

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: **FLDSQ4C45D010 FEU4C459027 F4LC-SQ-WH**

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: FLDSQ4C45D010 FEU4C459027 F4LC-SQ-WH  
 Description: 4 INCH 4500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

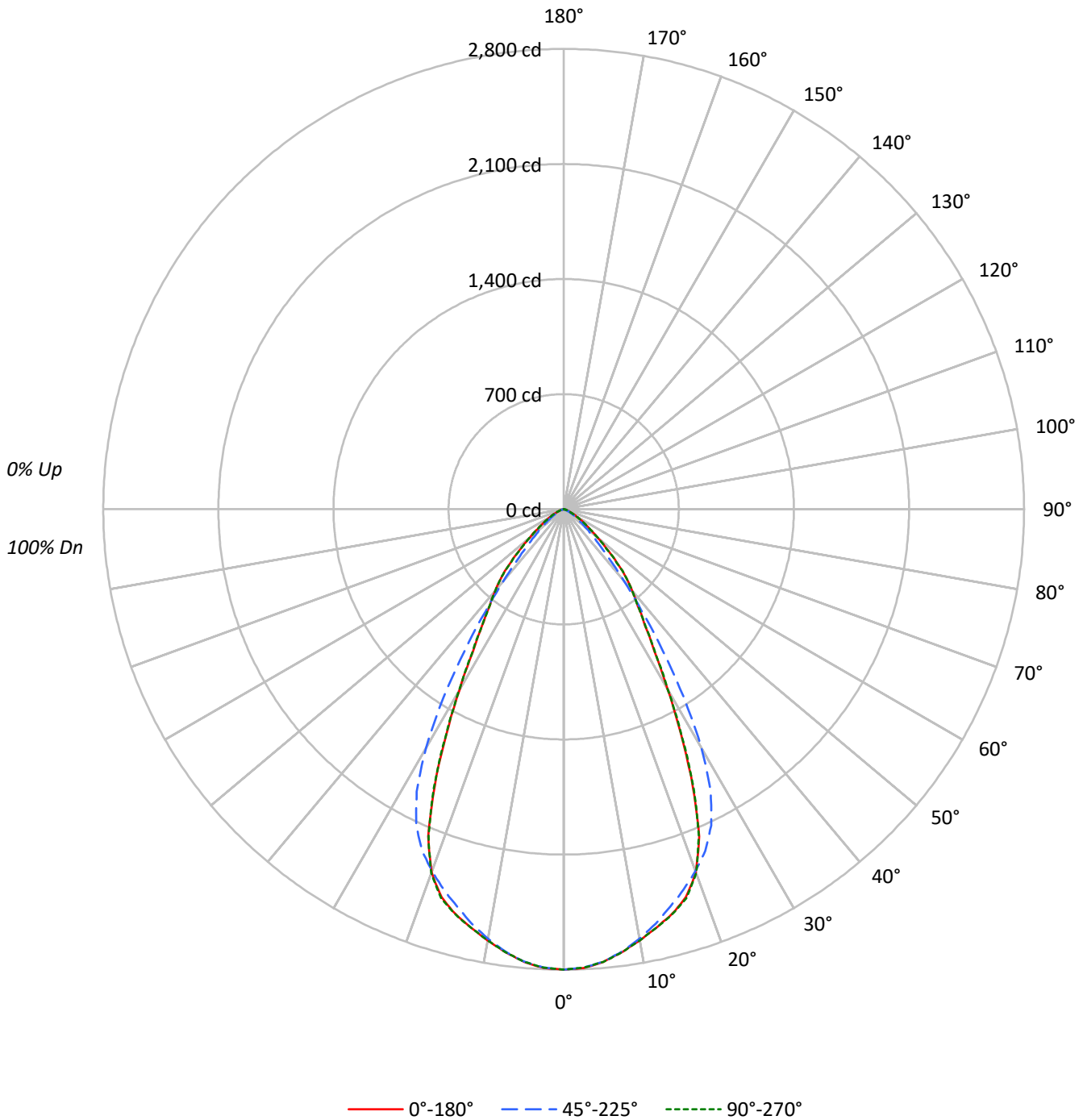
Lumens per Lamp: N/A  
 Luminaire Lumens: 2963.0 lumens  
 Efficiency: N/A  
 Efficacy: 59.7 lumens/watt  
 Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 49.6  
 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	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94	92				92
2	107	101	97	93	104	99	95	92	96	93	90	93	90	88	90	88	86	84				84
3	101	93	88	84	98	92	87	83	89	85	82	87	83	80	85	82	79	77				77
4	95	87	80	76	93	85	80	75	83	78	74	81	77	74	79	76	73	71				71
5	89	80	74	69	88	79	73	69	78	72	68	76	71	68	74	70	67	66				66
6	85	75	68	64	83	74	68	63	72	67	63	71	66	63	70	65	62	61				61
7	80	70	63	59	79	69	63	59	68	62	58	67	62	58	65	61	58	56				56
8	76	65	59	55	74	65	59	54	64	58	54	63	58	54	62	57	54	52				52
9	72	61	55	51	71	61	55	51	60	54	51	59	54	50	58	54	50	49				49
10	68	58	52	48	67	57	51	47	57	51	47	56	51	47	55	50	47	46				46

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

	0°	45°	90°
0°	270121	270121	270121
5°	267646	267472	267559
10°	260796	259758	260796
15°	254516	249931	254776
20°	241311	240408	241763
25°	197948	225863	198981
30°	141153	186588	141342
35°	101807	123645	102113
40°	81620	71833	81620
45°	62278	41919	61801
50°	41085	26765	40950
55°	27622	17966	27319
60°	18564	12273	18738
65°	12694	8676	12489
70°	8463	6235	8463
75°	5592	4623	5592
80°	3945	3445	3945
85°	2878	2878	2878

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	260.2	8.8
10°-20°	709.6	23.9
20°-30°	887.1	29.9
30°-40°	596.8	20.1
40°-50°	315.1	10.6
50°-60°	128.1	4.3
60°-70°	47.5	1.6
70°-80°	15.3	0.5
80°-90°	3.3	0.1
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°	1856.9	62.7
0°-40°	2453.7	82.8
0°-60°	2896.9	97.8
0°-90°	2963.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2963.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2800	2800	2800	2800	2800	
5°	2763	2761	2762	2762	2762	260
15°	2548	2527	2502	2526	2550	714
25°	1859	1963	2122	1967	1869	837
35°	864	908	1050	909	867	556
45°	456	434	307	432	453	350
55°	164	138	107	138	162	152
65°	56	45	38	45	55	57
75°	15	13	12	13	15	17
85°	3	3	3	3	3	3
90°	0	0	0	0	0	

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2799.5	2799.5	2799.5	2799.5	2799.5
2.5°	2792.4	2790.6	2789.8	2789.8	2790.6
5°	2763.3	2760.6	2761.5	2761.5	2762.4
7.5°	2716.5	2715.6	2713.0	2716.5	2716.5
10°	2661.8	2657.3	2651.2	2658.2	2661.8
12.5°	2605.3	2592.0	2581.4	2592.0	2605.3
15°	2547.9	2526.7	2502.0	2525.8	2550.5
17.5°	2472.8	2451.6	2424.3	2456.1	2479.9
20°	2350.1	2351.9	2341.3	2350.1	2354.5
22.5°	2153.2	2193.0	2248.6	2193.9	2147.1
25°	1859.3	1963.4	2121.5	1967.0	1869.0
27.5°	1544.1	1676.5	1935.2	1684.5	1553.8
30°	1266.9	1384.3	1674.7	1392.2	1268.6
32.5°	1025.9	1113.3	1361.3	1123.9	1037.3
35°	864.3	907.6	1049.7	909.3	866.9
37.5°	740.7	740.7	779.5	744.2	737.2
40°	648.0	619.8	570.3	618.9	648.0
42.5°	561.5	519.1	414.1	517.3	563.3
45°	456.4	433.5	307.2	431.7	452.9
47.5°	350.5	334.6	231.3	332.8	353.1
50°	273.7	249.0	178.3	247.2	272.8
52.5°	210.1	183.6	137.7	183.6	208.3
55°	164.2	137.7	106.8	137.7	162.4
57.5°	126.2	105.1	81.2	103.3	125.4
60°	96.2	78.6	63.6	78.6	97.1
62.5°	73.3	60.0	48.6	59.2	72.4
65°	55.6	45.0	38.0	45.0	54.7
67.5°	40.6	33.5	29.1	33.5	41.5
70°	30.0	25.6	22.1	24.7	30.0
72.5°	22.1	18.5	16.8	18.5	22.1
75°	15.0	13.2	12.4	13.2	15.0
77.5°	10.6	9.7	8.8	9.7	10.6
80°	7.1	6.2	6.2	7.1	7.1
82.5°	4.4	4.4	4.4	4.4	4.4
85°	2.6	2.6	2.6	2.6	2.6
87.5°	1.8	1.8	1.8	1.8	1.8
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)