

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: **FLDSQ4C35D010 FEU4C359030 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: FLDSQ4C35D010 FEU4C359030 F4LC-CSSQ-MMS
Description: 4 INCH 3500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS
AND F4LC-CSSQ TRIM WITH MMS FINISH
Light Source: -
Ballast/Driver: -

Summary

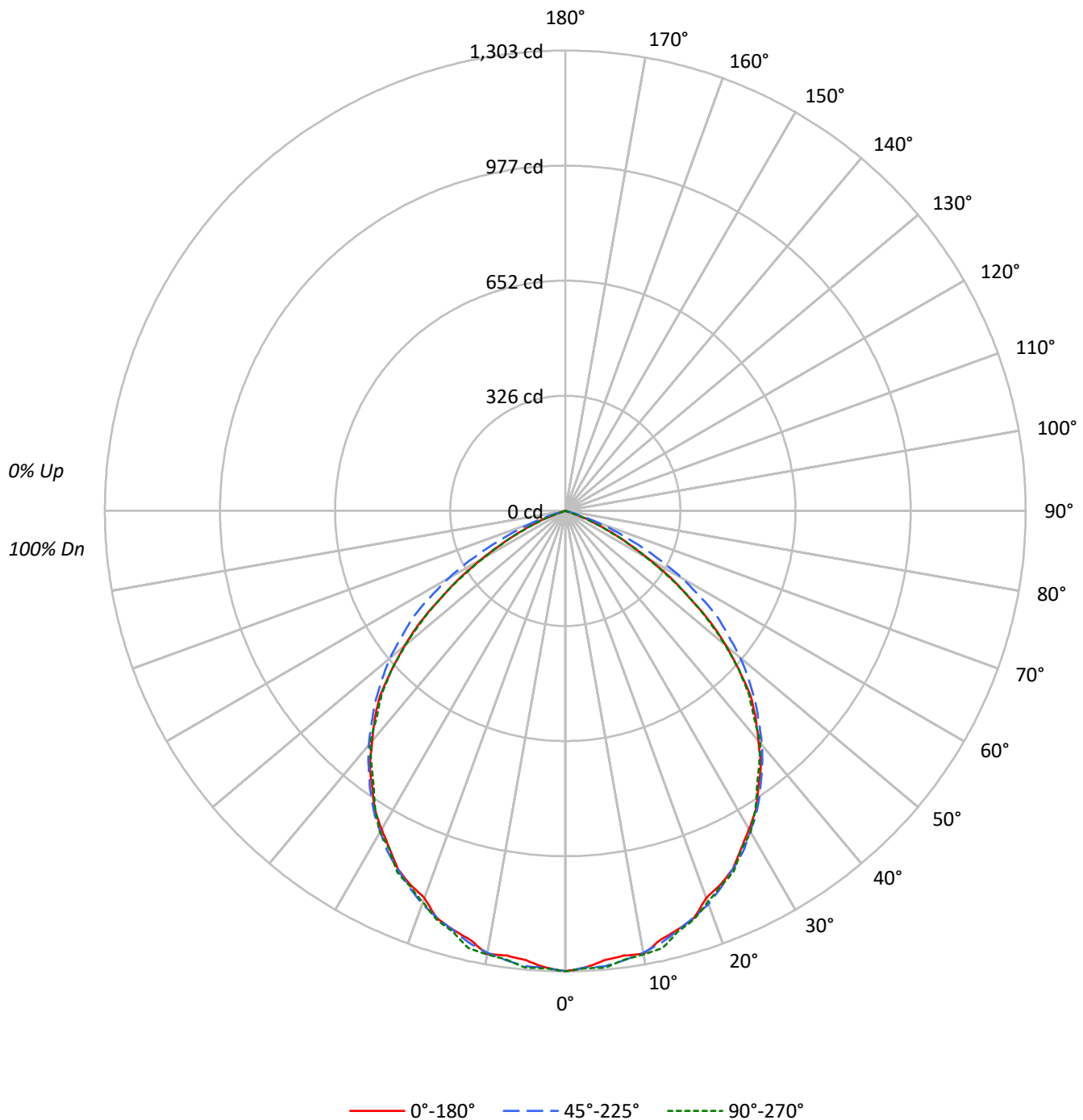
Lumens per Lamp: N/A
Luminaire Lumens: 2783.0 lumens
Efficiency: N/A
Efficacy: 68.9 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 40.4
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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	125706	125706	125706
5°	123677	125285	125644
10°	124745	124382	124921
15°	122558	122738	123108
20°	119706	121606	121041
25°	119197	119197	119985
30°	115872	116697	116909
35°	112255	113350	111383
40°	106988	109079	108147
45°	101250	103529	100241
50°	89180	96956	88625
55°	72218	88721	72538
60°	52857	73563	51776
65°	32124	52398	31279
70°	12526	28211	12018
75°	1379	7605	1379
80°	1056	1056	1056
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	123.0	4.4
10°-20°	348.0	12.5
20°-30°	516.3	18.6
30°-40°	598.3	21.5
40°-50°	573.6	20.6
50°-60°	421.8	15.2
60°-70°	182.2	6.5
70°-80°	19.7	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°	987.3	35.5
0°-40°	1585.6	57.0
0°-60°	2580.9	92.7
0°-90°	2783.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2783.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1303	1303	1303	1303	1303	
5°	1277	1290	1294	1295	1297	122
15°	1227	1234	1229	1231	1232	346
25°	1120	1118	1120	1121	1127	513
35°	953	959	962	960	946	596
45°	742	744	759	748	735	564
55°	429	474	527	472	431	386
65°	141	176	230	174	137	145
75°	4	6	20	4	4	11
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°	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8
2.5°	1293.5	1308.3	1310.2	1300.9	1297.2	1291.7	1304.6	1295.4	1299.1	1295.4	1293.5
5°	1276.9	1293.5	1295.4	1295.4	1291.7	1289.8	1295.4	1293.5	1291.7	1288.0	1293.5
7.5°	1269.5	1278.7	1288.0	1276.9	1282.4	1280.6	1293.5	1288.0	1286.1	1286.1	1282.4
10°	1273.2	1271.3	1278.7	1267.6	1271.3	1267.6	1278.7	1278.7	1275.0	1271.3	1269.5
12.5°	1243.5	1258.3	1258.3	1256.5	1252.8	1247.2	1258.3	1265.8	1254.6	1254.6	1252.8
15°	1226.9	1230.6	1232.4	1232.4	1230.6	1234.3	1239.8	1232.4	1234.3	1225.0	1228.7
17.5°	1208.4	1201.0	1206.5	1202.8	1204.7	1208.4	1215.8	1215.8	1204.7	1202.8	1206.5
20°	1165.8	1188.0	1189.9	1178.8	1180.6	1180.6	1193.6	1182.5	1189.9	1180.6	1184.3
22.5°	1145.5	1160.3	1162.1	1147.3	1156.6	1145.5	1158.4	1141.8	1160.3	1147.3	1152.9
25°	1119.6	1117.7	1123.3	1115.9	1117.7	1117.7	1127.0	1119.6	1125.1	1117.7	1119.6
27.5°	1077.1	1091.9	1090.0	1082.6	1086.3	1084.5	1103.0	1082.6	1093.7	1084.5	1088.2
30°	1040.0	1053.0	1049.3	1041.9	1041.9	1036.3	1056.7	1051.1	1049.3	1049.3	1047.4
32.5°	1003.0	1004.9	1001.2	1003.0	1004.9	997.5	1014.1	1006.7	1004.9	1006.7	1008.6
35°	953.0	953.0	956.7	951.2	958.6	958.6	973.4	964.1	962.3	956.7	962.3
37.5°	908.6	903.1	904.9	904.9	908.6	912.3	919.7	916.0	916.0	910.5	914.2
40°	849.4	845.7	851.2	851.2	856.8	856.8	864.2	860.5	866.0	866.0	866.0
42.5°	797.6	797.6	793.9	799.4	801.3	799.4	812.4	810.5	812.4	808.7	810.5
45°	742.0	742.0	738.3	736.5	745.7	743.9	758.7	753.1	760.5	756.8	758.7
47.5°	666.2	675.5	669.9	675.5	686.6	688.4	697.7	694.0	701.4	695.8	703.2
50°	594.1	594.1	599.6	607.0	618.1	620.0	631.1	638.5	642.2	644.0	645.9
52.5°	518.2	516.3	521.9	531.1	540.4	547.8	558.9	570.0	577.4	588.5	582.9
55°	429.3	433.0	438.6	449.7	464.5	473.7	483.0	497.8	510.8	516.3	527.4
57.5°	353.4	349.7	353.4	368.2	384.9	392.3	405.3	420.1	438.6	449.7	453.4
60°	273.9	275.7	279.4	292.4	305.3	316.4	322.0	346.0	362.7	373.8	381.2
62.5°	201.7	205.4	209.1	220.2	233.2	242.4	251.7	272.0	286.8	297.9	305.3
65°	140.7	142.5	148.1	153.6	166.6	175.8	183.2	199.9	214.7	223.9	229.5
67.5°	87.0	88.8	92.5	100.0	109.2	116.6	124.0	135.1	148.1	157.3	159.2
70°	44.4	46.3	48.1	53.7	61.1	64.8	70.3	79.6	88.8	96.2	100.0
72.5°	14.8	14.8	16.7	20.4	24.1	27.8	29.6	38.9	46.3	50.0	51.8
75°	3.7	3.7	3.7	3.7	3.7	5.6	5.6	11.1	14.8	18.5	20.4
77.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.7	3.7
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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°	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8	1302.8
2.5°	1302.8	1299.1	1297.2	1299.1	1299.1	1297.2	1302.8	1310.2	1319.4	1295.4
5°	1300.9	1297.2	1300.9	1289.8	1295.4	1291.7	1299.1	1297.2	1304.6	1297.2
7.5°	1295.4	1288.0	1289.8	1284.3	1291.7	1282.4	1288.0	1299.1	1291.7	1280.6
10°	1276.9	1273.2	1286.1	1267.6	1263.9	1271.3	1286.1	1275.0	1271.3	1275.0
12.5°	1258.3	1258.3	1263.9	1249.1	1250.9	1254.6	1262.0	1254.6	1258.3	1267.6
15°	1238.0	1234.3	1243.5	1232.4	1230.6	1226.9	1234.3	1234.3	1238.0	1232.4
17.5°	1213.9	1208.4	1208.4	1204.7	1202.8	1212.1	1215.8	1217.6	1219.5	1212.1
20°	1184.3	1182.5	1188.0	1182.5	1184.3	1186.2	1186.2	1182.5	1199.1	1178.8
22.5°	1152.9	1158.4	1151.0	1147.3	1151.0	1154.7	1154.7	1156.6	1152.9	1149.2
25°	1121.4	1125.1	1127.0	1115.9	1121.4	1115.9	1128.8	1130.7	1123.3	1127.0
27.5°	1093.7	1088.2	1086.3	1078.9	1082.6	1080.8	1082.6	1082.6	1093.7	1078.9
30°	1051.1	1045.6	1047.4	1041.9	1043.7	1041.9	1043.7	1043.7	1051.1	1049.3
32.5°	1010.4	1004.9	1006.7	1001.2	1001.2	1003.0	999.3	999.3	1004.9	1001.2
35°	971.5	958.6	960.4	958.6	960.4	953.0	953.0	951.2	954.9	945.6
37.5°	916.0	910.5	908.6	906.8	908.6	904.9	908.6	903.1	908.6	901.2
40°	866.0	862.3	864.2	853.1	853.1	854.9	851.2	849.4	851.2	858.6
42.5°	816.1	808.7	805.0	801.3	803.1	797.6	795.7	792.0	795.7	788.3
45°	756.8	756.8	755.0	745.7	747.6	747.6	740.2	732.8	734.6	734.6
47.5°	703.2	699.5	697.7	688.4	686.6	684.7	677.3	671.8	671.8	666.2
50°	644.0	640.3	634.8	625.5	621.8	610.7	605.2	597.8	590.4	590.4
52.5°	588.5	575.5	568.1	553.3	547.8	542.2	527.4	521.9	516.3	510.8
55°	521.9	510.8	496.0	479.3	471.9	462.6	447.8	436.7	429.3	431.2
57.5°	457.1	438.6	423.8	401.6	392.3	386.7	371.9	357.1	349.7	349.7
60°	377.5	362.7	344.2	323.8	316.4	307.2	288.7	279.4	273.9	268.3
62.5°	301.6	290.5	273.9	248.0	242.4	233.2	220.2	209.1	203.6	203.6
65°	225.8	214.7	199.9	181.4	174.0	166.6	155.5	144.4	138.8	137.0
67.5°	159.2	146.2	133.3	118.5	112.9	109.2	98.1	90.7	87.0	85.1
70°	96.2	88.8	79.6	68.5	62.9	59.2	51.8	46.3	44.4	42.6
72.5°	50.0	44.4	37.0	29.6	25.9	22.2	18.5	14.8	13.0	13.0
75°	18.5	14.8	9.3	5.6	3.7	3.7	3.7	3.7	3.7	3.7
77.5°	3.7	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
80°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
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)