

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 FEU4C409030 F4LC-CSSQ-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: FLDSQ4C40D010 FEU4C409030 F4LC-CSSQ-MW
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

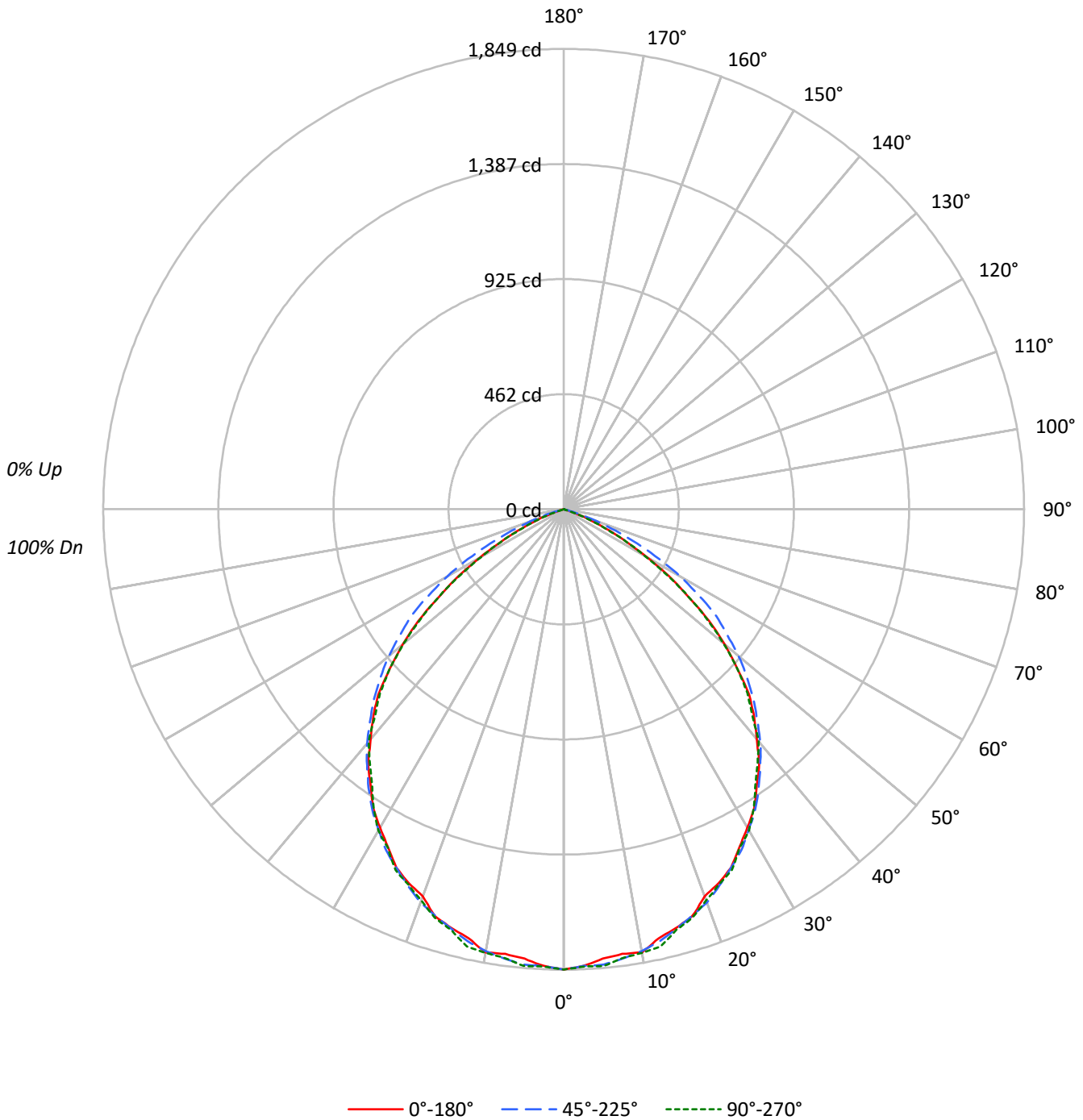
Lumens per Lamp: N/A
 Luminaire Lumens: 3949.0 lumens
 Efficiency: N/A
 Efficacy: 84.0 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C40D010 FEU4C409030 F4LC-CSSQ-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	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°	178369	178369	178369
5°	175496	177782	178286
10°	177016	176496	177261
15°	173913	174173	174692
20°	169866	172566	171755
25°	169128	169128	170246
30°	164416	165586	165887
35°	159289	160844	158052
40°	151816	154789	153466
45°	143674	146908	142242
50°	126543	137561	125747
55°	102482	125898	102936
60°	74991	104382	73486
65°	45571	74338	44361
70°	17773	40004	17040
75°	1939	10774	1939
80°	1500	1500	1500
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.5	4.4
10°-20°	493.8	12.5
20°-30°	732.7	18.6
30°-40°	848.9	21.5
40°-50°	813.9	20.6
50°-60°	598.5	15.2
60°-70°	258.5	6.5
70°-80°	27.9	0.7
80°-90°	0.4	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°	1400.9	35.5
0°-40°	2249.9	57.0
0°-60°	3662.3	92.7
0°-90°	3949.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3949.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1849	1849	1849	1849	1849	
5°	1812	1830	1836	1838	1841	173
15°	1741	1752	1744	1746	1749	491
25°	1589	1586	1589	1591	1599	727
35°	1352	1360	1366	1363	1342	846
45°	1053	1056	1077	1061	1042	800
55°	609	672	748	670	612	548
65°	200	249	326	247	194	205
75°	5	8	29	5	5	16
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°	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6
2.5°	1835.5	1856.5	1859.1	1846.0	1840.7	1832.9	1851.2	1838.1	1843.4	1838.1	1835.5
5°	1811.9	1835.5	1838.1	1838.1	1832.9	1830.2	1838.1	1835.5	1832.9	1827.6	1835.5
7.5°	1801.4	1814.5	1827.6	1811.9	1819.7	1817.2	1835.5	1827.6	1825.0	1825.0	1819.7
10°	1806.7	1804.0	1814.5	1798.7	1804.0	1798.7	1814.5	1814.5	1809.2	1804.0	1801.4
12.5°	1764.5	1785.5	1785.5	1783.0	1777.7	1769.8	1785.5	1796.2	1780.3	1780.3	1777.7
15°	1741.0	1746.2	1748.8	1748.8	1746.2	1751.5	1759.3	1748.8	1751.5	1738.3	1743.6
17.5°	1714.7	1704.2	1712.1	1706.8	1709.5	1714.7	1725.2	1725.2	1709.5	1706.8	1712.1
20°	1654.3	1685.8	1688.5	1672.7	1675.3	1675.3	1693.7	1678.0	1688.5	1675.3	1680.6
22.5°	1625.4	1646.4	1649.1	1628.1	1641.1	1625.4	1643.8	1620.1	1646.4	1628.1	1635.9
25°	1588.6	1586.1	1593.9	1583.4	1586.1	1586.1	1599.1	1588.6	1596.6	1586.1	1588.6
27.5°	1528.3	1549.3	1546.6	1536.1	1541.4	1538.8	1565.1	1536.1	1551.9	1538.8	1544.1
30°	1475.7	1494.1	1488.9	1478.4	1478.4	1470.5	1499.4	1491.5	1488.9	1488.9	1486.2
32.5°	1423.2	1425.9	1420.6	1423.2	1425.9	1415.4	1439.0	1428.5	1425.9	1428.5	1431.1
35°	1352.3	1352.3	1357.5	1349.7	1360.2	1360.2	1381.2	1368.0	1365.5	1357.5	1365.5
37.5°	1289.3	1281.5	1284.0	1284.0	1289.3	1294.5	1305.0	1299.8	1299.8	1292.0	1297.2
40°	1205.3	1200.0	1207.9	1207.9	1215.8	1215.8	1226.3	1221.0	1228.9	1228.9	1228.9
42.5°	1131.8	1131.8	1126.5	1134.4	1137.0	1134.4	1152.8	1150.1	1152.8	1147.5	1150.1
45°	1052.9	1052.9	1047.7	1045.1	1058.2	1055.6	1076.6	1068.7	1079.2	1073.9	1076.6
47.5°	945.3	958.4	950.5	958.4	974.2	976.9	989.9	984.7	995.2	987.4	997.9
50°	843.0	843.0	850.8	861.3	877.0	879.7	895.5	906.0	911.2	913.8	916.4
52.5°	735.3	732.6	740.5	753.6	766.8	777.3	793.0	808.8	819.3	835.0	827.1
55°	609.2	614.4	622.4	638.1	659.1	672.2	685.4	706.4	724.8	732.6	748.4
57.5°	501.5	496.3	501.5	522.5	546.2	556.7	575.1	596.1	622.4	638.1	643.4
60°	388.6	391.3	396.5	414.9	433.3	449.0	456.9	491.0	514.7	530.4	540.9
62.5°	286.3	291.5	296.8	312.5	330.8	344.0	357.1	386.0	407.0	422.8	433.3
65°	199.6	202.2	210.1	217.9	236.3	249.4	259.9	283.6	304.6	317.8	325.6
67.5°	123.4	126.0	131.2	141.8	154.9	165.4	175.9	191.7	210.1	223.2	225.8
70°	63.0	65.7	68.2	76.2	86.7	91.9	99.7	112.9	126.0	136.5	141.8
72.5°	21.0	21.0	23.7	28.9	34.2	39.4	42.0	55.2	65.7	70.9	73.5
75°	5.2	5.2	5.2	5.2	5.2	7.9	7.9	15.7	21.0	26.2	28.9
77.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	5.2	5.2
80°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
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°	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6	1848.6
2.5°	1848.6	1843.4	1840.7	1843.4	1843.4	1840.7	1848.6	1859.1	1872.2	1838.1
5°	1846.0	1840.7	1846.0	1830.2	1838.1	1832.9	1843.4	1840.7	1851.2	1840.7
7.5°	1838.1	1827.6	1830.2	1822.4	1832.9	1819.7	1827.6	1843.4	1832.9	1817.2
10°	1811.9	1806.7	1825.0	1798.7	1793.5	1804.0	1825.0	1809.2	1804.0	1809.2
12.5°	1785.5	1785.5	1793.5	1772.5	1775.0	1780.3	1790.8	1780.3	1785.5	1798.7
15°	1756.7	1751.5	1764.5	1748.8	1746.2	1741.0	1751.5	1751.5	1756.7	1748.8
17.5°	1722.6	1714.7	1714.7	1709.5	1706.8	1720.0	1725.2	1727.8	1730.5	1720.0
20°	1680.6	1678.0	1685.8	1678.0	1680.6	1683.2	1683.2	1678.0	1701.6	1672.7
22.5°	1635.9	1643.8	1633.3	1628.1	1633.3	1638.6	1638.6	1641.1	1635.9	1630.6
25°	1591.3	1596.6	1599.1	1583.4	1591.3	1583.4	1601.8	1604.4	1593.9	1599.1
27.5°	1551.9	1544.1	1541.4	1530.9	1536.1	1533.6	1536.1	1536.1	1551.9	1530.9
30°	1491.5	1483.6	1486.2	1478.4	1481.0	1478.4	1481.0	1481.0	1491.5	1488.9
32.5°	1433.7	1425.9	1428.5	1420.6	1420.6	1423.2	1418.0	1418.0	1425.9	1420.6
35°	1378.5	1360.2	1362.8	1360.2	1362.8	1352.3	1352.3	1349.7	1355.0	1341.8
37.5°	1299.8	1292.0	1289.3	1286.7	1289.3	1284.0	1289.3	1281.5	1289.3	1278.8
40°	1228.9	1223.6	1226.3	1210.5	1210.5	1213.1	1207.9	1205.3	1207.9	1218.4
42.5°	1158.0	1147.5	1142.3	1137.0	1139.6	1131.8	1129.1	1123.9	1129.1	1118.6
45°	1073.9	1073.9	1071.4	1058.2	1060.9	1060.9	1050.4	1039.9	1042.4	1042.4
47.5°	997.9	992.6	989.9	976.9	974.2	971.6	961.0	953.2	953.2	945.3
50°	913.8	908.5	900.7	887.5	882.3	866.5	858.7	848.2	837.7	837.7
52.5°	835.0	816.6	806.1	785.1	777.3	769.4	748.4	740.5	732.6	724.8
55°	740.5	724.8	703.8	680.1	669.6	656.4	635.4	619.7	609.2	611.9
57.5°	648.6	622.4	601.4	569.9	556.7	548.8	527.8	506.8	496.3	496.3
60°	535.7	514.7	488.4	459.5	449.0	435.9	409.6	396.5	388.6	380.8
62.5°	428.0	412.3	388.6	351.8	344.0	330.8	312.5	296.8	288.8	288.8
65°	320.3	304.6	283.6	257.3	246.8	236.3	220.6	204.8	196.9	194.3
67.5°	225.8	207.4	189.1	168.1	160.2	154.9	139.2	128.7	123.4	120.7
70°	136.5	126.0	112.9	97.2	89.2	84.0	73.5	65.7	63.0	60.4
72.5°	70.9	63.0	52.5	42.0	36.7	31.5	26.2	21.0	18.4	18.4
75°	26.2	21.0	13.2	7.9	5.2	5.2	5.2	5.2	5.2	5.2
77.5°	5.2	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
80°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
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)