

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 FEU4C459035 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 FEU4C459035 F4LC-SQ-WH  
 Description: 4 INCH 4500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

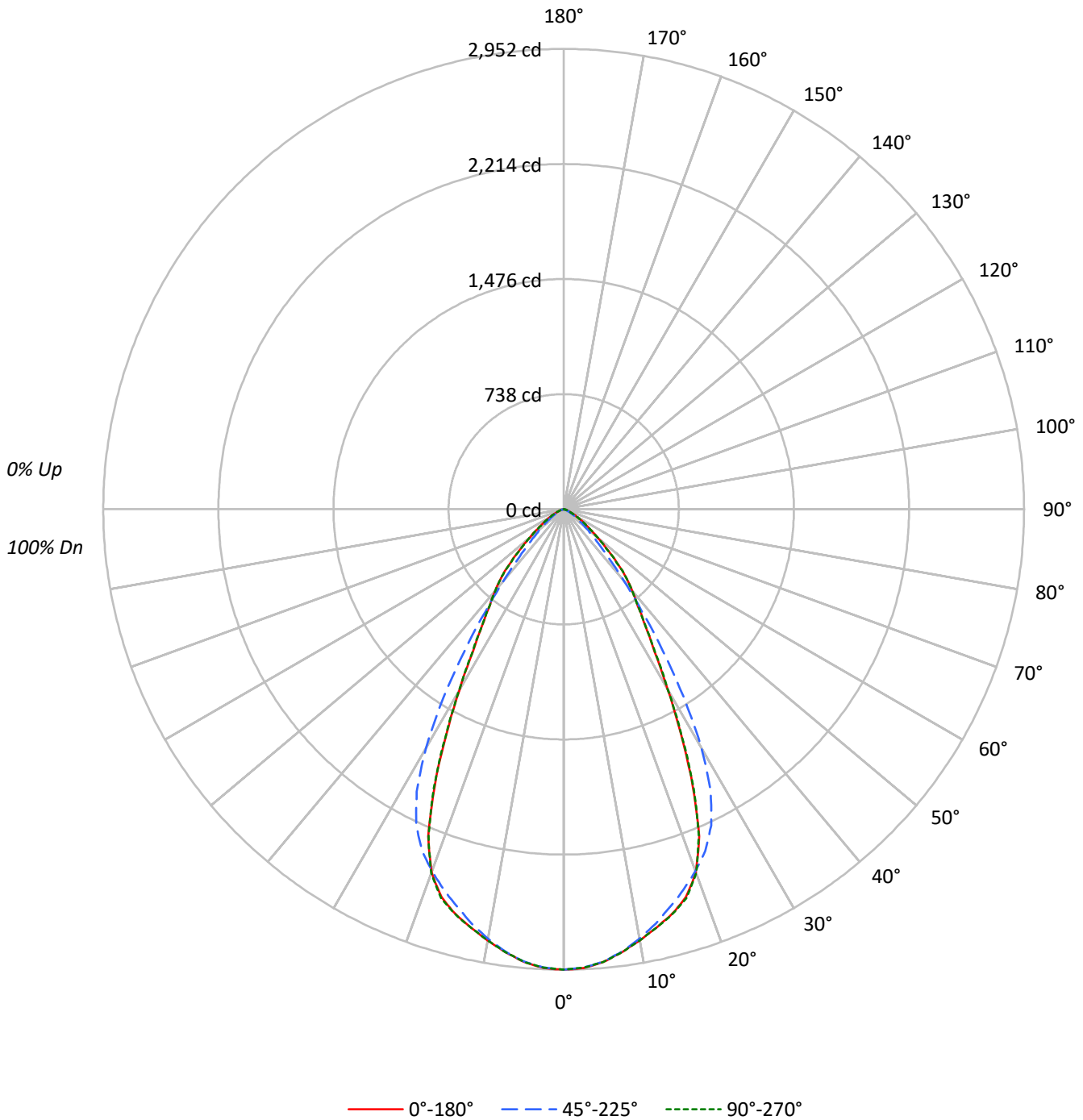
Lumens per Lamp: N/A  
 Luminaire Lumens: 3124.0 lumens  
 Efficiency: N/A  
 Efficacy: 63.0 lumens/watt  
 Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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°	284797	284797	284797
5°	282185	282010	282097
10°	274964	273866	274964
15°	268342	263507	268621
20°	254424	253469	254906
25°	208701	238127	209787
30°	148818	196727	149030
35°	107343	130360	107673
40°	86054	75738	86054
45°	65663	44198	65158
50°	43322	28221	43172
55°	29119	18942	28817
60°	19587	12930	19761
65°	13379	9132	13174
70°	8915	6573	8915
75°	5890	4846	5890
80°	4112	3612	4112
85°	3100	3100	3100

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	274.4	8.8
10°-20°	748.2	23.9
20°-30°	935.3	29.9
30°-40°	629.2	20.1
40°-50°	332.2	10.6
50°-60°	135.0	4.3
60°-70°	50.1	1.6
70°-80°	16.2	0.5
80°-90°	3.5	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°	1957.8	62.7
0°-40°	2587.0	82.8
0°-60°	3054.3	97.8
0°-90°	3124.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3124.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2952	2952	2952	2952	2952	
5°	2913	2911	2912	2912	2912	275
15°	2686	2664	2638	2663	2689	753
25°	1960	2070	2237	2074	1970	882
35°	911	957	1107	959	914	586
45°	481	457	324	455	478	369
55°	173	145	113	145	171	161
65°	59	48	40	48	58	60
75°	16	14	13	14	16	18
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°	2951.6	2951.6	2951.6	2951.6	2951.6
2.5°	2944.1	2942.3	2941.4	2941.4	2942.3
5°	2913.4	2910.6	2911.6	2911.6	2912.5
7.5°	2864.1	2863.2	2860.4	2864.1	2864.1
10°	2806.4	2801.7	2795.2	2802.7	2806.4
12.5°	2746.8	2732.9	2721.7	2732.9	2746.8
15°	2686.3	2664.0	2637.9	2663.0	2689.1
17.5°	2607.2	2584.9	2556.0	2589.5	2614.6
20°	2477.8	2479.7	2468.5	2477.8	2482.5
22.5°	2270.2	2312.1	2370.8	2313.1	2263.7
25°	1960.3	2070.1	2236.7	2073.8	1970.5
27.5°	1628.0	1767.6	2040.3	1776.0	1638.2
30°	1335.7	1459.5	1765.7	1467.9	1337.6
32.5°	1081.6	1173.7	1435.3	1184.9	1093.7
35°	911.3	956.9	1106.7	958.7	914.1
37.5°	780.9	780.9	821.9	784.7	777.2
40°	683.2	653.4	601.3	652.5	683.2
42.5°	592.0	547.3	436.5	545.5	593.9
45°	481.2	457.0	323.9	455.2	477.5
47.5°	369.5	352.8	243.9	350.9	372.3
50°	288.6	262.5	188.0	260.6	287.6
52.5°	221.5	193.6	145.2	193.6	219.7
55°	173.1	145.2	112.6	145.2	171.3
57.5°	133.1	110.8	85.6	108.9	132.2
60°	101.5	82.8	67.0	82.8	102.4
62.5°	77.3	63.3	51.2	62.4	76.3
65°	58.6	47.5	40.0	47.5	57.7
67.5°	42.8	35.4	30.7	35.4	43.7
70°	31.6	27.0	23.3	26.1	31.6
72.5°	23.3	19.5	17.7	19.5	23.3
75°	15.8	14.0	13.0	14.0	15.8
77.5°	11.2	10.2	9.3	10.2	11.2
80°	7.4	6.5	6.5	7.4	7.4
82.5°	4.7	4.7	4.7	4.7	4.7
85°	2.8	2.8	2.8	2.8	2.8
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)