

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 FEU4C409030 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 FEU4C409030 F4LC-CSSQ-MMS
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

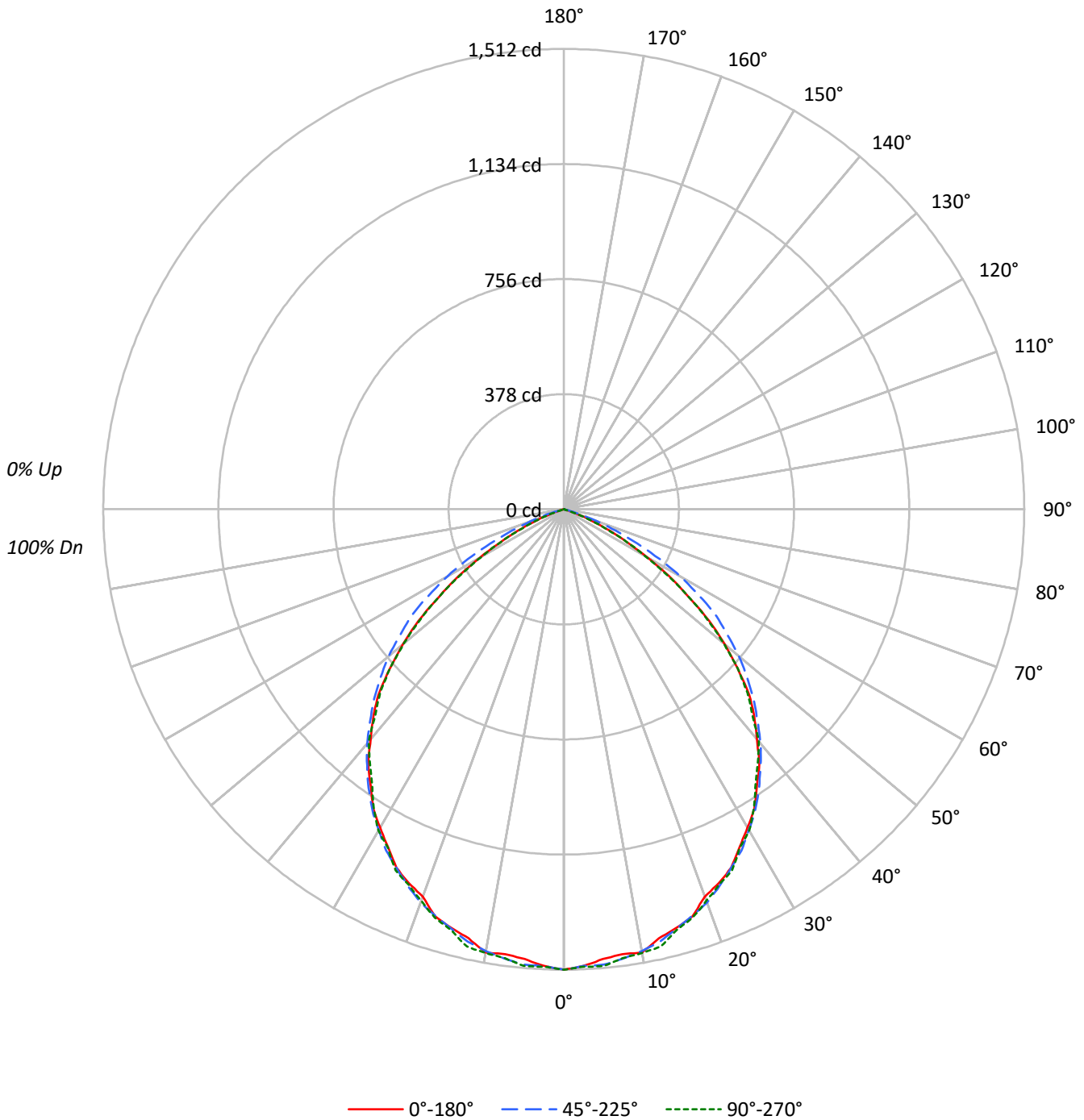
Lumens per Lamp: N/A
 Luminaire Lumens: 3230.0 lumens
 Efficiency: N/A
 Efficacy: 68.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	145901	145901	145901
5°	143543	145412	145829
10°	144781	144360	144987
15°	142247	142457	142886
20°	138938	141146	140489
25°	138339	138339	139255
30°	134479	135437	135682
35°	130289	131561	129276
40°	124169	126600	125516
45°	117516	120163	116342
50°	103501	112523	102855
55°	83826	102969	84196
60°	61328	85373	60093
65°	37283	60800	36302
70°	14529	32725	13936
75°	1603	8835	1603
80°	1222	1222	1222
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	142.7	4.4
10°-20°	403.9	12.5
20°-30°	599.3	18.6
30°-40°	694.4	21.5
40°-50°	665.7	20.6
50°-60°	489.5	15.2
60°-70°	211.4	6.5
70°-80°	22.8	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°	1145.9	35.5
0°-40°	1840.2	57.0
0°-60°	2995.4	92.7
0°-90°	3230.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3230.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1512	1512	1512	1512	1512	
5°	1482	1497	1501	1504	1506	141
15°	1424	1433	1426	1428	1430	401
25°	1299	1297	1299	1302	1308	595
35°	1106	1113	1117	1115	1098	692
45°	861	863	881	868	853	655
55°	498	550	612	548	500	448
65°	163	204	266	202	159	168
75°	4	6	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°	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1
2.5°	1501.3	1518.5	1520.7	1509.9	1505.6	1499.2	1514.2	1503.5	1507.8	1503.5	1501.3
5°	1482.0	1501.3	1503.5	1503.5	1499.2	1497.0	1503.5	1501.3	1499.2	1494.9	1501.3
7.5°	1473.4	1484.1	1494.9	1482.0	1488.4	1486.3	1501.3	1494.9	1492.7	1492.7	1488.4
10°	1477.7	1475.5	1484.1	1471.2	1475.5	1471.2	1484.1	1484.1	1479.8	1475.5	1473.4
12.5°	1443.3	1460.5	1460.5	1458.3	1454.1	1447.6	1460.5	1469.1	1456.2	1456.2	1454.1
15°	1424.0	1428.3	1430.4	1430.4	1428.3	1432.6	1439.0	1430.4	1432.6	1421.8	1426.1
17.5°	1402.5	1393.9	1400.3	1396.0	1398.2	1402.5	1411.1	1411.1	1398.2	1396.0	1400.3
20°	1353.1	1378.9	1381.1	1368.2	1370.3	1370.3	1385.3	1372.5	1381.1	1370.3	1374.6
22.5°	1329.4	1346.6	1348.8	1331.6	1342.3	1329.4	1344.5	1325.1	1346.6	1331.6	1338.0
25°	1299.4	1297.3	1303.7	1295.1	1297.3	1297.3	1308.0	1299.4	1305.9	1297.3	1299.4
27.5°	1250.0	1267.2	1265.0	1256.4	1260.7	1258.6	1280.1	1256.4	1269.3	1258.6	1262.9
30°	1207.0	1222.1	1217.8	1209.2	1209.2	1202.7	1226.4	1219.9	1217.8	1217.8	1215.6
32.5°	1164.1	1166.3	1162.0	1164.1	1166.3	1157.7	1177.0	1168.4	1166.3	1168.4	1170.6
35°	1106.1	1106.1	1110.4	1104.0	1112.6	1112.6	1129.7	1119.0	1116.9	1110.4	1116.9
37.5°	1054.5	1048.1	1050.3	1050.3	1054.5	1058.8	1067.4	1063.1	1063.1	1056.7	1061.0
40°	985.8	981.5	987.9	987.9	994.4	994.4	1003.0	998.7	1005.1	1005.1	1005.1
42.5°	925.7	925.7	921.4	927.8	930.0	927.8	942.9	940.7	942.9	938.6	940.7
45°	861.2	861.2	856.9	854.8	865.5	863.4	880.6	874.1	882.7	878.4	880.6
47.5°	773.2	783.9	777.5	783.9	796.8	799.0	809.7	805.4	814.0	807.6	816.2
50°	689.5	689.5	695.9	704.5	717.3	719.5	732.4	741.0	745.3	747.4	749.6
52.5°	601.4	599.2	605.7	616.4	627.2	635.8	648.6	661.5	670.1	683.0	676.5
55°	498.3	502.6	509.0	521.9	539.1	549.8	560.6	577.7	592.8	599.2	612.1
57.5°	410.2	405.9	410.2	427.4	446.7	455.3	470.4	487.6	509.0	521.9	526.2
60°	317.8	320.0	324.3	339.4	354.4	367.3	373.7	401.6	421.0	433.9	442.4
62.5°	234.1	238.4	242.7	255.6	270.6	281.4	292.1	315.7	332.9	345.8	354.4
65°	163.3	165.4	171.8	178.2	193.3	204.0	212.6	232.0	249.1	259.9	266.3
67.5°	101.0	103.1	107.3	116.0	126.7	135.3	143.9	156.8	171.8	182.5	184.7
70°	51.5	53.7	55.8	62.3	70.9	75.2	81.6	92.4	103.1	111.6	116.0
72.5°	17.2	17.2	19.4	23.7	28.0	32.2	34.4	45.1	53.7	58.0	60.1
75°	4.3	4.3	4.3	4.3	4.3	6.5	6.5	12.9	17.2	21.5	23.7
77.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	4.3	4.3
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°	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1	1512.1
2.5°	1512.1	1507.8	1505.6	1507.8	1507.8	1505.6	1512.1	1520.7	1531.3	1503.5
5°	1509.9	1505.6	1509.9	1497.0	1503.5	1499.2	1507.8	1505.6	1514.2	1505.6
7.5°	1503.5	1494.9	1497.0	1490.6	1499.2	1488.4	1494.9	1507.8	1499.2	1486.3
10°	1482.0	1477.7	1492.7	1471.2	1466.9	1475.5	1492.7	1479.8	1475.5	1479.8
12.5°	1460.5	1460.5	1466.9	1449.8	1451.9	1456.2	1464.7	1456.2	1460.5	1471.2
15°	1436.9	1432.6	1443.3	1430.4	1428.3	1424.0	1432.6	1432.6	1436.9	1430.4
17.5°	1408.9	1402.5	1402.5	1398.2	1396.0	1406.8	1411.1	1413.2	1415.4	1406.8
20°	1374.6	1372.5	1378.9	1372.5	1374.6	1376.8	1376.8	1372.5	1391.7	1368.2
22.5°	1338.0	1344.5	1335.9	1331.6	1335.9	1340.2	1340.2	1342.3	1338.0	1333.7
25°	1301.6	1305.9	1308.0	1295.1	1301.6	1295.1	1310.2	1312.3	1303.7	1308.0
27.5°	1269.3	1262.9	1260.7	1252.2	1256.4	1254.3	1256.4	1256.4	1269.3	1252.2
30°	1219.9	1213.5	1215.6	1209.2	1211.3	1209.2	1211.3	1211.3	1219.9	1217.8
32.5°	1172.7	1166.3	1168.4	1162.0	1162.0	1164.1	1159.8	1159.8	1166.3	1162.0
35°	1127.5	1112.6	1114.7	1112.6	1114.7	1106.1	1106.1	1104.0	1108.3	1097.5
37.5°	1063.1	1056.7	1054.5	1052.4	1054.5	1050.3	1054.5	1048.1	1054.5	1046.0
40°	1005.1	1000.8	1003.0	990.1	990.1	992.2	987.9	985.8	987.9	996.5
42.5°	947.2	938.6	934.3	930.0	932.1	925.7	923.5	919.2	923.5	914.9
45°	878.4	878.4	876.3	865.5	867.7	867.7	859.1	850.5	852.6	852.6
47.5°	816.2	811.9	809.7	799.0	796.8	794.7	786.0	779.6	779.6	773.2
50°	747.4	743.1	736.7	725.9	721.6	708.8	702.4	693.8	685.2	685.2
52.5°	683.0	667.9	659.3	642.2	635.8	629.3	612.1	605.7	599.2	592.8
55°	605.7	592.8	575.6	556.3	547.7	536.9	519.7	506.9	498.3	500.5
57.5°	530.5	509.0	491.9	466.1	455.3	448.8	431.7	414.5	405.9	405.9
60°	438.2	421.0	399.5	375.8	367.3	356.6	335.0	324.3	317.8	311.4
62.5°	350.1	337.2	317.8	287.8	281.4	270.6	255.6	242.7	236.3	236.3
65°	262.0	249.1	232.0	210.5	201.9	193.3	180.4	167.5	161.1	159.0
67.5°	184.7	169.7	154.7	137.5	131.0	126.7	113.8	105.2	101.0	98.8
70°	111.6	103.1	92.4	79.5	73.0	68.7	60.1	53.7	51.5	49.4
72.5°	58.0	51.5	42.9	34.4	30.1	25.8	21.5	17.2	15.1	15.1
75°	21.5	17.2	10.8	6.5	4.3	4.3	4.3	4.3	4.3	4.3
77.5°	4.3	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)