

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: **FLDSQ4C60D010 FEU4C609050 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: FLDSQ4C60D010 FEU4C609050 F4LC-CSSQ-MMS
Description: 4 INCH 6000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS
AND F4LC-CSSQ TRIM WITH MMS FINISH
Light Source: -
Ballast/Driver: -

Summary

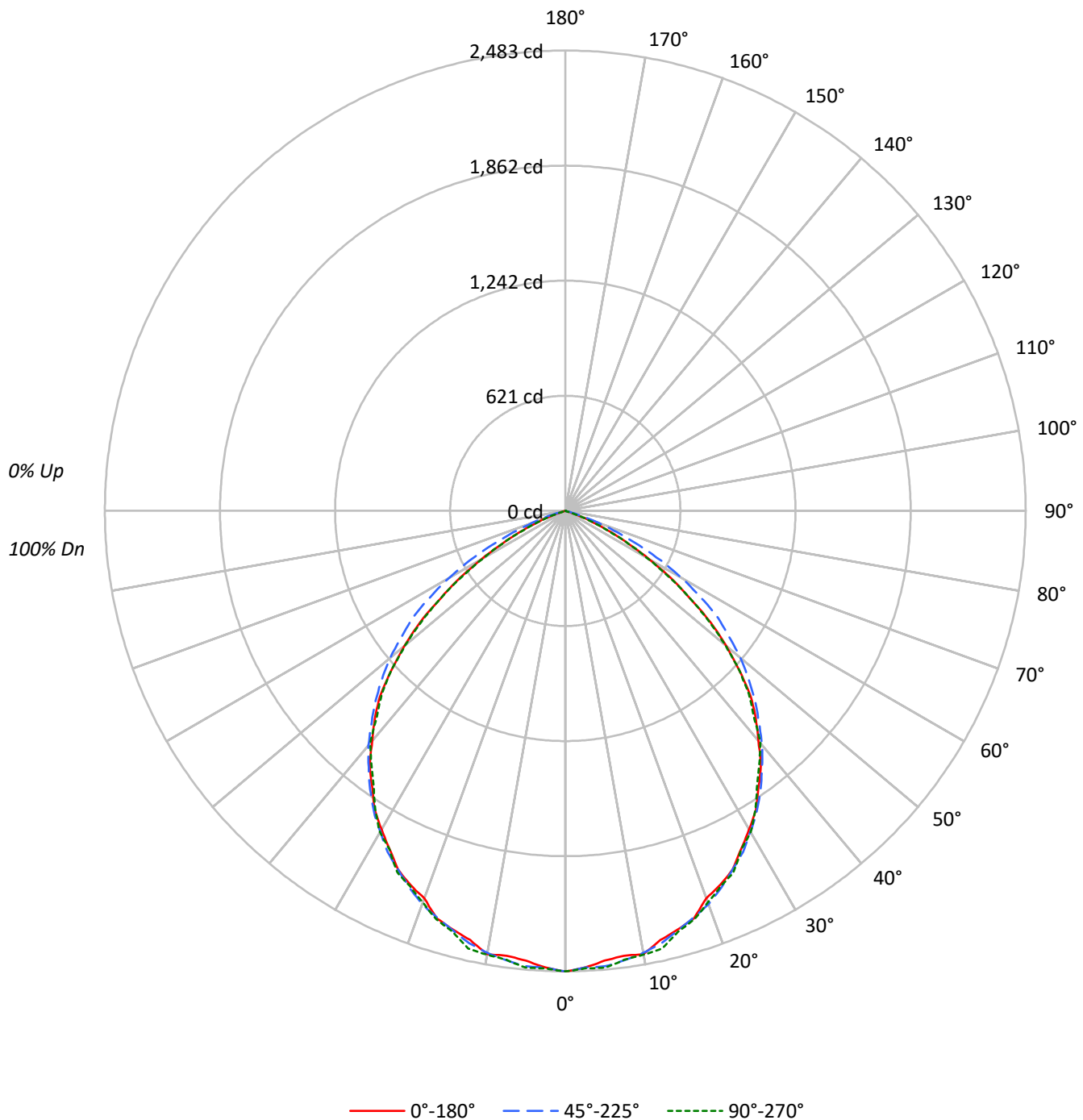
Lumens per Lamp: N/A
Luminaire Lumens: 5305.0 lumens
Efficiency: N/A
Efficacy: 73.7 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 72
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°	239621	239621	239621
5°	235761	238821	239509
10°	237791	237105	238134
15°	233629	233969	234678
20°	228199	231813	230735
25°	227204	227204	228705
30°	220871	222442	222843
35°	213979	216064	212319
40°	203950	207930	206154
45°	193017	197356	191093
50°	169985	184801	168934
55°	137674	169115	138280
60°	100734	140237	98708
65°	61210	99864	59612
70°	23867	53771	22908
75°	2647	14502	2647
80°	2000	2000	2000
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.4	4.4
10°-20°	663.3	12.5
20°-30°	984.2	18.6
30°-40°	1140.4	21.5
40°-50°	1093.4	20.6
50°-60°	804.0	15.2
60°-70°	347.2	6.5
70°-80°	37.5	0.7
80°-90°	0.5	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°	1882.0	35.5
0°-40°	3022.4	57.0
0°-60°	4919.8	92.7
0°-90°	5305.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5305.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2483	2483	2483	2483	2483	
5°	2434	2459	2466	2469	2473	232
15°	2339	2353	2342	2346	2349	659
25°	2134	2131	2134	2138	2148	977
35°	1817	1827	1834	1831	1802	1136
45°	1414	1418	1446	1425	1400	1075
55°	818	903	1005	900	822	736
65°	268	335	437	332	261	276
75°	7	11	39	7	7	22
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°	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4
2.5°	2465.7	2493.9	2497.5	2479.8	2472.8	2462.3	2486.9	2469.3	2476.4	2469.3	2465.7
5°	2434.1	2465.7	2469.3	2469.3	2462.3	2458.7	2469.3	2465.7	2462.3	2455.2	2465.7
7.5°	2420.0	2437.5	2455.2	2434.1	2444.6	2441.1	2465.7	2455.2	2451.6	2451.6	2444.6
10°	2427.0	2423.4	2437.5	2416.4	2423.4	2416.4	2437.5	2437.5	2430.5	2423.4	2420.0
12.5°	2370.5	2398.7	2398.7	2395.2	2388.2	2377.5	2398.7	2412.9	2391.6	2391.6	2388.2
15°	2338.8	2345.8	2349.3	2349.3	2345.8	2352.9	2363.4	2349.3	2352.9	2335.2	2342.2
17.5°	2303.5	2289.4	2299.9	2292.9	2296.5	2303.5	2317.6	2317.6	2296.5	2292.9	2299.9
20°	2222.4	2264.7	2268.3	2247.1	2250.6	2250.6	2275.3	2254.2	2268.3	2250.6	2257.6
22.5°	2183.5	2211.7	2215.3	2187.1	2204.7	2183.5	2208.3	2176.4	2211.7	2187.1	2197.6
25°	2134.1	2130.7	2141.2	2127.1	2130.7	2130.7	2148.2	2134.1	2144.8	2130.7	2134.1
27.5°	2053.1	2081.3	2077.7	2063.6	2070.7	2067.2	2102.5	2063.6	2084.8	2067.2	2074.3
30°	1982.4	2007.2	2000.1	1986.0	1986.0	1975.4	2014.2	2003.6	2000.1	2000.1	1996.5
32.5°	1911.9	1915.5	1908.5	1911.9	1915.5	1901.4	1933.1	1919.0	1915.5	1919.0	1922.6
35°	1816.6	1816.6	1823.7	1813.2	1827.3	1827.3	1855.5	1837.8	1834.3	1823.7	1834.3
37.5°	1732.0	1721.5	1724.9	1724.9	1732.0	1739.1	1753.2	1746.1	1746.1	1735.6	1742.6
40°	1619.2	1612.1	1622.6	1622.6	1633.3	1633.3	1647.4	1640.3	1650.8	1650.8	1650.8
42.5°	1520.4	1520.4	1513.4	1523.9	1527.5	1523.9	1548.6	1545.0	1548.6	1541.6	1545.0
45°	1414.5	1414.5	1407.5	1404.0	1421.6	1418.1	1446.3	1435.7	1449.8	1442.7	1446.3
47.5°	1269.9	1287.6	1276.9	1287.6	1308.7	1312.3	1329.9	1322.8	1336.9	1326.4	1340.5
50°	1132.4	1132.4	1142.9	1157.0	1178.2	1181.8	1202.9	1217.0	1224.1	1227.5	1231.1
52.5°	987.8	984.2	994.8	1012.4	1030.1	1044.2	1065.3	1086.5	1100.6	1121.8	1111.1
55°	818.4	825.4	836.1	857.2	885.4	903.0	920.7	948.9	973.7	984.2	1005.3
57.5°	673.7	666.7	673.7	701.9	733.7	747.8	772.6	800.8	836.1	857.2	864.3
60°	522.0	525.6	532.7	557.4	582.0	603.2	613.8	659.6	691.4	712.6	726.7
62.5°	384.6	391.6	398.7	419.8	444.4	462.1	479.7	518.6	546.8	567.9	582.0
65°	268.1	271.6	282.2	292.7	317.5	335.1	349.2	381.0	409.2	426.9	437.4
67.5°	165.8	169.3	176.3	190.6	208.1	222.2	236.3	257.5	282.2	299.8	303.4
70°	84.6	88.2	91.7	102.3	116.4	123.5	134.0	151.7	169.3	183.4	190.6
72.5°	28.2	28.2	31.8	38.9	45.9	53.0	56.4	74.1	88.2	95.3	98.7
75°	7.1	7.1	7.1	7.1	7.1	10.6	10.6	21.2	28.2	35.3	38.9
77.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	7.1	7.1
80°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
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°	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4	2483.4
2.5°	2483.4	2476.4	2472.8	2476.4	2476.4	2472.8	2483.4	2497.5	2515.1	2469.3
5°	2479.8	2472.8	2479.8	2458.7	2469.3	2462.3	2476.4	2472.8	2486.9	2472.8
7.5°	2469.3	2455.2	2458.7	2448.2	2462.3	2444.6	2455.2	2476.4	2462.3	2441.1
10°	2434.1	2427.0	2451.6	2416.4	2409.3	2423.4	2451.6	2430.5	2423.4	2430.5
12.5°	2398.7	2398.7	2409.3	2381.1	2384.6	2391.6	2405.7	2391.6	2398.7	2416.4
15°	2359.9	2352.9	2370.5	2349.3	2345.8	2338.8	2352.9	2352.9	2359.9	2349.3
17.5°	2314.0	2303.5	2303.5	2296.5	2292.9	2310.6	2317.6	2321.1	2324.7	2310.6
20°	2257.6	2254.2	2264.7	2254.2	2257.6	2261.2	2261.2	2254.2	2285.8	2247.1
22.5°	2197.6	2208.3	2194.1	2187.1	2194.1	2201.2	2201.2	2204.7	2197.6	2190.5
25°	2137.7	2144.8	2148.2	2127.1	2137.7	2127.1	2151.8	2155.3	2141.2	2148.2
27.5°	2084.8	2074.3	2070.7	2056.6	2063.6	2060.1	2063.6	2063.6	2084.8	2056.6
30°	2003.6	1993.1	1996.5	1986.0	1989.5	1986.0	1989.5	1989.5	2003.6	2000.1
32.5°	1926.0	1915.5	1919.0	1908.5	1908.5	1911.9	1904.9	1904.9	1915.5	1908.5
35°	1851.9	1827.3	1830.7	1827.3	1830.7	1816.6	1816.6	1813.2	1820.2	1802.5
37.5°	1746.1	1735.6	1732.0	1728.5	1732.0	1724.9	1732.0	1721.5	1732.0	1717.9
40°	1650.8	1643.8	1647.4	1626.2	1626.2	1629.7	1622.6	1619.2	1622.6	1636.7
42.5°	1555.7	1541.6	1534.5	1527.5	1530.9	1520.4	1516.8	1509.8	1516.8	1502.7
45°	1442.7	1442.7	1439.3	1421.6	1425.2	1425.2	1411.0	1396.9	1400.4	1400.4
47.5°	1340.5	1333.5	1329.9	1312.3	1308.7	1305.3	1291.0	1280.5	1280.5	1269.9
50°	1227.5	1220.5	1210.0	1192.3	1185.2	1164.1	1153.6	1139.5	1125.4	1125.4
52.5°	1121.8	1097.0	1082.9	1054.7	1044.2	1033.5	1005.3	994.8	984.2	973.7
55°	994.8	973.7	945.4	913.6	899.5	881.8	853.6	832.5	818.4	822.0
57.5°	871.3	836.1	807.9	765.5	747.8	737.2	709.0	680.8	666.7	666.7
60°	719.6	691.4	656.2	617.3	603.2	585.6	550.2	532.7	522.0	511.5
62.5°	575.0	553.8	522.0	472.7	462.1	444.4	419.8	398.7	388.0	388.0
65°	430.3	409.2	381.0	345.7	331.6	317.5	296.3	275.2	264.5	261.1
67.5°	303.4	278.6	254.0	225.8	215.2	208.1	187.0	172.9	165.8	162.2
70°	183.4	169.3	151.7	130.5	119.9	112.8	98.7	88.2	84.6	81.2
72.5°	95.3	84.6	70.5	56.4	49.4	42.3	35.3	28.2	24.8	24.8
75°	35.3	28.2	17.7	10.6	7.1	7.1	7.1	7.1	7.1	7.1
77.5°	7.1	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
80°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
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)