

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 FEU4C359050 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 FEU4C359050 F4LC-DFSSQ-MW
 Description: 4 INCH 3500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

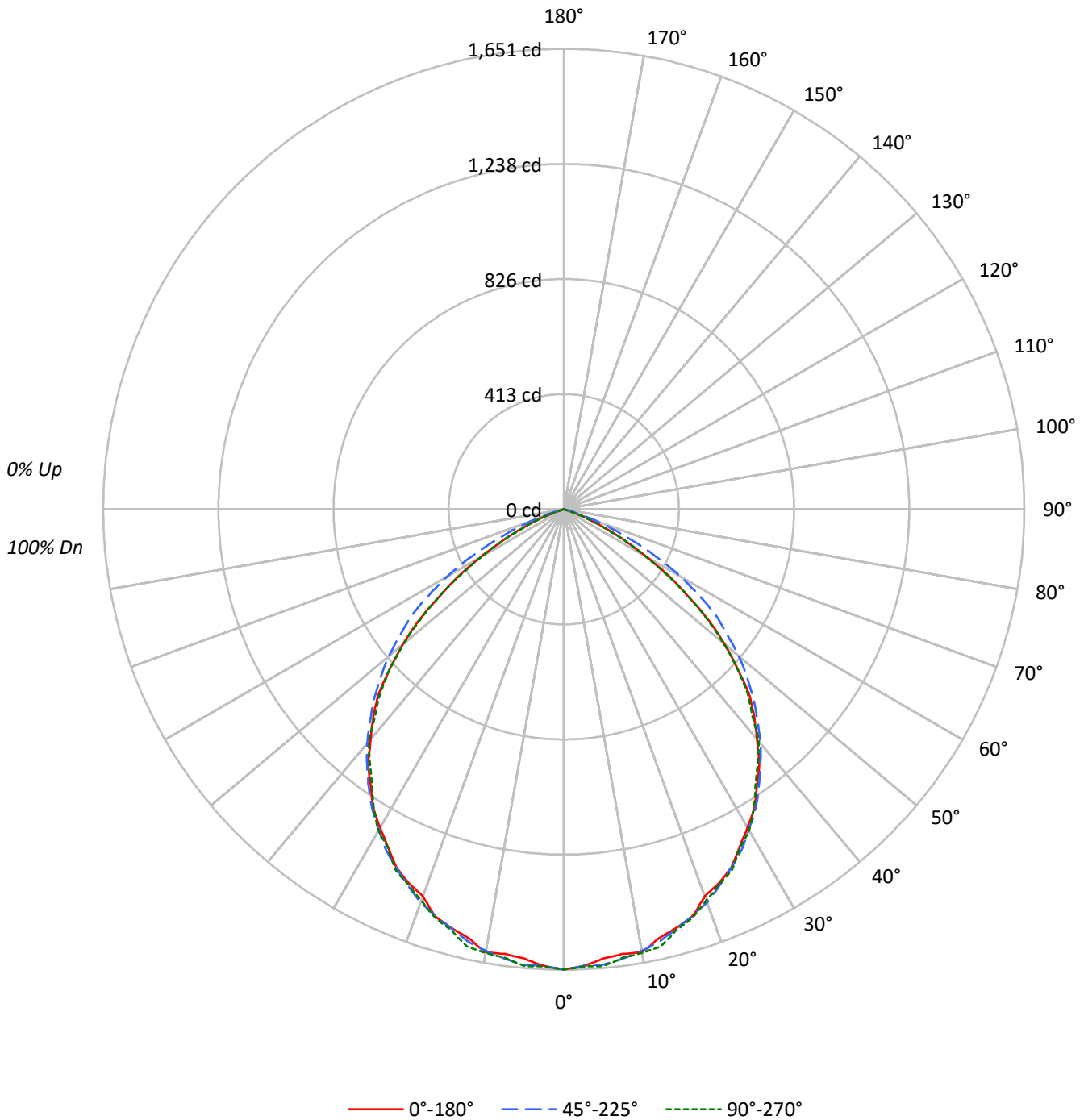
Lumens per Lamp: N/A
 Luminaire Lumens: 3526.0 lumens
 Efficiency: N/A
 Efficacy: 87.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

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Luminous Intensity Polar Plot



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CATALOG NUMBER: FLDSQ4C35D010 FEU4C359050 F4LC-DFSSQ-MW

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20			
RC	80				70				50				30				10	0		
RW	70	50	30	10	70	50	30	10	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		102	102	102	100
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	159265	159265	159265
5°	156696	158740	159195
10°	158047	157587	158273
15°	155283	155513	155982
20°	151671	154073	153365
25°	151019	151019	152009
30°	146801	147849	148116
35°	142221	143611	141126
40°	135555	138200	137029
45°	128296	131175	127013
50°	112988	122835	112282
55°	91497	112407	91900
60°	66963	93208	65612
65°	40685	66370	39612
70°	15855	35744	15234
75°	1752	9618	1752
80°	1334	1334	1334
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	155.8	4.4
10°-20°	440.9	12.5
20°-30°	654.2	18.6
30°-40°	758.0	21.5
40°-50°	726.8	20.6
50°-60°	534.3	15.2
60°-70°	230.8	6.5
70°-80°	24.9	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°	1250.9	35.5
0°-40°	2008.9	57.0
0°-60°	3270.0	92.7
0°-90°	3526.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3526.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1651	1651	1651	1651	1651	
5°	1618	1634	1639	1641	1644	154
15°	1554	1564	1557	1559	1562	438
25°	1418	1416	1418	1421	1428	649
35°	1207	1214	1219	1217	1198	755
45°	940	942	961	947	931	715
55°	544	600	668	598	546	489
65°	178	223	291	220	174	183
75°	5	7	26	5	5	14
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°	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6
2.5°	1638.9	1657.6	1660.0	1648.2	1643.6	1636.6	1652.9	1641.3	1645.9	1641.3	1638.9
5°	1617.8	1638.9	1641.3	1641.3	1636.6	1634.2	1641.3	1638.9	1636.6	1631.9	1638.9
7.5°	1608.4	1620.1	1631.9	1617.8	1624.8	1622.5	1638.9	1631.9	1629.5	1629.5	1624.8
10°	1613.1	1610.7	1620.1	1606.1	1610.7	1606.1	1620.1	1620.1	1615.4	1610.7	1608.4
12.5°	1575.5	1594.3	1594.3	1592.0	1587.3	1580.2	1594.3	1603.8	1589.6	1589.6	1587.3
15°	1554.5	1559.2	1561.5	1561.5	1559.2	1563.9	1570.9	1561.5	1563.9	1552.1	1556.8
17.5°	1531.1	1521.7	1528.7	1524.0	1526.4	1531.1	1540.4	1540.4	1526.4	1524.0	1528.7
20°	1477.1	1505.2	1507.6	1493.6	1495.9	1495.9	1512.3	1498.2	1507.6	1495.9	1500.5
22.5°	1451.3	1470.0	1472.4	1453.7	1465.3	1451.3	1467.7	1446.6	1470.0	1453.7	1460.6
25°	1418.5	1416.2	1423.1	1413.8	1416.2	1416.2	1427.8	1418.5	1425.5	1416.2	1418.5
27.5°	1364.6	1383.4	1381.0	1371.6	1376.3	1374.0	1397.4	1371.6	1385.7	1374.0	1378.7
30°	1317.6	1334.1	1329.4	1320.0	1320.0	1312.9	1338.8	1331.7	1329.4	1329.4	1327.0
32.5°	1270.8	1273.2	1268.5	1270.8	1273.2	1263.8	1284.8	1275.4	1273.2	1275.4	1277.8
35°	1207.4	1207.4	1212.1	1205.1	1214.5	1214.5	1233.3	1221.5	1219.2	1212.1	1219.2
37.5°	1151.2	1144.2	1146.5	1146.5	1151.2	1155.9	1165.2	1160.6	1160.6	1153.6	1158.3
40°	1076.2	1071.5	1078.5	1078.5	1085.6	1085.6	1094.9	1090.2	1097.2	1097.2	1097.2
42.5°	1010.6	1010.6	1005.9	1012.9	1015.2	1012.9	1029.3	1026.9	1029.3	1024.6	1026.9
45°	940.2	940.2	935.5	933.2	944.8	942.5	961.3	954.2	963.6	958.9	961.3
47.5°	844.0	855.8	848.7	855.8	869.8	872.2	883.9	879.2	888.6	881.6	891.0
50°	752.7	752.7	759.6	769.0	783.1	785.5	799.5	808.9	813.6	815.9	818.3
52.5°	656.5	654.1	661.2	672.9	684.6	694.0	708.1	722.1	731.5	745.6	738.5
55°	543.9	548.6	555.7	569.8	588.5	600.2	611.9	630.7	647.1	654.1	668.2
57.5°	447.8	443.1	447.8	466.5	487.7	497.1	513.5	532.3	555.7	569.8	574.4
60°	347.0	349.4	354.0	370.5	386.9	400.9	408.0	438.4	459.6	473.6	483.0
62.5°	255.6	260.3	265.0	279.0	295.4	307.2	318.8	344.7	363.4	377.5	386.9
65°	178.2	180.5	187.6	194.6	211.0	222.7	232.1	253.2	272.0	283.7	290.7
67.5°	110.2	112.5	117.2	126.7	138.3	147.7	157.1	171.1	187.6	199.3	201.7
70°	56.2	58.6	60.9	68.0	77.4	82.1	89.1	100.8	112.5	121.9	126.7
72.5°	18.7	18.7	21.1	25.8	30.5	35.2	37.5	49.3	58.6	63.3	65.6
75°	4.7	4.7	4.7	4.7	4.7	7.1	7.1	14.1	18.7	23.4	25.8
77.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	4.7	4.7
80°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
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°	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6	1650.6
2.5°	1650.6	1645.9	1643.6	1645.9	1645.9	1643.6	1650.6	1660.0	1671.7	1641.3
5°	1648.2	1643.6	1648.2	1634.2	1641.3	1636.6	1645.9	1643.6	1652.9	1643.6
7.5°	1641.3	1631.9	1634.2	1627.2	1636.6	1624.8	1631.9	1645.9	1636.6	1622.5
10°	1617.8	1613.1	1629.5	1606.1	1601.4	1610.7	1629.5	1615.4	1610.7	1615.4
12.5°	1594.3	1594.3	1601.4	1582.6	1584.9	1589.6	1599.0	1589.6	1594.3	1606.1
15°	1568.6	1563.9	1575.5	1561.5	1559.2	1554.5	1563.9	1563.9	1568.6	1561.5
17.5°	1538.0	1531.1	1531.1	1526.4	1524.0	1535.7	1540.4	1542.7	1545.1	1535.7
20°	1500.5	1498.2	1505.2	1498.2	1500.5	1502.9	1502.9	1498.2	1519.3	1493.6
22.5°	1460.6	1467.7	1458.4	1453.7	1458.4	1463.0	1463.0	1465.3	1460.6	1456.0
25°	1420.9	1425.5	1427.8	1413.8	1420.9	1413.8	1430.2	1432.5	1423.1	1427.8
27.5°	1385.7	1378.7	1376.3	1366.9	1371.6	1369.3	1371.6	1371.6	1385.7	1366.9
30°	1331.7	1324.7	1327.0	1320.0	1322.3	1320.0	1322.3	1322.3	1331.7	1329.4
32.5°	1280.1	1273.2	1275.4	1268.5	1268.5	1270.8	1266.1	1266.1	1273.2	1268.5
35°	1230.9	1214.5	1216.8	1214.5	1216.8	1207.4	1207.4	1205.1	1209.8	1198.1
37.5°	1160.6	1153.6	1151.2	1148.9	1151.2	1146.5	1151.2	1144.2	1151.2	1141.8
40°	1097.2	1092.5	1094.9	1080.9	1080.9	1083.2	1078.5	1076.2	1078.5	1087.9
42.5°	1034.0	1024.6	1019.9	1015.2	1017.5	1010.6	1008.2	1003.5	1008.2	998.8
45°	958.9	958.9	956.6	944.8	947.2	947.2	937.9	928.5	930.8	930.8
47.5°	891.0	886.3	883.9	872.2	869.8	867.5	858.1	851.1	851.1	844.0
50°	815.9	811.2	804.2	792.5	787.8	773.7	766.7	757.3	748.0	748.0
52.5°	745.6	729.1	719.8	701.0	694.0	686.9	668.2	661.2	654.1	647.1
55°	661.2	647.1	628.4	607.3	597.9	586.1	567.4	553.3	543.9	546.3
57.5°	579.1	555.7	536.9	508.8	497.1	490.0	471.2	452.5	443.1	443.1
60°	478.3	459.6	436.1	410.3	400.9	389.2	365.7	354.0	347.0	340.0
62.5°	382.2	368.1	347.0	314.2	307.2	295.4	279.0	265.0	257.9	257.9
65°	286.0	272.0	253.2	229.8	220.4	211.0	197.0	182.9	175.8	173.5
67.5°	201.7	185.2	168.8	150.1	143.0	138.3	124.3	114.9	110.2	107.8
70°	121.9	112.5	100.8	86.8	79.7	75.0	65.6	58.6	56.2	54.0
72.5°	63.3	56.2	46.9	37.5	32.8	28.1	23.4	18.7	16.5	16.5
75°	23.4	18.7	11.8	7.1	4.7	4.7	4.7	4.7	4.7	4.7
77.5°	4.7	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
80°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
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)