

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 FEU4C409027 F4LC-SQ-WLI**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.



**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 FEU4C409027 F4LC-SQ-WLI  
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQW TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

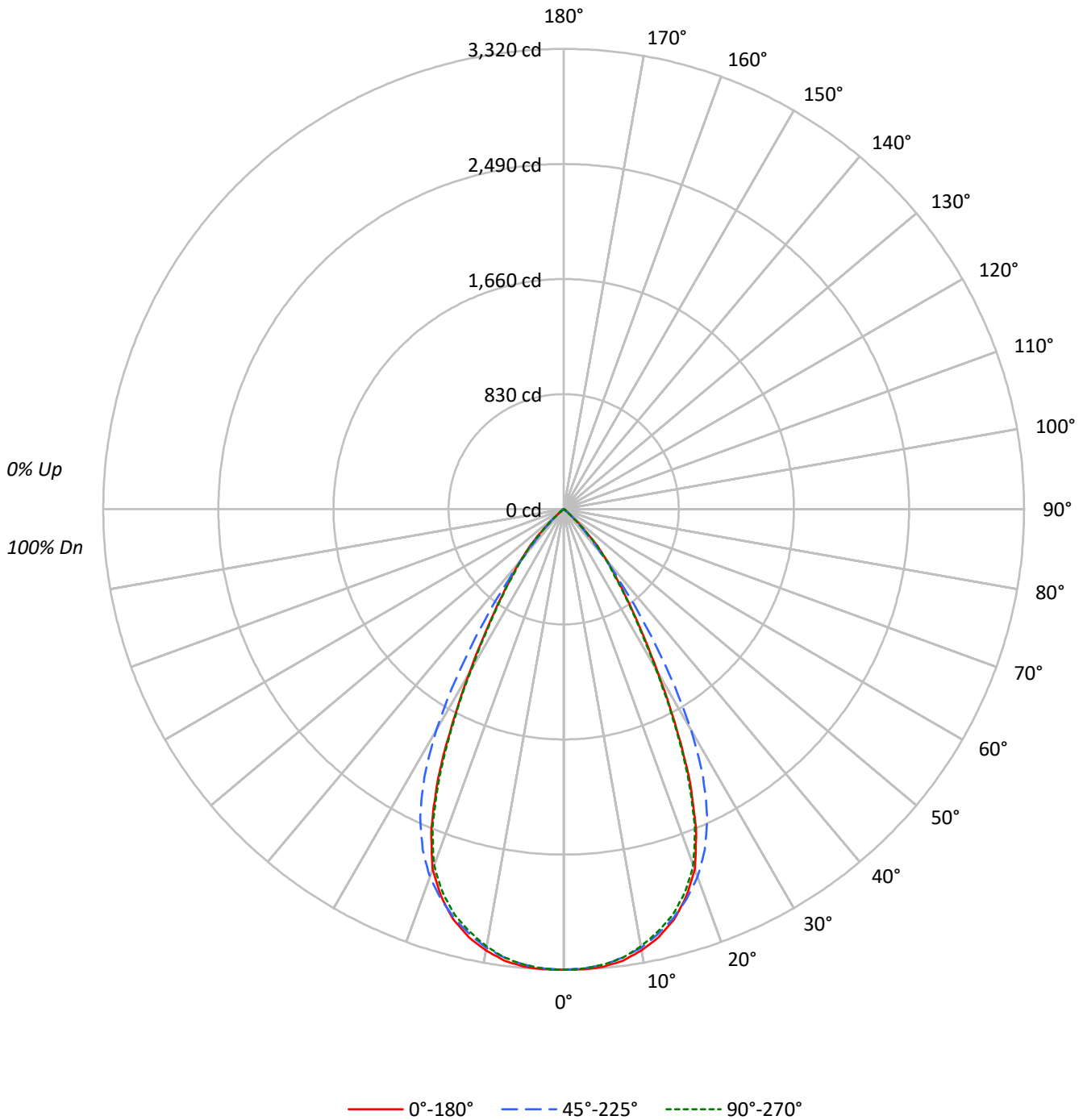
Lumens per Lamp: N/A  
 Luminaire Lumens: 2972.0 lumens  
 Efficiency: N/A  
 Efficacy: 63.2 lumens/watt  
 Spacing Criteria (0/90/45): 0.91 / 0.91 / 0.9  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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

TEST NUMBER: P#  
CATALOG NUMBER: FLDSQ4C40D010 FEU4C409027 F4LC-SQ-WLI

### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C40D010 FEU4C409027 F4LC-SQ-WLI

**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	100	100	
1	114	111	108	106	111	109	106	104	105	103	101	101	100	98	97	96	95	94	94	94	94	
2	108	103	99	96	106	102	98	95	98	95	93	95	93	91	93	91	89	87	87	87	87	
3	103	96	91	88	101	95	90	87	92	89	85	90	87	84	88	85	83	81	81	81	81	
4	98	90	85	80	96	89	84	80	87	82	79	85	81	78	83	80	77	76	76	76	76	
5	93	84	79	74	91	84	78	74	82	77	73	80	76	73	79	75	72	71	71	71	71	
6	88	79	73	69	87	79	73	69	77	72	68	76	71	68	74	71	68	66	66	66	66	
7	84	75	69	65	82	74	68	64	73	68	64	71	67	64	70	66	63	62	62	62	62	
8	80	70	64	60	79	70	64	60	69	64	60	68	63	60	67	63	59	58	58	58	58	
9	76	66	61	57	75	66	60	57	65	60	56	64	60	56	63	59	56	55	55	55	55	
10	72	63	57	53	71	62	57	53	62	57	53	61	56	53	60	56	53	52	52	52	52	

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	320324	320324	320324
5°	320656	319184	319184
10°	316447	314576	313606
15°	306181	304733	302675
20°	283555	289746	280423
25°	227992	260634	224990
30°	150478	204359	146913
35°	94056	122715	92348
40°	61379	56870	58986
45°	29556	22693	27892
50°	7445	9037	6980
55°	4105	3718	3970
60°	2798	2354	2644
65°	1918	1735	1918
70°	1495	1298	1495
75°	1156	1156	1156
80°	833	1278	1278
85°	886	1661	1661

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C40D010 FEU4C409027 F4LC-SQ-WLI

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	312.2	10.5
10°-20°	852.6	28.7
20°-30°	1016.1	34.2
30°-40°	575.3	19.4
40°-50°	177.9	6.0
50°-60°	24.7	0.8
60°-70°	8.4	0.3
70°-80°	3.4	0.1
80°-90°	1.4	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°	2180.9	73.4
0°-40°	2756.2	92.7
0°-60°	2958.8	99.6
0°-90°	2972.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2972.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3320	3320	3320	3320	3320	
5°	3311	3303	3295	3293	3295	313
15°	3065	3060	3051	3038	3030	855
25°	2142	2267	2448	2270	2113	955
35°	798	871	1042	873	784	520
45°	217	252	166	246	204	179
55°	24	24	22	24	24	24
65°	8	8	8	8	8	9
75°	3	3	3	3	3	3
85°	1	2	2	2	2	1
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C40D010 FEU4C409027 F4LC-SQ-WLI

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3319.8	3319.8	3319.8	3319.8	3319.8
2.5°	3320.5	3315.2	3313.7	3312.2	3315.2
5°	3310.6	3303.0	3295.4	3293.1	3295.4
7.5°	3282.4	3274.8	3261.8	3258.8	3261.1
10°	3229.8	3222.9	3210.7	3203.9	3200.8
12.5°	3160.4	3148.9	3137.5	3129.9	3122.3
15°	3065.1	3059.7	3050.6	3038.4	3030.0
17.5°	2933.1	2940.7	2946.1	2921.7	2899.6
20°	2761.5	2789.7	2821.8	2772.2	2731.0
22.5°	2493.8	2574.7	2656.3	2562.5	2471.0
25°	2141.5	2266.6	2448.1	2270.4	2113.3
27.5°	1730.4	1889.1	2175.1	1889.8	1707.6
30°	1350.6	1513.8	1834.2	1492.5	1318.6
32.5°	1037.2	1159.2	1433.0	1140.9	1015.1
35°	798.5	870.9	1041.8	873.2	784.0
37.5°	620.8	657.4	700.9	644.4	602.5
40°	487.3	488.9	451.5	481.2	468.3
42.5°	361.5	360.0	277.6	350.8	353.1
45°	216.6	252.4	166.3	245.6	204.4
47.5°	103.0	142.6	99.9	135.0	95.3
50°	49.6	68.6	60.2	64.1	46.5
52.5°	33.6	35.1	34.3	33.6	32.0
55°	24.4	24.4	22.1	23.6	23.6
57.5°	18.3	18.3	16.0	17.5	17.5
60°	14.5	13.7	12.2	13.7	13.7
62.5°	10.7	10.7	9.2	10.7	10.7
65°	8.4	8.4	7.6	8.4	8.4
67.5°	6.9	6.9	5.3	6.9	6.1
70°	5.3	5.3	4.6	5.3	5.3
72.5°	3.8	3.8	3.8	3.8	3.8
75°	3.1	3.1	3.1	3.1	3.1
77.5°	2.3	2.3	2.3	2.3	2.3
80°	1.5	1.5	2.3	2.3	2.3
82.5°	1.5	1.5	1.5	1.5	1.5
85°	0.8	1.5	1.5	1.5	1.5
87.5°	0.8	0.8	1.5	1.5	1.5
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)