

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 FEU4C359035 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 FEU4C359035 F4LC-DFSSQ-MW
Description: 4 INCH 3500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS
AND F4LC-DFSSQ TRIM WITH MW FINISH
Light Source: -
Ballast/Driver: -

Summary

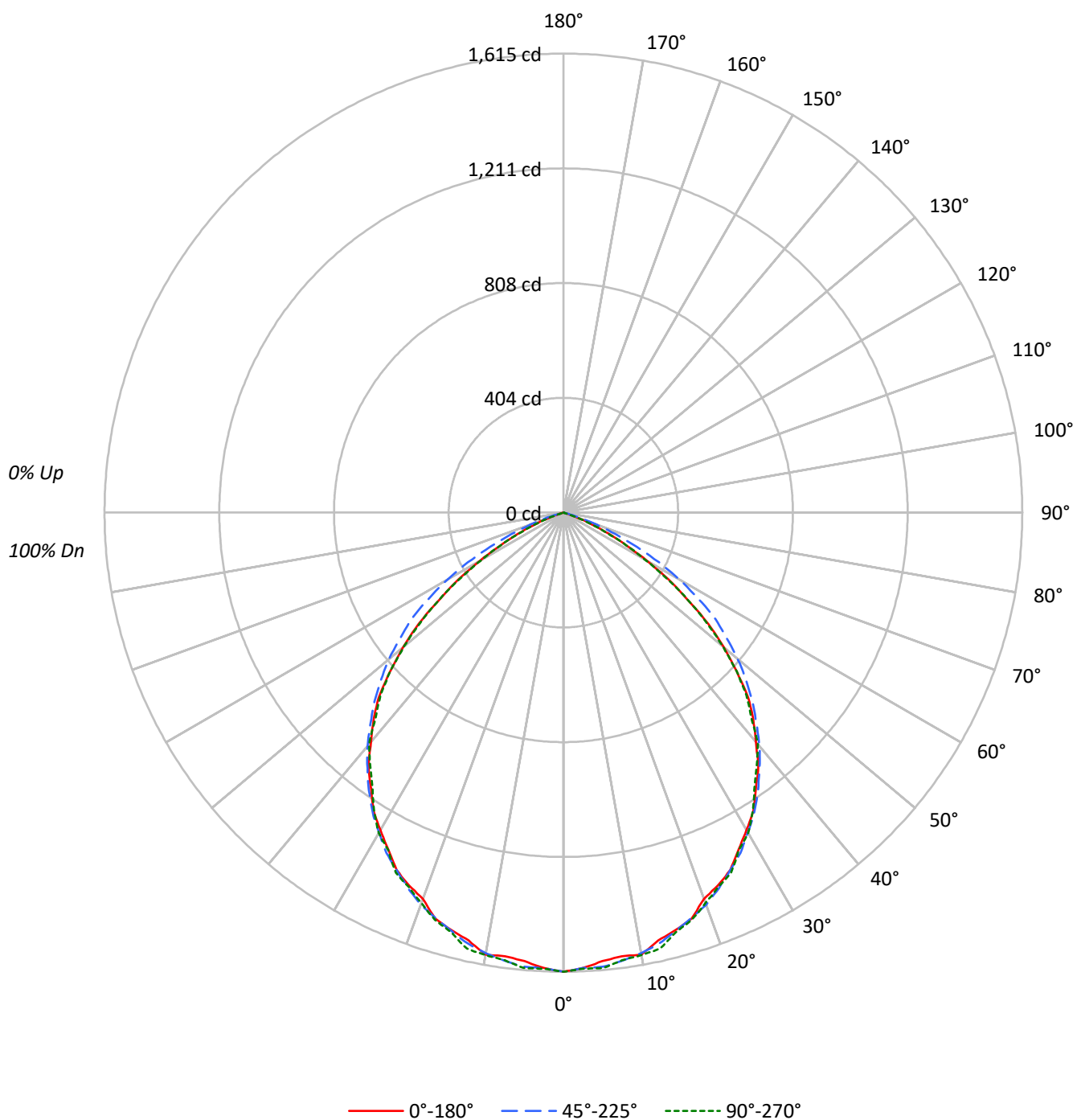
Lumens per Lamp: N/A
Luminaire Lumens: 3450.0 lumens
Efficiency: N/A
Efficacy: 85.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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°	155839	155839	155839
5°	153316	155311	155756
10°	154648	154197	154863
15°	151937	152156	152616
20°	148405	150757	150059
25°	147761	147761	148740
30°	143637	144662	144919
35°	139159	140513	138075
40°	132633	135228	134069
45°	125526	128350	124270
50°	110541	120178	109851
55°	89528	109984	89915
60°	65516	91201	64204
65°	39818	64932	38767
70°	15516	34954	14896
75°	1715	9432	1715
80°	1278	1278	1278
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	152.4	4.4
10°-20°	431.4	12.5
20°-30°	640.1	18.6
30°-40°	741.7	21.5
40°-50°	711.1	20.6
50°-60°	522.8	15.2
60°-70°	225.8	6.5
70°-80°	24.4	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°	1223.9	35.5
0°-40°	1965.6	57.0
0°-60°	3199.5	92.7
0°-90°	3450.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3450.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1615	1615	1615	1615	1615	
5°	1583	1599	1604	1606	1608	151
15°	1521	1530	1523	1526	1528	429
25°	1388	1386	1388	1390	1397	635
35°	1181	1188	1193	1191	1172	739
45°	920	922	941	927	911	699
55°	532	587	654	585	534	479
65°	174	218	284	216	170	179
75°	5	7	25	5	5	14
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°	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1
2.5°	1603.5	1621.9	1624.2	1612.7	1608.1	1601.3	1617.3	1605.9	1610.5	1605.9	1603.5
5°	1582.9	1603.5	1605.9	1605.9	1601.3	1599.0	1605.9	1603.5	1601.3	1596.7	1603.5
7.5°	1573.8	1585.2	1596.7	1582.9	1589.8	1587.5	1603.5	1596.7	1594.4	1594.4	1589.8
10°	1578.4	1576.0	1585.2	1571.4	1576.0	1571.4	1585.2	1585.2	1580.6	1576.0	1573.8
12.5°	1541.6	1559.9	1559.9	1557.7	1553.1	1546.2	1559.9	1569.2	1555.3	1555.3	1553.1
15°	1521.0	1525.6	1527.8	1527.8	1525.6	1530.2	1537.0	1527.8	1530.2	1518.6	1523.2
17.5°	1498.1	1488.9	1495.7	1491.1	1493.5	1498.1	1507.2	1507.2	1493.5	1491.1	1495.7
20°	1445.3	1472.8	1475.1	1461.4	1463.6	1463.6	1479.7	1465.9	1475.1	1463.6	1468.2
22.5°	1420.0	1438.3	1440.7	1422.3	1433.8	1420.0	1436.1	1415.4	1438.3	1422.3	1429.2
25°	1387.9	1385.6	1392.5	1383.3	1385.6	1385.6	1397.1	1387.9	1394.8	1385.6	1387.9
27.5°	1335.2	1353.5	1351.2	1342.0	1346.6	1344.4	1367.3	1342.0	1355.8	1344.4	1348.9
30°	1289.2	1305.3	1300.7	1291.6	1291.6	1284.6	1309.9	1303.0	1300.7	1300.7	1298.4
32.5°	1243.4	1245.7	1241.1	1243.4	1245.7	1236.5	1257.1	1248.0	1245.7	1248.0	1250.3
35°	1181.4	1181.4	1186.0	1179.2	1188.3	1188.3	1206.7	1195.2	1192.9	1186.0	1192.9
37.5°	1126.4	1119.5	1121.8	1121.8	1126.4	1131.0	1140.1	1135.5	1135.5	1128.7	1133.3
40°	1053.0	1048.4	1055.2	1055.2	1062.2	1062.2	1071.3	1066.7	1073.6	1073.6	1073.6
42.5°	988.8	988.8	984.2	991.0	993.4	991.0	1007.1	1004.8	1007.1	1002.5	1004.8
45°	919.9	919.9	915.3	913.1	924.5	922.2	940.6	933.7	942.8	938.2	940.6
47.5°	825.8	837.3	830.4	837.3	851.1	853.4	864.9	860.3	869.4	862.6	871.8
50°	736.4	736.4	743.3	752.4	766.2	768.5	782.3	791.5	796.1	798.3	800.6
52.5°	642.4	640.0	647.0	658.4	669.9	679.1	692.8	706.6	715.8	729.5	722.6
55°	532.2	536.8	543.7	557.5	575.8	587.2	598.8	617.1	633.2	640.0	653.8
57.5°	438.1	433.6	438.1	456.5	477.2	486.3	502.4	520.8	543.7	557.5	562.1
60°	339.5	341.8	346.4	362.5	378.5	392.3	399.2	429.0	449.6	463.4	472.6
62.5°	250.1	254.7	259.3	273.0	289.0	300.5	312.0	337.2	355.6	369.3	378.5
65°	174.4	176.6	183.5	190.4	206.5	217.9	227.1	247.8	266.1	277.6	284.4
67.5°	107.8	110.1	114.7	123.9	135.3	144.5	153.7	167.4	183.5	195.0	197.3
70°	55.0	57.4	59.6	66.5	75.7	80.3	87.1	98.7	110.1	119.2	123.9
72.5°	18.3	18.3	20.7	25.3	29.9	34.4	36.7	48.2	57.4	62.0	64.2
75°	4.6	4.6	4.6	4.6	4.6	6.9	6.9	13.8	18.3	22.9	25.3
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	4.6	4.6
80°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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°	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1	1615.1
2.5°	1615.1	1610.5	1608.1	1610.5	1610.5	1608.1	1615.1	1624.2	1635.6	1605.9
5°	1612.7	1608.1	1612.7	1599.0	1605.9	1601.3	1610.5	1608.1	1617.3	1608.1
7.5°	1605.9	1596.7	1599.0	1592.1	1601.3	1589.8	1596.7	1610.5	1601.3	1587.5
10°	1582.9	1578.4	1594.4	1571.4	1566.8	1576.0	1594.4	1580.6	1576.0	1580.6
12.5°	1559.9	1559.9	1566.8	1548.5	1550.8	1555.3	1564.5	1555.3	1559.9	1571.4
15°	1534.7	1530.2	1541.6	1527.8	1525.6	1521.0	1530.2	1530.2	1534.7	1527.8
17.5°	1504.9	1498.1	1498.1	1493.5	1491.1	1502.6	1507.2	1509.5	1511.8	1502.6
20°	1468.2	1465.9	1472.8	1465.9	1468.2	1470.5	1470.5	1465.9	1486.5	1461.4
22.5°	1429.2	1436.1	1426.9	1422.3	1426.9	1431.5	1431.5	1433.8	1429.2	1424.6
25°	1390.2	1394.8	1397.1	1383.3	1390.2	1383.3	1399.4	1401.6	1392.5	1397.1
27.5°	1355.8	1348.9	1346.6	1337.4	1342.0	1339.8	1342.0	1342.0	1355.8	1337.4
30°	1303.0	1296.2	1298.4	1291.6	1293.8	1291.6	1293.8	1293.8	1303.0	1300.7
32.5°	1252.5	1245.7	1248.0	1241.1	1241.1	1243.4	1238.8	1238.8	1245.7	1241.1
35°	1204.3	1188.3	1190.6	1188.3	1190.6	1181.4	1181.4	1179.2	1183.7	1172.2
37.5°	1135.5	1128.7	1126.4	1124.1	1126.4	1121.8	1126.4	1119.5	1126.4	1117.2
40°	1073.6	1069.0	1071.3	1057.6	1057.6	1059.8	1055.2	1053.0	1055.2	1064.4
42.5°	1011.7	1002.5	998.0	993.4	995.6	988.8	986.4	981.9	986.4	977.3
45°	938.2	938.2	936.0	924.5	926.8	926.8	917.6	908.5	910.7	910.7
47.5°	871.8	867.2	864.9	853.4	851.1	848.8	839.6	832.8	832.8	825.8
50°	798.3	793.7	786.9	775.4	770.8	757.0	750.2	741.0	731.8	731.8
52.5°	729.5	713.4	704.2	685.9	679.1	672.1	653.8	647.0	640.0	633.2
55°	647.0	633.2	614.9	594.2	585.0	573.5	555.1	541.4	532.2	534.5
57.5°	566.6	543.7	525.4	497.9	486.3	479.4	461.1	442.7	433.6	433.6
60°	468.0	449.6	426.7	401.4	392.3	380.9	357.8	346.4	339.5	332.7
62.5°	373.9	360.2	339.5	307.4	300.5	289.0	273.0	259.3	252.3	252.3
65°	279.9	266.1	247.8	224.8	215.7	206.5	192.7	179.0	172.0	169.8
67.5°	197.3	181.2	165.2	146.9	139.9	135.3	121.6	112.4	107.8	105.5
70°	119.2	110.1	98.7	84.9	78.0	73.4	64.2	57.4	55.0	52.8
72.5°	62.0	55.0	45.9	36.7	32.1	27.5	22.9	18.3	16.1	16.1
75°	22.9	18.3	11.5	6.9	4.6	4.6	4.6	4.6	4.6	4.6
77.5°	4.6	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
80°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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)