

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-MW**

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

Summary

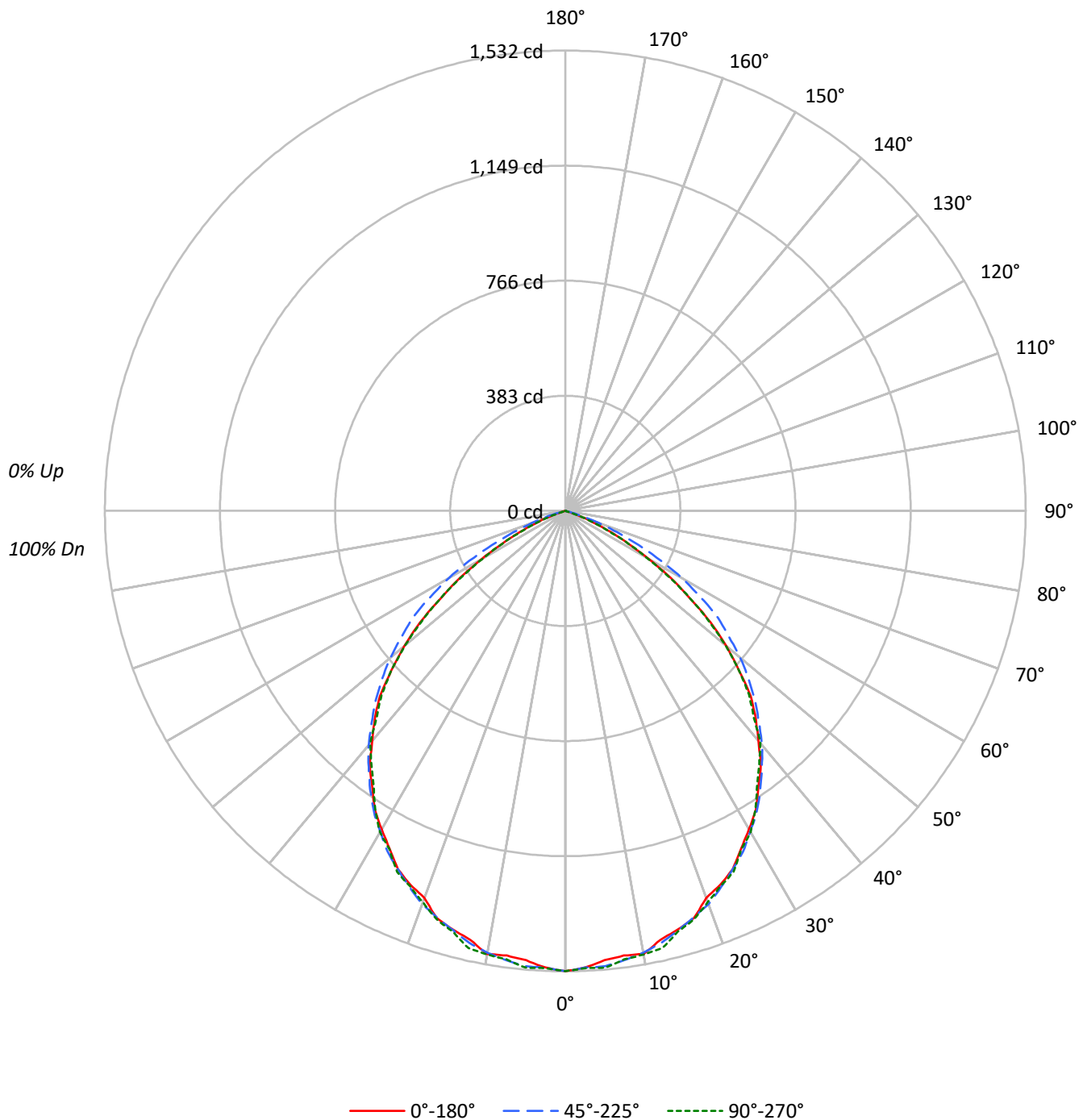
Lumens per Lamp: N/A
Luminaire Lumens: 3272.0 lumens
Efficiency: N/A
Efficacy: 81.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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

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

Luminous Intensity Polar Plot



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

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°	147792	147792	147792
5°	145412	147301	147727
10°	146662	146241	146878
15°	144095	144305	144744
20°	140745	142973	142316
25°	140138	140138	141064
30°	136228	137197	137443
35°	131985	133269	130960
40°	125794	128250	127154
45°	119044	121719	117857
50°	104837	113979	104191
55°	84902	104315	85289
60°	62139	86493	60884
65°	37763	61599	36758
70°	14726	33148	14134
75°	1603	8947	1603
80°	1222	1222	1222
85°	0	0	0

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

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	144.6	4.4
10°-20°	409.1	12.5
20°-30°	607.0	18.6
30°-40°	703.4	21.5
40°-50°	674.4	20.6
50°-60°	495.9	15.2
60°-70°	214.2	6.5
70°-80°	23.1	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°	1160.8	35.5
0°-40°	1864.2	57.0
0°-60°	3034.4	92.7
0°-90°	3272.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3272.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1532	1532	1532	1532	1532	
5°	1501	1516	1521	1523	1525	143
15°	1442	1451	1445	1447	1449	407
25°	1316	1314	1316	1318	1325	603
35°	1120	1127	1131	1129	1112	701
45°	872	875	892	879	864	663
55°	505	557	620	555	507	454
65°	165	207	270	204	161	170
75°	4	7	24	4	4	13
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

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

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7
2.5°	1520.8	1538.2	1540.4	1529.5	1525.2	1518.7	1533.9	1523.0	1527.4	1523.0	1520.8
5°	1501.3	1520.8	1523.0	1523.0	1518.7	1516.5	1523.0	1520.8	1518.7	1514.3	1520.8
7.5°	1492.6	1503.4	1514.3	1501.3	1507.8	1505.6	1520.8	1514.3	1512.1	1512.1	1507.8
10°	1496.9	1494.7	1503.4	1490.4	1494.7	1490.4	1503.4	1503.4	1499.1	1494.7	1492.6
12.5°	1462.0	1479.4	1479.4	1477.3	1473.0	1466.4	1479.4	1488.2	1475.1	1475.1	1473.0
15°	1442.5	1446.9	1449.0	1449.0	1446.9	1451.2	1457.7	1449.0	1451.2	1440.3	1444.6
17.5°	1420.8	1412.1	1418.5	1414.2	1416.4	1420.8	1429.5	1429.5	1416.4	1414.2	1418.5
20°	1370.7	1396.8	1399.0	1386.0	1388.1	1388.1	1403.4	1390.3	1399.0	1388.1	1392.4
22.5°	1346.7	1364.1	1366.3	1348.9	1359.8	1346.7	1362.0	1342.4	1364.1	1348.9	1355.4
25°	1316.3	1314.1	1320.6	1311.9	1314.1	1314.1	1325.0	1316.3	1322.8	1314.1	1316.3
27.5°	1266.3	1283.7	1281.5	1272.8	1277.1	1275.0	1296.8	1272.8	1285.8	1275.0	1279.4
30°	1222.7	1238.0	1233.6	1224.9	1224.9	1218.4	1242.3	1235.8	1233.6	1233.6	1231.4
32.5°	1179.2	1181.4	1177.1	1179.2	1181.4	1172.7	1192.3	1183.6	1181.4	1183.6	1185.8
35°	1120.5	1120.5	1124.8	1118.3	1127.0	1127.0	1144.4	1133.5	1131.4	1124.8	1131.4
37.5°	1068.3	1061.8	1063.9	1063.9	1068.3	1072.6	1081.3	1077.0	1077.0	1070.5	1074.8
40°	998.7	994.3	1000.8	1000.8	1007.4	1007.4	1016.1	1011.7	1018.2	1018.2	1018.2
42.5°	937.8	937.8	933.4	939.9	942.1	939.9	955.2	952.9	955.2	950.8	952.9
45°	872.4	872.4	868.1	866.0	876.8	874.6	892.0	885.5	894.2	889.8	892.0
47.5°	783.2	794.1	787.6	794.1	807.2	809.4	820.2	815.9	824.6	818.1	826.8
50°	698.4	698.4	704.9	713.6	726.7	728.9	741.9	750.6	755.0	757.1	759.3
52.5°	609.2	607.0	613.6	624.4	635.3	644.0	657.1	670.1	678.8	691.9	685.3
55°	504.7	509.1	515.7	528.7	546.1	556.9	567.9	585.3	600.5	607.0	620.1
57.5°	415.5	411.2	415.5	432.9	452.5	461.2	476.5	493.9	515.7	528.7	533.1
60°	322.0	324.2	328.5	343.8	359.0	372.0	378.6	406.8	426.5	439.5	448.2
62.5°	237.2	241.5	245.9	258.9	274.1	285.0	295.9	319.8	337.2	350.3	359.0
65°	165.4	167.5	174.1	180.6	195.8	206.7	215.4	235.0	252.4	263.3	269.8
67.5°	102.3	104.4	108.7	117.5	128.4	137.1	145.8	158.8	174.1	184.9	187.1
70°	52.2	54.4	56.5	63.1	71.8	76.2	82.6	93.6	104.4	113.1	117.5
72.5°	17.4	17.4	19.6	24.0	28.3	32.7	34.8	45.7	54.4	58.8	60.9
75°	4.3	4.3	4.3	4.3	4.3	6.6	6.6	13.0	17.4	21.7	24.0
77.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	4.3	4.3
80°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
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-MW

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7	1531.7
2.5°	1531.7	1527.4	1525.2	1527.4	1527.4	1525.2	1531.7	1540.4	1551.3	1523.0
5°	1529.5	1525.2	1529.5	1516.5	1523.0	1518.7	1527.4	1525.2	1533.9	1525.2
7.5°	1523.0	1514.3	1516.5	1510.0	1518.7	1507.8	1514.3	1527.4	1518.7	1505.6
10°	1501.3	1496.9	1512.1	1490.4	1486.0	1494.7	1512.1	1499.1	1494.7	1499.1
12.5°	1479.4	1479.4	1486.0	1468.6	1470.7	1475.1	1483.8	1475.1	1479.4	1490.4
15°	1455.6	1451.2	1462.0	1449.0	1446.9	1442.5	1451.2	1451.2	1455.6	1449.0
17.5°	1427.2	1420.8	1420.8	1416.4	1414.2	1425.1	1429.5	1431.6	1433.8	1425.1
20°	1392.4	1390.3	1396.8	1390.3	1392.4	1394.7	1394.7	1390.3	1409.8	1386.0
22.5°	1355.4	1362.0	1353.3	1348.9	1353.3	1357.6	1357.6	1359.8	1355.4	1351.1
25°	1318.5	1322.8	1325.0	1311.9	1318.5	1311.9	1327.2	1329.3	1320.6	1325.0
27.5°	1285.8	1279.4	1277.1	1268.4	1272.8	1270.7	1272.8	1272.8	1285.8	1268.4
30°	1235.8	1229.3	1231.4	1224.9	1227.1	1224.9	1227.1	1227.1	1235.8	1233.6
32.5°	1187.9	1181.4	1183.6	1177.1	1177.1	1179.2	1174.9	1174.9	1181.4	1177.1
35°	1142.2	1127.0	1129.2	1127.0	1129.2	1120.5	1120.5	1118.3	1122.7	1111.8
37.5°	1077.0	1070.5	1068.3	1066.1	1068.3	1063.9	1068.3	1061.8	1068.3	1059.6
40°	1018.2	1013.8	1016.1	1003.0	1003.0	1005.1	1000.8	998.7	1000.8	1009.5
42.5°	959.5	950.8	946.5	942.1	944.2	937.8	935.5	931.2	935.5	926.8
45°	889.8	889.8	887.7	876.8	879.0	879.0	870.3	861.6	863.7	863.7
47.5°	826.8	822.5	820.2	809.4	807.2	805.1	796.3	789.8	789.8	783.2
50°	757.1	752.8	746.3	735.4	731.0	718.0	711.5	702.8	694.1	694.1
52.5°	691.9	676.6	667.9	650.5	644.0	637.5	620.1	613.6	607.0	600.5
55°	613.6	600.5	583.1	563.5	554.8	543.9	526.5	513.4	504.7	507.0
57.5°	537.4	515.7	498.3	472.2	461.2	454.7	437.3	419.9	411.2	411.2
60°	443.8	426.5	404.7	380.7	372.0	361.2	339.4	328.5	322.0	315.5
62.5°	354.6	341.6	322.0	291.5	285.0	274.1	258.9	245.9	239.3	239.3
65°	265.4	252.4	235.0	213.2	204.5	195.8	182.8	169.7	163.2	161.0
67.5°	187.1	171.9	156.7	139.3	132.7	128.4	115.3	106.6	102.3	100.0
70°	113.1	104.4	93.6	80.5	73.9	69.6	60.9	54.4	52.2	50.1
72.5°	58.8	52.2	43.5	34.8	30.4	26.1	21.7	17.4	15.3	15.3
75°	21.7	17.4	10.9	6.6	4.3	4.3	4.3	4.3	4.3	4.3
77.5°	4.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
80°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
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)