

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 FEU4C309040 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 FEU4C309040 F4LC-DFSSQ-MW
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

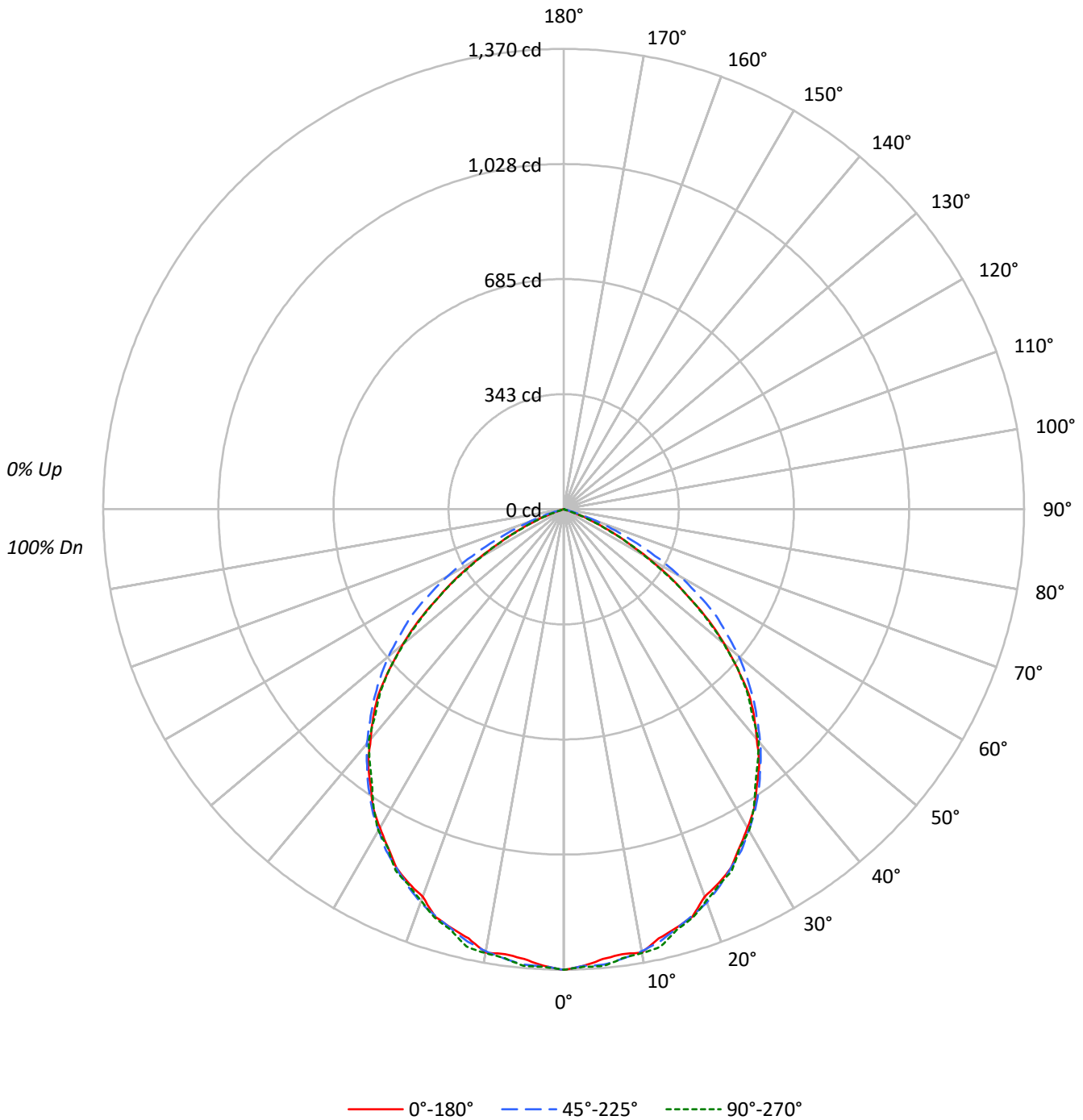
Lumens per Lamp: N/A
 Luminaire Lumens: 2927.0 lumens
 Efficiency: N/A
 Efficacy: 92.6 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



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CATALOG NUMBER: FLDSQ4C30D010 FEU4C309040 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°	132209	132209	132209
5°	130080	131775	132143
10°	131202	130819	131388
15°	128901	129091	129481
20°	125908	127900	127304
25°	125361	125361	126191
30°	121867	122736	122958
35°	118062	119216	117143
40°	112530	114722	113752
45°	106490	108892	105439
50°	93789	101970	93203
55°	75953	93313	76289
60°	55578	77365	54458
65°	33767	55092	32877
70°	13175	29650	12639
75°	1454	7978	1454
80°	1111	1111	1111
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	129.3	4.4
10°-20°	366.0	12.5
20°-30°	543.1	18.6
30°-40°	629.2	21.5
40°-50°	603.3	20.6
50°-60°	443.6	15.2
60°-70°	191.6	6.5
70°-80°	20.7	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°	1038.4	35.5
0°-40°	1667.6	57.0
0°-60°	2714.5	92.7
0°-90°	2927.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2927.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1370	1370	1370	1370	1370	
5°	1343	1357	1360	1362	1364	128
15°	1290	1298	1292	1294	1296	364
25°	1178	1176	1178	1180	1185	539
35°	1002	1008	1012	1010	994	627
45°	780	782	798	786	773	593
55°	452	498	555	496	454	406
65°	148	185	241	183	144	152
75°	4	6	21	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°	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2
2.5°	1360.5	1376.0	1378.0	1368.2	1364.3	1358.5	1372.1	1362.4	1366.3	1362.4	1360.5
5°	1343.0	1360.5	1362.4	1362.4	1358.5	1356.6	1362.4	1360.5	1358.5	1354.7	1360.5
7.5°	1335.2	1344.9	1354.7	1343.0	1348.8	1346.9	1360.5	1354.7	1352.7	1352.7	1348.8
10°	1339.1	1337.1	1344.9	1333.2	1337.1	1333.2	1344.9	1344.9	1341.0	1337.1	1335.2
12.5°	1307.9	1323.4	1323.4	1321.5	1317.7	1311.8	1323.4	1331.3	1319.6	1319.6	1317.7
15°	1290.4	1294.3	1296.2	1296.2	1294.3	1298.2	1304.0	1296.2	1298.2	1288.4	1292.3
17.5°	1271.0	1263.2	1269.0	1265.1	1267.1	1271.0	1278.7	1278.7	1267.1	1265.1	1269.0
20°	1226.2	1249.5	1251.5	1239.8	1241.7	1241.7	1255.4	1243.7	1251.5	1241.7	1245.6
22.5°	1204.7	1220.3	1222.3	1206.7	1216.4	1204.7	1218.4	1200.8	1220.3	1206.7	1212.5
25°	1177.5	1175.6	1181.4	1173.6	1175.6	1175.6	1185.3	1177.5	1183.4	1175.6	1177.5
27.5°	1132.8	1148.3	1146.4	1138.6	1142.5	1140.6	1160.0	1138.6	1150.3	1140.6	1144.5
30°	1093.8	1107.5	1103.6	1095.8	1095.8	1089.9	1111.3	1105.5	1103.6	1103.6	1101.6
32.5°	1054.9	1056.9	1053.0	1054.9	1056.9	1049.1	1066.6	1058.8	1056.9	1058.8	1060.8
35°	1002.3	1002.3	1006.2	1000.4	1008.2	1008.2	1023.8	1014.0	1012.1	1006.2	1012.1
37.5°	955.6	949.8	951.7	951.7	955.6	959.5	967.3	963.4	963.4	957.6	961.5
40°	893.4	889.5	895.3	895.3	901.1	901.1	908.9	905.0	910.8	910.8	910.8
42.5°	838.9	838.9	835.0	840.8	842.8	840.8	854.5	852.5	854.5	850.6	852.5
45°	780.4	780.4	776.6	774.6	784.3	782.4	798.0	792.1	799.9	796.0	798.0
47.5°	700.6	710.4	704.5	710.4	722.1	724.1	733.7	729.9	737.6	731.8	739.6
50°	624.8	624.8	630.6	638.4	650.1	652.0	663.7	671.5	675.4	677.3	679.3
52.5°	545.0	543.0	548.9	558.6	568.3	576.1	587.8	599.5	607.2	618.9	613.0
55°	451.5	455.4	461.3	473.0	488.5	498.2	508.0	523.6	537.2	543.0	554.7
57.5°	371.7	367.8	371.7	387.3	404.8	412.6	426.3	441.8	461.3	473.0	476.9
60°	288.0	290.0	293.9	307.6	321.1	332.8	338.7	363.9	381.5	393.2	400.9
62.5°	212.2	216.1	220.0	231.6	245.2	255.0	264.7	286.1	301.7	313.4	321.1
65°	147.9	149.8	155.7	161.5	175.2	184.9	192.7	210.2	225.8	235.5	241.3
67.5°	91.5	93.4	97.3	105.1	114.8	122.6	130.4	142.1	155.7	165.4	167.4
70°	46.7	48.7	50.6	56.5	64.2	68.1	73.9	83.7	93.4	101.2	105.1
72.5°	15.6	15.6	17.5	21.4	25.3	29.2	31.1	40.9	48.7	52.6	54.5
75°	3.9	3.9	3.9	3.9	3.9	5.9	5.9	11.7	15.6	19.5	21.4
77.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.9	3.9
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°	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2	1370.2
2.5°	1370.2	1366.3	1364.3	1366.3	1366.3	1364.3	1370.2	1378.0	1387.7	1362.4
5°	1368.2	1364.3	1368.2	1356.6	1362.4	1358.5	1366.3	1364.3	1372.1	1364.3
7.5°	1362.4	1354.7	1356.6	1350.8	1358.5	1348.8	1354.7	1366.3	1358.5	1346.9
10°	1343.0	1339.1	1352.7	1333.2	1329.3	1337.1	1352.7	1341.0	1337.1	1341.0
12.5°	1323.4	1323.4	1329.3	1313.8	1315.7	1319.6	1327.3	1319.6	1323.4	1333.2
15°	1302.1	1298.2	1307.9	1296.2	1294.3	1290.4	1298.2	1298.2	1302.1	1296.2
17.5°	1276.8	1271.0	1271.0	1267.1	1265.1	1274.8	1278.7	1280.6	1282.6	1274.8
20°	1245.6	1243.7	1249.5	1243.7	1245.6	1247.6	1247.6	1243.7	1261.2	1239.8
22.5°	1212.5	1218.4	1210.6	1206.7	1210.6	1214.5	1214.5	1216.4	1212.5	1208.6
25°	1179.5	1183.4	1185.3	1173.6	1179.5	1173.6	1187.3	1189.2	1181.4	1185.3
27.5°	1150.3	1144.5	1142.5	1134.7	1138.6	1136.7	1138.6	1138.6	1150.3	1134.7
30°	1105.5	1099.7	1101.6	1095.8	1097.7	1095.8	1097.7	1097.7	1105.5	1103.6
32.5°	1062.7	1056.9	1058.8	1053.0	1053.0	1054.9	1051.0	1051.0	1056.9	1053.0
35°	1021.8	1008.2	1010.1	1008.2	1010.1	1002.3	1002.3	1000.4	1004.3	994.5
37.5°	963.4	957.6	955.6	953.7	955.6	951.7	955.6	949.8	955.6	947.8
40°	910.8	906.9	908.9	897.3	897.3	899.2	895.3	893.4	895.3	903.1
42.5°	858.3	850.6	846.7	842.8	844.7	838.9	836.9	833.0	836.9	829.1
45°	796.0	796.0	794.1	784.3	786.3	786.3	778.5	770.8	772.7	772.7
47.5°	739.6	735.7	733.7	724.1	722.1	720.2	712.3	706.5	706.5	700.6
50°	677.3	673.4	667.6	657.8	653.9	642.3	636.5	628.7	620.9	620.9
52.5°	618.9	605.3	597.5	581.9	576.1	570.2	554.7	548.9	543.0	537.2
55°	548.9	537.2	521.6	504.1	496.3	486.5	471.0	459.3	451.5	453.5
57.5°	480.7	461.3	445.7	422.4	412.6	406.7	391.2	375.6	367.8	367.8
60°	397.0	381.5	362.0	340.6	332.8	323.1	303.6	293.9	288.0	282.2
62.5°	317.2	305.6	288.0	260.8	255.0	245.2	231.6	220.0	214.1	214.1
65°	237.4	225.8	210.2	190.7	183.0	175.2	163.5	151.8	146.0	144.0
67.5°	167.4	153.7	140.2	124.6	118.7	114.8	103.2	95.4	91.5	89.5
70°	101.2	93.4	83.7	72.0	66.1	62.3	54.5	48.7	46.7	44.8
72.5°	52.6	46.7	38.9	31.1	27.2	23.3	19.5	15.6	13.7	13.7
75°	19.5	15.6	9.8	5.9	3.9	3.9	3.9	3.9	3.9	3.9
77.5°	3.9	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)