

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 FEU4C309027 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 FEU4C309027 F4LC-DFSSQ-MW
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

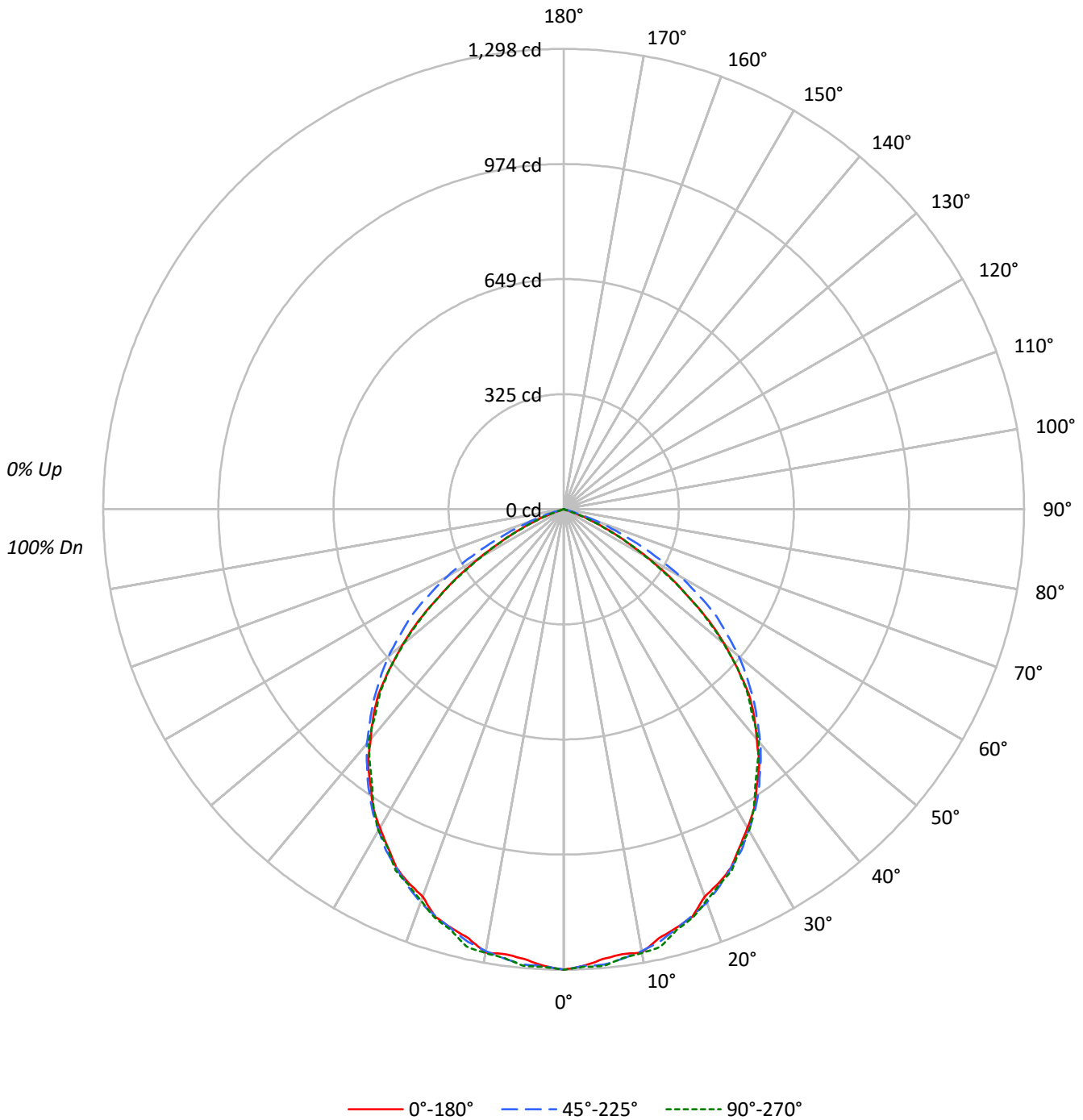
Lumens per Lamp: N/A
 Luminaire Lumens: 2773.0 lumens
 Efficiency: N/A
 Efficacy: 87.8 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



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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	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°	125252	125252	125252
5°	123232	124840	125198
10°	124294	123932	124470
15°	122119	122299	122668
20°	119285	121174	120609
25°	118760	118760	119548
30°	115449	116274	116485
35°	111855	112938	110983
40°	106610	108689	107756
45°	100895	103161	99886
50°	88850	96596	88295
55°	71966	88401	72269
60°	52664	73293	51602
65°	32009	52192	31165
70°	12469	28099	11962
75°	1379	7568	1379
80°	1056	1056	1056
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.5	4.4
10°-20°	346.7	12.5
20°-30°	514.5	18.6
30°-40°	596.1	21.5
40°-50°	571.5	20.6
50°-60°	420.2	15.2
60°-70°	181.5	6.5
70°-80°	19.6	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°	983.7	35.5
0°-40°	1579.9	57.0
0°-60°	2571.6	92.7
0°-90°	2773.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2773.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1298	1298	1298	1298	1298	
5°	1272	1285	1289	1291	1293	121
15°	1222	1230	1224	1226	1228	345
25°	1116	1114	1116	1117	1123	511
35°	950	955	959	957	942	594
45°	739	741	756	745	732	562
55°	428	472	526	470	430	385
65°	140	175	229	173	136	144
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°	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1
2.5°	1288.9	1303.6	1305.5	1296.2	1292.6	1287.1	1299.9	1290.8	1294.4	1290.8	1288.9
5°	1272.3	1288.9	1290.8	1290.8	1287.1	1285.2	1290.8	1288.9	1287.1	1283.4	1288.9
7.5°	1264.9	1274.1	1283.4	1272.3	1277.8	1276.0	1288.9	1283.4	1281.5	1281.5	1277.8
10°	1268.6	1266.8	1274.1	1263.1	1266.8	1263.1	1274.1	1274.1	1270.4	1266.8	1264.9
12.5°	1239.1	1253.8	1253.8	1252.0	1248.3	1242.8	1253.8	1261.3	1250.1	1250.1	1248.3
15°	1222.5	1226.2	1228.0	1228.0	1226.2	1229.9	1235.4	1228.0	1229.9	1220.6	1224.3
17.5°	1204.1	1196.7	1202.2	1198.5	1200.4	1204.1	1211.5	1211.5	1200.4	1198.5	1202.2
20°	1161.7	1183.8	1185.7	1174.6	1176.4	1176.4	1189.3	1178.3	1185.7	1176.4	1180.1
22.5°	1141.3	1156.1	1158.0	1143.2	1152.4	1141.3	1154.3	1137.7	1156.1	1143.2	1148.7
25°	1115.5	1113.7	1119.2	1111.9	1113.7	1113.7	1122.9	1115.5	1121.1	1113.7	1115.5
27.5°	1073.2	1087.9	1086.0	1078.7	1082.4	1080.6	1099.0	1078.7	1089.7	1080.6	1084.2
30°	1036.2	1049.2	1045.5	1038.1	1038.1	1032.6	1052.9	1047.3	1045.5	1045.5	1043.6
32.5°	999.4	1001.3	997.6	999.4	1001.3	993.9	1010.4	1003.1	1001.3	1003.1	1004.9
35°	949.6	949.6	953.3	947.8	955.1	955.1	969.9	960.6	958.8	953.3	958.8
37.5°	905.3	899.8	901.7	901.7	905.3	909.0	916.4	912.7	912.7	907.2	910.9
40°	846.4	842.7	848.2	848.2	853.7	853.7	861.1	857.4	862.9	862.9	862.9
42.5°	794.7	794.7	791.1	796.6	798.4	796.6	809.5	807.6	809.5	805.8	807.6
45°	739.4	739.4	735.7	733.9	743.1	741.3	756.0	750.4	757.8	754.1	756.0
47.5°	663.8	673.0	667.5	673.0	684.1	686.0	695.1	691.5	698.8	693.3	700.7
50°	591.9	591.9	597.4	604.8	615.8	617.7	628.8	636.2	639.8	641.7	643.5
52.5°	516.3	514.4	520.0	529.2	538.4	545.8	556.9	567.9	575.3	586.4	580.8
55°	427.8	431.5	437.0	448.1	462.8	472.0	481.3	496.0	508.9	514.4	525.5
57.5°	352.2	348.5	352.2	366.9	383.5	390.9	403.8	418.6	437.0	448.1	451.8
60°	272.9	274.7	278.4	291.4	304.2	315.3	320.9	344.8	361.4	372.5	379.8
62.5°	201.0	204.7	208.4	219.5	232.3	241.6	250.7	271.1	285.8	296.9	304.2
65°	140.2	142.0	147.5	153.0	166.0	175.1	182.5	199.1	213.9	223.1	228.6
67.5°	86.7	88.5	92.2	99.6	108.8	116.2	123.5	134.6	147.5	156.7	158.6
70°	44.2	46.1	47.9	53.5	60.9	64.5	70.0	79.3	88.5	95.8	99.6
72.5°	14.7	14.7	16.6	20.3	24.0	27.7	29.5	38.7	46.1	49.8	51.6
75°	3.7	3.7	3.7	3.7	3.7	5.6	5.6	11.1	14.7	18.4	20.3
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°	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1	1298.1
2.5°	1298.1	1294.4	1292.6	1294.4	1294.4	1292.6	1298.1	1305.5	1314.7	1290.8
5°	1296.2	1292.6	1296.2	1285.2	1290.8	1287.1	1294.4	1292.6	1299.9	1292.6
7.5°	1290.8	1283.4	1285.2	1279.7	1287.1	1277.8	1283.4	1294.4	1287.1	1276.0
10°	1272.3	1268.6	1281.5	1263.1	1259.4	1266.8	1281.5	1270.4	1266.8	1270.4
12.5°	1253.8	1253.8	1259.4	1244.6	1246.4	1250.1	1257.5	1250.1	1253.8	1263.1
15°	1233.6	1229.9	1239.1	1228.0	1226.2	1222.5	1229.9	1229.9	1233.6	1228.0
17.5°	1209.6	1204.1	1204.1	1200.4	1198.5	1207.8	1211.5	1213.3	1215.1	1207.8
20°	1180.1	1178.3	1183.8	1178.3	1180.1	1182.0	1182.0	1178.3	1194.8	1174.6
22.5°	1148.7	1154.3	1146.9	1143.2	1146.9	1150.6	1150.6	1152.4	1148.7	1145.0
25°	1117.4	1121.1	1122.9	1111.9	1117.4	1111.9	1124.8	1126.6	1119.2	1122.9
27.5°	1089.7	1084.2	1082.4	1075.0	1078.7	1076.9	1078.7	1078.7	1089.7	1075.0
30°	1047.3	1041.8	1043.6	1038.1	1039.9	1038.1	1039.9	1039.9	1047.3	1045.5
32.5°	1006.8	1001.3	1003.1	997.6	997.6	999.4	995.7	995.7	1001.3	997.6
35°	968.0	955.1	957.0	955.1	957.0	949.6	949.6	947.8	951.5	942.2
37.5°	912.7	907.2	905.3	903.5	905.3	901.7	905.3	899.8	905.3	898.0
40°	862.9	859.2	861.1	850.0	850.0	851.9	848.2	846.4	848.2	855.5
42.5°	813.2	805.8	802.1	798.4	800.2	794.7	792.9	789.2	792.9	785.5
45°	754.1	754.1	752.3	743.1	744.9	744.9	737.6	730.2	732.0	732.0
47.5°	700.7	697.0	695.1	686.0	684.1	682.3	674.8	669.3	669.3	663.8
50°	641.7	638.0	632.5	623.2	619.5	608.5	603.0	595.6	588.2	588.2
52.5°	586.4	573.4	566.0	551.3	545.8	540.2	525.5	520.0	514.4	508.9
55°	520.0	508.9	494.2	477.6	470.2	460.9	446.2	435.1	427.8	429.6
57.5°	455.5	437.0	422.3	400.2	390.9	385.3	370.6	355.8	348.5	348.5
60°	376.2	361.4	343.0	322.7	315.3	306.1	287.6	278.4	272.9	267.4
62.5°	300.6	289.5	272.9	247.1	241.6	232.3	219.5	208.4	202.8	202.8
65°	224.9	213.9	199.1	180.7	173.3	166.0	154.9	143.8	138.3	136.5
67.5°	158.6	145.6	132.8	118.0	112.5	108.8	97.7	90.4	86.7	84.8
70°	95.8	88.5	79.3	68.2	62.7	59.0	51.6	46.1	44.2	42.4
72.5°	49.8	44.2	36.9	29.5	25.8	22.1	18.4	14.7	12.9	12.9
75°	18.4	14.7	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)