

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: **FLDSQ4C40D010 FEU4C409035 F4LC-CSSQ-MMS**

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: FLDSQ4C40D010 FEU4C409035 F4LC-CSSQ-MMS
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

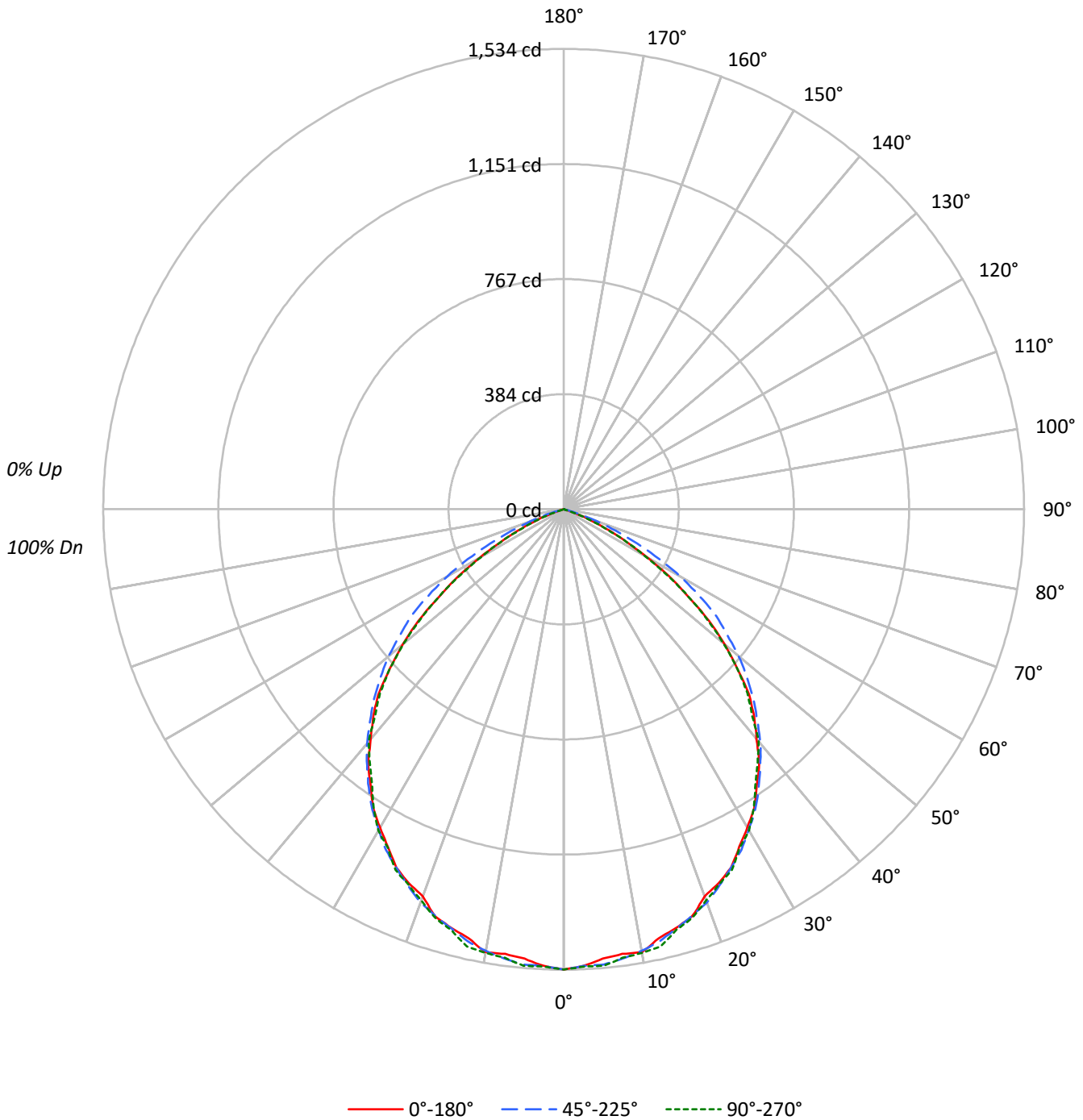
Lumens per Lamp: N/A
 Luminaire Lumens: 3276.0 lumens
 Efficiency: N/A
 Efficacy: 69.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 47
 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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CATALOG NUMBER: FLDSQ4C40D010 FEU4C409035 F4LC-CSSQ-MMS

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	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89				89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77				77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67				67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59				59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52				52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46				46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41				41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37				37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33				33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31				31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	147975	147975	147975
5°	145586	147485	147901
10°	146849	146417	147054
15°	144275	144485	144924
20°	140920	143148	142491
25°	140309	140309	141235
30°	136395	137365	137610
35°	132138	133434	131113
40°	125945	128401	127305
45°	119194	121869	118007
50°	104972	114129	104311
55°	85020	104433	85390
60°	62216	86589	60962
65°	37808	61667	36804
70°	14755	33205	14134
75°	1640	8947	1640
80°	1222	1222	1222
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	144.8	4.4
10°-20°	409.6	12.5
20°-30°	607.8	18.6
30°-40°	704.3	21.5
40°-50°	675.2	20.6
50°-60°	496.5	15.2
60°-70°	214.4	6.5
70°-80°	23.2	0.7
80°-90°	0.3	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°	1162.2	35.5
0°-40°	1866.4	57.0
0°-60°	3038.1	92.7
0°-90°	3276.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3276.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1534	1534	1534	1534	1534	
5°	1503	1518	1523	1525	1527	143
15°	1444	1453	1446	1449	1451	407
25°	1318	1316	1318	1320	1327	603
35°	1122	1128	1133	1130	1113	702
45°	874	876	893	880	865	664
55°	505	558	621	556	508	455
65°	166	207	270	205	161	170
75°	4	7	24	4	4	13
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6
2.5°	1522.7	1540.1	1542.3	1531.4	1527.0	1520.5	1535.7	1524.9	1529.2	1524.9	1522.7
5°	1503.1	1522.7	1524.9	1524.9	1520.5	1518.3	1524.9	1522.7	1520.5	1516.2	1522.7
7.5°	1494.4	1505.2	1516.2	1503.1	1509.6	1507.5	1522.7	1516.2	1514.0	1514.0	1509.6
10°	1498.8	1496.5	1505.2	1492.2	1496.5	1492.2	1505.2	1505.2	1500.9	1496.5	1494.4
12.5°	1463.8	1481.3	1481.3	1479.1	1474.8	1468.2	1481.3	1490.0	1476.9	1476.9	1474.8
15°	1444.3	1448.6	1450.8	1450.8	1448.6	1453.0	1459.5	1450.8	1453.0	1442.1	1446.4
17.5°	1422.5	1413.8	1420.3	1415.9	1418.1	1422.5	1431.2	1431.2	1418.1	1415.9	1420.3
20°	1372.4	1398.5	1400.7	1387.7	1389.8	1389.8	1405.1	1392.0	1400.7	1389.8	1394.1
22.5°	1348.4	1365.8	1368.0	1350.6	1361.4	1348.4	1363.7	1344.0	1365.8	1350.6	1357.1
25°	1317.9	1315.8	1322.2	1313.5	1315.8	1315.8	1326.6	1317.9	1324.5	1315.8	1317.9
27.5°	1267.8	1285.3	1283.0	1274.3	1278.7	1276.6	1298.3	1274.3	1287.4	1276.6	1280.9
30°	1224.2	1239.5	1235.1	1226.4	1226.4	1219.9	1243.9	1237.3	1235.1	1235.1	1232.9
32.5°	1180.7	1182.9	1178.5	1180.7	1182.9	1174.2	1193.7	1185.0	1182.9	1185.0	1187.2
35°	1121.8	1121.8	1126.2	1119.7	1128.4	1128.4	1145.8	1134.9	1132.8	1126.2	1132.8
37.5°	1069.6	1063.1	1065.2	1065.2	1069.6	1073.9	1082.6	1078.3	1078.3	1071.8	1076.1
40°	999.9	995.5	1002.0	1002.0	1008.6	1008.6	1017.3	1012.9	1019.4	1019.4	1019.4
42.5°	938.9	938.9	934.6	941.0	943.3	941.0	956.3	954.1	956.3	952.0	954.1
45°	873.5	873.5	869.1	867.0	877.9	875.7	893.1	886.6	895.3	890.9	893.1
47.5°	784.2	795.1	788.5	795.1	808.2	810.4	821.2	816.9	825.6	819.1	827.8
50°	699.3	699.3	705.8	714.5	727.6	729.8	742.8	751.6	755.9	758.0	760.3
52.5°	610.0	607.8	614.3	625.2	636.1	644.8	657.9	670.9	679.7	692.7	686.1
55°	505.4	509.7	516.3	529.4	546.8	557.6	568.6	586.0	601.3	607.8	620.8
57.5°	416.0	411.7	416.0	433.5	453.1	461.8	477.1	494.5	516.3	529.4	533.7
60°	322.4	324.6	328.9	344.2	359.4	372.5	379.1	407.3	427.0	440.0	448.7
62.5°	237.5	241.8	246.2	259.3	274.5	285.4	296.2	320.2	337.6	350.7	359.4
65°	165.6	167.7	174.3	180.8	196.1	206.9	215.6	235.3	252.7	263.6	270.1
67.5°	102.4	104.5	108.9	117.7	128.5	137.2	145.9	159.0	174.3	185.1	187.4
70°	52.3	54.5	56.6	63.2	71.9	76.3	82.7	93.7	104.5	113.2	117.7
72.5°	17.4	17.4	19.6	24.0	28.4	32.7	34.8	45.8	54.5	58.8	61.0
75°	4.4	4.4	4.4	4.4	4.4	6.6	6.6	13.1	17.4	21.8	24.0
77.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	4.4	4.4
80°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
82.5°	0.0	0.0	0.0	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	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6	1533.6
2.5°	1533.6	1529.2	1527.0	1529.2	1529.2	1527.0	1533.6	1542.3	1553.2	1524.9
5°	1531.4	1527.0	1531.4	1518.3	1524.9	1520.5	1529.2	1527.0	1535.7	1527.0
7.5°	1524.9	1516.2	1518.3	1511.8	1520.5	1509.6	1516.2	1529.2	1520.5	1507.5
10°	1503.1	1498.8	1514.0	1492.2	1487.8	1496.5	1514.0	1500.9	1496.5	1500.9
12.5°	1481.3	1481.3	1487.8	1470.4	1472.5	1476.9	1485.6	1476.9	1481.3	1492.2
15°	1457.3	1453.0	1463.8	1450.8	1448.6	1444.3	1453.0	1453.0	1457.3	1450.8
17.5°	1429.0	1422.5	1422.5	1418.1	1415.9	1426.9	1431.2	1433.3	1435.6	1426.9
20°	1394.1	1392.0	1398.5	1392.0	1394.1	1396.4	1396.4	1392.0	1411.6	1387.7
22.5°	1357.1	1363.7	1355.0	1350.6	1355.0	1359.3	1359.3	1361.4	1357.1	1352.7
25°	1320.1	1324.5	1326.6	1313.5	1320.1	1313.5	1328.8	1331.0	1322.2	1326.6
27.5°	1287.4	1280.9	1278.7	1270.0	1274.3	1272.2	1274.3	1274.3	1287.4	1270.0
30°	1237.3	1230.8	1232.9	1226.4	1228.6	1226.4	1228.6	1228.6	1237.3	1235.1
32.5°	1189.4	1182.9	1185.0	1178.5	1178.5	1180.7	1176.3	1176.3	1182.9	1178.5
35°	1143.6	1128.4	1130.5	1128.4	1130.5	1121.8	1121.8	1119.7	1124.0	1113.1
37.5°	1078.3	1071.8	1069.6	1067.4	1069.6	1065.2	1069.6	1063.1	1069.6	1060.9
40°	1019.4	1015.1	1017.3	1004.2	1004.2	1006.4	1002.0	999.9	1002.0	1010.7
42.5°	960.7	952.0	947.6	943.3	945.4	938.9	936.7	932.3	936.7	928.0
45°	890.9	890.9	888.8	877.9	880.1	880.1	871.4	862.7	864.8	864.8
47.5°	827.8	823.5	821.2	810.4	808.2	806.0	797.2	790.8	790.8	784.2
50°	758.0	753.7	747.2	736.3	731.9	718.8	712.4	703.6	694.9	694.9
52.5°	692.7	677.4	668.7	651.3	644.8	638.2	620.8	614.3	607.8	601.3
55°	614.3	601.3	583.8	564.2	555.5	544.6	527.1	514.1	505.4	507.6
57.5°	538.1	516.3	498.9	472.7	461.8	455.2	437.8	420.4	411.7	411.7
60°	444.4	427.0	405.2	381.2	372.5	361.6	339.8	328.9	322.4	315.9
62.5°	355.1	342.0	322.4	291.9	285.4	274.5	259.3	246.2	239.6	239.6
65°	265.7	252.7	235.3	213.5	204.8	196.1	183.0	169.9	163.4	161.2
67.5°	187.4	172.1	156.9	139.4	132.9	128.5	115.5	106.7	102.4	100.2
70°	113.2	104.5	93.7	80.6	74.0	69.7	61.0	54.5	52.3	50.1
72.5°	58.8	52.3	43.6	34.8	30.5	26.1	21.8	17.4	15.3	15.3
75°	21.8	17.4	10.9	6.6	4.4	4.4	4.4	4.4	4.4	4.4
77.5°	4.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
80°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
82.5°	0.0	0.0	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	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)