

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 FEU4C359040 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 FEU4C359040 F4LC-CSSQ-MMS
Description: 4 INCH 3500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS
AND F4LC-CSSQ TRIM WITH MMS FINISH
Light Source: -
Ballast/Driver: -

Summary

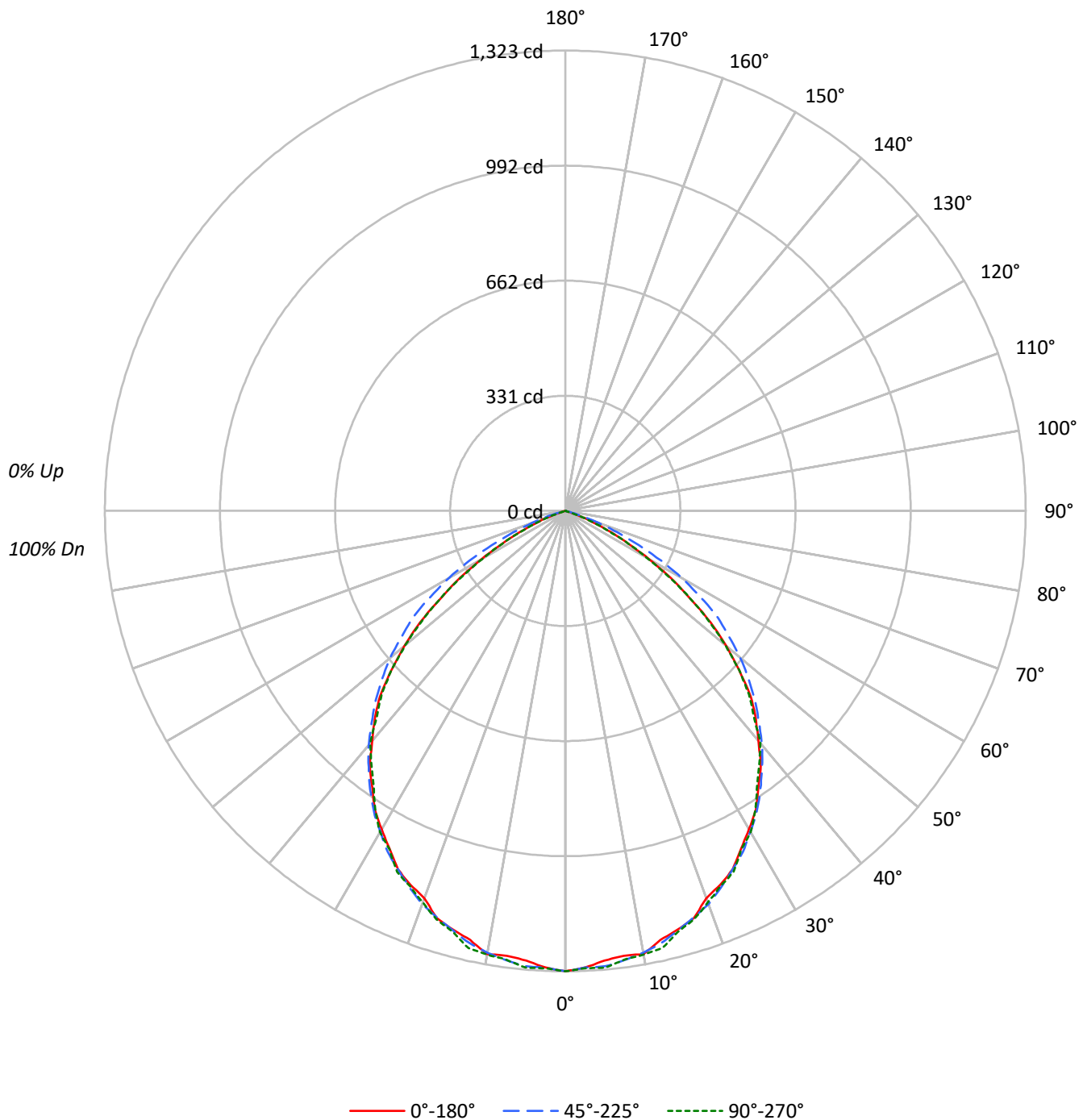
Lumens per Lamp: N/A
Luminaire Lumens: 2826.0 lumens
Efficiency: N/A
Efficacy: 70.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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		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°	127645	127645	127645
5°	125585	127222	127590
10°	126675	126303	126851
15°	124456	124636	125016
20°	121564	123485	122910
25°	121039	121039	121837
30°	117666	118502	118714
35°	113987	115106	113103
40°	108638	110767	109822
45°	102820	105139	101796
50°	90546	98442	89991
55°	73329	90084	73665
60°	53667	74702	52586
65°	32603	53197	31758
70°	12723	28635	12187
75°	1417	7717	1417
80°	1056	1056	1056
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	124.9	4.4
10°-20°	353.4	12.5
20°-30°	524.3	18.6
30°-40°	607.5	21.5
40°-50°	582.5	20.6
50°-60°	428.3	15.2
60°-70°	185.0	6.5
70°-80°	20.0	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°	1002.5	35.5
0°-40°	1610.1	57.0
0°-60°	2620.8	92.7
0°-90°	2826.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2826.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1323	1323	1323	1323	1323	
5°	1297	1310	1314	1315	1317	124
15°	1246	1253	1248	1250	1252	351
25°	1137	1135	1137	1139	1144	521
35°	968	973	977	975	960	605
45°	754	755	770	759	746	573
55°	436	481	536	479	438	392
65°	143	178	233	177	139	147
75°	4	6	21	4	4	12
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9
2.5°	1313.5	1328.5	1330.5	1321.0	1317.3	1311.7	1324.8	1315.4	1319.2	1315.4	1313.5
5°	1296.6	1313.5	1315.4	1315.4	1311.7	1309.8	1315.4	1313.5	1311.7	1307.9	1313.5
7.5°	1289.1	1298.5	1307.9	1296.6	1302.2	1300.4	1313.5	1307.9	1306.0	1306.0	1302.2
10°	1292.9	1291.0	1298.5	1287.2	1291.0	1287.2	1298.5	1298.5	1294.7	1291.0	1289.1
12.5°	1262.8	1277.8	1277.8	1275.9	1272.2	1266.5	1277.8	1285.4	1274.0	1274.0	1272.2
15°	1245.9	1249.6	1251.5	1251.5	1249.6	1253.4	1259.0	1251.5	1253.4	1244.0	1247.7
17.5°	1227.1	1219.6	1225.2	1221.4	1223.3	1227.1	1234.6	1234.6	1223.3	1221.4	1225.2
20°	1183.9	1206.4	1208.3	1197.0	1198.9	1198.9	1212.1	1200.8	1208.3	1198.9	1202.6
22.5°	1163.2	1178.2	1180.1	1165.1	1174.4	1163.2	1176.3	1159.4	1178.2	1165.1	1170.7
25°	1136.9	1135.0	1140.6	1133.1	1135.0	1135.0	1144.4	1136.9	1142.5	1135.0	1136.9
27.5°	1093.7	1108.7	1106.8	1099.3	1103.0	1101.2	1120.0	1099.3	1110.6	1101.2	1105.0
30°	1056.1	1069.2	1065.5	1058.0	1058.0	1052.3	1073.0	1067.3	1065.5	1065.5	1063.6
32.5°	1018.5	1020.4	1016.6	1018.5	1020.4	1012.9	1029.8	1022.2	1020.4	1022.2	1024.2
35°	967.7	967.7	971.5	965.9	973.4	973.4	988.4	979.0	977.2	971.5	977.2
37.5°	922.6	917.0	918.9	918.9	922.6	926.4	933.9	930.2	930.2	924.6	928.3
40°	862.5	858.8	864.4	864.4	870.0	870.0	877.6	873.8	879.4	879.4	879.4
42.5°	809.9	809.9	806.2	811.8	813.7	811.8	825.0	823.1	825.0	821.2	823.1
45°	753.5	753.5	749.8	747.9	757.3	755.4	770.5	764.8	772.3	768.5	770.5
47.5°	676.5	685.9	680.2	685.9	697.2	699.1	708.4	704.7	712.2	706.6	714.1
50°	603.2	603.2	608.8	616.3	627.6	629.5	640.8	648.3	652.1	653.9	655.8
52.5°	526.2	524.3	529.9	539.3	548.7	556.2	567.5	578.8	586.3	597.6	591.9
55°	435.9	439.7	445.4	456.6	471.7	481.0	490.5	505.5	518.7	524.3	535.5
57.5°	358.9	355.1	358.9	373.9	390.9	398.4	411.6	426.6	445.4	456.6	460.4
60°	278.1	280.0	283.8	296.9	310.1	321.3	327.0	351.4	368.3	379.6	387.1
62.5°	204.9	208.6	212.4	223.6	236.8	246.2	255.5	276.2	291.3	302.5	310.1
65°	142.8	144.7	150.3	155.9	169.1	178.5	186.0	202.9	218.0	227.4	233.0
67.5°	88.3	90.2	93.9	101.5	110.9	118.4	125.9	137.2	150.3	159.7	161.6
70°	45.1	47.0	48.8	54.5	62.0	65.8	71.4	80.8	90.2	97.7	101.5
72.5°	15.0	15.0	16.9	20.7	24.5	28.2	30.1	39.5	47.0	50.8	52.6
75°	3.8	3.8	3.8	3.8	3.8	5.7	5.7	11.3	15.0	18.8	20.7
77.5°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	3.8	3.8
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°	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9	1322.9
2.5°	1322.9	1319.2	1317.3	1319.2	1319.2	1317.3	1322.9	1330.5	1339.8	1315.4
5°	1321.0	1317.3	1321.0	1309.8	1315.4	1311.7	1319.2	1317.3	1324.8	1317.3
7.5°	1315.4	1307.9	1309.8	1304.2	1311.7	1302.2	1307.9	1319.2	1311.7	1300.4
10°	1296.6	1292.9	1306.0	1287.2	1283.5	1291.0	1306.0	1294.7	1291.0	1294.7
12.5°	1277.8	1277.8	1283.5	1268.4	1270.3	1274.0	1281.5	1274.0	1277.8	1287.2
15°	1257.2	1253.4	1262.8	1251.5	1249.6	1245.9	1253.4	1253.4	1257.2	1251.5
17.5°	1232.7	1227.1	1227.1	1223.3	1221.4	1230.9	1234.6	1236.5	1238.4	1230.9
20°	1202.6	1200.8	1206.4	1200.8	1202.6	1204.6	1204.6	1200.8	1217.7	1197.0
22.5°	1170.7	1176.3	1168.8	1165.1	1168.8	1172.6	1172.6	1174.4	1170.7	1166.9
25°	1138.8	1142.5	1144.4	1133.1	1138.8	1133.1	1146.3	1148.1	1140.6	1144.4
27.5°	1110.6	1105.0	1103.0	1095.5	1099.3	1097.5	1099.3	1099.3	1110.6	1095.5
30°	1067.3	1061.7	1063.6	1058.0	1059.8	1058.0	1059.8	1059.8	1067.3	1065.5
32.5°	1026.0	1020.4	1022.2	1016.6	1016.6	1018.5	1014.7	1014.7	1020.4	1016.6
35°	986.5	973.4	975.2	973.4	975.2	967.7	967.7	965.9	969.6	960.2
37.5°	930.2	924.6	922.6	920.8	922.6	918.9	922.6	917.0	922.6	915.1
40°	879.4	875.6	877.6	866.3	866.3	868.1	864.4	862.5	864.4	871.9
42.5°	828.7	821.2	817.5	813.7	815.5	809.9	808.0	804.3	808.0	800.5
45°	768.5	768.5	766.7	757.3	759.2	759.2	751.7	744.2	746.0	746.0
47.5°	714.1	710.3	708.4	699.1	697.2	695.3	687.7	682.1	682.1	676.5
50°	653.9	650.2	644.6	635.1	631.4	620.1	614.5	607.0	599.5	599.5
52.5°	597.6	584.4	576.9	561.8	556.2	550.6	535.5	529.9	524.3	518.7
55°	529.9	518.7	503.6	486.7	479.2	469.8	454.7	443.5	435.9	437.9
57.5°	464.2	445.4	430.3	407.8	398.4	392.7	377.7	362.6	355.1	355.1
60°	383.3	368.3	349.5	328.8	321.3	312.0	293.1	283.8	278.1	272.5
62.5°	306.3	295.0	278.1	251.8	246.2	236.8	223.6	212.4	206.7	206.7
65°	229.2	218.0	202.9	184.2	176.6	169.1	157.9	146.6	140.9	139.1
67.5°	161.6	148.4	135.3	120.3	114.6	110.9	99.6	92.1	88.3	86.4
70°	97.7	90.2	80.8	69.5	63.9	60.1	52.6	47.0	45.1	43.2
72.5°	50.8	45.1	37.6	30.1	26.3	22.5	18.8	15.0	13.2	13.2
75°	18.8	15.0	9.4	5.7	3.8	3.8	3.8	3.8	3.8	3.8
77.5°	3.8	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)