

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 FEU4C659040 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 FEU4C659040 F4LC-CSSQ-MMS
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

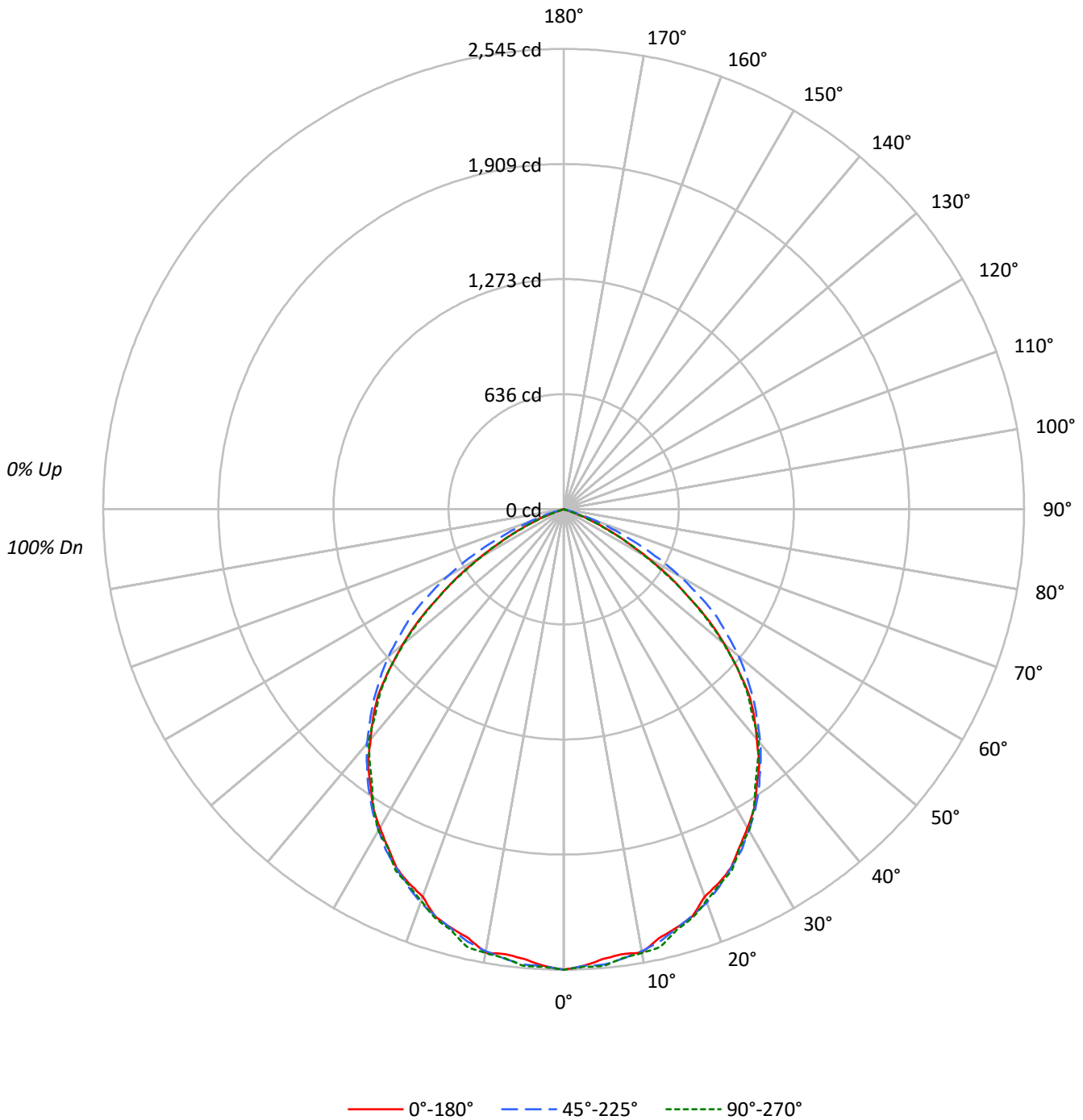
Lumens per Lamp: N/A
 Luminaire Lumens: 5437.0 lumens
 Efficiency: N/A
 Efficacy: 75.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	245584	245584	245584
5°	241621	244769	245466
10°	243709	243004	244052
15°	239443	239792	240522
20°	233877	237584	236475
25°	232857	232857	234401
30°	226375	227979	228391
35°	219304	221447	217607
40°	209026	213107	211281
45°	197820	202269	195842
50°	174218	189409	173137
55°	141089	173320	141711
60°	103243	143730	101159
65°	62740	102352	61096
70°	24459	55097	23472
75°	2684	14838	2684
80°	2056	2056	2056
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	240.2	4.4
10°-20°	679.8	12.5
20°-30°	1008.7	18.6
30°-40°	1168.8	21.5
40°-50°	1120.6	20.6
50°-60°	824.0	15.2
60°-70°	355.9	6.5
70°-80°	38.4	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°	1928.8	35.5
0°-40°	3097.6	57.0
0°-60°	5042.2	92.7
0°-90°	5437.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5437.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2545	2545	2545	2545	2545	
5°	2495	2520	2527	2531	2534	238
15°	2397	2411	2400	2404	2408	676
25°	2187	2184	2187	2191	2202	1001
35°	1862	1873	1880	1876	1847	1164
45°	1450	1453	1482	1461	1435	1102
55°	839	926	1030	922	842	755
65°	275	343	448	340	268	282
75°	7	11	40	7	7	22
85°	0	0	0	0	0	1
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°	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2
2.5°	2527.1	2556.0	2559.7	2541.5	2534.3	2523.5	2548.8	2530.8	2538.0	2530.8	2527.1
5°	2494.6	2527.1	2530.8	2530.8	2523.5	2519.9	2530.8	2527.1	2523.5	2516.3	2527.1
7.5°	2480.2	2498.2	2516.3	2494.6	2505.4	2501.9	2527.1	2516.3	2512.6	2512.6	2505.4
10°	2487.4	2483.7	2498.2	2476.5	2483.7	2476.5	2498.2	2498.2	2490.9	2483.7	2480.2
12.5°	2429.4	2458.4	2458.4	2454.8	2447.6	2436.7	2458.4	2472.9	2451.1	2451.1	2447.6
15°	2397.0	2404.2	2407.8	2407.8	2404.2	2411.4	2422.2	2407.8	2411.4	2393.3	2400.5
17.5°	2360.8	2346.4	2357.2	2349.9	2353.6	2360.8	2375.3	2375.3	2353.6	2349.9	2357.2
20°	2277.7	2321.0	2324.7	2303.0	2306.6	2306.6	2331.9	2310.2	2324.7	2306.6	2313.8
22.5°	2237.8	2266.7	2270.4	2241.5	2259.5	2237.8	2263.2	2230.6	2266.7	2241.5	2252.3
25°	2187.2	2183.7	2194.5	2180.0	2183.7	2183.7	2201.7	2187.2	2198.1	2183.7	2187.2
27.5°	2104.2	2133.1	2129.4	2115.0	2122.2	2118.6	2154.8	2115.0	2136.6	2118.6	2125.9
30°	2031.8	2057.1	2049.9	2035.4	2035.4	2024.5	2064.4	2053.4	2049.9	2049.9	2046.2
32.5°	1959.5	1963.2	1955.9	1959.5	1963.2	1948.7	1981.2	1966.7	1963.2	1966.7	1970.4
35°	1861.8	1861.8	1869.1	1858.3	1872.7	1872.7	1901.7	1883.5	1880.0	1869.1	1880.0
37.5°	1775.1	1764.3	1767.9	1767.9	1775.1	1782.3	1796.8	1789.6	1789.6	1778.8	1786.0
40°	1659.5	1652.2	1663.0	1663.0	1673.9	1673.9	1688.4	1681.1	1691.9	1691.9	1691.9
42.5°	1558.3	1558.3	1551.0	1561.8	1565.5	1561.8	1587.2	1583.5	1587.2	1579.9	1583.5
45°	1449.7	1449.7	1442.5	1438.9	1456.9	1453.4	1482.3	1471.4	1485.8	1478.6	1482.3
47.5°	1301.5	1319.6	1308.7	1319.6	1341.3	1345.0	1363.0	1355.7	1370.2	1359.4	1373.9
50°	1160.6	1160.6	1171.4	1185.8	1207.5	1211.2	1232.9	1247.3	1254.5	1258.1	1261.8
52.5°	1012.3	1008.7	1019.6	1037.6	1055.7	1070.2	1091.8	1113.5	1128.0	1149.7	1138.8
55°	838.7	846.0	856.9	878.5	907.5	925.5	943.6	972.5	997.9	1008.7	1030.3
57.5°	690.5	683.3	690.5	719.4	752.0	766.4	791.8	820.7	856.9	878.5	885.8
60°	535.0	538.7	545.9	571.3	596.5	618.2	629.1	676.0	708.6	730.3	744.8
62.5°	394.1	401.4	408.6	430.3	455.5	473.6	491.6	531.5	560.4	582.1	596.5
65°	274.8	278.3	289.3	300.0	325.4	343.4	357.9	390.5	419.4	437.5	448.3
67.5°	169.9	173.5	180.7	195.3	213.3	227.8	242.2	263.9	289.3	307.3	310.9
70°	86.7	90.4	94.0	104.9	119.3	126.6	137.3	155.5	173.5	187.9	195.3
72.5°	28.9	28.9	32.6	39.8	47.1	54.3	57.8	76.0	90.4	97.6	101.2
75°	7.2	7.2	7.2	7.2	7.2	10.9	10.9	21.7	28.9	36.1	39.8
77.5°	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	7.2	7.2
80°	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
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°	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2	2545.2
2.5°	2545.2	2538.0	2534.3	2538.0	2538.0	2534.3	2545.2	2559.7	2577.7	2530.8
5°	2541.5	2534.3	2541.5	2519.9	2530.8	2523.5	2538.0	2534.3	2548.8	2534.3
7.5°	2530.8	2516.3	2519.9	2509.1	2523.5	2505.4	2516.3	2538.0	2523.5	2501.9
10°	2494.6	2487.4	2512.6	2476.5	2469.3	2483.7	2512.6	2490.9	2483.7	2490.9
12.5°	2458.4	2458.4	2469.3	2440.4	2443.9	2451.1	2465.6	2451.1	2458.4	2476.5
15°	2418.7	2411.4	2429.4	2407.8	2404.2	2397.0	2411.4	2411.4	2418.7	2407.8
17.5°	2371.6	2360.8	2360.8	2353.6	2349.9	2368.1	2375.3	2378.8	2382.5	2368.1
20°	2313.8	2310.2	2321.0	2310.2	2313.8	2317.5	2317.5	2310.2	2342.7	2303.0
22.5°	2252.3	2263.2	2248.7	2241.5	2248.7	2256.0	2256.0	2259.5	2252.3	2245.1
25°	2190.9	2198.1	2201.7	2180.0	2190.9	2180.0	2205.4	2208.9	2194.5	2201.7
27.5°	2136.6	2125.9	2122.2	2107.7	2115.0	2111.4	2115.0	2115.0	2136.6	2107.7
30°	2053.4	2042.7	2046.2	2035.4	2039.0	2035.4	2039.0	2039.0	2053.4	2049.9
32.5°	1973.9	1963.2	1966.7	1955.9	1955.9	1959.5	1952.3	1952.3	1963.2	1955.9
35°	1898.0	1872.7	1876.3	1872.7	1876.3	1861.8	1861.8	1858.3	1865.5	1847.4
37.5°	1789.6	1778.8	1775.1	1771.6	1775.1	1767.9	1775.1	1764.3	1775.1	1760.6
40°	1691.9	1684.7	1688.4	1666.7	1666.7	1670.2	1663.0	1659.5	1663.0	1677.4
42.5°	1594.4	1579.9	1572.7	1565.5	1569.0	1558.3	1554.6	1547.3	1554.6	1540.1
45°	1478.6	1478.6	1475.1	1456.9	1460.6	1460.6	1446.2	1431.7	1435.2	1435.2
47.5°	1373.9	1366.6	1363.0	1345.0	1341.3	1337.7	1323.1	1312.4	1312.4	1301.5
50°	1258.1	1250.9	1240.1	1221.9	1214.7	1193.0	1182.3	1167.8	1153.4	1153.4
52.5°	1149.7	1124.3	1109.8	1080.9	1070.2	1059.2	1030.3	1019.6	1008.7	997.9
55°	1019.6	997.9	969.0	936.4	921.9	903.8	874.9	853.2	838.7	842.4
57.5°	893.0	856.9	828.0	784.6	766.4	755.5	726.6	697.7	683.3	683.3
60°	737.5	708.6	672.5	632.7	618.2	600.2	563.9	545.9	535.0	524.2
62.5°	589.3	567.6	535.0	484.4	473.6	455.5	430.3	408.6	397.7	397.7
65°	441.0	419.4	390.5	354.3	339.9	325.4	303.7	282.0	271.1	267.6
67.5°	310.9	285.6	260.3	231.4	220.5	213.3	191.6	177.2	169.9	166.2
70°	187.9	173.5	155.5	133.8	122.9	115.6	101.2	90.4	86.7	83.2
72.5°	97.6	86.7	72.3	57.8	50.6	43.4	36.1	28.9	25.4	25.4
75°	36.1	28.9	18.1	10.9	7.2	7.2	7.2	7.2	7.2	7.2
77.5°	7.2	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
80°	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
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)