

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: **FLDSQ4C55D010 FEU4C559027 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: FLDSQ4C55D010 FEU4C559027 F4LC-CSSQ-MW
 Description: 4 INCH 5500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

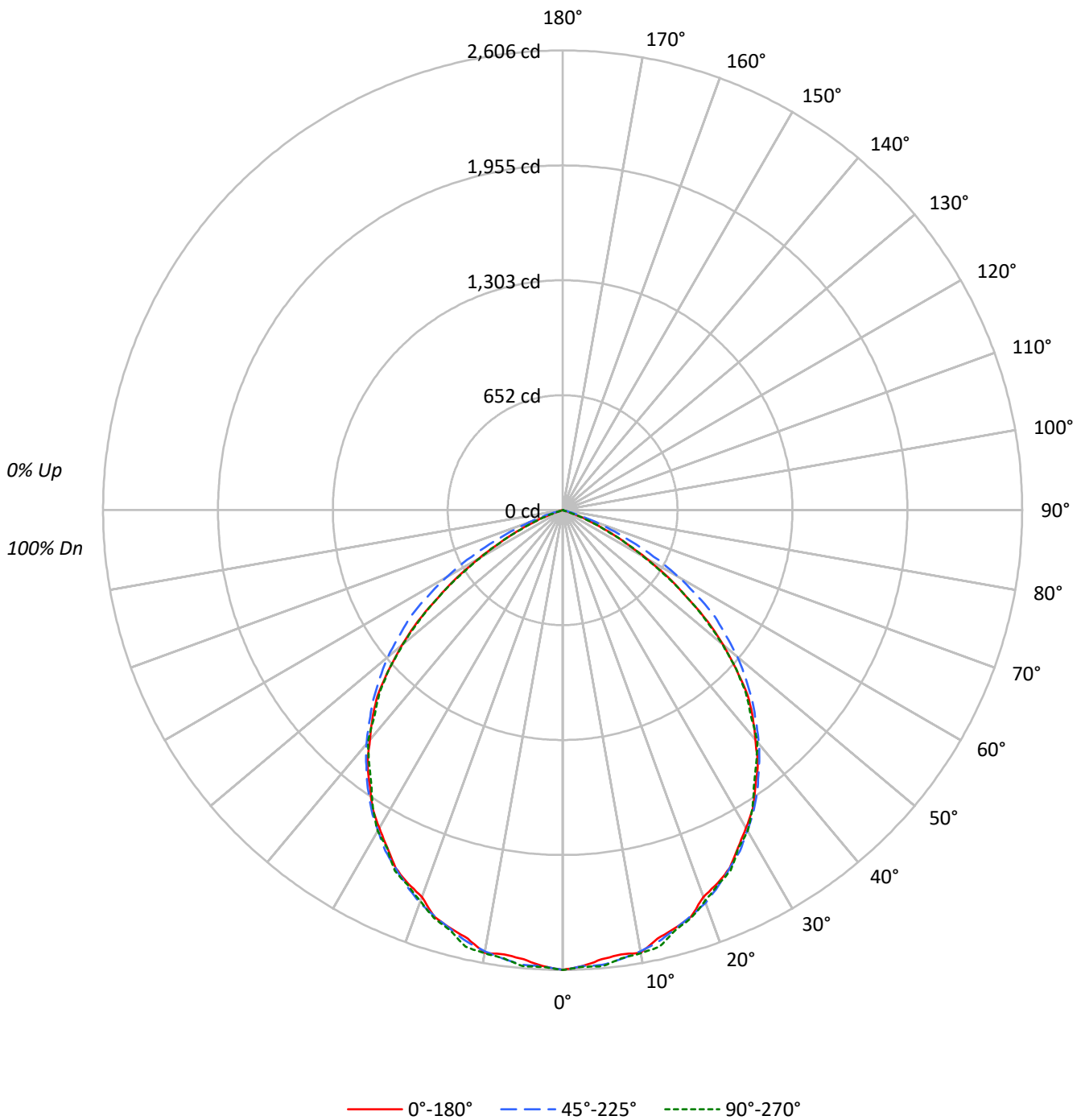
Lumens per Lamp: N/A
 Luminaire Lumens: 5567.0 lumens
 Efficiency: N/A
 Efficacy: 87.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 63.9
 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°	251460	251460	251460
5°	247403	250619	251335
10°	249539	248814	249891
15°	245167	245526	246265
20°	239463	243262	242133
25°	238425	238425	240001
30°	231778	233427	233851
35°	224545	226736	222802
40°	214014	218208	216344
45°	202555	207099	200536
50°	178376	193927	177265
55°	144470	177476	145109
60°	105713	147165	103590
65°	64247	104795	62558
70°	25052	56423	24036
75°	2759	15210	2759
80°	2111	2111	2111
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	246.0	4.4
10°-20°	696.1	12.5
20°-30°	1032.8	18.6
30°-40°	1196.8	21.5
40°-50°	1147.4	20.6
50°-60°	843.7	15.2
60°-70°	364.4	6.5
70°-80°	39.4	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°	1974.9	35.5
0°-40°	3171.7	57.0
0°-60°	5162.8	92.7
0°-90°	5567.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5567.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2606	2606	2606	2606	2606	
5°	2554	2580	2588	2591	2595	244
15°	2454	2469	2458	2462	2465	692
25°	2240	2236	2240	2243	2254	1025
35°	1906	1918	1925	1921	1892	1192
45°	1484	1488	1518	1496	1470	1128
55°	859	948	1055	944	863	773
65°	281	352	459	348	274	289
75°	7	11	41	7	7	23
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°	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1
2.5°	2587.5	2617.1	2620.9	2602.3	2594.9	2583.9	2609.7	2591.3	2598.7	2591.3	2587.5
5°	2554.3	2587.5	2591.3	2591.3	2583.9	2580.1	2591.3	2587.5	2583.9	2576.5	2587.5
7.5°	2539.5	2557.9	2576.5	2554.3	2565.3	2561.7	2587.5	2576.5	2572.7	2572.7	2565.3
10°	2546.9	2543.1	2557.9	2535.7	2543.1	2535.7	2557.9	2557.9	2550.5	2543.1	2539.5
12.5°	2487.5	2517.1	2517.1	2513.5	2506.1	2494.9	2517.1	2532.1	2509.7	2509.7	2506.1
15°	2454.3	2461.7	2465.3	2465.3	2461.7	2469.1	2480.1	2465.3	2469.1	2450.5	2457.9
17.5°	2417.3	2402.5	2413.5	2406.1	2409.9	2417.3	2432.1	2432.1	2409.9	2406.1	2413.5
20°	2332.1	2376.5	2380.3	2358.1	2361.7	2361.7	2387.7	2365.5	2380.3	2361.7	2369.1
22.5°	2291.3	2320.9	2324.7	2295.1	2313.5	2291.3	2317.3	2283.9	2320.9	2295.1	2306.1
25°	2239.5	2235.9	2246.9	2232.1	2235.9	2235.9	2254.3	2239.5	2250.7	2235.9	2239.5
27.5°	2154.5	2184.1	2180.3	2165.5	2172.9	2169.3	2206.3	2165.5	2187.7	2169.3	2176.7
30°	2080.3	2106.3	2098.9	2084.1	2084.1	2072.9	2113.7	2102.5	2098.9	2098.9	2095.1
32.5°	2006.3	2010.1	2002.7	2006.3	2010.1	1995.3	2028.5	2013.7	2010.1	2013.7	2017.5
35°	1906.3	1906.3	1913.8	1902.7	1917.5	1917.5	1947.1	1928.6	1924.9	1913.8	1924.9
37.5°	1817.5	1806.5	1810.1	1810.1	1817.5	1824.9	1839.7	1832.3	1832.3	1821.3	1828.7
40°	1699.1	1691.7	1702.8	1702.8	1713.9	1713.9	1728.7	1721.3	1732.4	1732.4	1732.4
42.5°	1595.5	1595.5	1588.1	1599.1	1602.9	1599.1	1625.1	1621.3	1625.1	1617.7	1621.3
45°	1484.4	1484.4	1477.0	1473.3	1491.8	1488.1	1517.7	1506.6	1521.4	1514.0	1517.7
47.5°	1332.6	1351.1	1340.0	1351.1	1373.3	1377.1	1395.6	1388.2	1403.0	1391.9	1406.7
50°	1188.3	1188.3	1199.4	1214.2	1236.4	1240.1	1262.3	1277.1	1284.5	1288.2	1291.9
52.5°	1036.5	1032.8	1043.9	1062.4	1080.9	1095.7	1118.0	1140.2	1155.0	1177.2	1166.0
55°	858.8	866.2	877.4	899.6	929.2	947.6	966.2	995.8	1021.7	1032.8	1055.0
57.5°	707.0	699.6	707.0	736.6	770.0	784.8	810.7	840.3	877.4	899.6	907.0
60°	547.8	551.6	559.0	585.0	610.8	633.0	644.2	692.2	725.6	747.8	762.6
62.5°	403.6	411.0	418.4	440.6	466.4	485.0	503.4	544.2	573.8	596.0	610.8
65°	281.4	285.0	296.2	307.2	333.2	351.6	366.4	399.8	429.4	448.0	459.0
67.5°	174.0	177.6	185.0	200.0	218.4	233.2	248.0	270.2	296.2	314.6	318.4
70°	88.8	92.6	96.2	107.4	122.2	129.6	140.6	159.2	177.6	192.4	200.0
72.5°	29.6	29.6	33.4	40.8	48.2	55.6	59.2	77.8	92.6	100.0	103.6
75°	7.4	7.4	7.4	7.4	7.4	11.2	11.2	22.2	29.6	37.0	40.8
77.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	7.4	7.4
80°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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°	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1	2606.1
2.5°	2606.1	2598.7	2594.9	2598.7	2598.7	2594.9	2606.1	2620.9	2639.3	2591.3
5°	2602.3	2594.9	2602.3	2580.1	2591.3	2583.9	2598.7	2594.9	2609.7	2594.9
7.5°	2591.3	2576.5	2580.1	2569.1	2583.9	2565.3	2576.5	2598.7	2583.9	2561.7
10°	2554.3	2546.9	2572.7	2535.7	2528.3	2543.1	2572.7	2550.5	2543.1	2550.5
12.5°	2517.1	2517.1	2528.3	2498.7	2502.3	2509.7	2524.5	2509.7	2517.1	2535.7
15°	2476.5	2469.1	2487.5	2465.3	2461.7	2454.3	2469.1	2469.1	2476.5	2465.3
17.5°	2428.3	2417.3	2417.3	2409.9	2406.1	2424.7	2432.1	2435.7	2439.5	2424.7
20°	2369.1	2365.5	2376.5	2365.5	2369.1	2372.9	2372.9	2365.5	2398.7	2358.1
22.5°	2306.1	2317.3	2302.5	2295.1	2302.5	2309.9	2309.9	2313.5	2306.1	2298.7
25°	2243.3	2250.7	2254.3	2232.1	2243.3	2232.1	2258.1	2261.7	2246.9	2254.3
27.5°	2187.7	2176.7	2172.9	2158.1	2165.5	2161.9	2165.5	2165.5	2187.7	2158.1
30°	2102.5	2091.5	2095.1	2084.1	2087.7	2084.1	2087.7	2087.7	2102.5	2098.9
32.5°	2021.1	2010.1	2013.7	2002.7	2002.7	2006.3	1998.9	1998.9	2010.1	2002.7
35°	1943.4	1917.5	1921.2	1917.5	1921.2	1906.3	1906.3	1902.7	1910.1	1891.5
37.5°	1832.3	1821.3	1817.5	1813.9	1817.5	1810.1	1817.5	1806.5	1817.5	1802.7
40°	1732.4	1725.0	1728.7	1706.5	1706.5	1710.2	1702.8	1699.1	1702.8	1717.6
42.5°	1632.5	1617.7	1610.3	1602.9	1606.5	1595.5	1591.7	1584.3	1591.7	1576.9
45°	1514.0	1514.0	1510.3	1491.8	1495.5	1495.5	1480.7	1465.9	1469.6	1469.6
47.5°	1406.7	1399.3	1395.6	1377.1	1373.3	1369.7	1354.8	1343.7	1343.7	1332.6
50°	1288.2	1280.8	1269.7	1251.2	1243.8	1221.6	1210.5	1195.7	1180.9	1180.9
52.5°	1177.2	1151.2	1136.4	1106.8	1095.7	1084.6	1055.0	1043.9	1032.8	1021.7
55°	1043.9	1021.7	992.1	958.8	944.0	925.4	895.8	873.6	858.8	862.6
57.5°	914.4	877.4	847.8	803.3	784.8	773.6	744.0	714.4	699.6	699.6
60°	755.2	725.6	688.6	647.8	633.0	614.6	577.4	559.0	547.8	536.8
62.5°	603.4	581.2	547.8	496.0	485.0	466.4	440.6	418.4	407.2	407.2
65°	451.6	429.4	399.8	362.8	348.0	333.2	311.0	288.8	277.6	274.0
67.5°	318.4	292.4	266.6	237.0	225.8	218.4	196.2	181.4	174.0	170.2
70°	192.4	177.6	159.2	137.0	125.8	118.4	103.6	92.6	88.8	85.2
72.5°	100.0	88.8	74.0	59.2	51.8	44.4	37.0	29.6	26.0	26.0
75°	37.0	29.6	18.6	11.2	7.4	7.4	7.4	7.4	7.4	7.4
77.5°	7.4	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
80°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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)