

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 FEU4C409050 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 FEU4C409050 F4LC-CSSQ-MMS
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

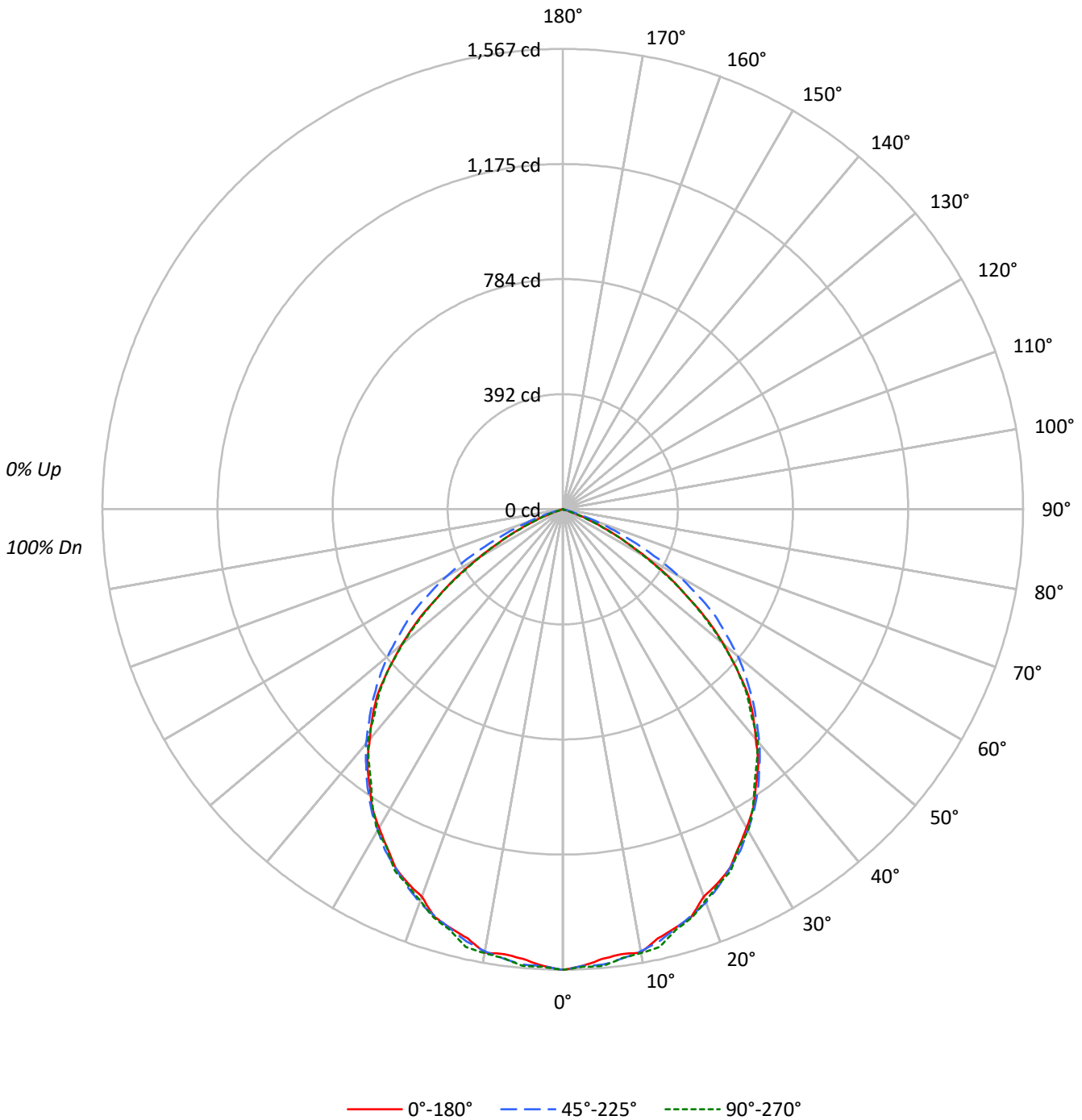
Lumens per Lamp: N/A
 Luminaire Lumens: 3348.0 lumens
 Efficiency: N/A
 Efficacy: 71.2 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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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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°	151227	151227	151227
5°	148783	150720	151156
10°	150072	149631	150288
15°	147442	147661	148101
20°	144011	146300	145623
25°	143396	143396	144344
30°	139392	140384	140640
35°	135048	136367	133999
40°	128716	131222	130101
45°	121814	124557	120600
50°	107284	116636	106608
55°	86887	106738	87257
60°	63567	88500	62293
65°	38630	63014	37626
70°	15065	33938	14444
75°	1678	9134	1678
80°	1278	1278	1278
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	4.4
10°-20°	418.6	12.5
20°-30°	621.2	18.6
30°-40°	719.7	21.5
40°-50°	690.1	20.6
50°-60°	507.4	15.2
60°-70°	219.1	6.5
70°-80°	23.7	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°	1187.7	35.5
0°-40°	1907.5	57.0
0°-60°	3104.9	92.7
0°-90°	3348.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3348.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1567	1567	1567	1567	1567	
5°	1536	1552	1556	1558	1561	147
15°	1476	1485	1478	1480	1483	416
25°	1347	1345	1347	1349	1356	617
35°	1146	1153	1158	1155	1138	717
45°	893	895	913	899	884	679
55°	516	570	634	568	519	465
65°	169	212	276	209	165	174
75°	4	7	24	4	4	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°	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3
2.5°	1556.1	1573.9	1576.2	1565.0	1560.6	1553.9	1569.5	1558.4	1562.9	1558.4	1556.1
5°	1536.1	1556.1	1558.4	1558.4	1553.9	1551.7	1558.4	1556.1	1553.9	1549.5	1556.1
7.5°	1527.2	1538.3	1549.5	1536.1	1542.8	1540.6	1556.1	1549.5	1547.2	1547.2	1542.8
10°	1531.7	1529.4	1538.3	1525.0	1529.4	1525.0	1538.3	1538.3	1533.9	1529.4	1527.2
12.5°	1496.0	1513.8	1513.8	1511.6	1507.2	1500.5	1513.8	1522.8	1509.4	1509.4	1507.2
15°	1476.0	1480.5	1482.6	1482.6	1480.5	1484.9	1491.6	1482.6	1484.9	1473.7	1478.2
17.5°	1453.8	1444.9	1451.5	1447.0	1449.3	1453.8	1462.7	1462.7	1449.3	1447.0	1451.5
20°	1402.5	1429.2	1431.5	1418.2	1420.3	1420.3	1436.0	1422.6	1431.5	1420.3	1424.8
22.5°	1378.0	1395.8	1398.1	1380.3	1391.4	1378.0	1393.6	1373.6	1395.8	1380.3	1386.9
25°	1346.9	1344.7	1351.3	1342.4	1344.7	1344.7	1355.8	1346.9	1353.6	1344.7	1346.9
27.5°	1295.7	1313.5	1311.2	1302.3	1306.8	1304.6	1326.9	1302.3	1315.7	1304.6	1309.1
30°	1251.1	1266.7	1262.3	1253.4	1253.4	1246.7	1271.2	1264.5	1262.3	1262.3	1260.0
32.5°	1206.6	1208.9	1204.4	1206.6	1208.9	1200.0	1220.0	1211.1	1208.9	1211.1	1213.3
35°	1146.5	1146.5	1150.9	1144.3	1153.2	1153.2	1171.0	1159.8	1157.7	1150.9	1157.7
37.5°	1093.1	1086.4	1088.6	1088.6	1093.1	1097.5	1106.4	1102.0	1102.0	1095.3	1099.8
40°	1021.9	1017.4	1024.0	1024.0	1030.8	1030.8	1039.7	1035.2	1041.8	1041.8	1041.8
42.5°	959.5	959.5	955.1	961.7	964.0	961.7	977.3	975.1	977.3	972.9	975.1
45°	892.7	892.7	888.2	886.1	897.1	895.0	912.8	906.0	915.0	910.5	912.8
47.5°	801.4	812.6	805.9	812.6	825.9	828.2	839.3	834.8	843.7	837.1	846.0
50°	714.7	714.7	721.3	730.2	743.6	745.8	759.2	768.1	772.5	774.7	777.0
52.5°	623.4	621.1	627.8	638.9	650.1	659.0	672.3	685.7	694.6	707.9	701.2
55°	516.5	520.9	527.6	541.0	558.8	569.9	581.1	598.9	614.5	621.1	634.5
57.5°	425.2	420.7	425.2	443.0	463.1	472.0	487.6	505.4	527.6	541.0	545.4
60°	329.4	331.7	336.2	351.8	367.3	380.7	387.4	416.3	436.4	449.7	458.6
62.5°	242.7	247.2	251.6	265.0	280.5	291.7	302.7	327.3	345.1	358.4	367.3
65°	169.2	171.4	178.1	184.8	200.4	211.5	220.4	240.4	258.2	269.4	276.0
67.5°	104.6	106.8	111.3	120.3	131.3	140.2	149.1	162.5	178.1	189.2	191.5
70°	53.4	55.7	57.9	64.6	73.5	77.9	84.6	95.7	106.8	115.7	120.3
72.5°	17.8	17.8	20.1	24.5	29.0	33.4	35.6	46.8	55.7	60.1	62.3
75°	4.5	4.5	4.5	4.5	4.5	6.7	6.7	13.4	17.8	22.3	24.5
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	4.5	4.5
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°	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3	1567.3
2.5°	1567.3	1562.9	1560.6	1562.9	1562.9	1560.6	1567.3	1576.2	1587.3	1558.4
5°	1565.0	1560.6	1565.0	1551.7	1558.4	1553.9	1562.9	1560.6	1569.5	1560.6
7.5°	1558.4	1549.5	1551.7	1545.0	1553.9	1542.8	1549.5	1562.9	1553.9	1540.6
10°	1536.1	1531.7	1547.2	1525.0	1520.5	1529.4	1547.2	1533.9	1529.4	1533.9
12.5°	1513.8	1513.8	1520.5	1502.7	1504.9	1509.4	1518.3	1509.4	1513.8	1525.0
15°	1489.4	1484.9	1496.0	1482.6	1480.5	1476.0	1484.9	1484.9	1489.4	1482.6
17.5°	1460.4	1453.8	1453.8	1449.3	1447.0	1458.2	1462.7	1464.8	1467.1	1458.2
20°	1424.8	1422.6	1429.2	1422.6	1424.8	1427.1	1427.1	1422.6	1442.6	1418.2
22.5°	1386.9	1393.6	1384.7	1380.3	1384.7	1389.2	1389.2	1391.4	1386.9	1382.5
25°	1349.1	1353.6	1355.8	1342.4	1349.1	1342.4	1358.0	1360.2	1351.3	1355.8
27.5°	1315.7	1309.1	1306.8	1297.9	1302.3	1300.2	1302.3	1302.3	1315.7	1297.9
30°	1264.5	1257.8	1260.0	1253.4	1255.6	1253.4	1255.6	1255.6	1264.5	1262.3
32.5°	1215.5	1208.9	1211.1	1204.4	1204.4	1206.6	1202.2	1202.2	1208.9	1204.4
35°	1168.7	1153.2	1155.4	1153.2	1155.4	1146.5	1146.5	1144.3	1148.7	1137.6
37.5°	1102.0	1095.3	1093.1	1090.9	1093.1	1088.6	1093.1	1086.4	1093.1	1084.2
40°	1041.8	1037.4	1039.7	1026.3	1026.3	1028.5	1024.0	1021.9	1024.0	1032.9
42.5°	981.8	972.9	968.4	964.0	966.2	959.5	957.3	952.8	957.3	948.4
45°	910.5	910.5	908.3	897.1	899.4	899.4	890.5	881.6	883.8	883.8
47.5°	846.0	841.6	839.3	828.2	825.9	823.8	814.8	808.1	808.1	801.4
50°	774.7	770.3	763.6	752.5	748.0	734.6	728.0	719.1	710.2	710.2
52.5°	707.9	692.3	683.4	665.6	659.0	652.3	634.5	627.8	621.1	614.5
55°	627.8	614.5	596.7	576.6	567.7	556.5	538.7	525.4	516.5	518.7
57.5°	549.9	527.6	509.8	483.1	472.0	465.2	447.4	429.6	420.7	420.7
60°	454.2	436.4	414.1	389.6	380.7	369.6	347.3	336.2	329.4	322.8
62.5°	362.9	349.5	329.4	298.3	291.7	280.5	265.0	251.6	244.9	244.9
65°	271.6	258.2	240.4	218.2	209.3	200.4	187.0	173.7	166.9	164.8
67.5°	191.5	175.9	160.3	142.5	135.8	131.3	118.0	109.1	104.6	102.4
70°	115.7	106.8	95.7	82.4	75.7	71.2	62.3	55.7	53.4	51.2
72.5°	60.1	53.4	44.5	35.6	31.2	26.7	22.3	17.8	15.6	15.6
75°	22.3	17.8	11.2	6.7	4.5	4.5	4.5	4.5	4.5	4.5
77.5°	4.5	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)