

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 FEU4C1009030 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 FEU4C1009030 F4LC-CSSQ-MW
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

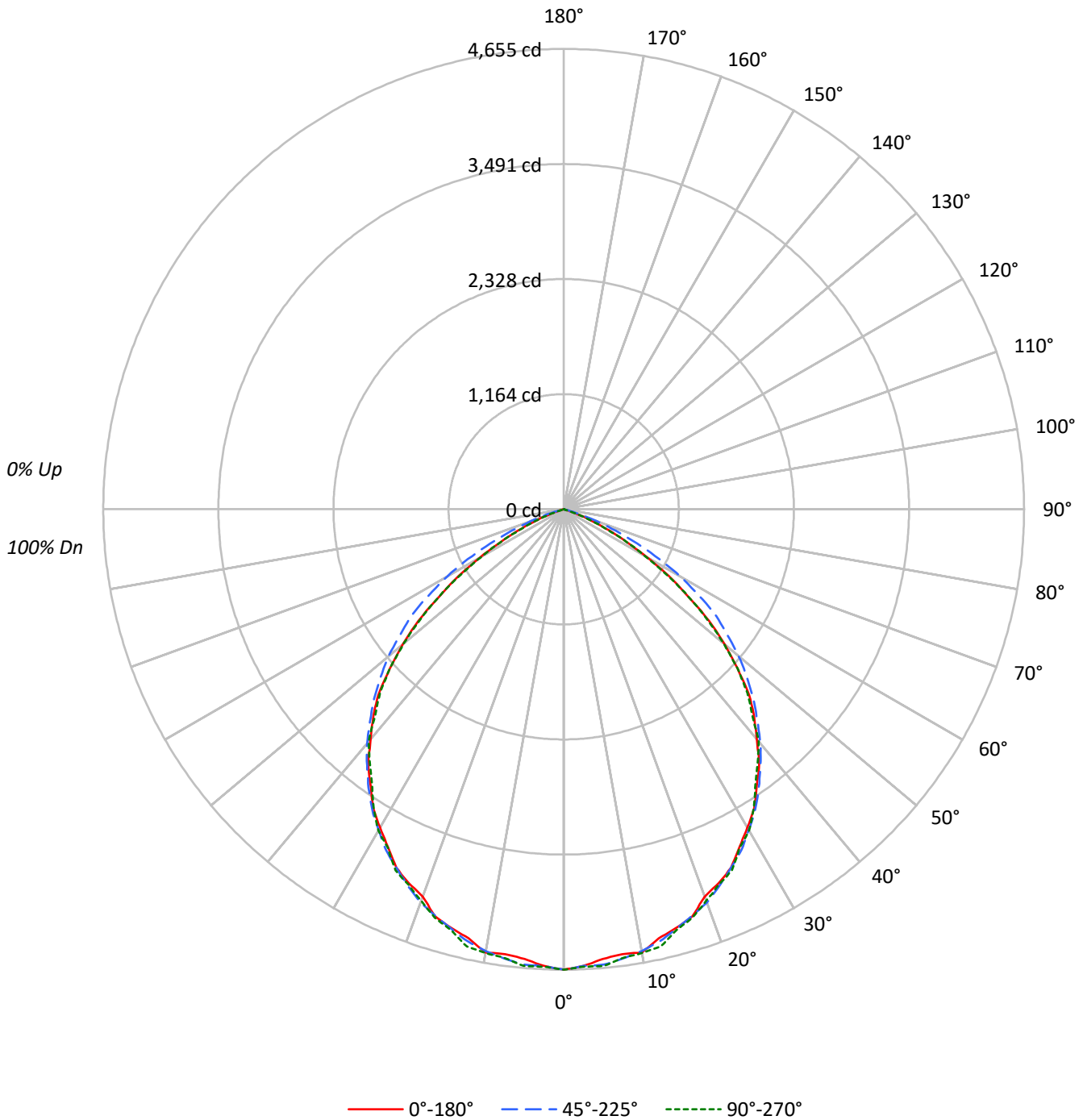
Lumens per Lamp: N/A
 Luminaire Lumens: 9943.0 lumens
 Efficiency: N/A
 Efficacy: 86.9 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	449117	449117	449117
5°	441873	447627	448905
10°	445689	444396	446326
15°	437879	438529	439847
20°	427699	434486	432463
25°	425844	425844	428666
30°	413976	416929	417675
35°	401067	404966	397946
40°	382243	389724	386399
45°	361772	369905	358156
50°	318594	346379	316612
55°	258021	316966	259165
60°	188809	262836	185008
65°	114750	187170	111713
70°	44743	100771	42910
75°	4921	27140	4921
80°	3723	3723	3723
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	439.4	4.4
10°-20°	1243.3	12.5
20°-30°	1844.7	18.6
30°-40°	2137.5	21.5
40°-50°	2049.4	20.6
50°-60°	1506.8	15.2
60°-70°	650.8	6.5
70°-80°	70.2	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°	3527.3	35.5
0°-40°	5664.8	57.0
0°-60°	9221.0	92.7
0°-90°	9943.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9943.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4655	4655	4655	4655	4655	
5°	4562	4608	4622	4628	4635	435
15°	4384	4410	4390	4397	4403	1235
25°	4000	3994	4000	4007	4026	1831
35°	3405	3425	3438	3431	3378	2129
45°	2651	2658	2711	2671	2625	2015
55°	1534	1692	1884	1686	1541	1380
65°	503	628	820	622	489	517
75°	13	20	73	13	13	41
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6
2.5°	4621.5	4674.3	4681.1	4647.9	4634.7	4615.0	4661.1	4628.2	4641.4	4628.2	4621.5
5°	4562.1	4621.5	4628.2	4628.2	4615.0	4608.2	4628.2	4621.5	4615.0	4601.8	4621.5
7.5°	4535.7	4568.6	4601.8	4562.1	4581.8	4575.3	4621.5	4601.8	4595.0	4595.0	4581.8
10°	4548.9	4542.1	4568.6	4528.9	4542.1	4528.9	4568.6	4568.6	4555.4	4542.1	4535.7
12.5°	4442.9	4495.7	4495.7	4489.3	4476.1	4456.1	4495.7	4522.4	4482.5	4482.5	4476.1
15°	4383.5	4396.7	4403.2	4403.2	4396.7	4410.0	4429.7	4403.2	4410.0	4376.8	4390.0
17.5°	4317.4	4291.0	4310.7	4297.5	4304.2	4317.4	4343.9	4343.9	4304.2	4297.5	4310.7
20°	4165.3	4244.6	4251.3	4211.7	4218.2	4218.2	4264.6	4224.9	4251.3	4218.2	4231.4
22.5°	4092.5	4145.3	4152.1	4099.2	4132.1	4092.5	4138.9	4079.2	4145.3	4099.2	4118.9
25°	3999.9	3993.5	4013.2	3986.7	3993.5	3993.5	4026.4	3999.9	4019.9	3993.5	3999.9
27.5°	3848.1	3900.9	3894.2	3867.8	3881.0	3874.5	3940.6	3867.8	3907.4	3874.5	3887.7
30°	3715.6	3762.0	3748.8	3722.4	3722.4	3702.4	3775.2	3755.3	3748.8	3748.8	3742.1
32.5°	3583.4	3590.2	3577.0	3583.4	3590.2	3563.7	3623.1	3596.7	3590.2	3596.7	3603.4
35°	3404.9	3404.9	3418.1	3398.4	3424.8	3424.8	3477.7	3444.5	3438.0	3418.1	3438.0
37.5°	3246.2	3226.5	3233.0	3233.0	3246.2	3259.5	3285.9	3272.7	3272.7	3253.0	3266.2
40°	3034.7	3021.5	3041.2	3041.2	3061.2	3061.2	3087.6	3074.4	3094.1	3094.1	3094.1
42.5°	2849.7	2849.7	2836.5	2856.2	2862.9	2856.2	2902.6	2895.8	2902.6	2889.3	2895.8
45°	2651.2	2651.2	2637.9	2631.5	2664.4	2657.9	2710.8	2690.8	2717.3	2704.0	2710.8
47.5°	2380.1	2413.2	2393.3	2413.2	2452.9	2459.6	2492.5	2479.3	2505.8	2486.1	2512.5
50°	2122.4	2122.4	2142.1	2168.6	2208.2	2215.0	2254.6	2281.0	2294.3	2300.7	2307.5
52.5°	1851.3	1844.6	1864.5	1897.5	1930.6	1957.1	1996.7	2036.4	2062.8	2102.5	2082.5
55°	1533.8	1547.0	1567.0	1606.7	1659.5	1692.4	1725.6	1778.5	1824.9	1844.6	1884.2
57.5°	1262.7	1249.5	1262.7	1315.6	1375.2	1401.6	1448.0	1500.9	1567.0	1606.7	1619.9
60°	978.4	985.1	998.4	1044.8	1090.9	1130.5	1150.5	1236.3	1295.9	1335.6	1362.0
62.5°	720.8	734.0	747.2	786.9	833.0	866.2	899.1	971.9	1024.8	1064.5	1090.9
65°	502.6	509.0	529.0	548.7	595.1	628.0	654.4	714.0	766.9	800.1	819.8
67.5°	310.8	317.2	330.5	357.2	390.1	416.5	442.9	482.6	529.0	561.9	568.6
70°	158.6	165.4	171.8	191.8	218.2	231.4	251.1	284.3	317.2	343.7	357.2
72.5°	52.9	52.9	59.6	72.8	86.0	99.3	105.7	138.9	165.4	178.6	185.1
75°	13.2	13.2	13.2	13.2	13.2	20.0	20.0	39.7	52.9	66.1	72.8
77.5°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	13.2	13.2
80°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
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°	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6	4654.6
2.5°	4654.6	4641.4	4634.7	4641.4	4641.4	4634.7	4654.6	4681.1	4714.0	4628.2
5°	4647.9	4634.7	4647.9	4608.2	4628.2	4615.0	4641.4	4634.7	4661.1	4634.7
7.5°	4628.2	4601.8	4608.2	4588.5	4615.0	4581.8	4601.8	4641.4	4615.0	4575.3
10°	4562.1	4548.9	4595.0	4528.9	4515.7	4542.1	4595.0	4555.4	4542.1	4555.4
12.5°	4495.7	4495.7	4515.7	4462.8	4469.3	4482.5	4509.0	4482.5	4495.7	4528.9
15°	4423.2	4410.0	4442.9	4403.2	4396.7	4383.5	4410.0	4410.0	4423.2	4403.2
17.5°	4337.1	4317.4	4317.4	4304.2	4297.5	4330.6	4343.9	4350.3	4357.1	4330.6
20°	4231.4	4224.9	4244.6	4224.9	4231.4	4238.1	4238.1	4224.9	4284.3	4211.7
22.5°	4118.9	4138.9	4112.4	4099.2	4112.4	4125.6	4125.6	4132.1	4118.9	4105.7
25°	4006.7	4019.9	4026.4	3986.7	4006.7	3986.7	4033.1	4039.6	4013.2	4026.4
27.5°	3907.4	3887.7	3881.0	3854.5	3867.8	3861.3	3867.8	3867.8	3907.4	3854.5
30°	3755.3	3735.6	3742.1	3722.4	3728.8	3722.4	3728.8	3728.8	3755.3	3748.8
32.5°	3609.9	3590.2	3596.7	3577.0	3577.0	3583.4	3570.2	3570.2	3590.2	3577.0
35°	3470.9	3424.8	3431.3	3424.8	3431.3	3404.9	3404.9	3398.4	3411.6	3378.4
37.5°	3272.7	3253.0	3246.2	3239.8	3246.2	3233.0	3246.2	3226.5	3246.2	3219.8
40°	3094.1	3080.9	3087.6	3048.0	3048.0	3054.4	3041.2	3034.7	3041.2	3067.7
42.5°	2915.8	2889.3	2876.1	2862.9	2869.4	2849.7	2843.0	2829.7	2843.0	2816.5
45°	2704.0	2704.0	2697.6	2664.4	2671.1	2671.1	2644.7	2618.2	2624.7	2624.7
47.5°	2512.5	2499.3	2492.5	2459.6	2452.9	2446.4	2419.7	2400.0	2400.0	2380.1
50°	2300.7	2287.5	2267.8	2234.7	2221.4	2181.8	2162.1	2135.6	2109.2	2109.2
52.5°	2102.5	2056.1	2029.6	1976.8	1957.1	1937.1	1884.2	1864.5	1844.6	1824.9
55°	1864.5	1824.9	1772.0	1712.4	1686.0	1652.8	1599.9	1560.3	1533.8	1540.6
57.5°	1633.1	1567.0	1514.1	1434.8	1401.6	1381.7	1328.8	1275.9	1249.5	1249.5
60°	1348.8	1295.9	1229.8	1157.0	1130.5	1097.6	1031.3	998.4	978.4	958.7
62.5°	1077.7	1038.0	978.4	885.9	866.2	833.0	786.9	747.2	727.3	727.3
65°	806.6	766.9	714.0	648.0	621.5	595.1	555.4	515.8	495.8	489.3
67.5°	568.6	522.2	476.1	423.2	403.3	390.1	350.4	324.0	310.8	304.0
70°	343.7	317.2	284.3	244.7	224.7	211.5	185.1	165.4	158.6	152.1
72.5°	178.6	158.6	132.2	105.7	92.5	79.3	66.1	52.9	46.4	46.4
75°	66.1	52.9	33.2	20.0	13.2	13.2	13.2	13.2	13.2	13.2
77.5°	13.2	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
80°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
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)