

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: **FLDSQ4C40D010 FEU4C409040 F4LC-CSSQ-MMS**

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: FLDSQ4C40D010 FEU4C409040 F4LC-CSSQ-MMS
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

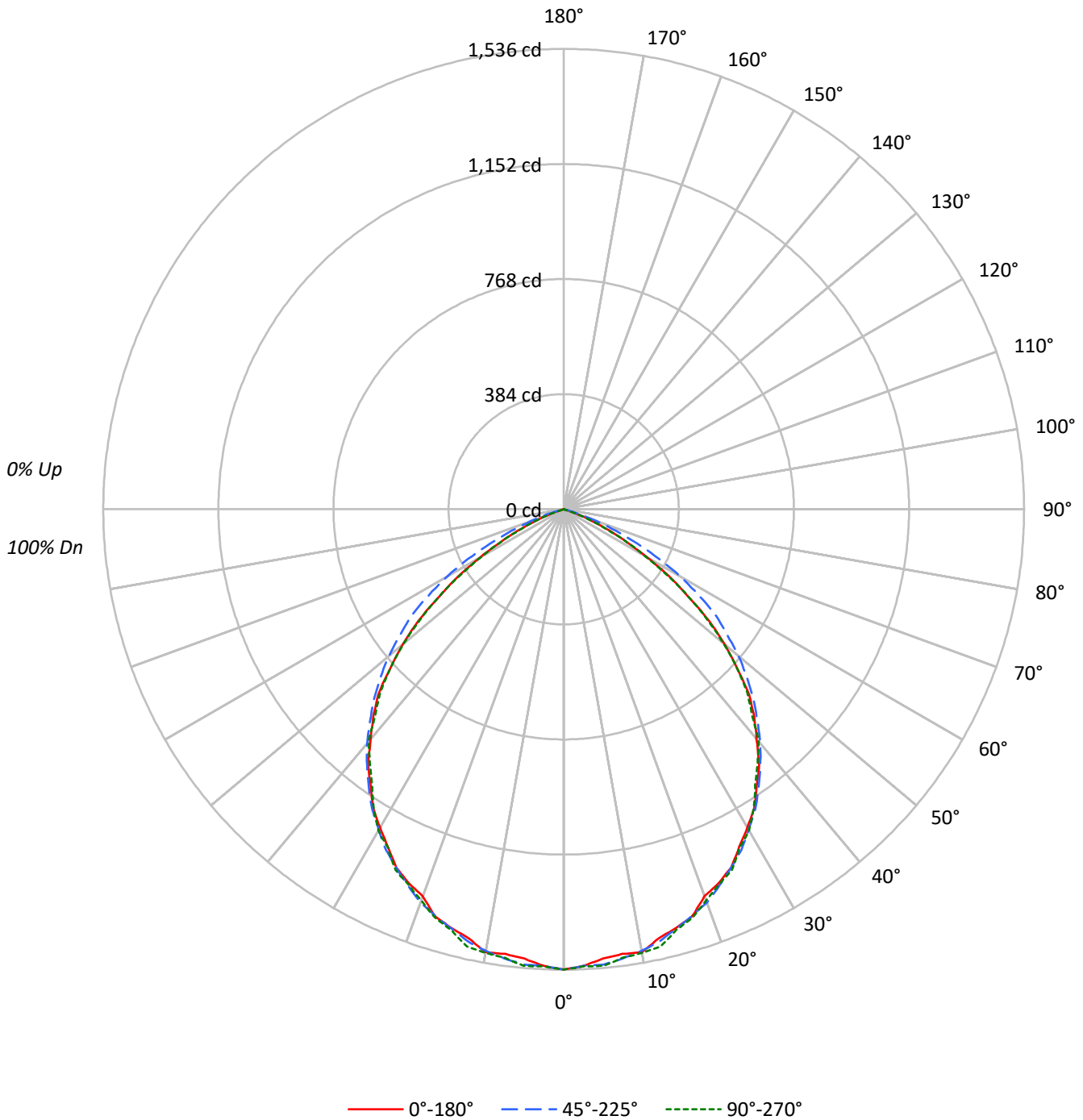
Lumens per Lamp: N/A
 Luminaire Lumens: 3280.0 lumens
 Efficiency: N/A
 Efficacy: 69.8 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 47
 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: FLDSQ4C40D010 FEU4C409040 F4LC-CSSQ-MMS

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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89				89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77				77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67				67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59				59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52				52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46				46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41				41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37				37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33				33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31				31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	148159	148159	148159
5°	145761	147659	148085
10°	147025	146594	147231
15°	144445	144665	145094
20°	141084	143333	142665
25°	140479	140479	141405
30°	136562	137532	137788
35°	132303	133587	131278
40°	126096	128565	127469
45°	119344	122019	118144
50°	105092	114264	104447
55°	85121	104568	85491
60°	62293	86705	61039
65°	37854	61736	36850
70°	14755	33233	14162
75°	1640	8947	1640
80°	1222	1222	1222
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	144.9	4.4
10°-20°	410.1	12.5
20°-30°	608.5	18.6
30°-40°	705.1	21.5
40°-50°	676.0	20.6
50°-60°	497.1	15.2
60°-70°	214.7	6.5
70°-80°	23.2	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°	1163.6	35.5
0°-40°	1868.7	57.0
0°-60°	3041.8	92.7
0°-90°	3280.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3280.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1536	1536	1536	1536	1536	
5°	1505	1520	1524	1527	1529	144
15°	1446	1455	1448	1450	1452	408
25°	1320	1317	1320	1322	1328	604
35°	1123	1130	1134	1132	1114	702
45°	875	877	894	881	866	665
55°	506	558	622	556	508	455
65°	166	207	270	205	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°	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5
2.5°	1524.5	1542.0	1544.2	1533.2	1528.9	1522.4	1537.6	1526.7	1531.1	1526.7	1524.5
5°	1504.9	1524.5	1526.7	1526.7	1522.4	1520.2	1526.7	1524.5	1522.4	1518.0	1524.5
7.5°	1496.2	1507.1	1518.0	1504.9	1511.4	1509.3	1524.5	1518.0	1515.8	1515.8	1511.4
10°	1500.6	1498.4	1507.1	1494.0	1498.4	1494.0	1507.1	1507.1	1502.7	1498.4	1496.2
12.5°	1465.6	1483.1	1483.1	1480.9	1476.6	1470.0	1483.1	1491.9	1478.7	1478.7	1476.6
15°	1446.0	1450.4	1452.5	1452.5	1450.4	1454.8	1461.3	1452.5	1454.8	1443.8	1448.2
17.5°	1424.2	1415.5	1422.0	1417.7	1419.9	1424.2	1433.0	1433.0	1419.9	1417.7	1422.0
20°	1374.0	1400.2	1402.4	1389.4	1391.5	1391.5	1406.8	1393.7	1402.4	1391.5	1395.9
22.5°	1350.0	1367.5	1369.7	1352.2	1363.1	1350.0	1365.3	1345.7	1367.5	1352.2	1358.7
25°	1319.5	1317.4	1323.9	1315.1	1317.4	1317.4	1328.2	1319.5	1326.1	1317.4	1319.5
27.5°	1269.4	1286.8	1284.6	1275.9	1280.3	1278.1	1299.9	1275.9	1289.0	1278.1	1282.5
30°	1225.7	1241.0	1236.7	1227.9	1227.9	1221.3	1245.4	1238.8	1236.7	1236.7	1234.4
32.5°	1182.1	1184.3	1180.0	1182.1	1184.3	1175.6	1195.2	1186.5	1184.3	1186.5	1188.7
35°	1123.2	1123.2	1127.6	1121.1	1129.8	1129.8	1147.2	1136.3	1134.1	1127.6	1134.1
37.5°	1070.9	1064.4	1066.5	1066.5	1070.9	1075.2	1084.0	1079.6	1079.6	1073.1	1077.5
40°	1001.1	996.7	1003.2	1003.2	1009.8	1009.8	1018.5	1014.2	1020.7	1020.7	1020.7
42.5°	940.1	940.1	935.7	942.2	944.4	942.2	957.5	955.3	957.5	953.1	955.3
45°	874.6	874.6	870.2	868.1	878.9	876.8	894.2	887.6	896.4	892.0	894.2
47.5°	785.1	796.1	789.5	796.1	809.2	811.4	822.2	817.9	826.6	820.1	828.8
50°	700.1	700.1	706.6	715.4	728.4	730.7	743.8	752.5	756.8	759.0	761.2
52.5°	610.7	608.5	615.1	625.9	636.9	645.6	658.7	671.8	680.5	693.6	687.0
55°	506.0	510.3	516.9	530.0	547.4	558.3	569.2	586.7	602.0	608.5	621.6
57.5°	416.5	412.2	416.5	434.0	453.7	462.4	477.7	495.1	516.9	530.0	534.4
60°	322.8	325.0	329.3	344.6	359.9	372.9	379.5	407.8	427.5	440.6	449.3
62.5°	237.8	242.1	246.5	259.6	274.8	285.7	296.6	320.6	338.1	351.1	359.9
65°	165.8	167.9	174.5	181.0	196.3	207.2	215.9	235.5	253.0	263.9	270.4
67.5°	102.5	104.7	109.0	117.8	128.7	137.4	146.1	159.2	174.5	185.4	187.6
70°	52.3	54.5	56.7	63.3	72.0	76.4	82.8	93.8	104.7	113.4	117.8
72.5°	17.4	17.4	19.7	24.0	28.4	32.7	34.9	45.8	54.5	58.9	61.0
75°	4.4	4.4	4.4	4.4	4.4	6.6	6.6	13.1	17.4	21.8	24.0
77.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	4.4	4.4
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°	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5	1535.5
2.5°	1535.5	1531.1	1528.9	1531.1	1531.1	1528.9	1535.5	1544.2	1555.0	1526.7
5°	1533.2	1528.9	1533.2	1520.2	1526.7	1522.4	1531.1	1528.9	1537.6	1528.9
7.5°	1526.7	1518.0	1520.2	1513.7	1522.4	1511.4	1518.0	1531.1	1522.4	1509.3
10°	1504.9	1500.6	1515.8	1494.0	1489.6	1498.4	1515.8	1502.7	1498.4	1502.7
12.5°	1483.1	1483.1	1489.6	1472.2	1474.3	1478.7	1487.4	1478.7	1483.1	1494.0
15°	1459.1	1454.8	1465.6	1452.5	1450.4	1446.0	1454.8	1454.8	1459.1	1452.5
17.5°	1430.7	1424.2	1424.2	1419.9	1417.7	1428.6	1433.0	1435.1	1437.3	1428.6
20°	1395.9	1393.7	1400.2	1393.7	1395.9	1398.1	1398.1	1393.7	1413.3	1389.4
22.5°	1358.7	1365.3	1356.6	1352.2	1356.6	1361.0	1361.0	1363.1	1358.7	1354.4
25°	1321.7	1326.1	1328.2	1315.1	1321.7	1315.1	1330.4	1332.6	1323.9	1328.2
27.5°	1289.0	1282.5	1280.3	1271.5	1275.9	1273.8	1275.9	1275.9	1289.0	1271.5
30°	1238.8	1232.3	1234.4	1227.9	1230.1	1227.9	1230.1	1230.1	1238.8	1236.7
32.5°	1190.8	1184.3	1186.5	1180.0	1180.0	1182.1	1177.7	1177.7	1184.3	1180.0
35°	1145.0	1129.8	1131.9	1129.8	1131.9	1123.2	1123.2	1121.1	1125.4	1114.5
37.5°	1079.6	1073.1	1070.9	1068.7	1070.9	1066.5	1070.9	1064.4	1070.9	1062.1
40°	1020.7	1016.3	1018.5	1005.5	1005.5	1007.6	1003.2	1001.1	1003.2	1012.0
42.5°	961.9	953.1	948.8	944.4	946.6	940.1	937.8	933.5	937.8	929.1
45°	892.0	892.0	889.9	878.9	881.1	881.1	872.4	863.7	865.8	865.8
47.5°	828.8	824.5	822.2	811.4	809.2	807.0	798.2	791.7	791.7	785.1
50°	759.0	754.6	748.1	737.2	732.8	719.7	713.2	704.5	695.8	695.8
52.5°	693.6	678.3	669.5	652.1	645.6	639.0	621.6	615.1	608.5	602.0
55°	615.1	602.0	584.6	564.9	556.2	545.2	527.8	514.7	506.0	508.2
57.5°	538.7	516.9	499.5	473.3	462.4	455.8	438.4	420.9	412.2	412.2
60°	444.9	427.5	405.7	381.7	372.9	362.1	340.2	329.3	322.8	316.3
62.5°	355.5	342.4	322.8	292.2	285.7	274.8	259.6	246.5	239.9	239.9
65°	266.1	253.0	235.5	213.7	205.0	196.3	183.2	170.1	163.6	161.4
67.5°	187.6	172.3	157.1	139.6	133.0	128.7	115.6	106.9	102.5	100.3
70°	113.4	104.7	93.8	80.7	74.1	69.8	61.0	54.5	52.3	50.2
72.5°	58.9	52.3	43.6	34.9	30.5	26.2	21.8	17.4	15.3	15.3
75°	21.8	17.4	10.9	6.6	4.4	4.4	4.4	4.4	4.4	4.4
77.5°	4.4	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)