

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 FEU4C359027 F4LC-CSSQ-MMS**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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 FEU4C359027 F4LC-CSSQ-MMS
Description: 4 INCH 3500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS
AND F4LC-CSSQ TRIM WITH MMS FINISH
Light Source: -
Ballast/Driver: -

Summary

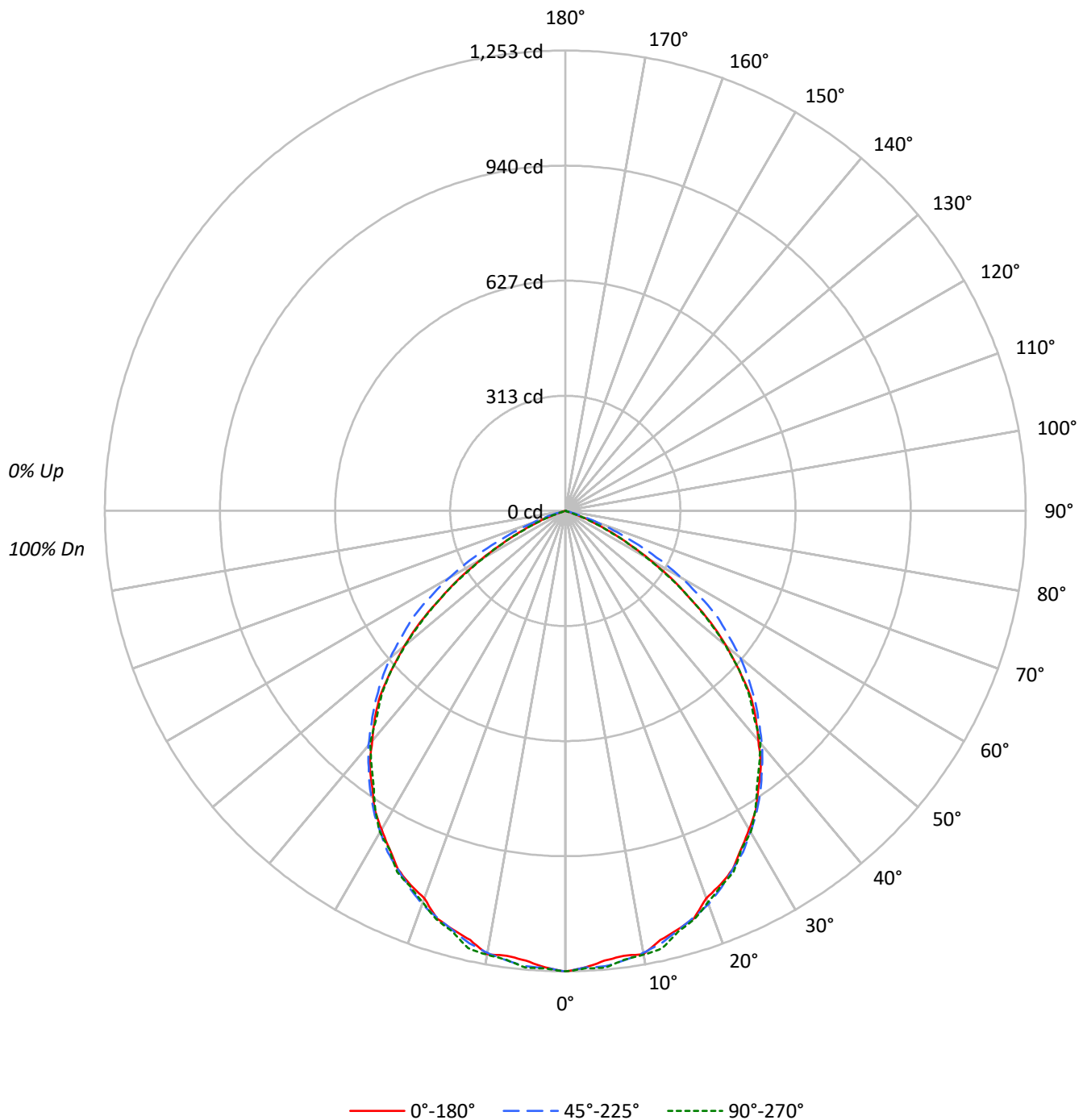
Lumens per Lamp: N/A
Luminaire Lumens: 2677.0 lumens
Efficiency: N/A
Efficacy: 66.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C35D010 FEU4C359027 F4LC-CSSQ-MMS

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C35D010 FEU4C359027 F4LC-CSSQ-MMS

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°	120920	120920	120920
5°	118970	120520	120859
10°	119993	119650	120169
15°	117893	118063	118423
20°	115147	116975	116430
25°	114651	114651	115407
30°	111460	112251	112452
35°	107979	109028	107143
40°	102920	104922	104028
45°	97402	99586	96433
50°	85773	93263	85248
55°	69476	85340	69779
60°	50830	70765	49808
65°	30891	50388	30069
70°	12046	27139	11567
75°	1342	7307	1342
80°	1000	1000	1000
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C35D010 FEU4C359027 F4LC-CSSQ-MMS

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	118.3	4.4
10°-20°	334.7	12.5
20°-30°	496.7	18.6
30°-40°	575.5	21.5
40°-50°	551.8	20.6
50°-60°	405.7	15.2
60°-70°	175.2	6.5
70°-80°	18.9	0.7
80°-90°	0.2	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°	949.7	35.5
0°-40°	1525.2	57.0
0°-60°	2482.6	92.7
0°-90°	2677.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2677.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1253	1253	1253	1253	1253	
5°	1228	1241	1244	1246	1248	117
15°	1180	1187	1182	1184	1186	333
25°	1077	1075	1077	1079	1084	493
35°	917	922	926	924	910	573
45°	714	716	730	719	707	543
55°	413	456	507	454	415	372
65°	135	169	221	167	132	139
75°	4	5	20	4	4	11
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C35D010 FEU4C359027 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2
2.5°	1244.3	1258.5	1260.3	1251.4	1247.8	1242.5	1254.9	1246.1	1249.6	1246.1	1244.3
5°	1228.3	1244.3	1246.1	1246.1	1242.5	1240.7	1246.1	1244.3	1242.5	1239.0	1244.3
7.5°	1221.2	1230.0	1239.0	1228.3	1233.6	1231.8	1244.3	1239.0	1237.1	1237.1	1233.6
10°	1224.7	1222.9	1230.0	1219.3	1222.9	1219.3	1230.0	1230.0	1226.5	1222.9	1221.2
12.5°	1196.2	1210.4	1210.4	1208.7	1205.1	1199.7	1210.4	1217.6	1206.9	1206.9	1205.1
15°	1180.2	1183.8	1185.5	1185.5	1183.8	1187.3	1192.6	1185.5	1187.3	1178.4	1181.9
17.5°	1162.4	1155.3	1160.6	1157.0	1158.8	1162.4	1169.5	1169.5	1158.8	1157.0	1160.6
20°	1121.4	1142.8	1144.6	1133.9	1135.7	1135.7	1148.2	1137.5	1144.6	1135.7	1139.2
22.5°	1101.8	1116.1	1117.9	1103.6	1112.5	1101.8	1114.3	1098.3	1116.1	1103.6	1109.0
25°	1076.9	1075.2	1080.5	1073.4	1075.2	1075.2	1084.0	1076.9	1082.3	1075.2	1076.9
27.5°	1036.0	1050.3	1048.5	1041.3	1044.9	1043.1	1060.9	1041.3	1052.0	1043.1	1046.7
30°	1000.4	1012.9	1009.3	1002.2	1002.2	996.8	1016.4	1011.0	1009.3	1009.3	1007.5
32.5°	964.8	966.6	963.0	964.8	966.6	959.5	975.5	968.3	966.6	968.3	970.2
35°	916.7	916.7	920.3	915.0	922.1	922.1	936.3	927.4	925.6	920.3	925.6
37.5°	874.0	868.7	870.4	870.4	874.0	877.6	884.7	881.1	881.1	875.8	879.4
40°	817.1	813.5	818.8	818.8	824.2	824.2	831.3	827.7	833.0	833.0	833.0
42.5°	767.2	767.2	763.7	769.0	770.8	769.0	781.5	779.7	781.5	777.9	779.7
45°	713.8	713.8	710.2	708.5	717.3	715.6	729.8	724.5	731.6	728.0	729.8
47.5°	640.8	649.7	644.4	649.7	660.4	662.2	671.1	667.5	674.6	669.3	676.5
50°	571.4	571.4	576.7	583.9	594.5	596.3	607.0	614.1	617.7	619.4	621.3
52.5°	498.4	496.6	502.0	510.9	519.8	526.9	537.6	548.3	555.4	566.1	560.7
55°	413.0	416.5	421.9	432.6	446.8	455.7	464.6	478.8	491.3	496.6	507.3
57.5°	340.0	336.4	340.0	354.2	370.3	377.4	389.9	404.1	421.9	432.6	436.1
60°	263.4	265.2	268.8	281.3	293.7	304.4	309.8	332.9	348.9	359.6	366.7
62.5°	194.1	197.6	201.2	211.9	224.3	233.2	242.1	261.7	275.9	286.6	293.7
65°	135.3	137.0	142.4	147.7	160.2	169.1	176.2	192.2	206.5	215.4	220.7
67.5°	83.7	85.4	89.0	96.2	105.0	112.1	119.3	129.9	142.4	151.3	153.1
70°	42.7	44.5	46.3	51.6	58.8	62.3	67.6	76.5	85.4	92.5	96.2
72.5°	14.2	14.2	16.0	19.6	23.2	26.7	28.5	37.4	44.5	48.1	49.8
75°	3.6	3.6	3.6	3.6	3.6	5.4	5.4	10.7	14.2	17.8	19.6
77.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	3.6	3.6
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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

TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C35D010 FEU4C359027 F4LC-CSSQ-MMS

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2	1253.2
2.5°	1253.2	1249.6	1247.8	1249.6	1249.6	1247.8	1253.2	1260.3	1269.2	1246.1
5°	1251.4	1247.8	1251.4	1240.7	1246.1	1242.5	1249.6	1247.8	1254.9	1247.8
7.5°	1246.1	1239.0	1240.7	1235.4	1242.5	1233.6	1239.0	1249.6	1242.5	1231.8
10°	1228.3	1224.7	1237.1	1219.3	1215.8	1222.9	1237.1	1226.5	1222.9	1226.5
12.5°	1210.4	1210.4	1215.8	1201.5	1203.3	1206.9	1214.0	1206.9	1210.4	1219.3
15°	1190.9	1187.3	1196.2	1185.5	1183.8	1180.2	1187.3	1187.3	1190.9	1185.5
17.5°	1167.7	1162.4	1162.4	1158.8	1157.0	1166.0	1169.5	1171.3	1173.1	1166.0
20°	1139.2	1137.5	1142.8	1137.5	1139.2	1141.0	1141.0	1137.5	1153.5	1133.9
22.5°	1109.0	1114.3	1107.2	1103.6	1107.2	1110.8	1110.8	1112.5	1109.0	1105.4
25°	1078.7	1082.3	1084.0	1073.4	1078.7	1073.4	1085.9	1087.6	1080.5	1084.0
27.5°	1052.0	1046.7	1044.9	1037.8	1041.3	1039.6	1041.3	1041.3	1052.0	1037.8
30°	1011.0	1005.7	1007.5	1002.2	1003.9	1002.2	1003.9	1003.9	1011.0	1009.3
32.5°	971.9	966.6	968.3	963.0	963.0	964.8	961.2	961.2	966.6	963.0
35°	934.5	922.1	923.8	922.1	923.8	916.7	916.7	915.0	918.5	909.6
37.5°	881.1	875.8	874.0	872.3	874.0	870.4	874.0	868.7	874.0	866.9
40°	833.0	829.5	831.3	820.6	820.6	822.4	818.8	817.1	818.8	825.9
42.5°	785.0	777.9	774.4	770.8	772.5	767.2	765.4	761.9	765.4	758.3
45°	728.0	728.0	726.3	717.3	719.2	719.2	712.0	704.9	706.7	706.7
47.5°	676.5	672.9	671.1	662.2	660.4	658.7	651.5	646.2	646.2	640.8
50°	619.4	615.9	610.6	601.6	598.1	587.4	582.1	575.0	567.9	567.9
52.5°	566.1	553.6	546.5	532.2	526.9	521.5	507.3	502.0	496.6	491.3
55°	502.0	491.3	477.1	461.0	453.9	445.0	430.8	420.1	413.0	414.8
57.5°	439.7	421.9	407.7	386.3	377.4	372.0	357.8	343.5	336.4	336.4
60°	363.1	348.9	331.1	311.5	304.4	295.5	277.7	268.8	263.4	258.1
62.5°	290.1	279.5	263.4	238.5	233.2	224.3	211.9	201.2	195.8	195.8
65°	217.2	206.5	192.2	174.5	167.3	160.2	149.5	138.9	133.5	131.7
67.5°	153.1	140.6	128.2	114.0	108.6	105.0	94.3	87.2	83.7	81.9
70°	92.5	85.4	76.5	65.9	60.5	56.9	49.8	44.5	42.7	41.0
72.5°	48.1	42.7	35.6	28.5	24.9	21.4	17.8	14.2	12.5	12.5
75°	17.8	14.2	8.9	5.4	3.6	3.6	3.6	3.6	3.6	3.6
77.5°	3.6	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
80°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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)