

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: **FLDSQ4C100D010 FEU4C1009040 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: FLDSQ4C100D010 FEU4C1009040 F4LC-CSSQ-MW
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

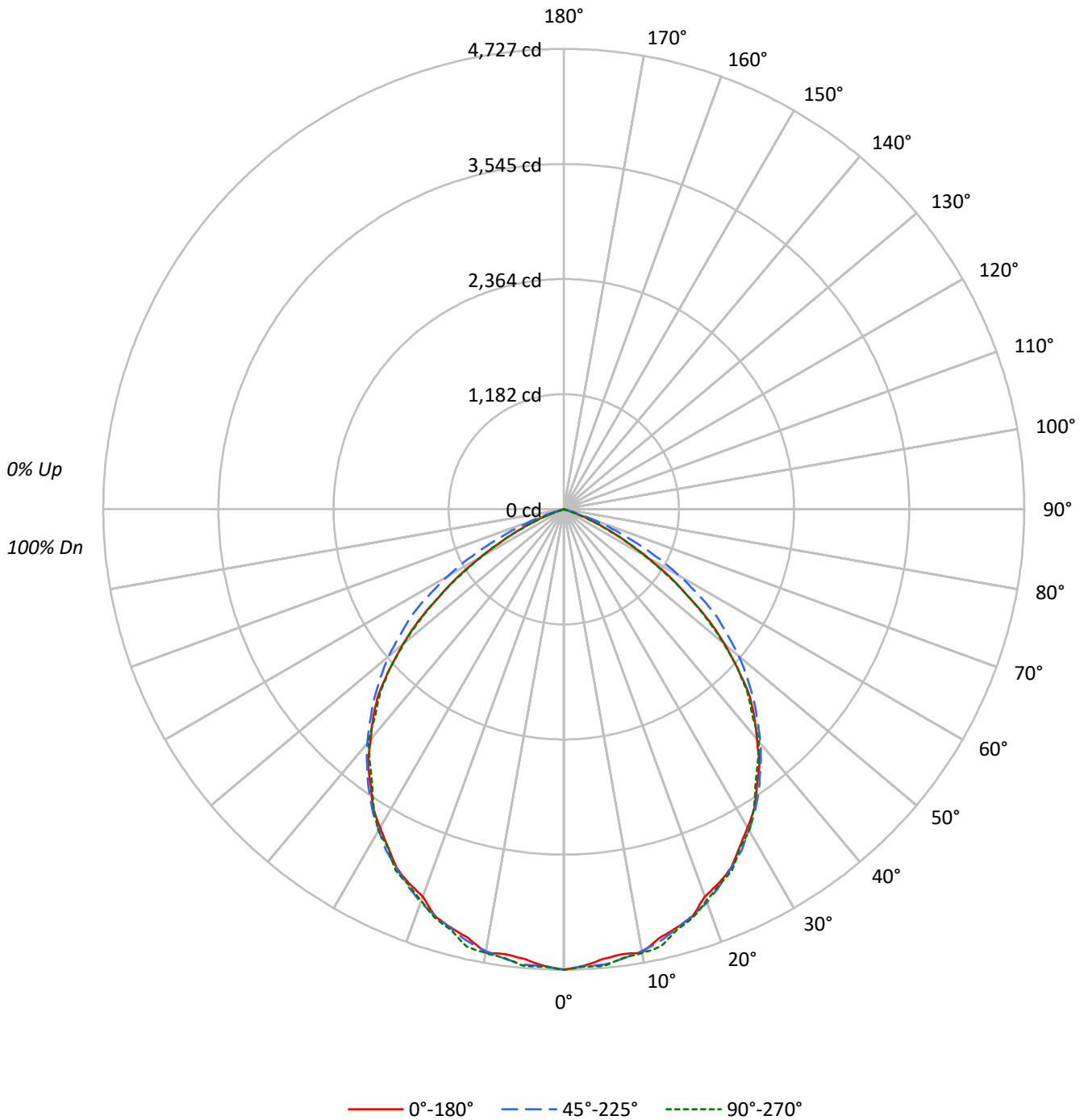
Lumens per Lamp: N/A
 Luminaire Lumens: 10098.0 lumens
 Efficiency: N/A
 Efficacy: 88.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 114.4
 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°	456122	456122	456122
5°	448760	454601	455898
10°	452636	451323	453283
15°	444712	445361	446710
20°	434363	441253	439199
25°	432488	432488	435341
30°	420427	423425	424182
35°	407310	411280	404153
40°	388213	395796	392420
45°	367408	375663	363737
50°	323562	351783	321551
55°	262041	321912	263202
60°	191762	266927	187902
65°	116531	190093	113471
70°	45449	102323	43587
75°	4996	27588	4996
80°	3778	3778	3778
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	446.2	4.4
10°-20°	1262.6	12.5
20°-30°	1873.5	18.6
30°-40°	2170.8	21.5
40°-50°	2081.3	20.6
50°-60°	1530.3	15.2
60°-70°	661.0	6.5
70°-80°	71.3	0.7
80°-90°	0.9	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°	3582.3	35.5
0°-40°	5753.1	57.0
0°-60°	9364.7	92.7
0°-90°	10098.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	10098.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4727	4727	4727	4727	4727	
5°	4633	4680	4694	4700	4707	442
15°	4452	4479	4458	4465	4472	1255
25°	4062	4056	4062	4069	4089	1860
35°	3458	3478	3492	3485	3431	2162
45°	2692	2699	2753	2713	2666	2047
55°	1558	1719	1914	1712	1565	1402
65°	510	638	833	631	497	525
75°	13	20	74	13	13	41
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°	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2
2.5°	4693.5	4747.2	4754.0	4720.3	4706.9	4686.9	4733.8	4700.3	4713.8	4700.3	4693.5
5°	4633.2	4693.5	4700.3	4700.3	4686.9	4680.1	4700.3	4693.5	4686.9	4673.5	4693.5
7.5°	4606.4	4639.8	4673.5	4633.2	4653.2	4646.6	4693.5	4673.5	4666.6	4666.6	4653.2
10°	4619.8	4612.9	4639.8	4599.5	4612.9	4599.5	4639.8	4639.8	4626.4	4612.9	4606.4
12.5°	4512.1	4565.8	4565.8	4559.3	4545.8	4525.6	4565.8	4592.9	4552.4	4552.4	4545.8
15°	4451.9	4465.3	4471.9	4471.9	4465.3	4478.7	4498.7	4471.9	4478.7	4445.0	4458.4
17.5°	4384.7	4357.9	4377.9	4364.5	4371.3	4384.7	4411.6	4411.6	4371.3	4364.5	4377.9
20°	4230.2	4310.8	4317.6	4277.3	4283.9	4283.9	4331.0	4290.8	4317.6	4283.9	4297.3
22.5°	4156.3	4210.0	4216.8	4163.1	4196.5	4156.3	4203.4	4142.8	4210.0	4163.1	4183.1
25°	4062.3	4055.7	4075.7	4048.9	4055.7	4055.7	4089.1	4062.3	4082.6	4055.7	4062.3
27.5°	3908.0	3961.7	3954.9	3928.0	3941.5	3934.9	4002.0	3928.0	3968.3	3934.9	3948.3
30°	3773.5	3820.7	3807.2	3780.4	3780.4	3760.1	3834.1	3813.8	3807.2	3807.2	3800.4
32.5°	3639.3	3646.1	3632.7	3639.3	3646.1	3619.3	3679.6	3652.7	3646.1	3652.7	3659.6
35°	3457.9	3457.9	3471.4	3451.4	3478.2	3478.2	3531.9	3498.2	3491.6	3471.4	3491.6
37.5°	3296.8	3276.8	3283.4	3283.4	3296.8	3310.3	3337.1	3323.7	3323.7	3303.7	3317.1
40°	3082.1	3068.6	3088.6	3088.6	3108.9	3108.9	3135.8	3122.3	3142.3	3142.3	3142.3
42.5°	2894.1	2894.1	2880.7	2900.7	2907.5	2900.7	2947.8	2941.0	2947.8	2934.4	2941.0
45°	2692.5	2692.5	2679.1	2672.5	2705.9	2699.3	2753.0	2732.8	2759.6	2746.2	2753.0
47.5°	2417.2	2450.9	2430.6	2450.9	2491.1	2498.0	2531.4	2518.0	2544.8	2524.8	2551.7
50°	2155.5	2155.5	2175.5	2202.4	2242.6	2249.5	2289.8	2316.6	2330.0	2336.6	2343.5
52.5°	1880.2	1873.3	1893.6	1927.0	1960.7	1987.6	2027.9	2068.1	2095.0	2135.2	2115.0
55°	1557.7	1571.2	1591.4	1631.7	1685.4	1718.8	1752.5	1806.2	1853.3	1873.3	1913.6
57.5°	1282.4	1269.0	1282.4	1336.1	1396.7	1423.5	1470.6	1524.3	1591.4	1631.7	1645.1
60°	993.7	1000.5	1013.9	1061.0	1107.9	1148.2	1168.4	1255.6	1316.1	1356.4	1383.2
62.5°	732.0	745.4	758.9	799.1	846.0	879.7	913.1	987.1	1040.8	1081.0	1107.9
65°	510.4	517.0	537.2	557.2	604.4	637.8	664.6	725.2	778.9	812.6	832.6
67.5°	315.6	322.2	335.6	362.7	396.1	423.0	449.8	490.1	537.2	570.7	577.5
70°	161.1	167.9	174.5	194.8	221.6	235.1	255.1	288.8	322.2	349.0	362.7
72.5°	53.7	53.7	60.5	74.0	87.4	100.8	107.4	141.1	167.9	181.4	187.9
75°	13.4	13.4	13.4	13.4	13.4	20.3	20.3	40.3	53.7	67.1	74.0
77.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	13.4	13.4
80°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
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°	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2	4727.2
2.5°	4727.2	4713.8	4706.9	4713.8	4713.8	4706.9	4727.2	4754.0	4787.5	4700.3
5°	4720.3	4706.9	4720.3	4680.1	4700.3	4686.9	4713.8	4706.9	4733.8	4706.9
7.5°	4700.3	4673.5	4680.1	4660.1	4686.9	4653.2	4673.5	4713.8	4686.9	4646.6
10°	4633.2	4619.8	4666.6	4599.5	4586.1	4612.9	4666.6	4626.4	4612.9	4626.4
12.5°	4565.8	4565.8	4586.1	4532.4	4539.0	4552.4	4579.3	4552.4	4565.8	4599.5
15°	4492.1	4478.7	4512.1	4471.9	4465.3	4451.9	4478.7	4478.7	4492.1	4471.9
17.5°	4404.7	4384.7	4384.7	4371.3	4364.5	4398.2	4411.6	4418.2	4425.0	4398.2
20°	4297.3	4290.8	4310.8	4290.8	4297.3	4304.2	4304.2	4290.8	4351.0	4277.3
22.5°	4183.1	4203.4	4176.5	4163.1	4176.5	4190.0	4190.0	4196.5	4183.1	4169.7
25°	4069.1	4082.6	4089.1	4048.9	4069.1	4048.9	4096.0	4102.6	4075.7	4089.1
27.5°	3968.3	3948.3	3941.5	3914.6	3928.0	3921.5	3928.0	3928.0	3968.3	3914.6
30°	3813.8	3793.8	3800.4	3780.4	3787.0	3780.4	3787.0	3787.0	3813.8	3807.2
32.5°	3666.1	3646.1	3652.7	3632.7	3632.7	3639.3	3625.9	3625.9	3646.1	3632.7
35°	3525.1	3478.2	3484.8	3478.2	3484.8	3457.9	3457.9	3451.4	3464.8	3431.1
37.5°	3323.7	3303.7	3296.8	3290.3	3296.8	3283.4	3296.8	3276.8	3296.8	3270.0
40°	3142.3	3128.9	3135.8	3095.5	3095.5	3102.1	3088.6	3082.1	3088.6	3115.5
42.5°	2961.2	2934.4	2921.0	2907.5	2914.1	2894.1	2887.3	2873.8	2887.3	2860.4
45°	2746.2	2746.2	2739.6	2705.9	2712.8	2712.8	2685.9	2659.1	2665.6	2665.6
47.5°	2551.7	2538.2	2531.4	2498.0	2491.1	2484.5	2457.4	2437.4	2437.4	2417.2
50°	2336.6	2323.2	2303.2	2269.5	2256.1	2215.8	2195.8	2168.9	2142.1	2142.1
52.5°	2135.2	2088.1	2061.3	2007.6	1987.6	1967.3	1913.6	1893.6	1873.3	1853.3
55°	1893.6	1853.3	1799.6	1739.1	1712.3	1678.6	1624.9	1584.6	1557.7	1564.6
57.5°	1658.6	1591.4	1537.7	1457.2	1423.5	1403.2	1349.5	1295.8	1269.0	1269.0
60°	1369.8	1316.1	1249.0	1175.0	1148.2	1114.7	1047.4	1013.9	993.7	973.7
62.5°	1094.5	1054.2	993.7	899.7	879.7	846.0	799.1	758.9	738.6	738.6
65°	819.1	778.9	725.2	658.1	631.2	604.4	564.1	523.8	503.5	497.0
67.5°	577.5	530.4	483.5	429.8	409.6	396.1	355.9	329.0	315.6	308.8
70°	349.0	322.2	288.8	248.5	228.2	214.8	187.9	167.9	161.1	154.5
72.5°	181.4	161.1	134.2	107.4	94.0	80.5	67.1	53.7	47.1	47.1
75°	67.1	53.7	33.7	20.3	13.4	13.4	13.4	13.4	13.4	13.4
77.5°	13.4	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
80°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
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)