

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 FEU4C459050 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 FEU4C459050 F4LC-SQ-WH  
 Description: 4 INCH 4500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

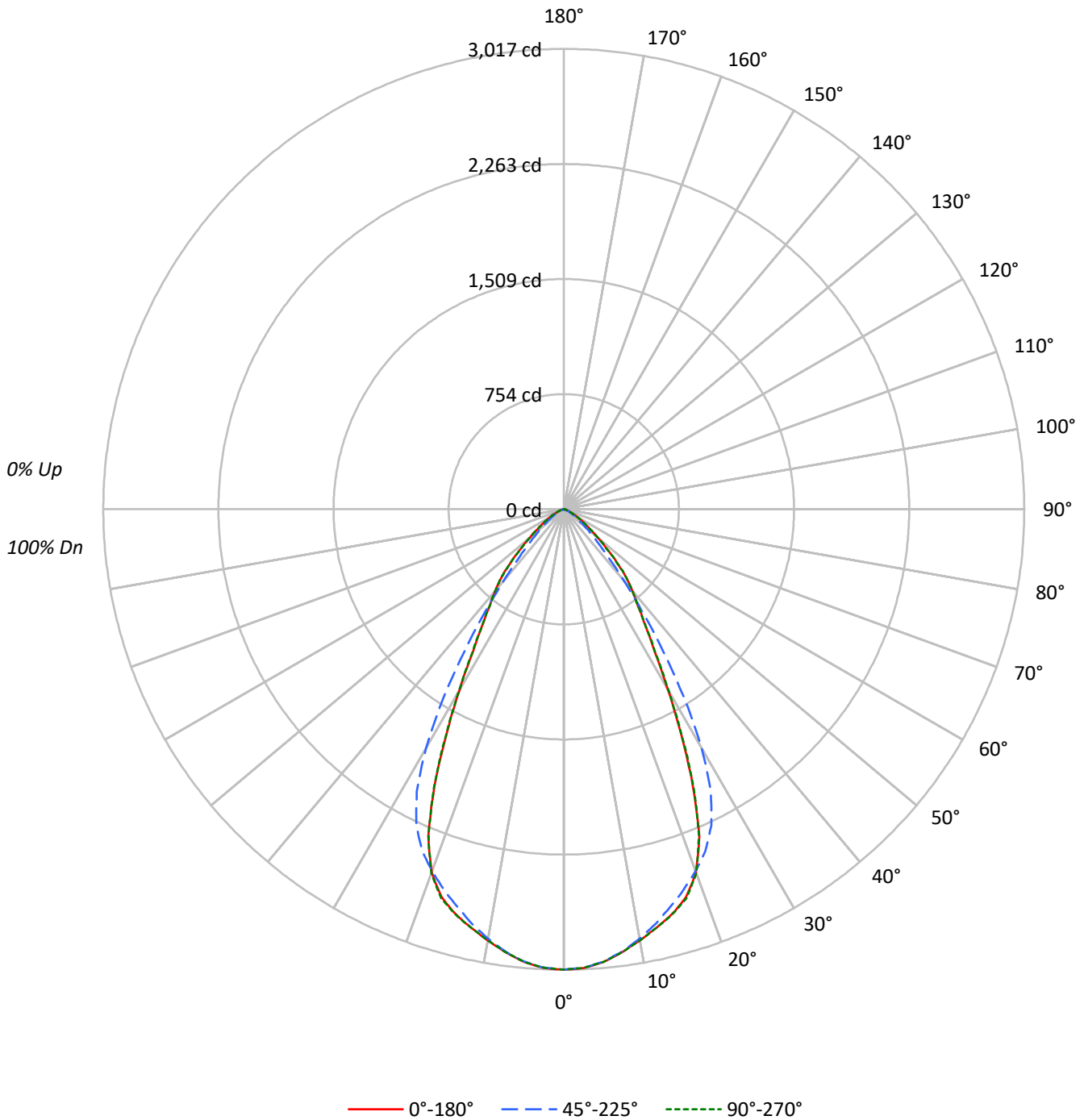
Lumens per Lamp: N/A  
 Luminaire Lumens: 3193.0 lumens  
 Efficiency: N/A  
 Efficacy: 64.4 lumens/watt  
 Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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	100	100	
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94	92	92	92	92	
2	107	101	97	93	104	99	95	92	96	93	90	93	90	88	90	88	86	84	84	84	84	
3	101	93	88	84	98	92	87	83	89	85	82	87	83	80	85	82	79	77	77	77	77	
4	95	87	80	76	93	85	80	75	83	78	74	81	77	74	79	76	73	71	71	71	71	
5	89	80	74	69	88	79	73	69	78	72	68	76	71	68	74	70	67	66	66	66	66	
6	85	75	68	64	83	74	68	63	72	67	63	71	66	63	70	65	62	61	61	61	61	
7	80	70	63	59	79	69	63	59	68	62	58	67	62	58	65	61	58	56	56	56	56	
8	76	65	59	55	74	65	59	54	64	58	54	63	58	54	62	57	54	52	52	52	52	
9	72	61	55	51	71	61	55	51	60	54	51	59	54	50	58	54	50	49	49	49	49	
10	68	58	52	48	67	57	51	47	57	51	47	56	51	47	55	50	47	46	46	46	46	

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

	0°	45°	90°
0°	291088	291088	291088
5°	288422	288238	288325
10°	281038	279921	281038
15°	274265	269331	274555
20°	260040	259065	260533
25°	213311	243387	214418
30°	152105	201072	152317
35°	109711	133245	110041
40°	87956	77413	87956
45°	67123	45181	66604
50°	44267	28851	44132
55°	29776	19362	29456
60°	20012	13219	20205
65°	13676	9338	13470
70°	9112	6714	9112
75°	6039	4958	6039
80°	4223	3723	4223
85°	3211	3211	3211

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	280.4	8.8
10°-20°	764.7	23.9
20°-30°	955.9	29.9
30°-40°	643.1	20.1
40°-50°	339.6	10.6
50°-60°	138.0	4.3
60°-70°	51.2	1.6
70°-80°	16.5	0.5
80°-90°	3.6	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°	2001.1	62.7
0°-40°	2644.1	82.8
0°-60°	3121.7	97.8
0°-90°	3193.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3193.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3017	3017	3017	3017	3017	
5°	2978	2975	2976	2976	2977	281
15°	2746	2723	2696	2722	2748	769
25°	2004	2116	2286	2120	2014	902
35°	931	978	1131	980	934	599
45°	492	467	331	465	488	377
55°	177	148	115	148	175	164
65°	60	48	41	48	59	62
75°	16	14	13	14	16	19
85°	3	3	3	3	3	4
90°	0	0	0	0	0	

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3016.8	3016.8	3016.8	3016.8	3016.8
2.5°	3009.2	3007.3	3006.3	3006.3	3007.3
5°	2977.8	2974.9	2975.9	2975.9	2976.8
7.5°	2927.4	2926.4	2923.6	2927.4	2927.4
10°	2868.4	2863.6	2857.0	2864.6	2868.4
12.5°	2807.5	2793.2	2781.8	2793.2	2807.5
15°	2745.6	2722.8	2696.2	2721.9	2748.5
17.5°	2664.8	2641.9	2612.5	2646.7	2672.4
20°	2532.5	2534.4	2523.0	2532.5	2537.3
22.5°	2320.4	2363.2	2423.1	2364.1	2313.7
25°	2003.6	2115.8	2286.1	2119.6	2014.0
27.5°	1663.9	1806.6	2085.4	1815.2	1674.4
30°	1365.2	1491.7	1804.7	1500.3	1367.1
32.5°	1105.5	1199.7	1467.0	1211.1	1117.9
35°	931.4	978.0	1131.2	979.9	934.2
37.5°	798.2	798.2	840.1	802.0	794.4
40°	698.3	667.9	614.6	666.9	698.3
42.5°	605.1	559.4	446.2	557.5	607.0
45°	491.9	467.1	331.1	465.2	488.1
47.5°	377.7	360.6	249.3	358.7	380.5
50°	294.9	268.3	192.2	266.4	294.0
52.5°	226.4	197.9	148.4	197.9	224.5
55°	177.0	148.4	115.1	148.4	175.1
57.5°	136.0	113.2	87.5	111.3	135.1
60°	103.7	84.7	68.5	84.7	104.7
62.5°	79.0	64.7	52.3	63.7	78.0
65°	59.9	48.5	40.9	48.5	59.0
67.5°	43.8	36.2	31.4	36.2	44.7
70°	32.3	27.6	23.8	26.6	32.3
72.5°	23.8	20.0	18.1	20.0	23.8
75°	16.2	14.3	13.3	14.3	16.2
77.5°	11.4	10.5	9.5	10.5	11.4
80°	7.6	6.7	6.7	7.6	7.6
82.5°	4.8	4.8	4.8	4.8	4.8
85°	2.9	2.9	2.9	2.9	2.9
87.5°	1.9	1.9	1.9	1.9	1.9
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)