

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: **FLDSQ4C90D010 FEU4C909030 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: FLDSQ4C90D010 FEU4C909030 F4LC-SQ-WH  
 Description: 4 INCH 9000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

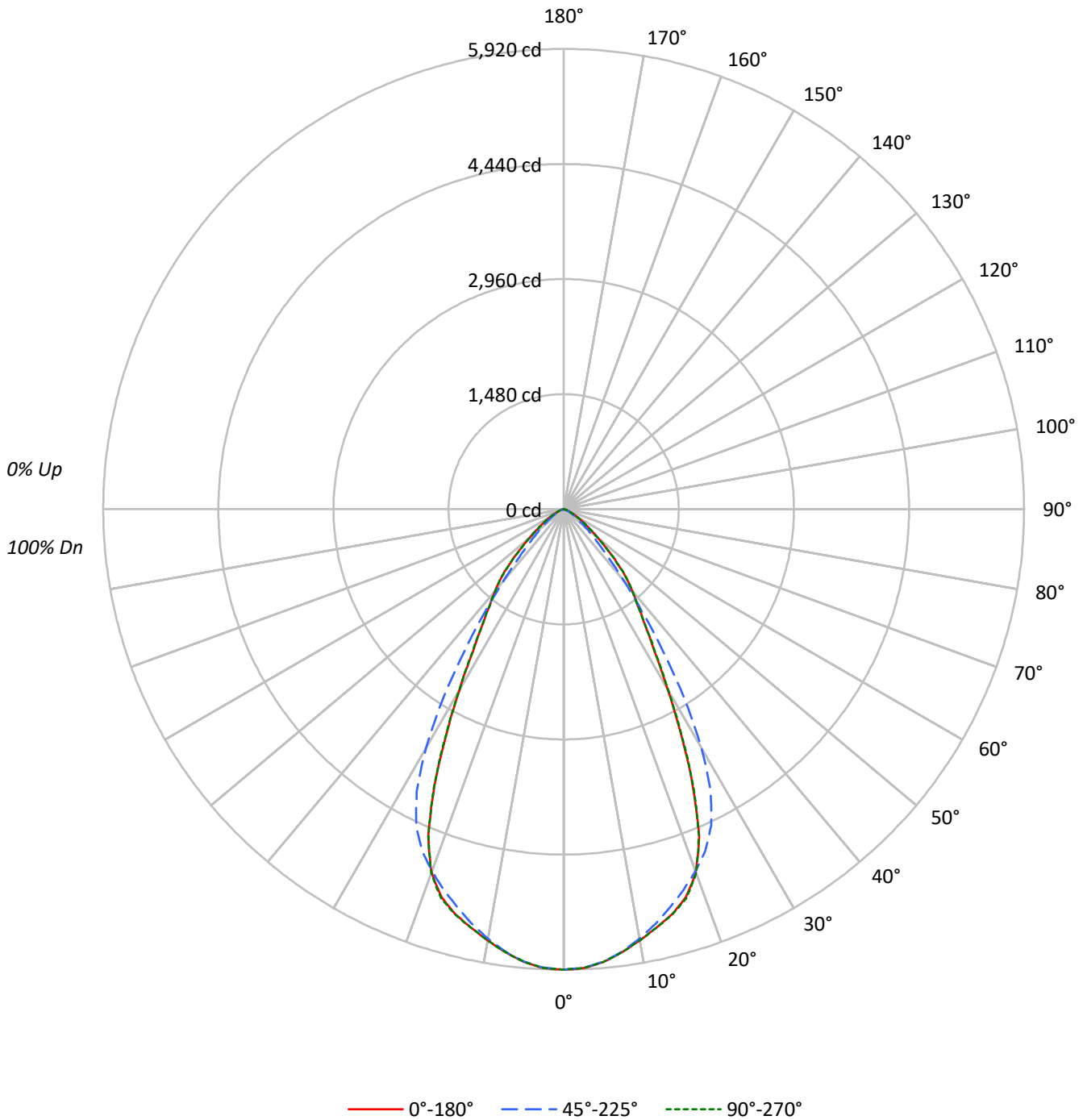
Lumens per Lamp: N/A  
 Luminaire Lumens: 6266.0 lumens  
 Efficiency: N/A  
 Efficacy: 64.5 lumens/watt  
 Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 97.1  
 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°	571234	571234	571234
5°	565996	565638	565822
10°	551505	549310	551505
15°	538232	528532	538791
20°	510316	508396	511271
25°	418605	477639	420787
30°	298494	394601	298906
35°	215299	261473	215958
40°	172612	151917	172612
45°	131707	88655	130697
50°	86884	56607	86599
55°	58424	38002	57785
60°	39271	25936	39638
65°	26850	18333	26439
70°	17914	13175	17914
75°	11818	9730	11818
80°	8279	7279	8279
85°	6200	6200	6200

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	550.3	8.8
10°-20°	1500.6	23.9
20°-30°	1876.0	29.9
30°-40°	1262.0	20.1
40°-50°	666.4	10.6
50°-60°	270.8	4.3
60°-70°	100.4	1.6
70°-80°	32.4	0.5
80°-90°	7.0	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°	3926.9	62.7
0°-40°	5188.9	82.8
0°-60°	6126.1	97.8
0°-90°	6266.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6266.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	5920	5920	5920	5920	5920	
5°	5844	5838	5840	5840	5842	551
15°	5388	5343	5291	5341	5394	1509
25°	3932	4152	4486	4160	3952	1770
35°	1828	1919	2220	1923	1833	1176
45°	965	917	650	913	958	740
55°	347	291	226	291	344	322
65°	118	95	80	95	116	121
75°	32	28	26	28	32	37
85°	6	6	6	6	6	7
90°	0	0	0	0	0	

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5920.2	5920.2	5920.2	5920.2	5920.2
2.5°	5905.3	5901.5	5899.7	5899.7	5901.5
5°	5843.6	5838.0	5839.9	5839.9	5841.8
7.5°	5744.7	5742.8	5737.2	5744.7	5744.7
10°	5628.9	5619.6	5606.5	5621.5	5628.9
12.5°	5509.5	5481.5	5459.0	5481.5	5509.5
15°	5388.1	5343.3	5291.0	5341.4	5393.7
17.5°	5229.4	5184.6	5126.7	5193.9	5244.3
20°	4969.9	4973.6	4951.2	4969.9	4979.2
22.5°	4553.6	4637.6	4755.2	4639.4	4540.5
25°	3931.9	4152.2	4486.4	4159.6	3952.4
27.5°	3265.3	3545.4	4092.4	3562.2	3285.9
30°	2679.1	2927.4	3541.7	2944.2	2682.8
32.5°	2169.4	2354.3	2878.9	2376.7	2193.7
35°	1827.8	1919.3	2219.8	1923.0	1833.4
37.5°	1566.4	1566.4	1648.5	1573.9	1558.9
40°	1370.4	1310.6	1206.1	1308.8	1370.4
42.5°	1187.4	1097.8	875.6	1094.0	1191.1
45°	965.2	916.7	649.7	913.0	957.8
47.5°	741.2	707.6	489.1	703.9	746.8
50°	578.8	526.5	377.1	522.8	576.9
52.5°	444.3	388.3	291.2	388.3	440.6
55°	347.3	291.2	225.9	291.2	343.5
57.5°	267.0	222.2	171.8	218.4	265.1
60°	203.5	166.2	134.4	166.2	205.4
62.5°	155.0	127.0	102.7	125.1	153.1
65°	117.6	95.2	80.3	95.2	115.8
67.5°	85.9	70.9	61.6	70.9	87.7
70°	63.5	54.1	46.7	52.3	63.5
72.5°	46.7	39.2	35.5	39.2	46.7
75°	31.7	28.0	26.1	28.0	31.7
77.5°	22.4	20.5	18.7	20.5	22.4
80°	14.9	13.1	13.1	14.9	14.9
82.5°	9.3	9.3	9.3	9.3	9.3
85°	5.6	5.6	5.6	5.6	5.6
87.5°	3.7	3.7	3.7	3.7	3.7
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)