

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 FEU4C359050 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 FEU4C359050 F4LC-CSSQ-MMS
Description: 4 INCH 3500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS
AND F4LC-CSSQ TRIM WITH MMS FINISH
Light Source: -
Ballast/Driver: -

Summary

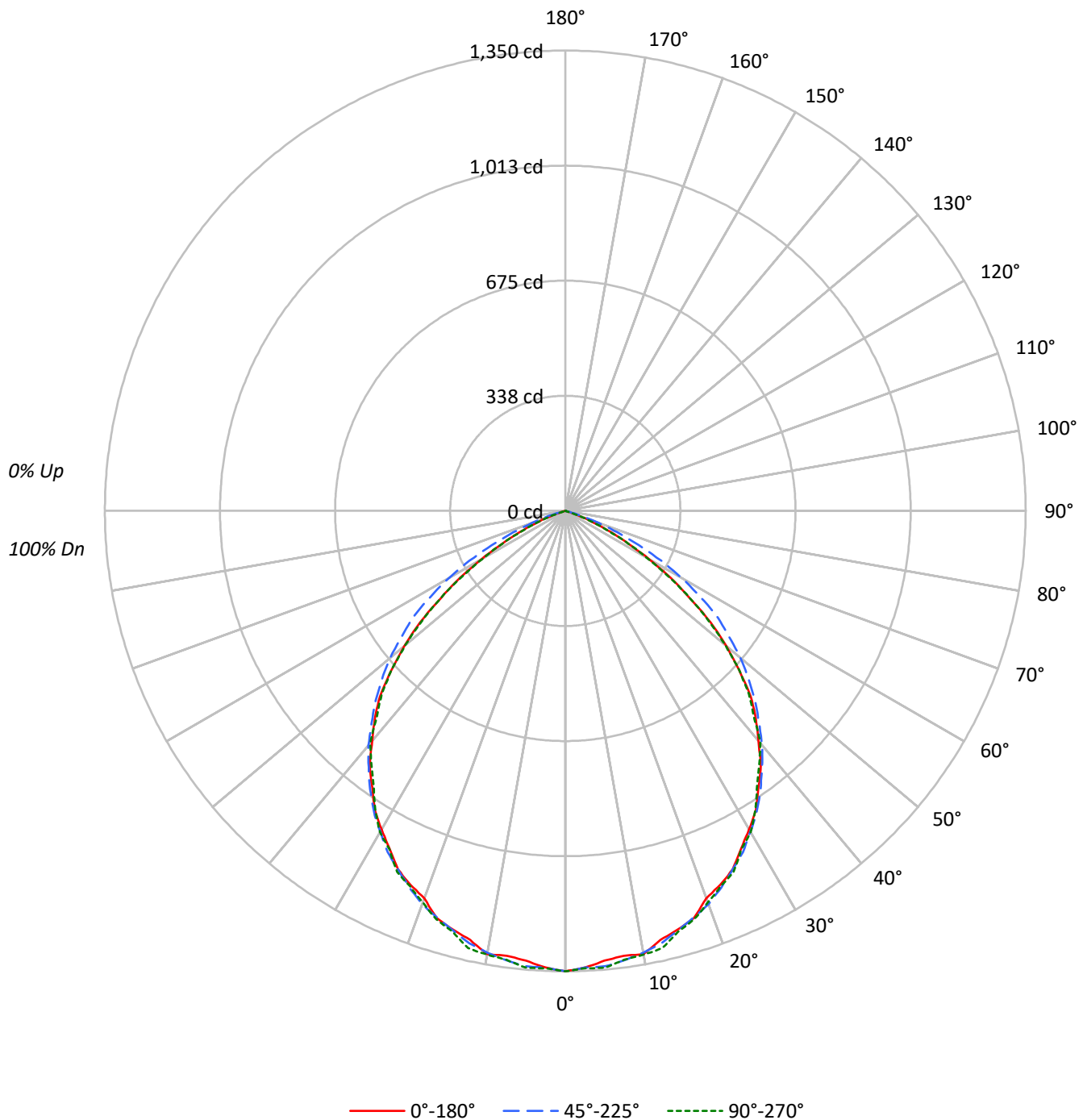
Lumens per Lamp: N/A
Luminaire Lumens: 2884.0 lumens
Efficiency: N/A
Efficacy: 71.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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		0
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		100
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	130270	130270	130270
5°	128171	129837	130205
10°	129271	128899	129458
15°	127014	127193	127583
20°	124060	126021	125436
25°	123519	123519	124339
30°	120073	120931	121142
35°	116331	117461	115424
40°	110868	113047	112077
45°	104935	107295	103884
50°	92408	100469	91837
55°	74843	91934	75162
60°	54767	76246	53667
65°	33288	54293	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°	360.6	12.5
20°-30°	535.1	18.6
30°-40°	620.0	21.5
40°-50°	594.4	20.6
50°-60°	437.1	15.2
60°-70°	188.8	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°	1023.1	35.5
0°-40°	1643.1	57.0
0°-60°	2674.6	92.7
0°-90°	2884.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2884.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1350	1350	1350	1350	1350	
5°	1323	1337	1340	1342	1344	126
15°	1272	1279	1273	1275	1277	358
25°	1160	1158	1160	1162	1168	531
35°	988	993	997	995	980	618
45°	769	771	786	775	761	585
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°	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1
2.5°	1340.5	1355.8	1357.8	1348.1	1344.3	1338.6	1352.0	1342.4	1346.3	1342.4	1340.5
5°	1323.3	1340.5	1342.4	1342.4	1338.6	1336.6	1342.4	1340.5	1338.6	1334.8	1340.5
7.5°	1315.6	1325.1	1334.8	1323.3	1329.0	1327.1	1340.5	1334.8	1332.8	1332.8	1329.0
10°	1319.4	1317.5	1325.1	1313.6	1317.5	1313.6	1325.1	1325.1	1321.3	1317.5	1315.6
12.5°	1288.7	1304.0	1304.0	1302.1	1298.3	1292.5	1304.0	1311.7	1300.2	1300.2	1298.3
15°	1271.5	1275.3	1277.2	1277.2	1275.3	1279.1	1284.8	1277.2	1279.1	1269.5	1273.3
17.5°	1252.3	1244.6	1250.3	1246.5	1248.5	1252.3	1260.0	1260.0	1248.5	1246.5	1250.3
20°	1208.2	1231.2	1233.1	1221.6	1223.5	1223.5	1236.9	1225.4	1233.1	1223.5	1227.3
22.5°	1187.0	1202.4	1204.3	1189.0	1198.5	1187.0	1200.5	1183.2	1202.4	1189.0	1194.7
25°	1160.2	1158.3	1164.0	1156.4	1158.3	1158.3	1167.9	1160.2	1166.0	1158.3	1160.2
27.5°	1116.1	1131.5	1129.5	1121.9	1125.7	1123.8	1143.0	1121.9	1133.4	1123.8	1127.6
30°	1077.7	1091.2	1087.3	1079.7	1079.7	1073.9	1095.0	1089.2	1087.3	1087.3	1085.4
32.5°	1039.4	1041.3	1037.5	1039.4	1041.3	1033.7	1050.9	1043.2	1041.3	1043.2	1045.2
35°	987.6	987.6	991.4	985.7	993.4	993.4	1008.7	999.1	997.2	991.4	997.2
37.5°	941.6	935.9	937.7	937.7	941.6	945.4	953.1	949.2	949.2	943.5	947.4
40°	880.2	876.4	882.1	882.1	887.9	887.9	895.6	891.7	897.5	897.5	897.5
42.5°	826.6	826.6	822.7	828.4	830.4	828.4	841.9	839.9	841.9	838.1	839.9
45°	769.0	769.0	765.1	763.3	772.8	770.9	786.3	780.5	788.1	784.3	786.3
47.5°	690.3	700.0	694.2	700.0	711.5	713.4	723.0	719.1	726.8	721.1	728.8
50°	615.6	615.6	621.3	629.0	640.5	642.5	654.0	661.6	665.5	667.3	669.3
52.5°	537.0	535.0	540.8	550.4	560.0	567.7	579.2	590.7	598.3	609.8	604.0
55°	444.9	448.7	454.5	466.0	481.4	490.9	500.5	515.9	529.3	535.0	546.5
57.5°	366.3	362.4	366.3	381.6	398.9	406.6	420.0	435.3	454.5	466.0	469.9
60°	283.8	285.7	289.6	303.0	316.4	327.9	333.7	358.6	375.9	387.4	395.1
62.5°	209.1	212.9	216.7	228.2	241.6	251.2	260.8	281.9	297.2	308.7	316.4
65°	145.8	147.6	153.4	159.1	172.6	182.2	189.8	207.1	222.4	232.1	237.8
67.5°	90.1	92.0	95.8	103.6	113.1	120.8	128.5	140.0	153.4	163.0	164.9
70°	46.0	48.0	49.8	55.6	63.3	67.1	72.8	82.5	92.0	99.7	103.6
72.5°	15.3	15.3	17.3	21.1	25.0	28.8	30.7	40.3	48.0	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°	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1	1350.1
2.5°	1350.1	1346.3	1344.3	1346.3	1346.3	1344.3	1350.1	1357.8	1367.3	1342.4
5°	1348.1	1344.3	1348.1	1336.6	1342.4	1338.6	1346.3	1344.3	1352.0	1344.3
7.5°	1342.4	1334.8	1336.6	1330.9	1338.6	1329.0	1334.8	1346.3	1338.6	1327.1
10°	1323.3	1319.4	1332.8	1313.6	1309.8	1317.5	1332.8	1321.3	1317.5	1321.3
12.5°	1304.0	1304.0	1309.8	1294.5	1296.3	1300.2	1307.8	1300.2	1304.0	1313.6
15°	1283.0	1279.1	1288.7	1277.2	1275.3	1271.5	1279.1	1279.1	1283.0	1277.2
17.5°	1258.0	1252.3	1252.3	1248.5	1246.5	1256.1	1260.0	1261.8	1263.8	1256.1
20°	1227.3	1225.4	1231.2	1225.4	1227.3	1229.3	1229.3	1225.4	1242.7	1221.6
22.5°	1194.7	1200.5	1192.8	1189.0	1192.8	1196.7	1196.7	1198.5	1194.7	1190.9
25°	1162.1	1166.0	1167.9	1156.4	1162.1	1156.4	1169.8	1171.7	1164.0	1167.9
27.5°	1133.4	1127.6	1125.7	1118.0	1121.9	1120.0	1121.9	1121.9	1133.4	1118.0
30°	1089.2	1083.5	1085.4	1079.7	1081.6	1079.7	1081.6	1081.6	1089.2	1087.3
32.5°	1047.1	1041.3	1043.2	1037.5	1037.5	1039.4	1035.6	1035.6	1041.3	1037.5
35°	1006.8	993.4	995.3	993.4	995.3	987.6	987.6	985.7	989.5	979.9
37.5°	949.2	943.5	941.6	939.7	941.6	937.7	941.6	935.9	941.6	933.9
40°	897.5	893.6	895.6	884.1	884.1	886.0	882.1	880.2	882.1	889.8
42.5°	845.7	838.1	834.2	830.4	832.3	826.6	824.6	820.8	824.6	816.9
45°	784.3	784.3	782.4	772.8	774.8	774.8	767.1	759.4	761.3	761.3
47.5°	728.8	724.9	723.0	713.4	711.5	709.6	701.8	696.1	696.1	690.3
50°	667.3	663.5	657.8	648.2	644.3	632.8	627.1	619.5	611.8	611.8
52.5°	609.8	596.4	588.7	573.4	567.7	561.9	546.5	540.8	535.0	529.3
55°	540.8	529.3	514.0	496.7	489.0	479.4	464.1	452.6	444.9	446.8
57.5°	473.7	454.5	439.2	416.2	406.6	400.8	385.4	370.1	362.4	362.4
60°	391.2	375.9	356.7	335.6	327.9	318.4	299.1	289.6	283.8	278.1
62.5°	312.6	301.1	283.8	257.0	251.2	241.6	228.2	216.7	210.9	210.9
65°	233.9	222.4	207.1	187.9	180.3	172.6	161.1	149.6	143.8	141.9
67.5°	164.9	151.5	138.1	122.8	117.0	113.1	101.6	94.0	90.1	88.2
70°	99.7	92.0	82.5	71.0	65.2	61.3	53.7	48.0	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)