

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

Summary

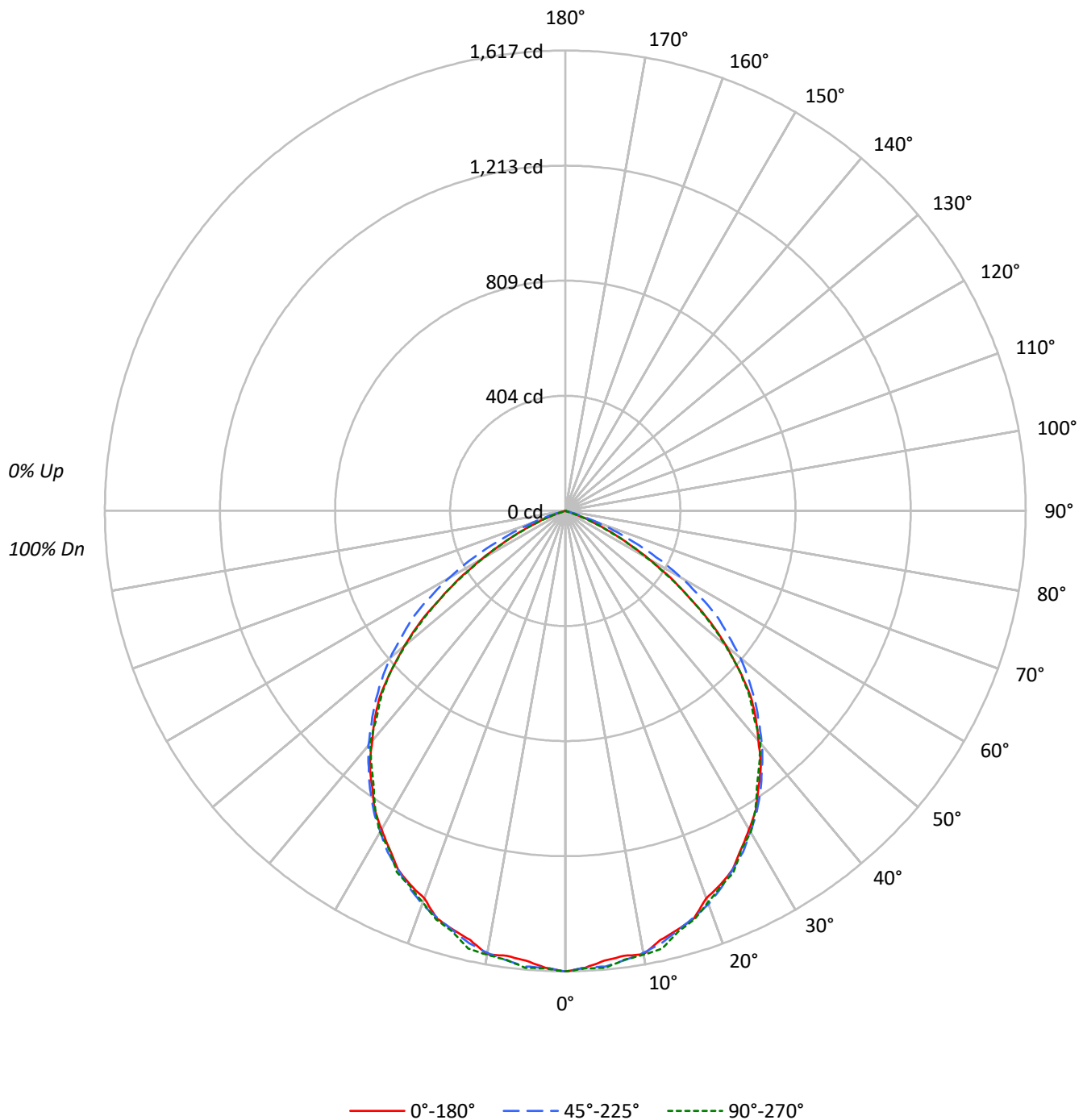
Lumens per Lamp: N/A
 Luminaire Lumens: 3455.0 lumens
 Efficiency: N/A
 Efficacy: 85.5 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	156061	156061	156061
5°	153538	155543	155989
10°	154863	154422	155088
15°	152156	152376	152836
20°	148621	150972	150274
25°	147974	147974	148953
30°	143849	144874	145130
35°	139359	140713	138275
40°	132822	135417	134270
45°	125703	128528	124448
50°	110706	120358	110016
55°	89663	110136	90050
60°	65612	91336	64281
65°	39863	65046	38813
70°	15545	35010	14924
75°	1715	9432	1715
80°	1278	1278	1278
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	152.7	4.4
10°-20°	432.0	12.5
20°-30°	641.0	18.6
30°-40°	742.7	21.5
40°-50°	712.1	20.6
50°-60°	523.6	15.2
60°-70°	226.1	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°	1225.7	35.5
0°-40°	1968.4	57.0
0°-60°	3204.1	92.7
0°-90°	3455.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3455.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1617	1617	1617	1617	1617	
5°	1585	1601	1606	1608	1610	151
15°	1523	1532	1525	1528	1530	429
25°	1390	1388	1390	1392	1399	636
35°	1183	1190	1195	1192	1174	740
45°	921	924	942	928	912	700
55°	533	588	655	586	535	480
65°	175	218	285	216	170	180
75°	5	7	25	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°	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4
2.5°	1605.9	1624.2	1626.6	1615.1	1610.5	1603.6	1619.6	1608.2	1612.8	1608.2	1605.9
5°	1585.2	1605.9	1608.2	1608.2	1603.6	1601.3	1608.2	1605.9	1603.6	1599.0	1605.9
7.5°	1576.1	1587.5	1599.0	1585.2	1592.1	1589.8	1605.9	1599.0	1596.7	1596.7	1592.1
10°	1580.6	1578.3	1587.5	1573.7	1578.3	1573.7	1587.5	1587.5	1582.9	1578.3	1576.1
12.5°	1543.8	1562.2	1562.2	1559.9	1555.3	1548.4	1562.2	1571.5	1557.6	1557.6	1555.3
15°	1523.2	1527.8	1530.0	1530.0	1527.8	1532.4	1539.2	1530.0	1532.4	1520.8	1525.4
17.5°	1500.2	1491.0	1497.9	1493.3	1495.6	1500.2	1509.4	1509.4	1495.6	1493.3	1497.9
20°	1447.4	1474.9	1477.3	1463.5	1465.7	1465.7	1481.9	1468.1	1477.3	1465.7	1470.3
22.5°	1422.1	1440.4	1442.8	1424.4	1435.8	1422.1	1438.2	1417.5	1440.4	1424.4	1431.2
25°	1389.9	1387.6	1394.5	1385.3	1387.6	1387.6	1399.1	1389.9	1396.8	1387.6	1389.9
27.5°	1337.1	1355.5	1353.2	1344.0	1348.6	1346.3	1369.3	1344.0	1357.7	1346.3	1350.9
30°	1291.1	1307.2	1302.6	1293.4	1293.4	1286.5	1311.8	1304.9	1302.6	1302.6	1300.3
32.5°	1245.2	1247.5	1242.9	1245.2	1247.5	1238.3	1259.0	1249.8	1247.5	1249.8	1252.1
35°	1183.1	1183.1	1187.7	1180.9	1190.1	1190.1	1208.4	1196.9	1194.6	1187.7	1194.6
37.5°	1128.0	1121.2	1123.4	1123.4	1128.0	1132.6	1141.8	1137.2	1137.2	1130.3	1134.9
40°	1054.5	1049.9	1056.8	1056.8	1063.7	1063.7	1072.9	1068.3	1075.1	1075.1	1075.1
42.5°	990.2	990.2	985.6	992.5	994.8	992.5	1008.6	1006.2	1008.6	1004.0	1006.2
45°	921.2	921.2	916.6	914.4	925.8	923.6	941.9	935.0	944.2	939.6	941.9
47.5°	827.0	838.6	831.6	838.6	852.3	854.7	866.1	861.5	870.7	863.9	873.0
50°	737.5	737.5	744.3	753.5	767.3	769.7	783.4	792.6	797.2	799.5	801.8
52.5°	643.3	641.0	647.9	659.3	670.9	680.0	693.8	707.6	716.8	730.6	723.6
55°	533.0	537.6	544.5	558.3	576.7	588.1	599.6	618.0	634.1	641.0	654.7
57.5°	438.8	434.2	438.8	457.1	477.9	487.0	503.2	521.5	544.5	558.3	562.9
60°	340.0	342.3	346.9	363.0	379.1	392.8	399.8	429.6	450.3	464.1	473.3
62.5°	250.5	255.1	259.6	273.4	289.5	301.0	312.4	337.7	356.1	369.9	379.1
65°	174.6	176.9	183.8	190.7	206.8	218.2	227.4	248.1	266.5	278.0	284.9
67.5°	108.0	110.2	114.8	124.1	135.5	144.7	153.9	167.7	183.8	195.3	197.6
70°	55.1	57.5	59.7	66.6	75.8	80.4	87.3	98.8	110.2	119.4	124.1
72.5°	18.4	18.4	20.7	25.3	29.9	34.5	36.7	48.3	57.5	62.1	64.3
75°	4.6	4.6	4.6	4.6	4.6	6.9	6.9	13.8	18.4	23.0	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°	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4	1617.4
2.5°	1617.4	1612.8	1610.5	1612.8	1612.8	1610.5	1617.4	1626.6	1638.0	1608.2
5°	1615.1	1610.5	1615.1	1601.3	1608.2	1603.6	1612.8	1610.5	1619.6	1610.5
7.5°	1608.2	1599.0	1601.3	1594.4	1603.6	1592.1	1599.0	1612.8	1603.6	1589.8
10°	1585.2	1580.6	1596.7	1573.7	1569.1	1578.3	1596.7	1582.9	1578.3	1582.9
12.5°	1562.2	1562.2	1569.1	1550.7	1553.0	1557.6	1566.8	1557.6	1562.2	1573.7
15°	1537.0	1532.4	1543.8	1530.0	1527.8	1523.2	1532.4	1532.4	1537.0	1530.0
17.5°	1507.1	1500.2	1500.2	1495.6	1493.3	1504.8	1509.4	1511.7	1514.0	1504.8
20°	1470.3	1468.1	1474.9	1468.1	1470.3	1472.7	1472.7	1468.1	1488.7	1463.5
22.5°	1431.2	1438.2	1429.0	1424.4	1429.0	1433.6	1433.6	1435.8	1431.2	1426.6
25°	1392.2	1396.8	1399.1	1385.3	1392.2	1385.3	1401.4	1403.7	1394.5	1399.1
27.5°	1357.7	1350.9	1348.6	1339.4	1344.0	1341.7	1344.0	1344.0	1357.7	1339.4
30°	1304.9	1298.0	1300.3	1293.4	1295.7	1293.4	1295.7	1295.7	1304.9	1302.6
32.5°	1254.4	1247.5	1249.8	1242.9	1242.9	1245.2	1240.6	1240.6	1247.5	1242.9
35°	1206.1	1190.1	1192.3	1190.1	1192.3	1183.1	1183.1	1180.9	1185.5	1173.9
37.5°	1137.2	1130.3	1128.0	1125.8	1128.0	1123.4	1128.0	1121.2	1128.0	1118.8
40°	1075.1	1070.5	1072.9	1059.1	1059.1	1061.4	1056.8	1054.5	1056.8	1066.0
42.5°	1013.2	1004.0	999.4	994.8	997.1	990.2	987.9	983.3	987.9	978.7
45°	939.6	939.6	937.3	925.8	928.2	928.2	919.0	909.8	912.0	912.0
47.5°	873.0	868.5	866.1	854.7	852.3	850.1	840.8	834.0	834.0	827.0
50°	799.5	794.9	788.0	776.5	771.9	758.1	751.3	742.1	732.9	732.9
52.5°	730.6	714.4	705.3	686.9	680.0	673.1	654.7	647.9	641.0	634.1
55°	647.9	634.1	615.7	595.0	585.8	574.3	555.9	542.2	533.0	535.3
57.5°	567.5	544.5	526.1	498.6	487.0	480.1	461.7	443.4	434.2	434.2
60°	468.7	450.3	427.3	402.0	392.8	381.4	358.3	346.9	340.0	333.1
62.5°	374.5	360.7	340.0	307.8	301.0	289.5	273.4	259.6	252.7	252.7
65°	280.3	266.5	248.1	225.2	216.0	206.8	193.0	179.2	172.3	170.0
67.5°	197.6	181.5	165.4	147.1	140.1	135.5	121.8	112.6	108.0	105.6
70°	119.4	110.2	98.8	85.0	78.1	73.5	64.3	57.5	55.1	52.9
72.5°	62.1	55.1	45.9	36.7	32.2	27.6	23.0	18.4	16.1	16.1
75°	23.0	18.4	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)