

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 FEU4C1009050 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 FEU4C1009050 F4LC-CSSQ-MW
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

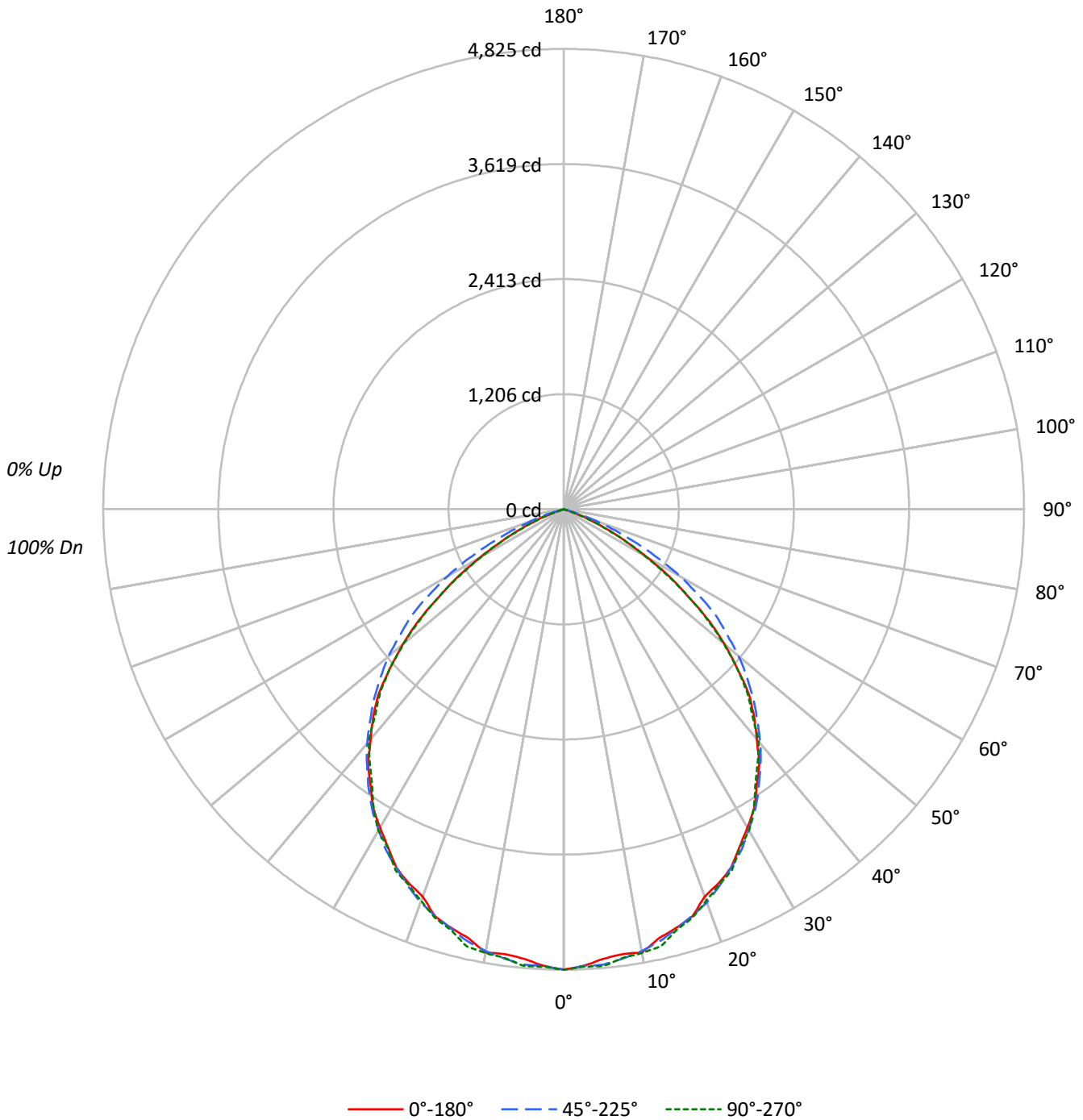
Lumens per Lamp: N/A
 Luminaire Lumens: 10306.0 lumens
 Efficiency: N/A
 Efficacy: 90.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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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CATALOG NUMBER: FLDSQ4C100D010 FEU4C1009050 F4LC-CSSQ-MW

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	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	465520	465520	465520
5°	458010	463967	465294
10°	461963	460621	462620
15°	453872	454542	455910
20°	443316	450350	448245
25°	441399	441399	444316
30°	429096	432148	432928
35°	415709	419749	412481
40°	396199	403958	400506
45°	374967	383400	371228
50°	330227	359018	328171
55°	267441	328540	268619
60°	195699	272427	191762
65°	118928	193997	115800
70°	46380	104439	44489
75°	5107	28147	5107
80°	3890	3890	3890
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	455.4	4.4
10°-20°	1288.7	12.5
20°-30°	1912.1	18.6
30°-40°	2215.5	21.5
40°-50°	2124.2	20.6
50°-60°	1561.8	15.2
60°-70°	674.6	6.5
70°-80°	72.8	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°	3656.1	35.5
0°-40°	5871.7	57.0
0°-60°	9557.6	92.7
0°-90°	10306.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	10306.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4825	4825	4825	4825	4825	
5°	4729	4776	4790	4797	4804	451
15°	4544	4571	4550	4557	4564	1281
25°	4146	4139	4146	4153	4173	1898
35°	3529	3550	3564	3557	3502	2207
45°	2748	2755	2810	2769	2720	2089
55°	1590	1754	1953	1748	1597	1431
65°	521	651	850	644	507	535
75°	14	21	76	14	14	42
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°	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6
2.5°	4790.2	4845.0	4852.0	4817.6	4803.9	4783.5	4831.3	4797.2	4810.9	4797.2	4790.2
5°	4728.7	4790.2	4797.2	4797.2	4783.5	4776.5	4797.2	4790.2	4783.5	4769.8	4790.2
7.5°	4701.3	4735.4	4769.8	4728.7	4749.1	4742.4	4790.2	4769.8	4762.8	4762.8	4749.1
10°	4715.0	4708.0	4735.4	4694.3	4708.0	4694.3	4735.4	4735.4	4721.7	4708.0	4701.3
12.5°	4605.1	4659.9	4659.9	4653.2	4639.5	4618.8	4659.9	4687.5	4646.2	4646.2	4639.5
15°	4543.6	4557.3	4564.0	4564.0	4557.3	4571.0	4591.4	4564.0	4571.0	4536.6	4550.3
17.5°	4475.1	4447.7	4468.1	4454.4	4461.4	4475.1	4502.5	4502.5	4461.4	4454.4	4468.1
20°	4317.4	4399.6	4406.5	4365.4	4372.2	4372.2	4420.2	4379.1	4406.5	4372.2	4385.9
22.5°	4241.9	4296.7	4303.7	4248.9	4283.0	4241.9	4290.0	4228.2	4296.7	4248.9	4269.3
25°	4146.0	4139.2	4159.7	4132.3	4139.2	4139.2	4173.4	4146.0	4166.7	4139.2	4146.0
27.5°	3988.5	4043.3	4036.4	4009.0	4022.7	4015.9	4084.4	4009.0	4050.1	4015.9	4029.6
30°	3851.3	3899.4	3885.7	3858.2	3858.2	3837.6	3913.1	3892.4	3885.7	3885.7	3878.7
32.5°	3714.3	3721.2	3707.5	3714.3	3721.2	3693.8	3755.4	3728.0	3721.2	3728.0	3734.9
35°	3529.2	3529.2	3542.9	3522.4	3549.8	3549.8	3604.6	3570.3	3563.5	3542.9	3563.5
37.5°	3364.8	3344.3	3351.1	3351.1	3364.8	3378.5	3405.9	3392.2	3392.2	3371.7	3385.4
40°	3145.5	3131.8	3152.3	3152.3	3172.9	3172.9	3200.3	3186.6	3207.1	3207.1	3207.1
42.5°	2953.7	2953.7	2940.0	2960.4	2967.4	2960.4	3008.5	3001.5	3008.5	2994.8	3001.5
45°	2747.9	2747.9	2734.2	2727.5	2761.6	2754.9	2809.7	2789.1	2816.5	2802.8	2809.7
47.5°	2466.9	2501.3	2480.6	2501.3	2542.4	2549.4	2583.5	2569.8	2597.2	2576.8	2604.2
50°	2199.9	2199.9	2220.3	2247.7	2288.8	2295.8	2336.9	2364.3	2378.0	2384.7	2391.7
52.5°	1918.9	1911.9	1932.6	1966.7	2001.1	2028.5	2069.6	2110.7	2138.1	2179.2	2158.5
55°	1589.8	1603.5	1624.2	1665.3	1720.1	1754.2	1788.6	1843.4	1891.5	1911.9	1953.0
57.5°	1308.8	1295.1	1308.8	1363.6	1425.4	1452.8	1500.9	1555.7	1624.2	1665.3	1679.0
60°	1014.1	1021.1	1034.8	1082.9	1130.7	1171.8	1192.5	1281.4	1343.2	1384.3	1411.7
62.5°	747.1	760.8	774.5	815.6	863.4	897.8	931.9	1007.4	1062.2	1103.3	1130.7
65°	520.9	527.6	548.3	568.7	616.8	650.9	678.3	740.1	794.9	829.3	849.7
67.5°	322.1	328.8	342.5	370.2	404.3	431.7	459.1	500.2	548.3	582.4	589.4
70°	164.4	171.4	178.1	198.8	226.2	239.9	260.3	294.7	328.8	356.2	370.2
72.5°	54.8	54.8	61.8	75.5	89.2	102.9	109.6	144.0	171.4	185.1	191.8
75°	13.7	13.7	13.7	13.7	13.7	20.7	20.7	41.1	54.8	68.5	75.5
77.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	13.7	13.7
80°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
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°	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6	4824.6
2.5°	4824.6	4810.9	4803.9	4810.9	4810.9	4803.9	4824.6	4852.0	4886.1	4797.2
5°	4817.6	4803.9	4817.6	4776.5	4797.2	4783.5	4810.9	4803.9	4831.3	4803.9
7.5°	4797.2	4769.8	4776.5	4756.1	4783.5	4749.1	4769.8	4810.9	4783.5	4742.4
10°	4728.7	4715.0	4762.8	4694.3	4680.6	4708.0	4762.8	4721.7	4708.0	4721.7
12.5°	4659.9	4659.9	4680.6	4625.8	4632.5	4646.2	4673.6	4646.2	4659.9	4694.3
15°	4584.7	4571.0	4605.1	4564.0	4557.3	4543.6	4571.0	4571.0	4584.7	4564.0
17.5°	4495.5	4475.1	4475.1	4461.4	4454.4	4488.8	4502.5	4509.2	4516.2	4488.8
20°	4385.9	4379.1	4399.6	4379.1	4385.9	4392.8	4392.8	4379.1	4440.7	4365.4
22.5°	4269.3	4290.0	4262.6	4248.9	4262.6	4276.3	4276.3	4283.0	4269.3	4255.6
25°	4153.0	4166.7	4173.4	4132.3	4153.0	4132.3	4180.4	4187.1	4159.7	4173.4
27.5°	4050.1	4029.6	4022.7	3995.3	4009.0	4002.2	4009.0	4009.0	4050.1	3995.3
30°	3892.4	3871.9	3878.7	3858.2	3865.0	3858.2	3865.0	3865.0	3892.4	3885.7
32.5°	3741.7	3721.2	3728.0	3707.5	3707.5	3714.3	3700.6	3700.6	3721.2	3707.5
35°	3597.7	3549.8	3556.6	3549.8	3556.6	3529.2	3529.2	3522.4	3536.1	3501.8
37.5°	3392.2	3371.7	3364.8	3358.0	3364.8	3351.1	3364.8	3344.3	3364.8	3337.4
40°	3207.1	3193.4	3200.3	3159.2	3159.2	3166.0	3152.3	3145.5	3152.3	3179.7
42.5°	3022.2	2994.8	2981.1	2967.4	2974.1	2953.7	2946.7	2933.0	2946.7	2919.3
45°	2802.8	2802.8	2796.0	2761.6	2768.6	2768.6	2741.2	2713.8	2720.5	2720.5
47.5°	2604.2	2590.5	2583.5	2549.4	2542.4	2535.7	2508.0	2487.6	2487.6	2466.9
50°	2384.7	2371.0	2350.6	2316.2	2302.5	2261.4	2241.0	2213.6	2186.2	2186.2
52.5°	2179.2	2131.1	2103.7	2048.9	2028.5	2007.8	1953.0	1932.6	1911.9	1891.5
55°	1932.6	1891.5	1836.7	1774.9	1747.5	1713.1	1658.3	1617.2	1589.8	1596.8
57.5°	1692.7	1624.2	1569.4	1487.2	1452.8	1432.1	1377.3	1322.5	1295.1	1295.1
60°	1398.0	1343.2	1274.7	1199.2	1171.8	1137.7	1068.9	1034.8	1014.1	993.7
62.5°	1117.0	1075.9	1014.1	918.2	897.8	863.4	815.6	774.5	753.8	753.8
65°	836.0	794.9	740.1	671.6	644.2	616.8	575.7	534.6	513.9	507.2
67.5°	589.4	541.3	493.5	438.7	418.0	404.3	363.2	335.8	322.1	315.1
70°	356.2	328.8	294.7	253.6	232.9	219.2	191.8	171.4	164.4	157.7
72.5°	185.1	164.4	137.0	109.6	95.9	82.2	68.5	54.8	48.1	48.1
75°	68.5	54.8	34.4	20.7	13.7	13.7	13.7	13.7	13.7	13.7
77.5°	13.7	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
80°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
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)