

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 FEU4C159035 F4LC-SQ-LI**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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 FEU4C159035 F4LC-SQ-LI
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

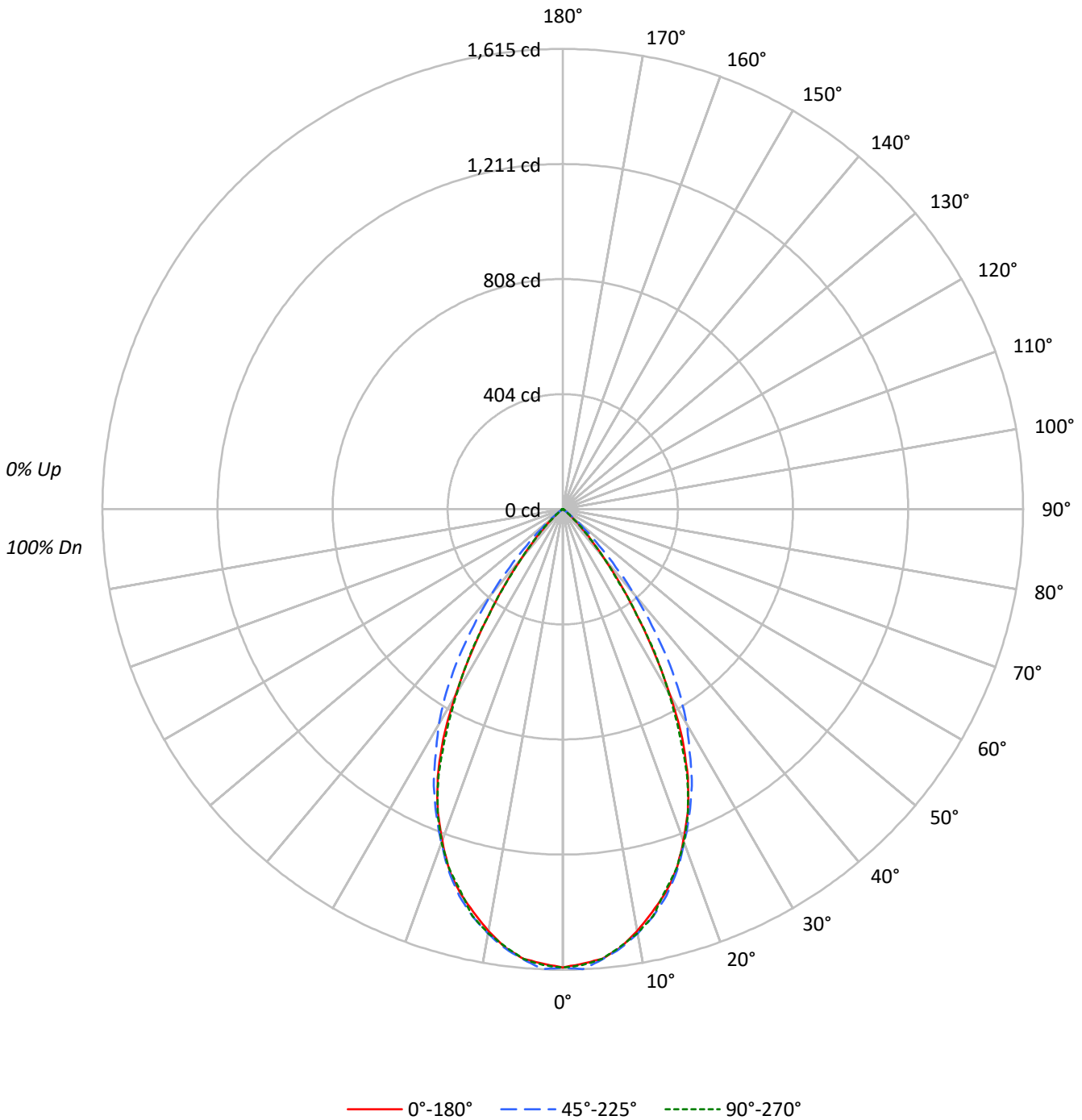
Lumens per Lamp: N/A
 Luminaire Lumens: 1483.9 lumens
 Efficiency: N/A
 Efficacy: 93.9 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-SQ-LI

Luminous Intensity Polar Plot





TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-SQ-LI

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°	155096	155096	155096
5°	153316	153509	153316
10°	147182	148083	147887
15°	139140	140169	138431
20°	126986	127931	127612
25°	110573	114055	109807
30°	84085	96709	82838
35°	52924	75186	53407
40°	28555	49652	28038
45°	13523	24521	13373
50°	5059	9202	5059
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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-SQ-LI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.0	10.0
10°-20°	390.6	26.3
20°-30°	477.1	32.2
30°-40°	333.7	22.5
40°-50°	109.4	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°	1016.7	68.5
0°-40°	1350.5	91.0
0°-60°	1477.2	99.5
0°-90°	1483.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1483.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1607	1607	1607	1607	1607	
5°	1583	1583	1585	1575	1583	148
15°	1393	1399	1403	1394	1386	389
25°	1039	1054	1071	1052	1031	467
35°	449	530	638	522	453	287
45°	99	122	180	120	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 FEU4C159035 F4LC-SQ-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	1607.4	1607.4	1607.4	1607.4	1607.4	1607.4	1607.4	1607.4	1607.4	1607.4	1607.4
2.5°	1595.2	1606.4	1603.3	1610.5	1610.5	1602.3	1604.4	1607.4	1611.5	1614.6	1590.0
5°	1582.9	1593.1	1583.9	1594.1	1588.0	1578.8	1594.1	1585.9	1591.1	1584.9	1589.0
7.5°	1550.2	1566.6	1548.2	1560.4	1556.4	1551.2	1557.4	1555.3	1558.4	1553.3	1542.1
10°	1502.2	1515.5	1503.3	1520.6	1512.4	1507.3	1512.4	1517.6	1516.5	1511.4	1517.6
12.5°	1447.1	1462.4	1456.3	1466.5	1457.3	1457.3	1469.5	1466.5	1467.5	1463.4	1470.5
15°	1392.9	1404.2	1395.0	1408.3	1404.2	1392.9	1398.0	1398.0	1406.2	1403.2	1395.0
17.5°	1325.6	1334.7	1324.5	1327.6	1323.5	1321.5	1342.9	1328.6	1336.8	1330.6	1331.7
20°	1236.7	1240.8	1237.7	1245.9	1240.8	1246.9	1244.9	1242.8	1242.8	1245.9	1238.8
22.5°	1146.8	1146.8	1149.9	1151.9	1156.0	1149.9	1162.2	1151.9	1152.9	1160.1	1158.1
25°	1038.6	1035.5	1042.7	1052.9	1057.0	1051.8	1068.2	1060.0	1066.1	1071.3	1060.0
27.5°	906.9	906.9	914.0	931.4	934.4	940.5	963.0	963.0	971.2	964.0	972.2
30°	754.7	765.9	775.1	797.6	804.7	818.0	841.5	852.7	871.1	868.0	863.9
32.5°	598.4	613.8	614.8	638.3	657.7	680.1	711.8	738.3	751.6	760.8	750.6
35°	449.3	458.5	466.7	483.0	515.7	545.3	573.9	608.6	632.2	638.3	629.1
37.5°	328.8	330.9	339.1	354.4	378.9	407.5	442.2	480.0	504.5	513.7	503.5
40°	226.7	228.7	232.8	246.1	266.5	287.0	314.6	353.4	375.8	394.2	380.9
42.5°	152.2	154.2	158.3	168.5	179.7	199.1	220.6	245.1	266.5	274.7	267.5
45°	99.1	99.1	101.1	108.3	114.4	129.7	145.0	160.3	174.6	179.7	174.6
47.5°	58.2	59.2	61.3	66.4	73.5	79.6	90.9	101.1	105.2	109.3	107.2
50°	33.7	33.7	36.8	39.8	44.9	49.0	53.1	57.2	59.2	61.3	59.2
52.5°	18.4	19.4	20.4	21.5	23.5	27.6	30.6	30.6	31.7	32.7	31.7
55°	14.3	14.3	14.3	14.3	15.3	15.3	15.3	16.3	16.3	17.4	16.3
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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C15D010 FEU4C159035 F4LC-SQ-LI

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	1607.4	1607.4	1607.4	1607.4	1607.4	1607.4	1607.4	1607.4
2.5°	1607.4	1590.0	1592.1	1601.3	1596.2	1601.3	1600.3	1600.3
5°	1590.0	1584.9	1576.8	1573.7	1579.8	1593.1	1591.1	1582.9
7.5°	1557.4	1544.1	1553.3	1557.4	1552.3	1560.4	1564.5	1547.1
10°	1518.6	1513.5	1511.4	1513.5	1511.4	1519.6	1509.4	1509.4
12.5°	1463.4	1455.3	1455.3	1467.5	1460.3	1454.2	1462.4	1461.4
15°	1408.3	1391.9	1391.9	1396.0	1399.1	1395.0	1396.0	1385.8
17.5°	1326.6	1321.5	1314.3	1325.6	1328.6	1324.5	1327.6	1322.5
20°	1250.0	1250.0	1236.7	1241.8	1245.9	1249.0	1251.0	1242.8
22.5°	1151.9	1154.0	1144.8	1155.0	1158.1	1147.9	1149.9	1147.9
25°	1062.1	1061.1	1053.9	1049.8	1051.8	1047.8	1046.8	1031.4
27.5°	963.0	952.8	937.5	941.6	924.2	909.9	909.9	886.4
30°	855.8	838.4	818.0	797.6	782.3	765.9	756.7	743.5
32.5°	730.2	706.7	681.2	653.6	636.2	611.7	598.4	605.6
35°	605.6	570.8	536.1	508.6	482.0	467.7	451.4	453.4
37.5°	485.1	436.1	405.4	375.8	353.4	335.0	327.8	325.8
40°	354.4	315.6	284.9	263.5	248.2	233.9	225.7	222.6
42.5°	245.1	217.5	193.0	175.7	165.4	156.2	152.2	151.2
45°	159.3	143.0	126.6	114.4	106.2	100.1	99.1	98.0
47.5°	100.1	91.9	81.7	72.5	65.3	61.3	58.2	58.2
50°	57.2	54.1	49.0	43.9	39.8	37.8	34.7	33.7
52.5°	30.6	30.6	28.6	24.5	21.5	19.4	19.4	18.4
55°	16.3	16.3	15.3	15.3	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)