

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 FEU4C359030 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 FEU4C359030 F4LC-DFSSQ-MW
 Description: 4 INCH 3500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS
 AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

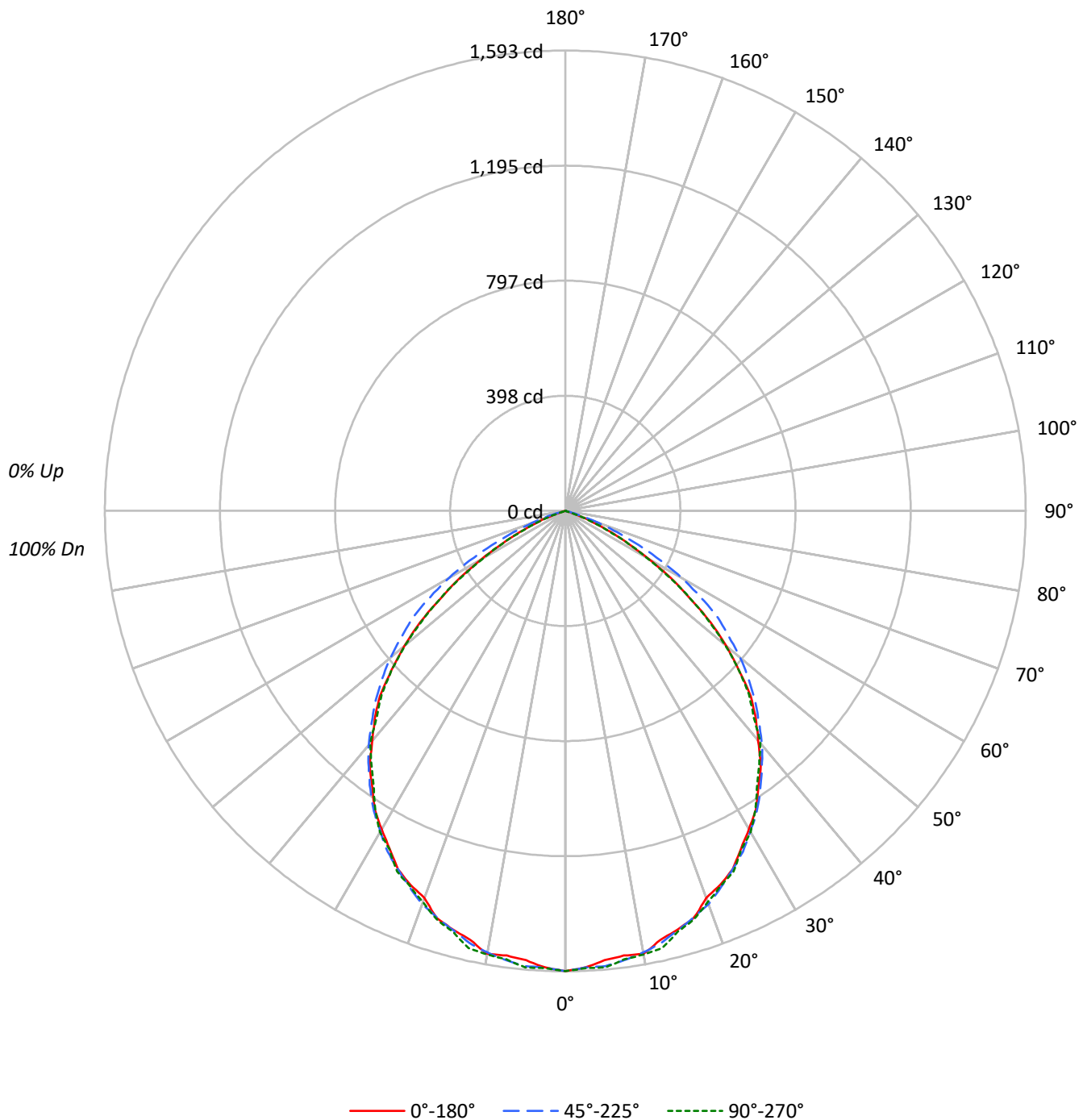
Lumens per Lamp: N/A
 Luminaire Lumens: 3402.0 lumens
 Efficiency: N/A
 Efficacy: 84.2 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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°	153668	153668	153668
5°	151185	153151	153597
10°	152492	152051	152708
15°	149819	150039	150498
20°	146341	148662	147964
25°	145706	145706	146664
30°	141643	142646	142902
35°	137227	138558	136155
40°	130781	133338	132205
45°	123779	126563	122537
50°	109010	118512	108334
55°	88284	108454	88670
60°	64609	89928	63297
65°	39247	64042	38219
70°	15319	34474	14698
75°	1678	9283	1678
80°	1278	1278	1278
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	150.3	4.4
10°-20°	425.4	12.5
20°-30°	631.2	18.6
30°-40°	731.3	21.5
40°-50°	701.2	20.6
50°-60°	515.6	15.2
60°-70°	222.7	6.5
70°-80°	24.0	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°	1206.9	35.5
0°-40°	1938.2	57.0
0°-60°	3155.0	92.7
0°-90°	3402.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3402.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1593	1593	1593	1593	1593	
5°	1561	1577	1581	1584	1586	149
15°	1500	1509	1502	1504	1507	423
25°	1369	1366	1369	1371	1378	627
35°	1165	1172	1176	1174	1156	728
45°	907	909	928	914	898	690
55°	525	579	645	577	527	472
65°	172	215	280	213	167	177
75°	4	7	25	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°	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6
2.5°	1581.2	1599.3	1601.6	1590.3	1585.8	1579.0	1594.8	1583.5	1588.1	1583.5	1581.2
5°	1560.9	1581.2	1583.5	1583.5	1579.0	1576.7	1583.5	1581.2	1579.0	1574.5	1581.2
7.5°	1551.9	1563.1	1574.5	1560.9	1567.7	1565.4	1581.2	1574.5	1572.2	1572.2	1567.7
10°	1556.4	1554.1	1563.1	1549.6	1554.1	1549.6	1563.1	1563.1	1558.6	1554.1	1551.9
12.5°	1520.1	1538.2	1538.2	1536.0	1531.5	1524.7	1538.2	1547.4	1533.7	1533.7	1531.5
15°	1499.8	1504.3	1506.6	1506.6	1504.3	1508.9	1515.6	1506.6	1508.9	1497.5	1502.0
17.5°	1477.2	1468.2	1474.9	1470.4	1472.7	1477.2	1486.3	1486.3	1472.7	1470.4	1474.9
20°	1425.2	1452.3	1454.6	1441.0	1443.2	1443.2	1459.1	1445.6	1454.6	1443.2	1447.8
22.5°	1400.2	1418.3	1420.6	1402.5	1413.8	1400.2	1416.1	1395.7	1418.3	1402.5	1409.3
25°	1368.6	1366.4	1373.1	1364.1	1366.4	1366.4	1377.6	1368.6	1375.4	1366.4	1368.6
27.5°	1316.6	1334.7	1332.4	1323.4	1327.9	1325.7	1348.3	1323.4	1336.9	1325.7	1330.2
30°	1271.3	1287.2	1282.6	1273.6	1273.6	1266.8	1291.7	1284.9	1282.6	1282.6	1280.3
32.5°	1226.1	1228.4	1223.9	1226.1	1228.4	1219.3	1239.6	1230.6	1228.4	1230.6	1232.9
35°	1165.0	1165.0	1169.5	1162.8	1171.8	1171.8	1189.9	1178.5	1176.3	1169.5	1176.3
37.5°	1110.7	1104.0	1106.2	1106.2	1110.7	1115.2	1124.3	1119.7	1119.7	1113.0	1117.5
40°	1038.3	1033.8	1040.6	1040.6	1047.4	1047.4	1056.4	1051.9	1058.6	1058.6	1058.6
42.5°	975.0	975.0	970.5	977.2	979.5	977.2	993.1	990.8	993.1	988.6	990.8
45°	907.1	907.1	902.6	900.4	911.6	909.4	927.5	920.7	929.7	925.2	927.5
47.5°	814.3	825.7	818.9	825.7	839.3	841.6	852.8	848.3	857.3	850.6	859.7
50°	726.2	726.2	732.9	742.0	755.5	757.8	771.4	780.5	785.0	787.2	789.5
52.5°	633.4	631.1	638.0	649.2	660.6	669.6	683.2	696.7	705.8	719.4	712.5
55°	524.8	529.3	536.2	549.7	567.8	579.1	590.4	608.5	624.4	631.1	644.7
57.5°	432.0	427.5	432.0	450.1	470.5	479.6	495.4	513.5	536.2	549.7	554.2
60°	334.8	337.1	341.6	357.5	373.2	386.8	393.6	423.0	443.4	457.0	466.0
62.5°	246.6	251.1	255.7	269.2	285.0	296.4	307.6	332.5	350.6	364.2	373.2
65°	171.9	174.2	181.0	187.7	203.6	214.9	223.9	244.3	262.4	273.8	280.5
67.5°	106.3	108.5	113.1	122.2	133.5	142.5	151.6	165.1	181.0	192.3	194.6
70°	54.3	56.6	58.8	65.6	74.7	79.2	85.9	97.3	108.5	117.6	122.2
72.5°	18.1	18.1	20.4	24.9	29.4	34.0	36.2	47.5	56.6	61.1	63.3
75°	4.5	4.5	4.5	4.5	4.5	6.8	6.8	13.6	18.1	22.6	24.9
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°	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6	1592.6
2.5°	1592.6	1588.1	1585.8	1588.1	1588.1	1585.8	1592.6	1601.6	1612.9	1583.5
5°	1590.3	1585.8	1590.3	1576.7	1583.5	1579.0	1588.1	1585.8	1594.8	1585.8
7.5°	1583.5	1574.5	1576.7	1570.0	1579.0	1567.7	1574.5	1588.1	1579.0	1565.4
10°	1560.9	1556.4	1572.2	1549.6	1545.0	1554.1	1572.2	1558.6	1554.1	1558.6
12.5°	1538.2	1538.2	1545.0	1527.0	1529.2	1533.7	1542.7	1533.7	1538.2	1549.6
15°	1513.4	1508.9	1520.1	1506.6	1504.3	1499.8	1508.9	1508.9	1513.4	1506.6
17.5°	1483.9	1477.2	1477.2	1472.7	1470.4	1481.7	1486.3	1488.5	1490.8	1481.7
20°	1447.8	1445.6	1452.3	1445.6	1447.8	1450.1	1450.1	1445.6	1465.9	1441.0
22.5°	1409.3	1416.1	1407.1	1402.5	1407.1	1411.6	1411.6	1413.8	1409.3	1404.8
25°	1370.9	1375.4	1377.6	1364.1	1370.9	1364.1	1379.9	1382.1	1373.1	1377.6
27.5°	1336.9	1330.2	1327.9	1318.8	1323.4	1321.1	1323.4	1323.4	1336.9	1318.8
30°	1284.9	1278.1	1280.3	1273.6	1275.8	1273.6	1275.8	1275.8	1284.9	1282.6
32.5°	1235.1	1228.4	1230.6	1223.9	1223.9	1226.1	1221.5	1221.5	1228.4	1223.9
35°	1187.6	1171.8	1174.0	1171.8	1174.0	1165.0	1165.0	1162.8	1167.3	1155.9
37.5°	1119.7	1113.0	1110.7	1108.5	1110.7	1106.2	1110.7	1104.0	1110.7	1101.7
40°	1058.6	1054.1	1056.4	1042.9	1042.9	1045.1	1040.6	1038.3	1040.6	1049.6
42.5°	997.6	988.6	984.1	979.5	981.8	975.0	972.7	968.2	972.7	963.7
45°	925.2	925.2	923.0	911.6	913.9	913.9	904.9	895.8	898.0	898.0
47.5°	859.7	855.1	852.8	841.6	839.3	837.0	827.9	821.2	821.2	814.3
50°	787.2	782.7	775.9	764.6	760.1	746.5	739.8	730.7	721.7	721.7
52.5°	719.4	703.5	694.4	676.4	669.6	662.8	644.7	638.0	631.1	624.4
55°	638.0	624.4	606.3	585.9	576.9	565.5	547.4	533.8	524.8	527.1
57.5°	558.8	536.2	518.1	490.9	479.6	472.7	454.7	436.6	427.5	427.5
60°	461.5	443.4	420.8	395.9	386.8	375.6	352.9	341.6	334.8	328.0
62.5°	368.7	355.2	334.8	303.1	296.4	285.0	269.2	255.7	248.8	248.8
65°	276.0	262.4	244.3	221.7	212.7	203.6	190.0	176.5	169.6	167.4
67.5°	194.6	178.7	162.9	144.8	138.0	133.5	119.9	110.8	106.3	104.0
70°	117.6	108.5	97.3	83.7	76.9	72.4	63.3	56.6	54.3	52.1
72.5°	61.1	54.3	45.2	36.2	31.7	27.1	22.6	18.1	15.9	15.9
75°	22.6	18.1	11.4	6.8	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)