

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: **FLDSQ4C30D010 FEU4C309050 F4LC-DFSSQ-MW**

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: FLDSQ4C30D010 FEU4C309050 F4LC-DFSSQ-MW  
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

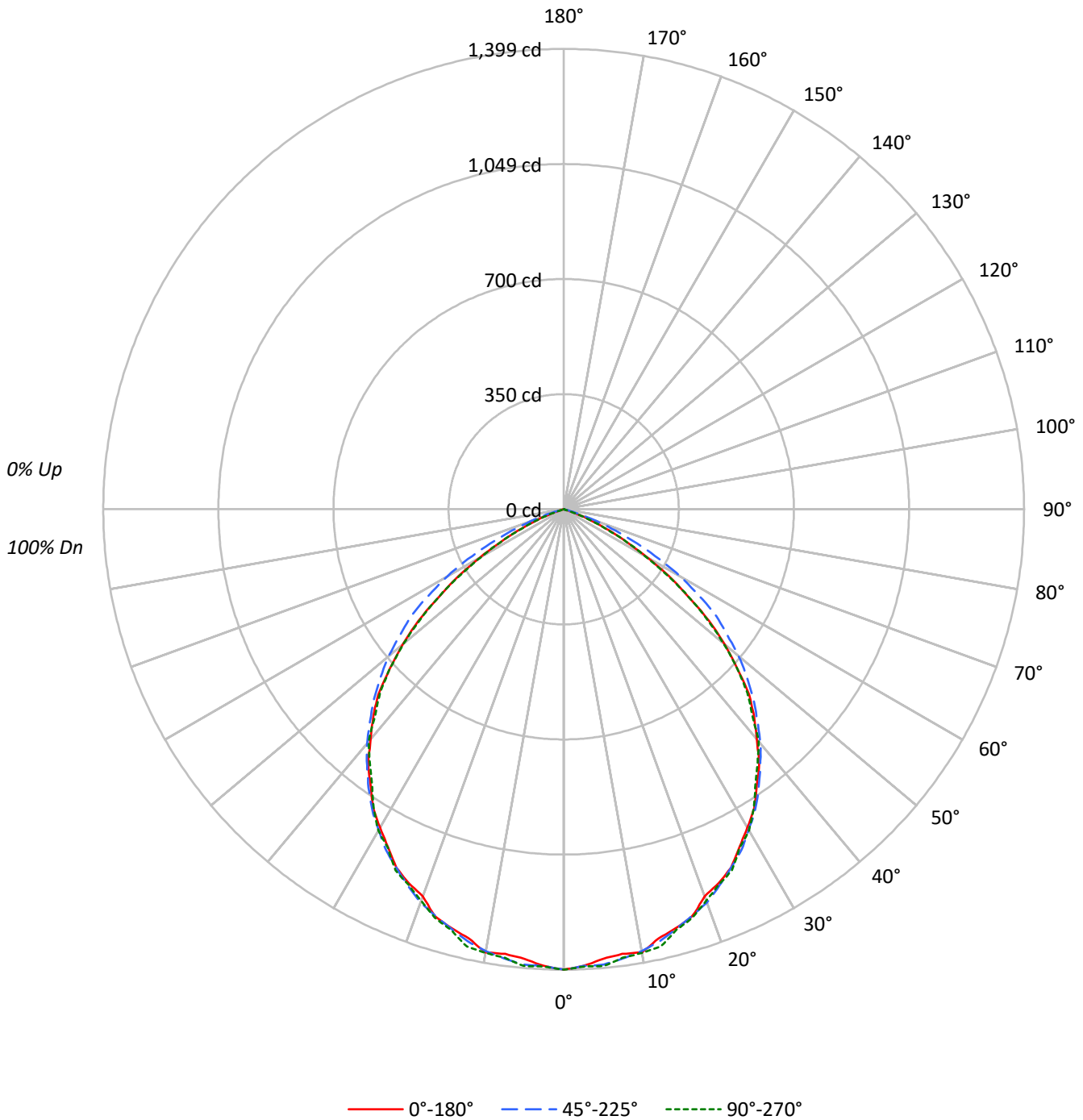
Lumens per Lamp: N/A  
 Luminaire Lumens: 2988.0 lumens  
 Efficiency: N/A  
 Efficacy: 94.6 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 31.6  
 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



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C30D010 FEU4C309050 F4LC-DFSSQ-MW

**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°	134969	134969	134969
5°	132792	134516	134903
10°	133935	133543	134121
15°	131589	131788	132178
20°	128526	130570	129964
25°	127969	127969	128821
30°	124407	125287	125521
35°	120524	121702	119593
40°	114873	117115	116120
45°	108714	111157	107636
50°	95740	104086	95140
55°	77534	95248	77887
60°	56735	78986	55597
65°	34475	56256	33585
70°	13457	30271	12893
75°	1491	8164	1491
80°	1111	1111	1111
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	132.0	4.4
10°-20°	373.6	12.5
20°-30°	554.4	18.6
30°-40°	642.3	21.5
40°-50°	615.9	20.6
50°-60°	452.8	15.2
60°-70°	195.6	6.5
70°-80°	21.1	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°	1060.0	35.5
0°-40°	1702.4	57.0
0°-60°	2771.0	92.7
0°-90°	2988.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2988.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1399	1399	1399	1399	1399	
5°	1371	1385	1389	1391	1393	131
15°	1317	1325	1319	1321	1323	371
25°	1202	1200	1202	1204	1210	550
35°	1023	1029	1033	1031	1015	640
45°	797	799	815	803	789	606
55°	461	509	566	507	463	415
65°	151	189	246	187	147	155
75°	4	6	22	4	4	12
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°	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8
2.5°	1388.8	1404.7	1406.7	1396.8	1392.8	1386.9	1400.7	1390.8	1394.8	1390.8	1388.8
5°	1371.0	1388.8	1390.8	1390.8	1386.9	1384.8	1390.8	1388.8	1386.9	1382.9	1388.8
7.5°	1363.0	1372.9	1382.9	1371.0	1376.9	1374.9	1388.8	1382.9	1380.9	1380.9	1376.9
10°	1367.0	1365.0	1372.9	1361.0	1365.0	1361.0	1372.9	1372.9	1368.9	1365.0	1363.0
12.5°	1335.1	1351.0	1351.0	1349.1	1345.1	1339.1	1351.0	1359.1	1347.1	1347.1	1345.1
15°	1317.3	1321.3	1323.2	1323.2	1321.3	1325.2	1331.2	1323.2	1325.2	1315.3	1319.3
17.5°	1297.4	1289.5	1295.4	1291.4	1293.5	1297.4	1305.4	1305.4	1293.5	1291.4	1295.4
20°	1251.7	1275.6	1277.6	1265.7	1267.6	1267.6	1281.6	1269.6	1277.6	1267.6	1271.6
22.5°	1229.8	1245.7	1247.8	1231.9	1241.8	1229.8	1243.8	1225.9	1245.7	1231.9	1237.8
25°	1202.0	1200.1	1206.0	1198.1	1200.1	1200.1	1210.0	1202.0	1208.0	1200.1	1202.0
27.5°	1156.4	1172.3	1170.3	1162.3	1166.3	1164.3	1184.2	1162.3	1174.2	1164.3	1168.3
30°	1116.6	1130.5	1126.6	1118.6	1118.6	1112.6	1134.5	1128.5	1126.6	1126.6	1124.5
32.5°	1076.9	1078.9	1074.9	1076.9	1078.9	1070.9	1088.8	1080.8	1078.9	1080.8	1082.9
35°	1023.2	1023.2	1027.2	1021.3	1029.2	1029.2	1045.1	1035.1	1033.2	1027.2	1033.2
37.5°	975.5	969.6	971.6	971.6	975.5	979.5	987.5	983.5	983.5	977.6	981.5
40°	912.0	908.0	913.9	913.9	919.9	919.9	927.9	923.9	929.8	929.8	929.8
42.5°	856.4	856.4	852.4	858.3	860.3	858.3	872.3	870.2	872.3	868.3	870.2
45°	796.7	796.7	792.7	790.8	800.7	798.7	814.6	808.6	816.6	812.6	814.6
47.5°	715.2	725.2	719.2	725.2	737.1	739.1	749.0	745.1	753.0	747.1	755.0
50°	637.8	637.8	643.7	651.7	663.6	665.6	677.5	685.5	689.5	691.4	693.4
52.5°	556.3	554.3	560.3	570.2	580.2	588.1	600.0	612.0	619.9	631.8	625.8
55°	460.9	464.9	470.9	482.8	498.7	508.6	518.6	534.5	548.4	554.3	566.2
57.5°	379.5	375.5	379.5	395.4	413.3	421.2	435.2	451.0	470.9	482.8	486.8
60°	294.0	296.0	300.0	314.0	327.8	339.7	345.7	371.5	389.4	401.4	409.3
62.5°	216.6	220.6	224.5	236.5	250.3	260.3	270.2	292.1	308.0	319.9	327.8
65°	151.0	153.0	159.0	164.9	178.8	188.7	196.7	214.6	230.5	240.4	246.4
67.5°	93.4	95.3	99.3	107.3	117.2	125.2	133.1	145.0	159.0	168.9	170.9
70°	47.7	49.7	51.6	57.6	65.6	69.6	75.5	85.4	95.3	103.3	107.3
72.5°	15.9	15.9	17.9	21.9	25.9	29.8	31.8	41.7	49.7	53.7	55.6
75°	4.0	4.0	4.0	4.0	4.0	6.0	6.0	11.9	15.9	19.9	21.9
77.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0
80°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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°	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8	1398.8
2.5°	1398.8	1394.8	1392.8	1394.8	1394.8	1392.8	1398.8	1406.7	1416.6	1390.8
5°	1396.8	1392.8	1396.8	1384.8	1390.8	1386.9	1394.8	1392.8	1400.7	1392.8
7.5°	1390.8	1382.9	1384.8	1378.9	1386.9	1376.9	1382.9	1394.8	1386.9	1374.9
10°	1371.0	1367.0	1380.9	1361.0	1357.0	1365.0	1380.9	1368.9	1365.0	1368.9
12.5°	1351.0	1351.0	1357.0	1341.1	1343.1	1347.1	1355.0	1347.1	1351.0	1361.0
15°	1329.2	1325.2	1335.1	1323.2	1321.3	1317.3	1325.2	1325.2	1329.2	1323.2
17.5°	1303.4	1297.4	1297.4	1293.5	1291.4	1301.4	1305.4	1307.3	1309.4	1301.4
20°	1271.6	1269.6	1275.6	1269.6	1271.6	1273.6	1273.6	1269.6	1287.5	1265.7
22.5°	1237.8	1243.8	1235.8	1231.9	1235.8	1239.8	1239.8	1241.8	1237.8	1233.8
25°	1204.1	1208.0	1210.0	1198.1	1204.1	1198.1	1212.0	1213.9	1206.0	1210.0
27.5°	1174.2	1168.3	1166.3	1158.3	1162.3	1160.4	1162.3	1162.3	1174.2	1158.3
30°	1128.5	1122.6	1124.5	1118.6	1120.6	1118.6	1120.6	1120.6	1128.5	1126.6
32.5°	1084.8	1078.9	1080.8	1074.9	1074.9	1076.9	1072.9	1072.9	1078.9	1074.9
35°	1043.1	1029.2	1031.1	1029.2	1031.1	1023.2	1023.2	1021.3	1025.2	1015.3
37.5°	983.5	977.6	975.5	973.6	975.5	971.6	975.5	969.6	975.5	967.6
40°	929.8	925.8	927.9	916.0	916.0	917.9	913.9	912.0	913.9	921.9
42.5°	876.2	868.3	864.3	860.3	862.3	856.4	854.3	850.4	854.3	846.4
45°	812.6	812.6	810.6	800.7	802.7	802.7	794.8	786.8	788.8	788.8
47.5°	755.0	751.1	749.0	739.1	737.1	735.2	727.2	721.2	721.2	715.2
50°	691.4	687.4	681.5	671.5	667.6	655.7	649.7	641.8	633.8	633.8
52.5°	631.8	617.9	609.9	594.0	588.1	582.1	566.2	560.3	554.3	548.4
55°	560.3	548.4	532.5	514.6	506.7	496.7	480.8	468.9	460.9	463.0
57.5°	490.8	470.9	455.0	431.2	421.2	415.2	399.3	383.4	375.5	375.5
60°	405.3	389.4	369.6	347.7	339.7	329.9	309.9	300.0	294.0	288.1
62.5°	323.9	311.9	294.0	266.2	260.3	250.3	236.5	224.5	218.6	218.6
65°	242.4	230.5	214.6	194.7	186.8	178.8	166.9	155.0	149.0	147.1
67.5°	170.9	156.9	143.1	127.2	121.2	117.2	105.3	97.4	93.4	91.4
70°	103.3	95.3	85.4	73.5	67.5	63.6	55.6	49.7	47.7	45.7
72.5°	53.7	47.7	39.7	31.8	27.8	23.8	19.9	15.9	13.9	13.9
75°	19.9	15.9	10.0	6.0	4.0	4.0	4.0	4.0	4.0	4.0
77.5°	4.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
80°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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)