

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 FEU4C159027 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 FEU4C159027 F4LC-SQ-LI
 Description: 4 INCH 1500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

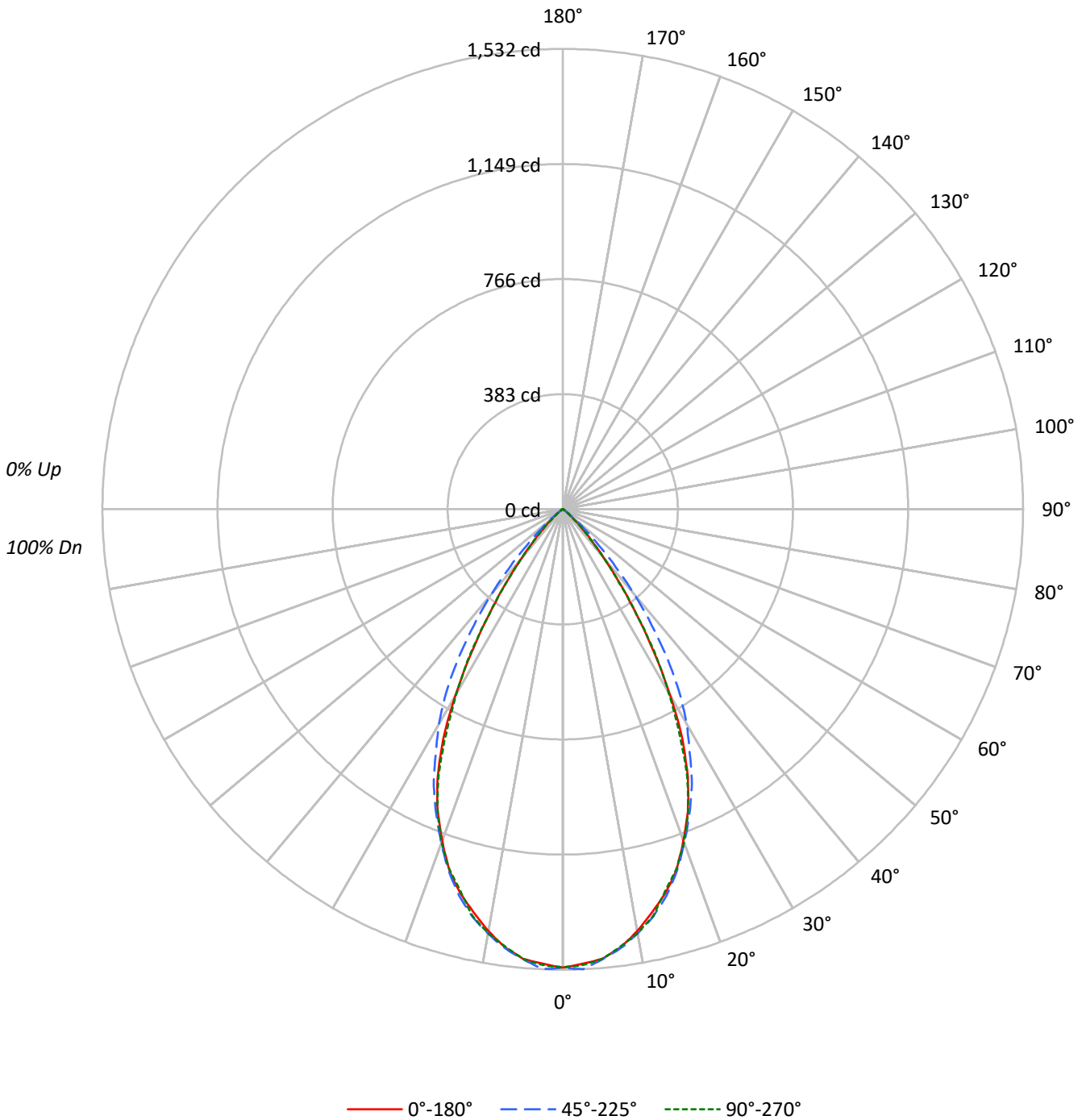
Lumens per Lamp: N/A
 Luminaire Lumens: 1408.0 lumens
 Efficiency: N/A
 Efficacy: 89.1 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	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°	147155	147155	147155
5°	145461	145654	145461
10°	139647	140500	140313
15°	132018	132987	131339
20°	120486	121380	121082
25°	104909	108210	104185
30°	79774	91762	78593
35°	50214	71334	50674
40°	27093	47108	26602
45°	12827	23266	12690
50°	4804	8721	4804
55°	2288	2776	2120
60°	1486	1312	1486
65°	890	890	890
70°	536	818	536
75°	373	373	373
80°	556	556	556
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	141.4	10.0
10°-20°	370.6	26.3
20°-30°	452.7	32.2
30°-40°	316.6	22.5
40°-50°	103.8	7.4
50°-60°	16.5	1.2
60°-70°	4.5	0.3
70°-80°	1.5	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°	964.7	68.5
0°-40°	1281.3	91.0
0°-60°	1401.6	99.5
0°-90°	1408.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1408.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1525	1525	1525	1525	1525	
5°	1502	1502	1504	1495	1502	141
15°	1322	1327	1331	1323	1315	369
25°	985	1000	1016	998	979	443
35°	426	503	606	496	430	272
45°	94	116	170	114	93	79
55°	14	14	16	14	13	13
65°	4	5	4	5	4	4
75°	1	1	1	1	1	1
85°	0	0	0	0	0	0
90°	0	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°	1525.1	1525.1	1525.1	1525.1	1525.1	1525.1	1525.1	1525.1	1525.1	1525.1	1525.1
2.5°	1513.5	1524.1	1521.2	1528.0	1528.0	1520.3	1522.2	1525.1	1529.0	1531.9	1508.6
5°	1501.8	1511.5	1502.8	1512.5	1506.7	1498.0	1512.5	1504.7	1509.6	1503.8	1507.6
7.5°	1470.8	1486.3	1468.9	1480.5	1476.6	1471.8	1477.6	1475.7	1478.6	1473.7	1463.1
10°	1425.3	1437.9	1426.3	1442.7	1435.0	1430.1	1435.0	1439.8	1438.8	1434.0	1439.8
12.5°	1373.0	1387.5	1381.7	1391.4	1382.7	1382.7	1394.3	1391.4	1392.3	1388.5	1395.2
15°	1321.6	1332.3	1323.5	1336.2	1332.3	1321.6	1326.4	1326.4	1334.2	1331.3	1323.5
17.5°	1257.7	1266.4	1256.7	1259.6	1255.7	1253.8	1274.1	1260.6	1268.3	1262.5	1263.5
20°	1173.4	1177.3	1174.3	1182.1	1177.3	1183.1	1181.1	1179.2	1179.2	1182.1	1175.3
22.5°	1088.1	1088.1	1091.0	1093.0	1096.8	1091.0	1102.6	1093.0	1093.9	1100.7	1098.8
25°	985.4	982.5	989.3	999.0	1002.8	998.0	1013.5	1005.7	1011.5	1016.4	1005.7
27.5°	860.4	860.4	867.2	883.7	886.6	892.4	913.7	913.7	921.4	914.7	922.4
30°	716.0	726.7	735.4	756.7	763.5	776.1	798.4	809.1	826.5	823.6	819.7
32.5°	567.8	582.3	583.3	605.6	624.0	645.3	675.3	700.5	713.1	721.8	712.1
35°	426.3	435.1	442.8	458.3	489.3	517.4	544.5	577.5	599.8	605.6	596.9
37.5°	312.0	313.9	321.7	336.2	359.5	386.6	419.6	455.4	478.7	487.4	477.7
40°	215.1	217.0	220.9	233.5	252.9	272.3	298.4	335.3	356.6	374.0	361.4
42.5°	144.4	146.3	150.2	159.9	170.5	188.9	209.3	232.5	252.9	260.6	253.8
45°	94.0	94.0	95.9	102.7	108.5	123.0	137.6	152.1	165.7	170.5	165.7
47.5°	55.2	56.2	58.1	63.0	69.7	75.6	86.2	95.9	99.8	103.7	101.7
50°	32.0	32.0	34.9	37.8	42.6	46.5	50.4	54.2	56.2	58.1	56.2
52.5°	17.4	18.4	19.4	20.4	22.3	26.2	29.1	29.1	30.0	31.0	30.0
55°	13.6	13.6	13.6	13.6	14.5	14.5	14.5	15.5	15.5	16.5	15.5
57.5°	9.7	9.7	9.7	10.7	10.7	10.7	9.7	9.7	9.7	9.7	9.7
60°	7.7	7.7	7.7	7.7	7.7	7.7	7.7	6.8	6.8	6.8	6.8
62.5°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
65°	3.9	3.9	4.9	4.9	4.9	4.9	4.9	3.9	3.9	3.9	3.9
67.5°	2.9	2.9	2.9	2.9	3.9	3.9	2.9	2.9	2.9	2.9	2.9
70°	1.9	1.9	1.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
72.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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°	1525.1	1525.1	1525.1	1525.1	1525.1	1525.1	1525.1	1525.1
2.5°	1525.1	1508.6	1510.5	1519.3	1514.4	1519.3	1518.3	1518.3
5°	1508.6	1503.8	1496.0	1493.1	1498.9	1511.5	1509.6	1501.8
7.5°	1477.6	1465.0	1473.7	1477.6	1472.8	1480.5	1484.4	1467.9
10°	1440.8	1436.0	1434.0	1436.0	1434.0	1441.8	1432.1	1432.1
12.5°	1388.5	1380.7	1380.7	1392.3	1385.5	1379.7	1387.5	1386.5
15°	1336.2	1320.6	1320.6	1324.5	1327.4	1323.5	1324.5	1314.8
17.5°	1258.6	1253.8	1247.0	1257.7	1260.6	1256.7	1259.6	1254.8
20°	1186.0	1186.0	1173.4	1178.2	1182.1	1185.0	1186.9	1179.2
22.5°	1093.0	1094.9	1086.2	1095.8	1098.8	1089.1	1091.0	1089.1
25°	1007.7	1006.7	999.9	996.0	998.0	994.1	993.2	978.6
27.5°	913.7	904.0	889.5	893.4	876.9	863.3	863.3	841.0
30°	811.9	795.5	776.1	756.7	742.2	726.7	718.0	705.4
32.5°	692.8	670.5	646.3	620.1	603.7	580.4	567.8	574.6
35°	574.6	541.6	508.7	482.5	457.3	443.8	428.3	430.2
37.5°	460.2	413.7	384.7	356.6	335.3	317.8	311.0	309.1
40°	336.2	299.4	270.3	250.0	235.5	221.9	214.1	211.2
42.5°	232.5	206.4	183.1	166.7	157.0	148.2	144.4	143.4
45°	151.2	135.7	120.2	108.5	100.8	95.0	94.0	93.0
47.5°	95.0	87.2	77.5	68.8	62.0	58.1	55.2	55.2
50°	54.2	51.4	46.5	41.7	37.8	35.9	32.9	32.0
52.5°	29.1	29.1	27.1	23.2	20.4	18.4	18.4	17.4
55°	15.5	15.5	14.5	14.5	13.6	13.6	13.6	12.6
57.5°	9.7	9.7	10.7	10.7	9.7	9.7	9.7	9.7
60°	6.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7
62.5°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
65°	3.9	4.9	4.9	4.9	4.9	3.9	3.9	3.9
67.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
70°	2.9	2.9	2.9	2.9	2.9	1.9	1.9	1.9
72.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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)