

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 FEU4C309030 F4LC-CSSQ-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 FEU4C309030 F4LC-CSSQ-MW
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

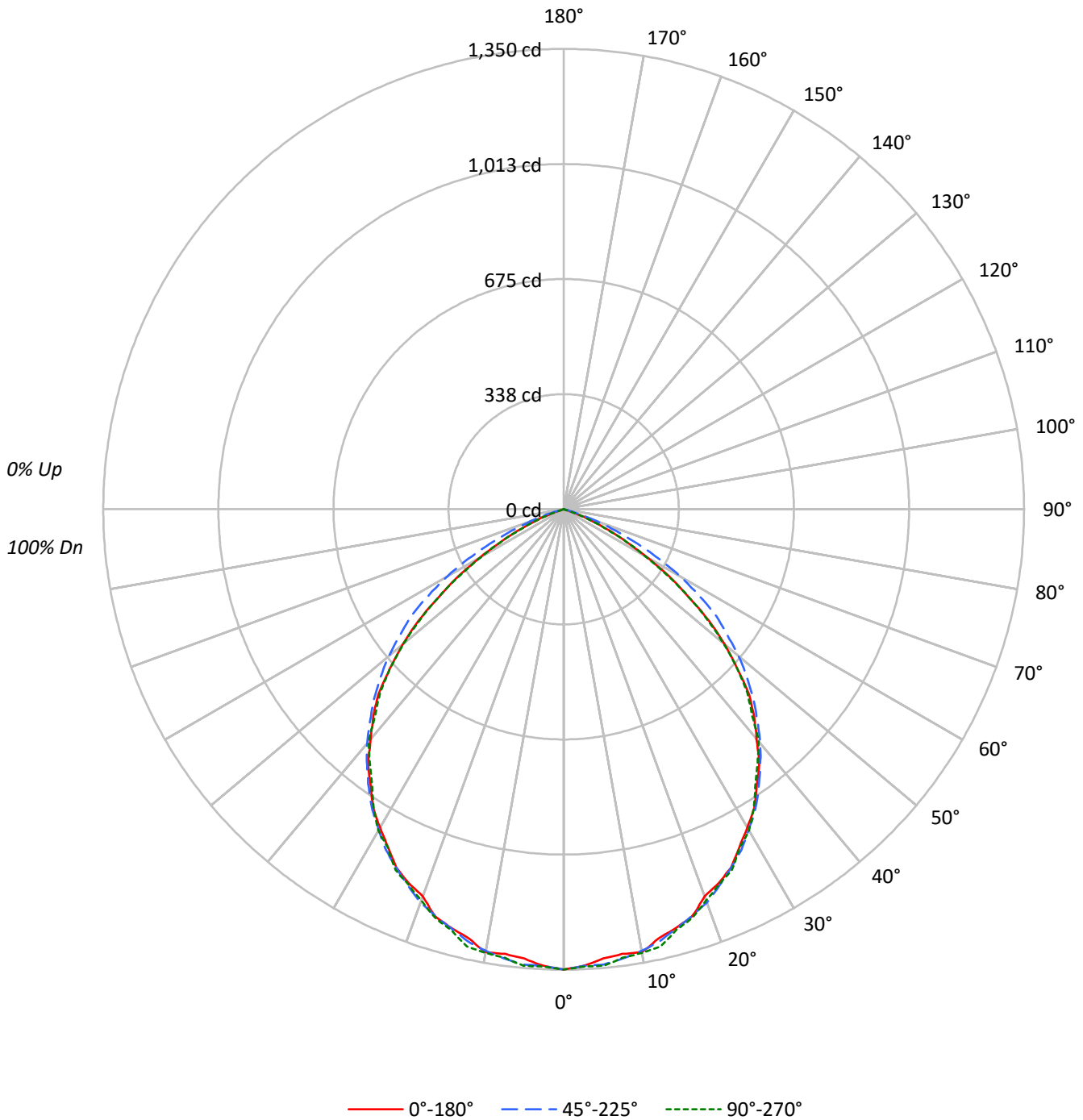
Lumens per Lamp: N/A
 Luminaire Lumens: 2883.0 lumens
 Efficiency: N/A
 Efficacy: 91.2 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	130221	130221	130221
5°	128123	129789	130157
10°	129232	128850	129409
15°	126964	127153	127533
20°	124008	125980	125394
25°	123477	123477	124296
30°	120039	120886	121109
35°	116283	117426	115388
40°	110830	112996	112039
45°	104894	107254	103843
50°	92378	100439	91807
55°	74809	91900	75145
60°	54748	76207	53648
65°	33265	54270	32397
70°	12977	29227	12441
75°	1417	7866	1417
80°	1111	1111	1111
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	127.4	4.4
10°-20°	360.5	12.5
20°-30°	534.9	18.6
30°-40°	619.8	21.5
40°-50°	594.2	20.6
50°-60°	436.9	15.2
60°-70°	188.7	6.5
70°-80°	20.4	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°	1022.8	35.5
0°-40°	1642.5	57.0
0°-60°	2673.7	92.7
0°-90°	2883.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2883.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1350	1350	1350	1350	1350	
5°	1323	1336	1340	1342	1344	126
15°	1271	1279	1273	1275	1277	358
25°	1160	1158	1160	1162	1168	531
35°	987	993	997	995	980	617
45°	769	771	786	774	761	584
55°	445	491	546	489	447	400
65°	146	182	238	180	142	150
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°	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6
2.5°	1340.0	1355.3	1357.3	1347.7	1343.8	1338.1	1351.5	1342.0	1345.8	1342.0	1340.0
5°	1322.8	1340.0	1342.0	1342.0	1338.1	1336.2	1342.0	1340.0	1338.1	1334.3	1340.0
7.5°	1315.1	1324.7	1334.3	1322.8	1328.5	1326.6	1340.0	1334.3	1332.3	1332.3	1328.5
10°	1319.0	1317.0	1324.7	1313.2	1317.0	1313.2	1324.7	1324.7	1320.8	1317.0	1315.1
12.5°	1288.2	1303.6	1303.6	1301.7	1297.8	1292.1	1303.6	1311.3	1299.7	1299.7	1297.8
15°	1271.0	1274.8	1276.7	1276.7	1274.8	1278.7	1284.4	1276.7	1278.7	1269.1	1272.9
17.5°	1251.9	1244.2	1249.9	1246.1	1248.0	1251.9	1259.5	1259.5	1248.0	1246.1	1249.9
20°	1207.7	1230.7	1232.7	1221.2	1223.1	1223.1	1236.5	1225.0	1232.7	1223.1	1226.9
22.5°	1186.6	1202.0	1203.9	1188.6	1198.1	1186.6	1200.1	1182.8	1202.0	1188.6	1194.3
25°	1159.8	1157.9	1163.6	1156.0	1157.9	1157.9	1167.5	1159.8	1165.6	1157.9	1159.8
27.5°	1115.8	1131.1	1129.1	1121.5	1125.3	1123.4	1142.6	1121.5	1133.0	1123.4	1127.3
30°	1077.4	1090.8	1087.0	1079.3	1079.3	1073.5	1094.6	1088.9	1087.0	1087.0	1085.0
32.5°	1039.0	1041.0	1037.1	1039.0	1041.0	1033.3	1050.5	1042.9	1041.0	1042.9	1044.8
35°	987.2	987.2	991.1	985.4	993.0	993.0	1008.4	998.7	996.9	991.1	996.9
37.5°	941.3	935.5	937.4	937.4	941.3	945.1	952.8	948.9	948.9	943.2	947.0
40°	879.9	876.1	881.8	881.8	887.6	887.6	895.3	891.4	897.1	897.1	897.1
42.5°	826.3	826.3	822.4	828.2	830.1	828.2	841.6	839.7	841.6	837.8	839.7
45°	768.7	768.7	764.9	763.0	772.5	770.7	786.0	780.2	787.9	784.0	786.0
47.5°	690.1	699.7	693.9	699.7	711.2	713.2	722.7	718.9	726.6	720.8	728.5
50°	615.4	615.4	621.1	628.8	640.3	642.2	653.7	661.4	665.2	667.1	669.1
52.5°	536.8	534.8	540.6	550.2	559.8	567.5	579.0	590.5	598.1	609.6	603.8
55°	444.7	448.6	454.4	465.9	481.2	490.7	500.3	515.7	529.1	534.8	546.3
57.5°	366.1	362.3	366.1	381.5	398.7	406.4	419.9	435.2	454.4	465.9	469.7
60°	283.7	285.6	289.5	302.9	316.3	327.8	333.6	358.5	375.8	387.2	394.9
62.5°	209.0	212.8	216.7	228.2	241.5	251.2	260.7	281.8	297.1	308.6	316.3
65°	145.7	147.6	153.4	159.1	172.5	182.1	189.8	207.0	222.4	232.0	237.7
67.5°	90.1	92.0	95.8	103.6	113.1	120.8	128.4	139.9	153.4	162.9	164.9
70°	46.0	47.9	49.8	55.6	63.3	67.1	72.8	82.4	92.0	99.6	103.6
72.5°	15.3	15.3	17.3	21.1	24.9	28.8	30.7	40.3	47.9	51.8	53.7
75°	3.8	3.8	3.8	3.8	3.8	5.8	5.8	11.5	15.3	19.2	21.1
77.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.8	3.8
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°	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6	1349.6
2.5°	1349.6	1345.8	1343.8	1345.8	1345.8	1343.8	1349.6	1357.3	1366.8	1342.0
5°	1347.7	1343.8	1347.7	1336.2	1342.0	1338.1	1345.8	1343.8	1351.5	1343.8
7.5°	1342.0	1334.3	1336.2	1330.5	1338.1	1328.5	1334.3	1345.8	1338.1	1326.6
10°	1322.8	1319.0	1332.3	1313.2	1309.3	1317.0	1332.3	1320.8	1317.0	1320.8
12.5°	1303.6	1303.6	1309.3	1294.0	1295.9	1299.7	1307.4	1299.7	1303.6	1313.2
15°	1282.5	1278.7	1288.2	1276.7	1274.8	1271.0	1278.7	1278.7	1282.5	1276.7
17.5°	1257.6	1251.9	1251.9	1248.0	1246.1	1255.7	1259.5	1261.4	1263.3	1255.7
20°	1226.9	1225.0	1230.7	1225.0	1226.9	1228.9	1228.9	1225.0	1242.2	1221.2
22.5°	1194.3	1200.1	1192.4	1188.6	1192.4	1196.2	1196.2	1198.1	1194.3	1190.5
25°	1161.7	1165.6	1167.5	1156.0	1161.7	1156.0	1169.4	1171.3	1163.6	1167.5
27.5°	1133.0	1127.3	1125.3	1117.6	1121.5	1119.6	1121.5	1121.5	1133.0	1117.6
30°	1088.9	1083.1	1085.0	1079.3	1081.2	1079.3	1081.2	1081.2	1088.9	1087.0
32.5°	1046.7	1041.0	1042.9	1037.1	1037.1	1039.0	1035.2	1035.2	1041.0	1037.1
35°	1006.4	993.0	994.9	993.0	994.9	987.2	987.2	985.4	989.2	979.6
37.5°	948.9	943.2	941.3	939.4	941.3	937.4	941.3	935.5	941.3	933.6
40°	897.1	893.3	895.3	883.8	883.8	885.6	881.8	879.9	881.8	889.5
42.5°	845.4	837.8	833.9	830.1	832.0	826.3	824.3	820.5	824.3	816.7
45°	784.0	784.0	782.2	772.5	774.5	774.5	766.8	759.2	761.0	761.0
47.5°	728.5	724.7	722.7	713.2	711.2	709.3	701.6	695.9	695.9	690.1
50°	667.1	663.3	657.6	647.9	644.1	632.6	626.9	619.2	611.6	611.6
52.5°	609.6	596.2	588.5	573.2	567.5	561.7	546.3	540.6	534.8	529.1
55°	540.6	529.1	513.8	496.5	488.9	479.2	463.9	452.4	444.7	446.7
57.5°	473.5	454.4	439.0	416.0	406.4	400.6	385.3	370.0	362.3	362.3
60°	391.1	375.8	356.6	335.5	327.8	318.3	299.0	289.5	283.7	278.0
62.5°	312.5	301.0	283.7	256.9	251.2	241.5	228.2	216.7	210.9	210.9
65°	233.9	222.4	207.0	187.9	180.2	172.5	161.0	149.5	143.8	141.9
67.5°	164.9	151.4	138.1	122.7	116.9	113.1	101.6	93.9	90.1	88.2
70°	99.6	92.0	82.4	70.9	65.2	61.3	53.7	47.9	46.0	44.1
72.5°	51.8	46.0	38.3	30.7	26.8	23.0	19.2	15.3	13.5	13.5
75°	19.2	15.3	9.6	5.8	3.8	3.8	3.8	3.8	3.8	3.8
77.5°	3.8	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)