

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 FEU4C409040 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: FLDSQ4C40D010 FEU4C409040 F4LC-SQ-WH  
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

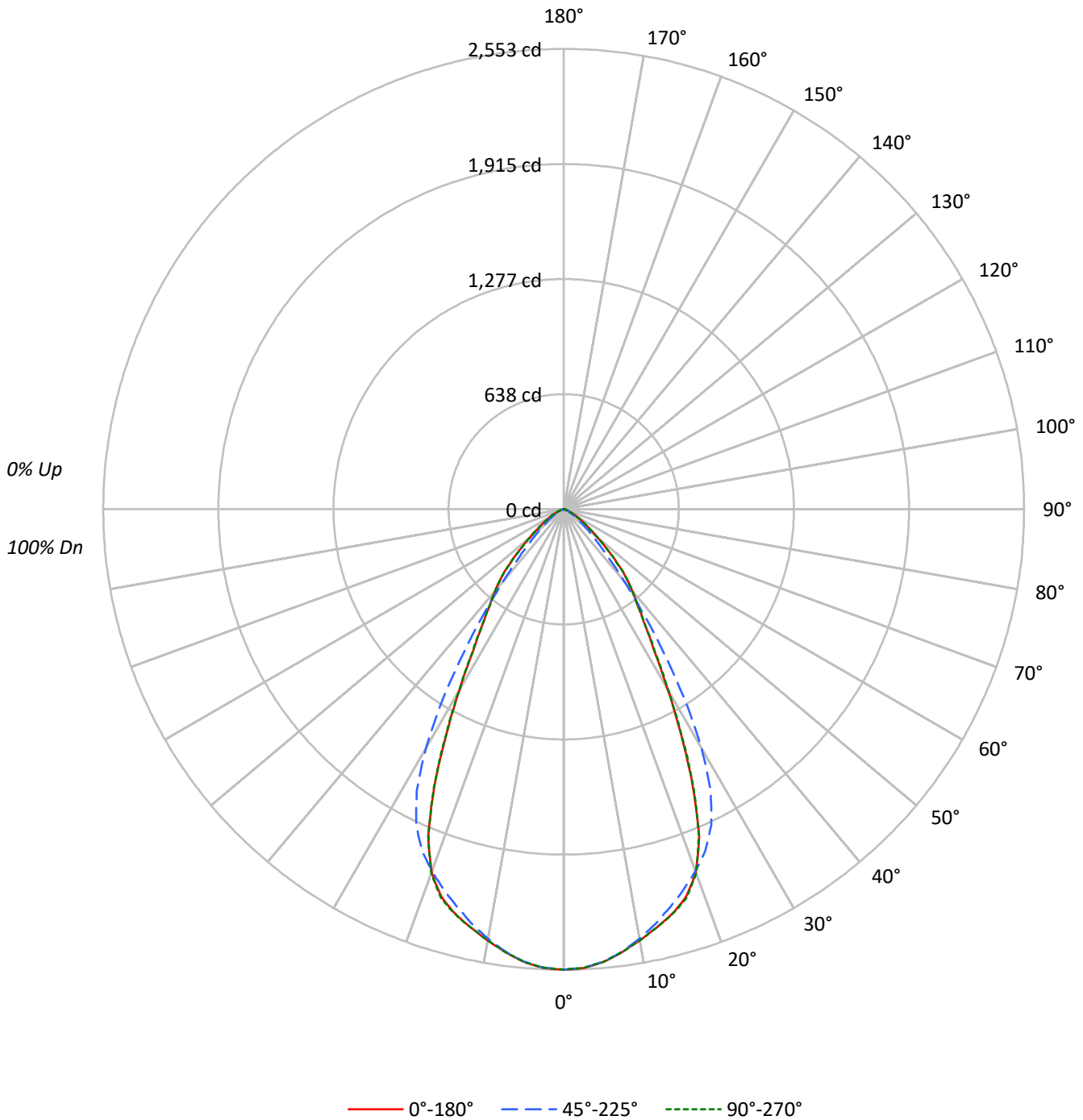
Lumens per Lamp: N/A  
 Luminaire Lumens: 2702.0 lumens  
 Efficiency: N/A  
 Efficacy: 57.5 lumens/watt  
 Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 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	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°	246326	246326	246326
5°	244071	243916	243994
10°	237821	236870	237821
15°	232091	227915	232340
20°	220056	219225	220467
25°	180509	205965	181446
30°	128719	170154	128897
35°	92843	112750	93126
40°	74428	65510	74428
45°	56793	38235	56356
50°	37467	24408	37347
55°	25183	16385	24914
60°	16943	11193	17098
65°	11575	7900	11393
70°	7730	5671	7730
75°	5107	4213	5107
80°	3556	3112	3556
85°	2657	2657	2657

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	237.3	8.8
10°-20°	647.1	23.9
20°-30°	809.0	29.9
30°-40°	544.2	20.1
40°-50°	287.3	10.6
50°-60°	116.8	4.3
60°-70°	43.3	1.6
70°-80°	14.0	0.5
80°-90°	3.0	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°	1693.4	62.7
0°-40°	2237.6	82.8
0°-60°	2641.7	97.8
0°-90°	2702.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2702.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2553	2553	2553	2553	2553	
5°	2520	2518	2518	2518	2519	237
15°	2323	2304	2282	2303	2326	651
25°	1696	1790	1935	1794	1704	763
35°	788	828	957	829	791	507
45°	416	395	280	394	413	319
55°	150	126	97	126	148	139
65°	51	41	35	41	50	52
75°	14	12	11	12	14	16
85°	2	2	2	2	2	3
90°	0	0	0	0	0	

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2552.9	2552.9	2552.9	2552.9	2552.9
2.5°	2546.4	2544.8	2544.0	2544.0	2544.8
5°	2519.9	2517.5	2518.3	2518.3	2519.1
7.5°	2477.2	2476.4	2474.0	2477.2	2477.2
10°	2427.3	2423.3	2417.6	2424.1	2427.3
12.5°	2375.8	2363.7	2354.0	2363.7	2375.8
15°	2323.4	2304.1	2281.6	2303.3	2325.9
17.5°	2255.0	2235.7	2210.7	2239.7	2261.4
20°	2143.1	2144.7	2135.0	2143.1	2147.1
22.5°	1963.6	1999.8	2050.5	2000.6	1957.9
25°	1695.5	1790.5	1934.6	1793.7	1704.3
27.5°	1408.1	1528.8	1764.7	1536.1	1416.9
30°	1155.3	1262.4	1527.2	1269.6	1156.9
32.5°	935.5	1015.2	1241.4	1024.9	946.0
35°	788.2	827.6	957.2	829.2	790.6
37.5°	675.5	675.5	710.9	678.7	672.2
40°	590.9	565.2	520.1	564.4	590.9
42.5°	512.0	473.4	377.6	471.8	513.6
45°	416.2	395.3	280.2	393.7	413.0
47.5°	319.6	305.1	210.9	303.5	322.0
50°	249.6	227.0	162.6	225.4	248.8
52.5°	191.6	167.5	125.6	167.5	190.0
55°	149.7	125.6	97.4	125.6	148.1
57.5°	115.1	95.8	74.1	94.2	114.3
60°	87.8	71.7	58.0	71.7	88.6
62.5°	66.8	54.7	44.3	53.9	66.0
65°	50.7	41.1	34.6	41.1	49.9
67.5°	37.0	30.6	26.6	30.6	37.8
70°	27.4	23.3	20.1	22.5	27.4
72.5°	20.1	16.9	15.3	16.9	20.1
75°	13.7	12.1	11.3	12.1	13.7
77.5°	9.7	8.9	8.1	8.9	9.7
80°	6.4	5.6	5.6	6.4	6.4
82.5°	4.0	4.0	4.0	4.0	4.0
85°	2.4	2.4	2.4	2.4	2.4
87.5°	1.6	1.6	1.6	1.6	1.6
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)