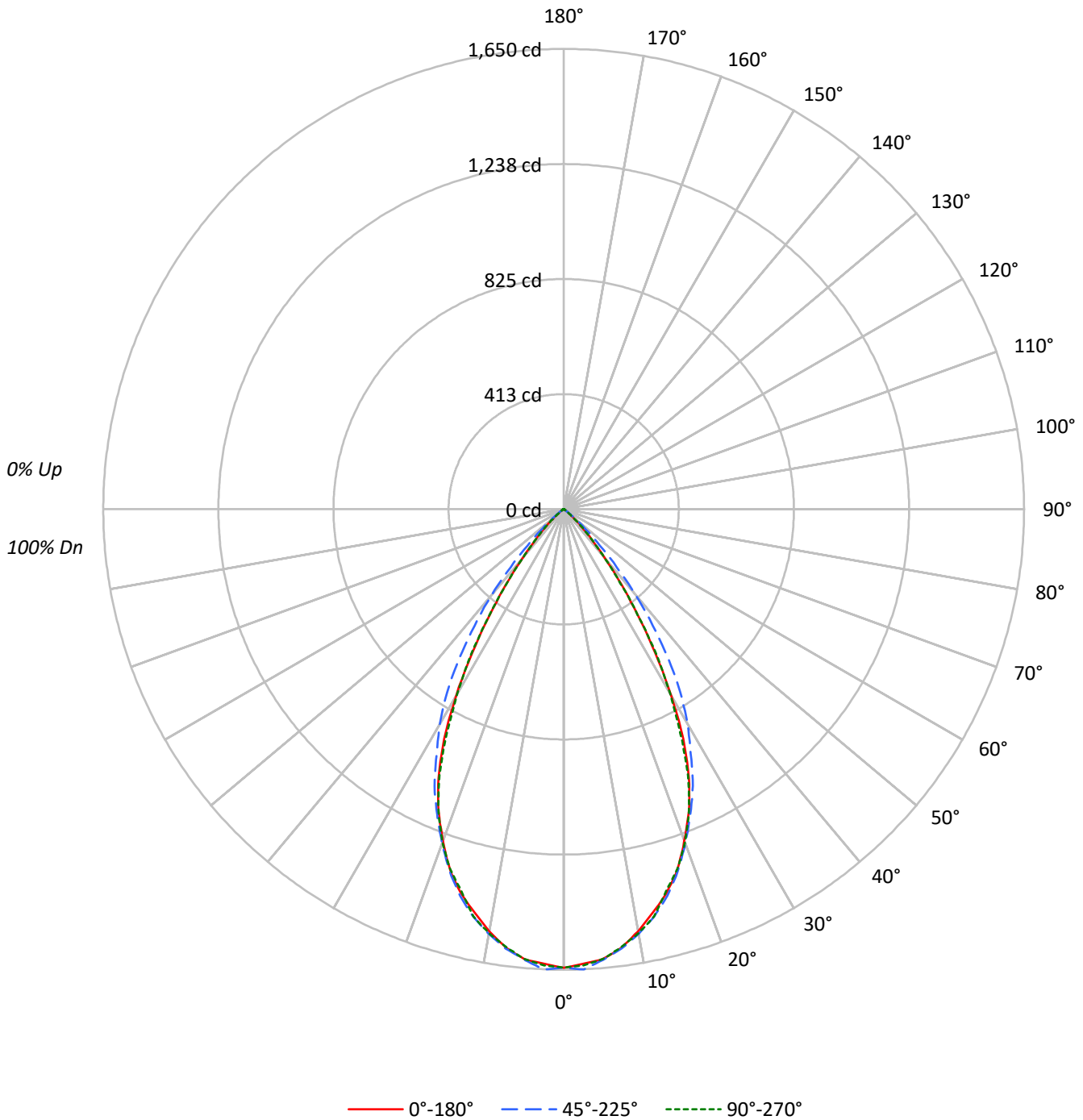
Lumens per Lamp: N/A
 Luminaire Lumens: 1517.0 lumens
 Efficiency: N/A
 Efficacy: 96.0 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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	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	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°	158541	158541	158541
5°	156725	156928	156725
10°	150454	151375	151169
15°	142237	143286	141508
20°	129810	130775	130457
25°	113033	116588	112255
30°	85957	98859	84676
35°	54101	76859	54596
40°	29184	50761	28668
45°	13823	25067	13673
50°	5179	9397	5179
55°	2456	2994	2288
60°	1602	1409	1602
65°	959	959	959
70°	592	903	592
75°	410	410	410
80°	611	611	611
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	152.3	10.0
10°-20°	399.3	26.3
20°-30°	487.7	32.2
30°-40°	341.1	22.5
40°-50°	111.8	7.4
50°-60°	17.8	1.2
60°-70°	4.9	0.3
70°-80°	1.7	0.1
80°-90°	0.5	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°	1039.4	68.5
0°-40°	1380.5	91.0
0°-60°	1510.1	99.5
0°-90°	1517.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1517.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1643	1643	1643	1643	1643	
5°	1618	1619	1620	1610	1618	152
15°	1424	1430	1434	1425	1417	397
25°	1062	1078	1095	1075	1054	477
35°	459	542	652	534	464	293
45°	101	125	184	123	100	85
55°	15	16	18	16	14	14
65°	4	5	4	5	4	5
75°	1	1	1	1	1	2
85°	0	0	0	0	0	0
90°	0	0	0	0	0	



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159050 F4LC-SQ-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1643.1	1643.1	1643.1	1643.1	1643.1	1643.1	1643.1	1643.1	1643.1	1643.1	1643.1
2.5°	1630.6	1642.1	1639.0	1646.3	1646.3	1637.9	1640.0	1643.1	1647.3	1650.5	1625.4
5°	1618.1	1628.5	1619.1	1629.6	1623.3	1613.9	1629.6	1621.2	1626.4	1620.2	1624.4
7.5°	1584.7	1601.4	1582.6	1595.1	1591.0	1585.7	1592.0	1589.9	1593.0	1587.8	1576.3
10°	1535.6	1549.2	1536.7	1554.4	1546.1	1540.9	1546.1	1551.3	1550.2	1545.0	1551.3
12.5°	1479.3	1494.9	1488.6	1499.1	1489.7	1489.7	1502.2	1499.1	1500.1	1496.0	1503.2
15°	1423.9	1435.4	1426.0	1439.6	1435.4	1423.9	1429.1	1429.1	1437.5	1434.4	1426.0
17.5°	1355.0	1364.4	1354.0	1357.1	1353.0	1350.9	1372.8	1358.1	1366.5	1360.2	1361.3
20°	1264.2	1268.4	1265.2	1273.6	1268.4	1274.7	1272.6	1270.5	1270.5	1273.6	1266.3
22.5°	1172.3	1172.3	1175.5	1177.6	1181.7	1175.5	1188.0	1177.6	1178.6	1185.9	1183.8
25°	1061.7	1058.5	1065.9	1076.3	1080.5	1075.2	1091.9	1083.6	1089.9	1095.1	1083.6
27.5°	927.0	927.0	934.3	952.1	955.2	961.5	984.4	984.4	992.8	985.5	993.8
30°	771.5	783.0	792.3	815.3	822.6	836.2	860.2	871.7	890.5	887.3	883.2
32.5°	611.7	627.4	628.4	652.5	672.3	695.2	727.6	754.8	768.3	777.7	767.3
35°	459.3	468.7	477.1	493.8	527.2	557.5	586.7	622.2	646.2	652.5	643.1
37.5°	336.2	338.2	346.6	362.2	387.3	416.5	452.0	490.6	515.7	525.1	514.7
40°	231.7	233.8	238.0	251.6	272.5	293.3	321.5	361.2	384.2	403.0	389.4
42.5°	155.5	157.6	161.8	172.2	183.7	203.5	225.5	250.5	272.5	280.8	273.5
45°	101.3	101.3	103.3	110.7	116.9	132.6	148.2	163.9	178.5	183.7	178.5
47.5°	59.5	60.5	62.6	67.9	75.1	81.4	92.9	103.3	107.5	111.7	109.6
50°	34.5	34.5	37.6	40.7	45.9	50.1	54.3	58.4	60.5	62.6	60.5
52.5°	18.8	19.9	20.9	21.9	24.0	28.2	31.3	31.3	32.4	33.4	32.4
55°	14.6	14.6	14.6	14.6	15.7	15.7	15.7	16.7	16.7	17.8	16.7
57.5°	10.4	10.4	10.4	11.5	11.5	11.5	10.4	10.4	10.4	10.4	10.4
60°	8.3	8.3	8.3	8.3	8.3	8.3	8.3	7.3	7.3	7.3	7.3
62.5°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
65°	4.2	4.2	5.2	5.2	5.2	5.2	5.2	4.2	4.2	4.2	4.2
67.5°	3.2	3.2	3.2	3.2	4.2	4.2	3.2	3.2	3.2	3.2	3.2
70°	2.1	2.1	2.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	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°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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°	1643.1	1643.1	1643.1	1643.1	1643.1	1643.1	1643.1	1643.1
2.5°	1643.1	1625.4	1627.5	1636.9	1631.6	1636.9	1635.9	1635.9
5°	1625.4	1620.2	1611.8	1608.7	1614.9	1628.5	1626.4	1618.1
7.5°	1592.0	1578.4	1587.8	1592.0	1586.8	1595.1	1599.3	1581.5
10°	1552.3	1547.1	1545.0	1547.1	1545.0	1553.4	1542.9	1542.9
12.5°	1496.0	1487.6	1487.6	1500.1	1492.8	1486.5	1494.9	1493.9
15°	1439.6	1422.9	1422.9	1427.0	1430.2	1426.0	1427.0	1416.6
17.5°	1356.1	1350.9	1343.5	1355.0	1358.1	1354.0	1357.1	1351.9
20°	1277.8	1277.8	1264.2	1269.4	1273.6	1276.7	1278.8	1270.5
22.5°	1177.6	1179.7	1170.2	1180.7	1183.8	1173.4	1175.5	1173.4
25°	1085.7	1084.7	1077.3	1073.2	1075.2	1071.1	1070.0	1054.4
27.5°	984.4	974.0	958.3	962.5	944.8	930.1	930.1	906.1
30°	874.8	857.1	836.2	815.3	799.7	783.0	773.5	760.0
32.5°	746.4	722.4	696.3	668.1	650.4	625.3	611.7	619.1
35°	619.1	583.5	548.1	519.9	492.7	478.1	461.4	463.5
37.5°	495.9	445.8	414.5	384.2	361.2	342.4	335.1	333.0
40°	362.2	322.6	291.3	269.3	253.7	239.1	230.7	227.6
42.5°	250.5	222.4	197.3	179.6	169.1	159.7	155.5	154.5
45°	162.9	146.2	129.5	116.9	108.6	102.3	101.3	100.2
47.5°	102.3	93.9	83.5	74.1	66.8	62.6	59.5	59.5
50°	58.4	55.3	50.1	44.9	40.7	38.6	35.5	34.5
52.5°	31.3	31.3	29.2	25.0	21.9	19.9	19.9	18.8
55°	16.7	16.7	15.7	15.7	14.6	14.6	14.6	13.6
57.5°	10.4	10.4	11.5	11.5	10.4	10.4	10.4	10.4
60°	7.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
62.5°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
65°	4.2	5.2	5.2	5.2	5.2	4.2	4.2	4.2
67.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
70°	3.2	3.2	3.2	3.2	3.2	2.1	2.1	2.1
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
80°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
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°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)