

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: **FLDSQ4C50D010 FEU4C509040 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: FLDSQ4C50D010 FEU4C509040 F4LC-CSSQ-MW
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

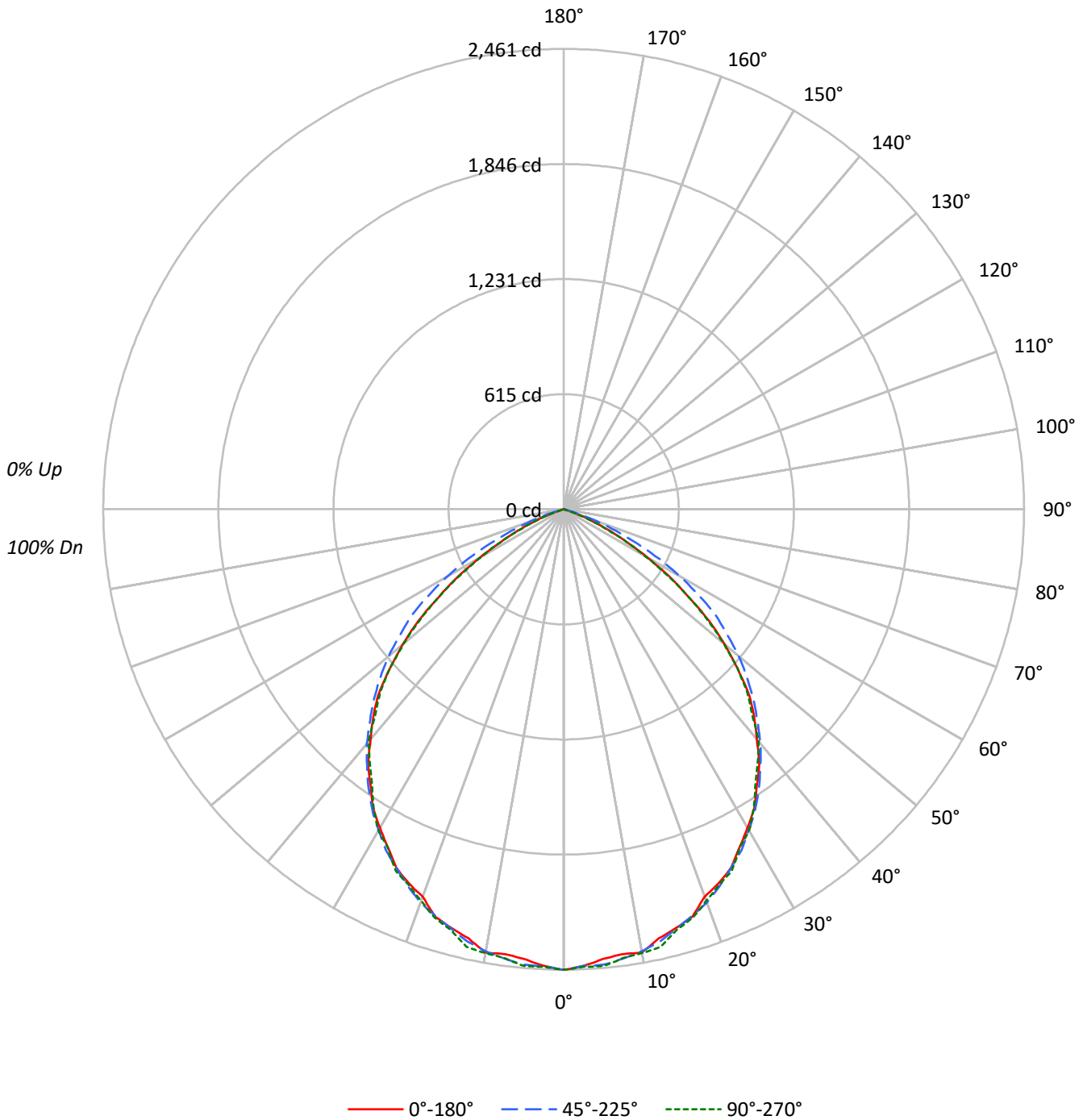
Lumens per Lamp: N/A
 Luminaire Lumens: 5258.0 lumens
 Efficiency: N/A
 Efficacy: 90.0 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 58.4
 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	0		
RW	70	50	30	10	70	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
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	237498	237498	237498
5°	233669	236710	237388
10°	235685	234999	236018
15°	231561	231901	232600
20°	226176	229760	228692
25°	225192	225192	226683
30°	218921	220470	220871
35°	212083	214156	210446
40°	202136	206091	204328
45°	191311	195610	189401
50°	168484	183164	167433
55°	136446	167618	137051
60°	99847	138983	97840
65°	60685	98973	59087
70°	23669	53291	22710
75°	2610	14353	2610
80°	2000	2000	2000
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.3	4.4
10°-20°	657.4	12.5
20°-30°	975.5	18.6
30°-40°	1130.3	21.5
40°-50°	1083.7	20.6
50°-60°	796.8	15.2
60°-70°	344.2	6.5
70°-80°	37.2	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°	1865.3	35.5
0°-40°	2995.6	57.0
0°-60°	4876.2	92.7
0°-90°	5258.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5258.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2461	2461	2461	2461	2461	
5°	2412	2437	2444	2448	2451	230
15°	2318	2332	2322	2325	2328	653
25°	2115	2112	2115	2119	2129	968
35°	1800	1811	1818	1814	1787	1126
45°	1402	1406	1434	1412	1388	1066
55°	811	895	996	892	815	730
65°	266	332	434	329	259	273
75°	7	11	38	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°	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4
2.5°	2443.9	2471.8	2475.4	2457.9	2450.9	2440.5	2464.9	2447.5	2454.4	2447.5	2443.9
5°	2412.5	2443.9	2447.5	2447.5	2440.5	2436.9	2447.5	2443.9	2440.5	2433.5	2443.9
7.5°	2398.5	2415.9	2433.5	2412.5	2422.9	2419.5	2443.9	2433.5	2429.9	2429.9	2422.9
10°	2405.5	2401.9	2415.9	2395.0	2401.9	2395.0	2415.9	2415.9	2408.9	2401.9	2398.5
12.5°	2349.5	2377.4	2377.4	2374.0	2367.0	2356.4	2377.4	2391.5	2370.4	2370.4	2367.0
15°	2318.1	2325.1	2328.5	2328.5	2325.1	2332.0	2342.5	2328.5	2332.0	2314.5	2321.5
17.5°	2283.1	2269.1	2279.6	2272.6	2276.1	2283.1	2297.1	2297.1	2276.1	2272.6	2279.6
20°	2202.7	2244.6	2248.2	2227.2	2230.6	2230.6	2255.2	2234.2	2248.2	2230.6	2237.6
22.5°	2164.2	2192.1	2195.7	2167.7	2185.1	2164.2	2188.7	2157.2	2192.1	2167.7	2178.1
25°	2115.2	2111.8	2122.2	2108.2	2111.8	2111.8	2129.2	2115.2	2125.8	2111.8	2115.2
27.5°	2034.9	2062.9	2059.3	2045.3	2052.3	2048.9	2083.8	2045.3	2066.3	2048.9	2055.9
30°	1964.9	1989.4	1982.4	1968.4	1968.4	1957.9	1996.4	1985.8	1982.4	1982.4	1978.8
32.5°	1895.0	1898.5	1891.5	1895.0	1898.5	1884.6	1915.9	1902.0	1898.5	1902.0	1905.5
35°	1800.5	1800.5	1807.5	1797.1	1811.1	1811.1	1839.0	1821.5	1818.1	1807.5	1818.1
37.5°	1716.7	1706.2	1709.7	1709.7	1716.7	1723.6	1737.6	1730.6	1730.6	1720.2	1727.2
40°	1604.8	1597.8	1608.2	1608.2	1618.8	1618.8	1632.8	1625.8	1636.2	1636.2	1636.2
42.5°	1507.0	1507.0	1500.0	1510.4	1513.9	1510.4	1534.9	1531.4	1534.9	1527.9	1531.4
45°	1402.0	1402.0	1395.0	1391.6	1409.0	1405.5	1433.5	1422.9	1436.9	1429.9	1433.5
47.5°	1258.6	1276.2	1265.6	1276.2	1297.1	1300.7	1318.1	1311.1	1325.1	1314.7	1328.6
50°	1122.4	1122.4	1132.8	1146.8	1167.7	1171.3	1192.3	1206.3	1213.2	1216.7	1220.2
52.5°	979.0	975.4	986.0	1003.4	1020.9	1034.9	1055.9	1076.9	1090.8	1111.8	1101.3
55°	811.1	818.1	828.7	849.6	877.6	895.0	912.5	940.5	965.0	975.4	996.4
57.5°	667.7	660.8	667.7	695.7	727.2	741.2	765.7	793.7	828.7	849.6	856.6
60°	517.4	521.0	527.9	552.5	576.9	597.8	608.4	653.8	685.3	706.3	720.2
62.5°	381.2	388.1	395.1	416.1	440.5	458.0	475.5	514.0	541.9	562.9	576.9
65°	265.8	269.2	279.7	290.2	314.7	332.1	346.1	377.6	405.6	423.1	433.5
67.5°	164.3	167.8	174.7	188.9	206.3	220.3	234.2	255.2	279.7	297.1	300.7
70°	83.9	87.4	90.9	101.4	115.4	122.4	132.8	150.4	167.8	181.7	188.9
72.5°	28.0	28.0	31.5	38.5	45.5	52.5	55.9	73.5	87.4	94.4	97.9
75°	7.0	7.0	7.0	7.0	7.0	10.6	10.6	21.0	28.0	34.9	38.5
77.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	7.0	7.0
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°	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4	2461.4
2.5°	2461.4	2454.4	2450.9	2454.4	2454.4	2450.9	2461.4	2475.4	2492.8	2447.5
5°	2457.9	2450.9	2457.9	2436.9	2447.5	2440.5	2454.4	2450.9	2464.9	2450.9
7.5°	2447.5	2433.5	2436.9	2426.5	2440.5	2422.9	2433.5	2454.4	2440.5	2419.5
10°	2412.5	2405.5	2429.9	2395.0	2388.0	2401.9	2429.9	2408.9	2401.9	2408.9
12.5°	2377.4	2377.4	2388.0	2360.0	2363.4	2370.4	2384.4	2370.4	2377.4	2395.0
15°	2339.0	2332.0	2349.5	2328.5	2325.1	2318.1	2332.0	2332.0	2339.0	2328.5
17.5°	2293.5	2283.1	2283.1	2276.1	2272.6	2290.1	2297.1	2300.5	2304.1	2290.1
20°	2237.6	2234.2	2244.6	2234.2	2237.6	2241.2	2241.2	2234.2	2265.6	2227.2
22.5°	2178.1	2188.7	2174.7	2167.7	2174.7	2181.7	2181.7	2185.1	2178.1	2171.1
25°	2118.8	2125.8	2129.2	2108.2	2118.8	2108.2	2132.8	2136.2	2122.2	2129.2
27.5°	2066.3	2055.9	2052.3	2038.3	2045.3	2041.9	2045.3	2045.3	2066.3	2038.3
30°	1985.8	1975.4	1978.8	1968.4	1971.9	1968.4	1971.9	1971.9	1985.8	1982.4
32.5°	1908.9	1898.5	1902.0	1891.5	1891.5	1895.0	1888.0	1888.0	1898.5	1891.5
35°	1835.5	1811.1	1814.5	1811.1	1814.5	1800.5	1800.5	1797.1	1804.1	1786.6
37.5°	1730.6	1720.2	1716.7	1713.2	1716.7	1709.7	1716.7	1706.2	1716.7	1702.7
40°	1636.2	1629.2	1632.8	1611.8	1611.8	1615.2	1608.2	1604.8	1608.2	1622.2
42.5°	1541.9	1527.9	1520.9	1513.9	1517.4	1507.0	1503.4	1496.4	1503.4	1489.4
45°	1429.9	1429.9	1426.5	1409.0	1412.5	1412.5	1398.5	1384.6	1388.0	1388.0
47.5°	1328.6	1321.7	1318.1	1300.7	1297.1	1293.7	1279.6	1269.2	1269.2	1258.6
50°	1216.7	1209.7	1199.3	1181.7	1174.7	1153.8	1143.3	1129.4	1115.4	1115.4
52.5°	1111.8	1087.3	1073.3	1045.3	1034.9	1024.4	996.4	986.0	975.4	965.0
55°	986.0	965.0	937.1	905.5	891.6	874.0	846.1	825.1	811.1	814.7
57.5°	863.6	828.7	800.7	758.8	741.2	730.7	702.7	674.7	660.8	660.8
60°	713.3	685.3	650.3	611.8	597.8	580.4	545.4	527.9	517.4	507.0
62.5°	569.9	548.9	517.4	468.5	458.0	440.5	416.1	395.1	384.6	384.6
65°	426.5	405.6	377.6	342.6	328.7	314.7	293.7	272.7	262.2	258.8
67.5°	300.7	276.2	251.8	223.8	213.3	206.3	185.3	171.3	164.3	160.8
70°	181.7	167.8	150.4	129.4	118.8	111.8	97.9	87.4	83.9	80.5
72.5°	94.4	83.9	69.9	55.9	48.9	41.9	34.9	28.0	24.5	24.5
75°	34.9	28.0	17.5	10.6	7.0	7.0	7.0	7.0	7.0	7.0
77.5°	7.0	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)