

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: **FLDSQ4C65D010 FEU4C659027 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: FLDSQ4C65D010 FEU4C659027 F4LC-CSSQ-MMS
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

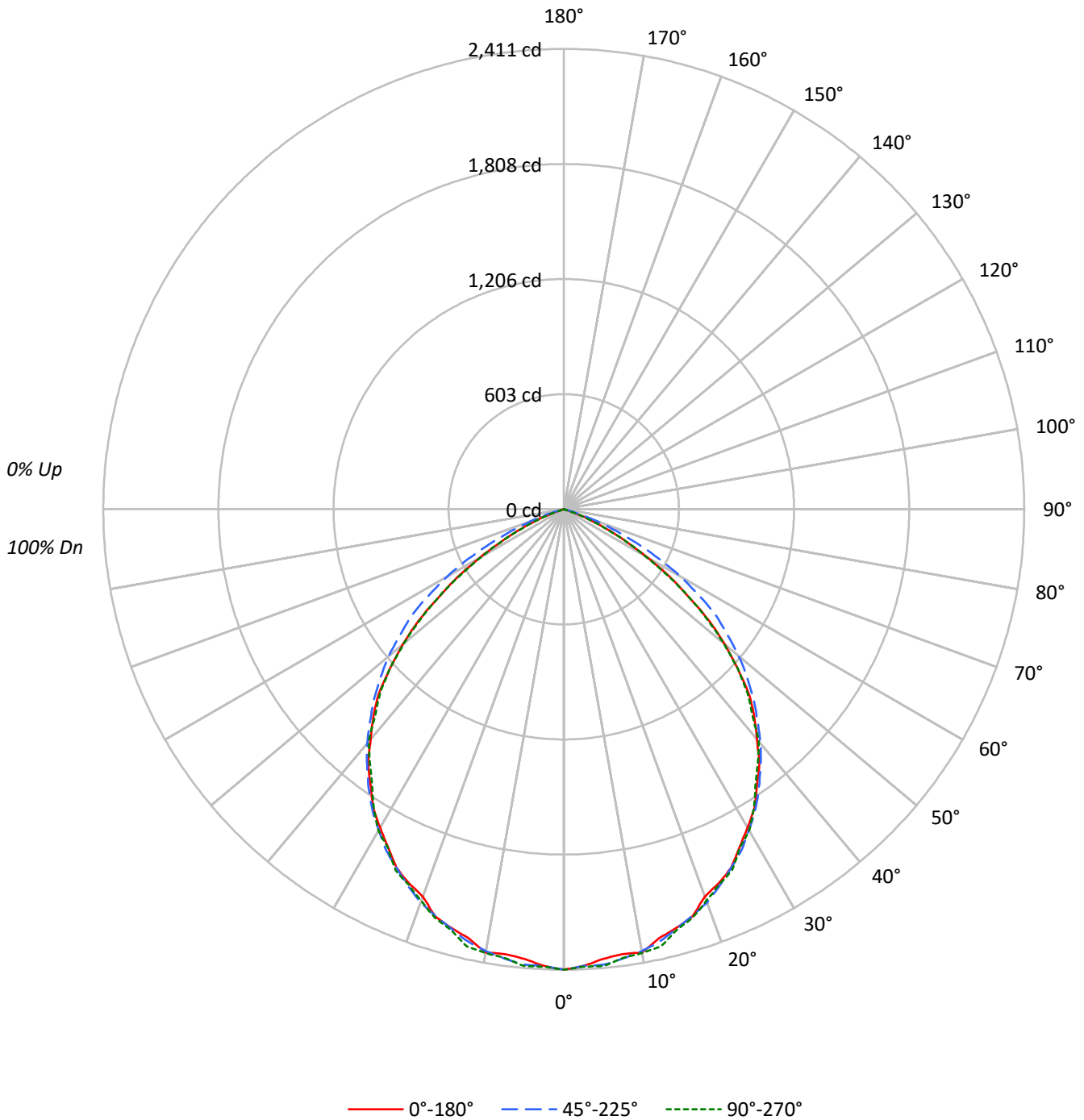
Lumens per Lamp: N/A
 Luminaire Lumens: 5150.0 lumens
 Efficiency: N/A
 Efficacy: 71.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 72.4
 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	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°	232625	232625	232625
5°	228865	231848	232506
10°	230845	230178	231178
15°	226806	227136	227825
20°	221525	225047	223999
25°	220572	220572	222030
30°	214420	215946	216336
35°	207737	209751	206123
40°	197992	201859	200134
45°	187381	191584	185512
50°	165016	179412	163995
55°	133653	164169	134225
60°	97801	136127	95833
65°	59430	96941	57877
70°	23190	52191	22231
75°	2535	14055	2535
80°	1945	1945	1945
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	227.6	4.4
10°-20°	643.9	12.5
20°-30°	955.5	18.6
30°-40°	1107.1	21.5
40°-50°	1061.5	20.6
50°-60°	780.5	15.2
60°-70°	337.1	6.5
70°-80°	36.4	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°	1827.0	35.5
0°-40°	2934.1	57.0
0°-60°	4776.0	92.7
0°-90°	5150.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5150.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2411	2411	2411	2411	2411	
5°	2363	2387	2394	2397	2400	225
15°	2270	2284	2274	2277	2281	640
25°	2072	2068	2072	2075	2086	949
35°	1764	1774	1781	1777	1750	1103
45°	1373	1377	1404	1384	1360	1044
55°	794	877	976	873	798	715
65°	260	325	425	322	254	268
75°	7	10	38	7	7	21
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°	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9
2.5°	2393.7	2421.1	2424.6	2407.4	2400.5	2390.3	2414.2	2397.2	2404.0	2397.2	2393.7
5°	2362.9	2393.7	2397.2	2397.2	2390.3	2386.8	2397.2	2393.7	2390.3	2383.5	2393.7
7.5°	2349.3	2366.3	2383.5	2362.9	2373.2	2369.8	2393.7	2383.5	2380.0	2380.0	2373.2
10°	2356.1	2352.6	2366.3	2345.8	2352.6	2345.8	2366.3	2366.3	2359.5	2352.6	2349.3
12.5°	2301.2	2328.6	2328.6	2325.2	2318.4	2308.0	2328.6	2342.4	2321.7	2321.7	2318.4
15°	2270.5	2277.3	2280.7	2280.7	2277.3	2284.1	2294.4	2280.7	2284.1	2267.0	2273.8
17.5°	2236.2	2222.5	2232.7	2225.9	2229.4	2236.2	2249.9	2249.9	2229.4	2225.9	2232.7
20°	2157.4	2198.5	2202.0	2181.5	2184.8	2184.8	2208.8	2188.3	2202.0	2184.8	2191.7
22.5°	2119.7	2147.1	2150.6	2123.2	2140.2	2119.7	2143.7	2112.9	2147.1	2123.2	2133.4
25°	2071.8	2068.4	2078.6	2064.9	2068.4	2068.4	2085.5	2071.8	2082.1	2068.4	2071.8
27.5°	1993.1	2020.5	2017.0	2003.3	2010.2	2006.8	2041.0	2003.3	2023.9	2006.8	2013.6
30°	1924.5	1948.5	1941.7	1928.0	1928.0	1917.7	1955.4	1945.1	1941.7	1941.7	1938.2
32.5°	1856.0	1859.5	1852.7	1856.0	1859.5	1845.8	1876.6	1862.9	1859.5	1862.9	1866.4
35°	1763.6	1763.6	1770.4	1760.2	1773.9	1773.9	1801.3	1784.1	1780.7	1770.4	1780.7
37.5°	1681.4	1671.2	1674.6	1674.6	1681.4	1688.2	1701.9	1695.1	1695.1	1684.9	1691.7
40°	1571.9	1565.0	1575.2	1575.2	1585.5	1585.5	1599.2	1592.4	1602.6	1602.6	1602.6
42.5°	1476.0	1476.0	1469.2	1479.4	1482.9	1479.4	1503.4	1499.9	1503.4	1496.5	1499.9
45°	1373.2	1373.2	1366.3	1363.0	1380.0	1376.7	1404.0	1393.7	1407.4	1400.6	1404.0
47.5°	1232.8	1249.9	1239.6	1249.9	1270.5	1274.0	1291.0	1284.2	1297.9	1287.7	1301.4
50°	1099.3	1099.3	1109.5	1123.2	1143.8	1147.2	1167.8	1181.5	1188.3	1191.7	1195.2
52.5°	958.9	955.4	965.7	982.8	1000.0	1013.7	1034.2	1054.7	1068.4	1089.0	1078.6
55°	794.5	801.3	811.6	832.2	859.6	876.6	893.8	921.2	945.2	955.4	975.9
57.5°	654.0	647.2	654.0	681.4	712.3	726.0	750.0	777.4	811.6	832.2	839.0
60°	506.8	510.3	517.1	541.1	565.0	585.6	595.9	640.3	671.2	691.8	705.4
62.5°	373.3	380.2	387.0	407.6	431.5	448.6	465.7	503.4	530.8	551.3	565.0
65°	260.3	263.7	274.0	284.2	308.2	325.3	339.0	369.8	397.2	414.4	424.6
67.5°	161.0	164.3	171.2	185.0	202.0	215.7	229.4	250.0	274.0	291.0	294.5
70°	82.2	85.6	89.0	99.3	113.0	119.9	130.1	147.3	164.3	178.0	185.0
72.5°	27.4	27.4	30.9	37.7	44.6	51.4	54.8	72.0	85.6	92.5	95.8
75°	6.8	6.8	6.8	6.8	6.8	10.3	10.3	20.5	27.4	34.2	37.7
77.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	6.8	6.8
80°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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°	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9	2410.9
2.5°	2410.9	2404.0	2400.5	2404.0	2404.0	2400.5	2410.9	2424.6	2441.6	2397.2
5°	2407.4	2400.5	2407.4	2386.8	2397.2	2390.3	2404.0	2400.5	2414.2	2400.5
7.5°	2397.2	2383.5	2386.8	2376.6	2390.3	2373.2	2383.5	2404.0	2390.3	2369.8
10°	2362.9	2356.1	2380.0	2345.8	2338.9	2352.6	2380.0	2359.5	2352.6	2359.5
12.5°	2328.6	2328.6	2338.9	2311.5	2314.9	2321.7	2335.4	2321.7	2328.6	2345.8
15°	2291.0	2284.1	2301.2	2280.7	2277.3	2270.5	2284.1	2284.1	2291.0	2280.7
17.5°	2246.4	2236.2	2236.2	2229.4	2225.9	2243.1	2249.9	2253.3	2256.8	2243.1
20°	2191.7	2188.3	2198.5	2188.3	2191.7	2195.1	2195.1	2188.3	2219.0	2181.5
22.5°	2133.4	2143.7	2130.0	2123.2	2130.0	2136.9	2136.9	2140.2	2133.4	2126.5
25°	2075.3	2082.1	2085.5	2064.9	2075.3	2064.9	2089.0	2092.3	2078.6	2085.5
27.5°	2023.9	2013.6	2010.2	1996.5	2003.3	2000.0	2003.3	2003.3	2023.9	1996.5
30°	1945.1	1934.8	1938.2	1928.0	1931.4	1928.0	1931.4	1931.4	1945.1	1941.7
32.5°	1869.7	1859.5	1862.9	1852.7	1852.7	1856.0	1849.2	1849.2	1859.5	1852.7
35°	1797.8	1773.9	1777.2	1773.9	1777.2	1763.6	1763.6	1760.2	1767.0	1749.9
37.5°	1695.1	1684.9	1681.4	1678.0	1681.4	1674.6	1681.4	1671.2	1681.4	1667.7
40°	1602.6	1595.7	1599.2	1578.7	1578.7	1582.1	1575.2	1571.9	1575.2	1588.9
42.5°	1510.2	1496.5	1489.7	1482.9	1486.2	1476.0	1472.5	1465.7	1472.5	1458.8
45°	1400.6	1400.6	1397.2	1380.0	1383.5	1383.5	1369.8	1356.1	1359.5	1359.5
47.5°	1301.4	1294.5	1291.0	1274.0	1270.5	1267.1	1253.3	1243.1	1243.1	1232.8
50°	1191.7	1184.8	1174.6	1157.4	1150.6	1130.1	1119.9	1106.2	1092.5	1092.5
52.5°	1089.0	1065.0	1051.3	1023.9	1013.7	1003.3	975.9	965.7	955.4	945.2
55°	965.7	945.2	917.8	886.9	873.3	856.1	828.7	808.1	794.5	797.9
57.5°	845.9	811.6	784.2	743.2	726.0	715.7	688.3	660.9	647.2	647.2
60°	698.6	671.2	637.0	599.3	585.6	568.5	534.2	517.1	506.8	496.6
62.5°	558.2	537.6	506.8	458.8	448.6	431.5	407.6	387.0	376.7	376.7
65°	417.8	397.2	369.8	335.6	321.9	308.2	287.7	267.1	256.8	253.5
67.5°	294.5	270.5	246.6	219.2	208.9	202.0	181.5	167.8	161.0	157.5
70°	178.0	164.3	147.3	126.7	116.4	109.5	95.8	85.6	82.2	78.8
72.5°	92.5	82.2	68.5	54.8	47.9	41.1	34.2	27.4	24.0	24.0
75°	34.2	27.4	17.2	10.3	6.8	6.8	6.8	6.8	6.8	6.8
77.5°	6.8	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
80°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
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)