

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: **FLDSQ4C40D010 FEU4C409050 F4LC-SQ-LI**

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: FLDSQ4C40D010 FEU4C409050 F4LC-SQ-LI
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

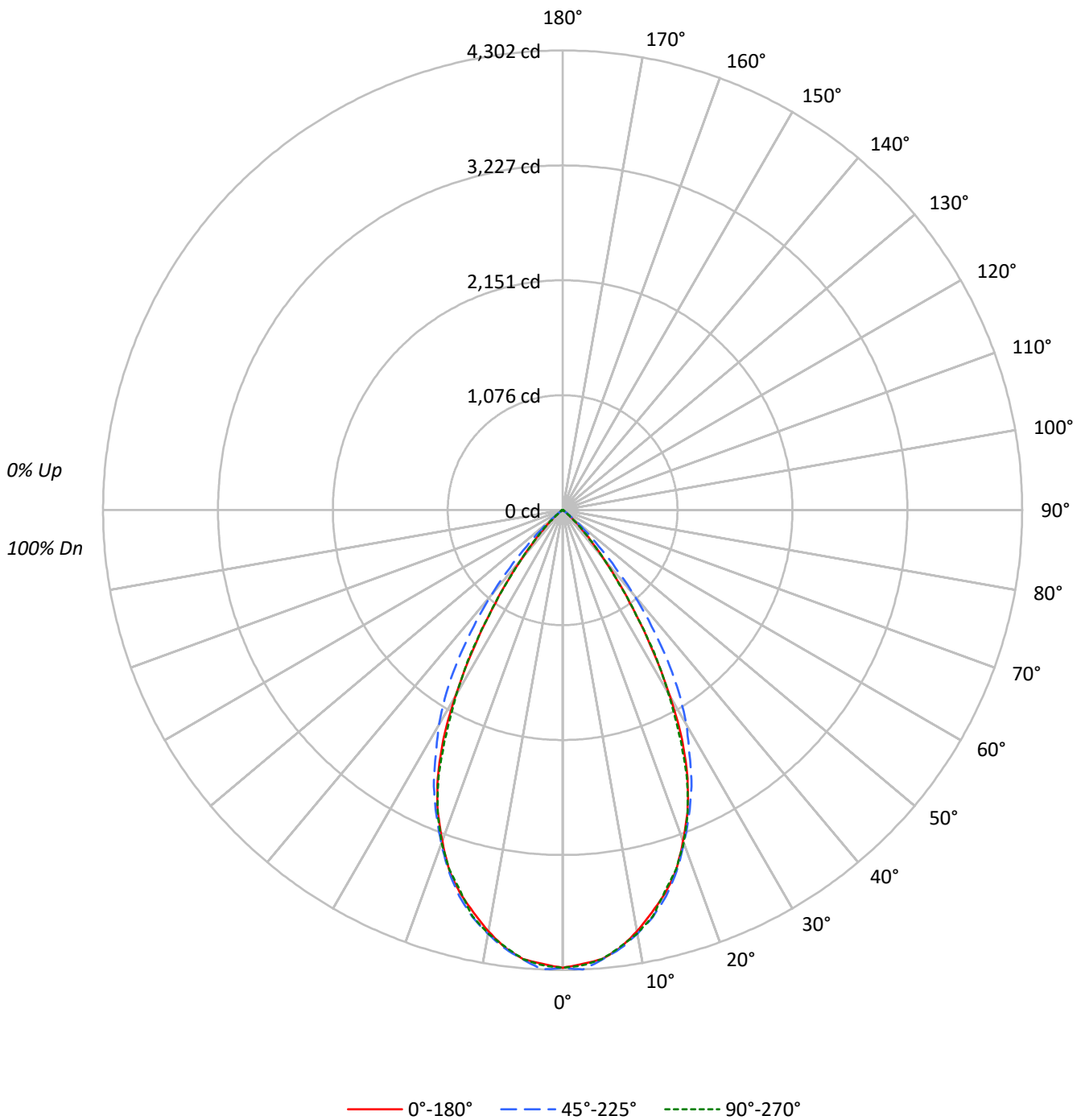
Lumens per Lamp: N/A
 Luminaire Lumens: 3954.0 lumens
 Efficiency: N/A
 Efficacy: 84.1 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 47
 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	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	113	111	108	106	111	108	106	104	104	103	101		101	99	98		97	96	95	93
2	108	103	99	95	105	101	97	94	98	95	92		95	92	90		92	90	88	87
3	102	96	91	87	100	94	90	86	92	88	84		89	86	83		87	84	82	80
4	97	89	84	79	95	88	83	79	86	81	78		84	80	77		82	79	76	75
5	92	83	77	73	90	82	77	73	81	76	72		79	75	71		77	74	71	69
6	87	78	72	68	86	77	71	67	76	71	67		74	70	66		73	69	66	64
7	83	73	67	63	81	73	67	63	71	66	62		70	65	62		69	65	62	60
8	79	69	63	59	77	68	62	58	67	62	58		66	61	58		65	61	58	56
9	75	65	59	55	74	64	59	55	63	58	55		63	58	54		62	57	54	53
10	71	61	55	51	70	61	55	51	60	55	51		59	54	51		58	54	51	50

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	413243	413243	413243
5°	408496	409019	408496
10°	392155	394565	394026
15°	370742	373459	368834
20°	338345	340861	340019
25°	294617	303879	292584
30°	224035	257682	220704
35°	141020	200316	142304
40°	76078	132293	74718
45°	36011	65349	35642
50°	13480	24498	13480
55°	6409	7789	5955
60°	4207	3686	4207
65°	2489	2489	2489
70°	1523	2313	1523
75°	1044	1044	1044
80°	1556	1556	1556
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	397.1	10.0
10°-20°	1040.7	26.3
20°-30°	1271.3	32.2
30°-40°	889.2	22.5
40°-50°	291.4	7.4
50°-60°	46.3	1.2
60°-70°	12.6	0.3
70°-80°	4.2	0.1
80°-90°	1.2	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°	2709.0	68.5
0°-40°	3598.2	91.0
0°-60°	3935.9	99.5
0°-90°	3954.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3954.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4283	4283	4283	4283	4283	
5°	4218	4219	4223	4197	4218	396
15°	3711	3726	3739	3714	3692	1035
25°	2767	2809	2854	2803	2748	1243
35°	1197	1414	1701	1392	1208	764
45°	264	325	479	321	261	221
55°	38	41	46	41	35	38
65°	11	14	11	14	11	12
75°	3	3	3	3	3	4
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°	25°	30°	35°	40°	45°	50°
0°	4282.8	4282.8	4282.8	4282.8	4282.8	4282.8	4282.8	4282.8	4282.8	4282.8	4282.8
2.5°	4250.2	4280.1	4271.9	4291.0	4291.0	4269.2	4274.7	4282.8	4293.7	4301.9	4236.5
5°	4217.5	4244.7	4220.2	4247.4	4231.1	4206.6	4247.4	4225.6	4239.3	4222.9	4233.8
7.5°	4130.5	4174.0	4125.0	4157.7	4146.8	4133.1	4149.4	4144.0	4152.2	4138.6	4108.7
10°	4002.5	4038.0	4005.3	4051.5	4029.7	4016.2	4029.7	4043.4	4040.6	4027.1	4043.4
12.5°	3855.6	3896.4	3880.1	3907.3	3882.8	3882.8	3915.5	3907.3	3910.0	3899.2	3918.2
15°	3711.4	3741.4	3716.8	3752.3	3741.4	3711.4	3725.0	3725.0	3746.8	3738.6	3716.8
17.5°	3531.9	3556.3	3529.1	3537.3	3526.4	3521.0	3578.0	3540.0	3561.7	3545.4	3548.2
20°	3295.1	3306.0	3297.8	3319.6	3306.0	3322.3	3316.9	3311.4	3311.4	3319.6	3300.6
22.5°	3055.6	3055.6	3063.8	3069.3	3080.2	3063.8	3096.5	3069.3	3071.9	3091.0	3085.6
25°	2767.3	2759.0	2778.1	2805.3	2816.2	2802.6	2846.1	2824.3	2840.7	2854.3	2824.3
27.5°	2416.3	2416.3	2435.3	2481.6	2489.7	2506.0	2565.8	2565.8	2587.6	2568.6	2590.4
30°	2010.8	2040.7	2065.2	2125.0	2144.1	2179.5	2242.1	2272.0	2321.0	2312.8	2301.9
32.5°	1594.5	1635.3	1638.0	1700.6	1752.3	1812.1	1896.5	1967.2	2002.7	2027.1	1999.9
35°	1197.2	1221.7	1243.5	1287.0	1374.1	1453.0	1529.2	1621.7	1684.3	1700.6	1676.1
37.5°	876.2	881.6	903.4	944.1	1009.4	1085.7	1178.2	1278.8	1344.2	1368.6	1341.4
40°	604.0	609.5	620.4	655.8	710.2	764.6	838.1	941.5	1001.3	1050.3	1014.9
42.5°	405.4	410.8	421.7	448.9	478.9	530.5	587.7	653.0	710.2	732.0	712.9
45°	263.9	263.9	269.4	288.5	304.8	345.5	386.4	427.2	465.2	478.9	465.2
47.5°	155.1	157.8	163.2	176.9	195.9	212.2	242.2	269.4	280.3	291.1	285.7
50°	89.8	89.8	97.9	106.1	119.7	130.6	141.5	152.3	157.8	163.2	157.8
52.5°	49.0	51.7	54.4	57.2	62.6	73.5	81.6	81.6	84.4	87.1	84.4
55°	38.1	38.1	38.1	38.1	40.9	40.9	40.9	43.5	43.5	46.3	43.5
57.5°	27.2	27.2	27.2	30.0	30.0	30.0	27.2	27.2	27.2	27.2	27.2
60°	21.8	21.8	21.8	21.8	21.8	21.8	21.8	19.1	19.1	19.1	19.1
62.5°	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
65°	10.9	10.9	13.7	13.7	13.7	13.7	13.7	10.9	10.9	10.9	10.9
67.5°	8.2	8.2	8.2	8.2	10.9	10.9	8.2	8.2	8.2	8.2	8.2
70°	5.4	5.4	5.4	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
72.5°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
75°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
77.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
80°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	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°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	4282.8	4282.8	4282.8	4282.8	4282.8	4282.8	4282.8	4282.8
2.5°	4282.8	4236.5	4241.9	4266.5	4252.8	4266.5	4263.8	4263.8
5°	4236.5	4222.9	4201.2	4193.0	4209.3	4244.7	4239.3	4217.5
7.5°	4149.4	4114.1	4138.6	4149.4	4135.9	4157.7	4168.5	4122.2
10°	4046.1	4032.5	4027.1	4032.5	4027.1	4048.8	4021.6	4021.6
12.5°	3899.2	3877.4	3877.4	3910.0	3891.0	3874.6	3896.4	3893.7
15°	3752.3	3708.6	3708.6	3719.5	3727.7	3716.8	3719.5	3692.3
17.5°	3534.5	3521.0	3501.9	3531.9	3540.0	3529.1	3537.3	3523.6
20°	3330.4	3330.4	3295.1	3308.7	3319.6	3327.8	3333.2	3311.4
22.5°	3069.3	3074.7	3050.2	3077.4	3085.6	3058.4	3063.8	3058.4
25°	2829.8	2827.1	2808.0	2797.1	2802.6	2791.7	2789.0	2748.2
27.5°	2565.8	2538.6	2497.9	2508.8	2462.5	2424.4	2424.4	2361.8
30°	2280.1	2233.9	2179.5	2125.0	2084.3	2040.7	2016.2	1980.9
32.5°	1945.5	1883.0	1814.9	1741.4	1695.2	1629.9	1594.5	1613.6
35°	1613.6	1521.0	1428.5	1355.1	1284.3	1246.2	1202.6	1208.1
37.5°	1292.5	1161.9	1080.3	1001.3	941.5	892.5	873.4	868.0
40°	944.1	840.8	759.2	702.0	661.2	623.1	601.4	593.2
42.5°	653.0	579.6	514.2	468.0	440.8	416.3	405.4	402.7
45°	424.5	381.0	337.4	304.8	283.0	266.7	263.9	261.2
47.5°	266.7	244.8	217.6	193.2	174.1	163.2	155.1	155.1
50°	152.3	144.2	130.6	117.0	106.1	100.7	92.5	89.8
52.5°	81.6	81.6	76.2	65.3	57.2	51.7	51.7	49.0
55°	43.5	43.5	40.9	40.9	38.1	38.1	38.1	35.4
57.5°	27.2	27.2	30.0	30.0	27.2	27.2	27.2	27.2
60°	19.1	21.8	21.8	21.8	21.8	21.8	21.8	21.8
62.5°	16.3	16.3	16.3	16.3	16.3	16.3	16.3	16.3
65°	10.9	13.7	13.7	13.7	13.7	10.9	10.9	10.9
67.5°	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
70°	8.2	8.2	8.2	8.2	8.2	5.4	5.4	5.4
72.5°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
75°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
77.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
80°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
82.5°	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
87.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)