

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-DFSSQ-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: FLDSQ4C35D010 FEU4C359027 F4LC-DFSSQ-MW
Description: 4 INCH 3500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS
AND F4LC-DFSSQ TRIM WITH MW FINISH
Light Source: -
Ballast/Driver: -

Summary

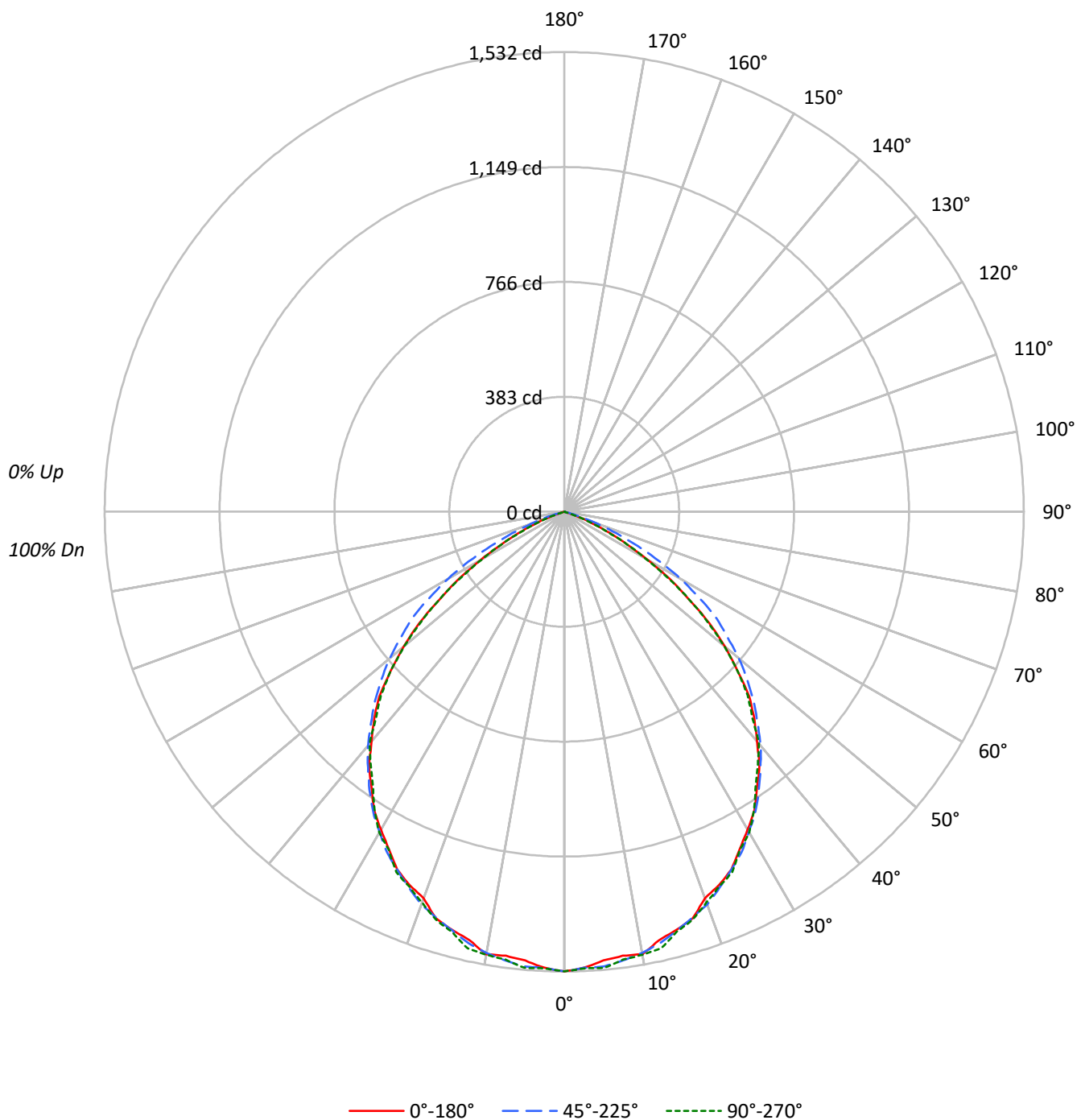
Lumens per Lamp: N/A
Luminaire Lumens: 3272.0 lumens
Efficiency: N/A
Efficacy: 81.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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

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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°	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

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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	

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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

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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)