

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 FEU4C909035 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 FEU4C909035 F4LC-SQ-WH  
 Description: 4 INCH 9000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

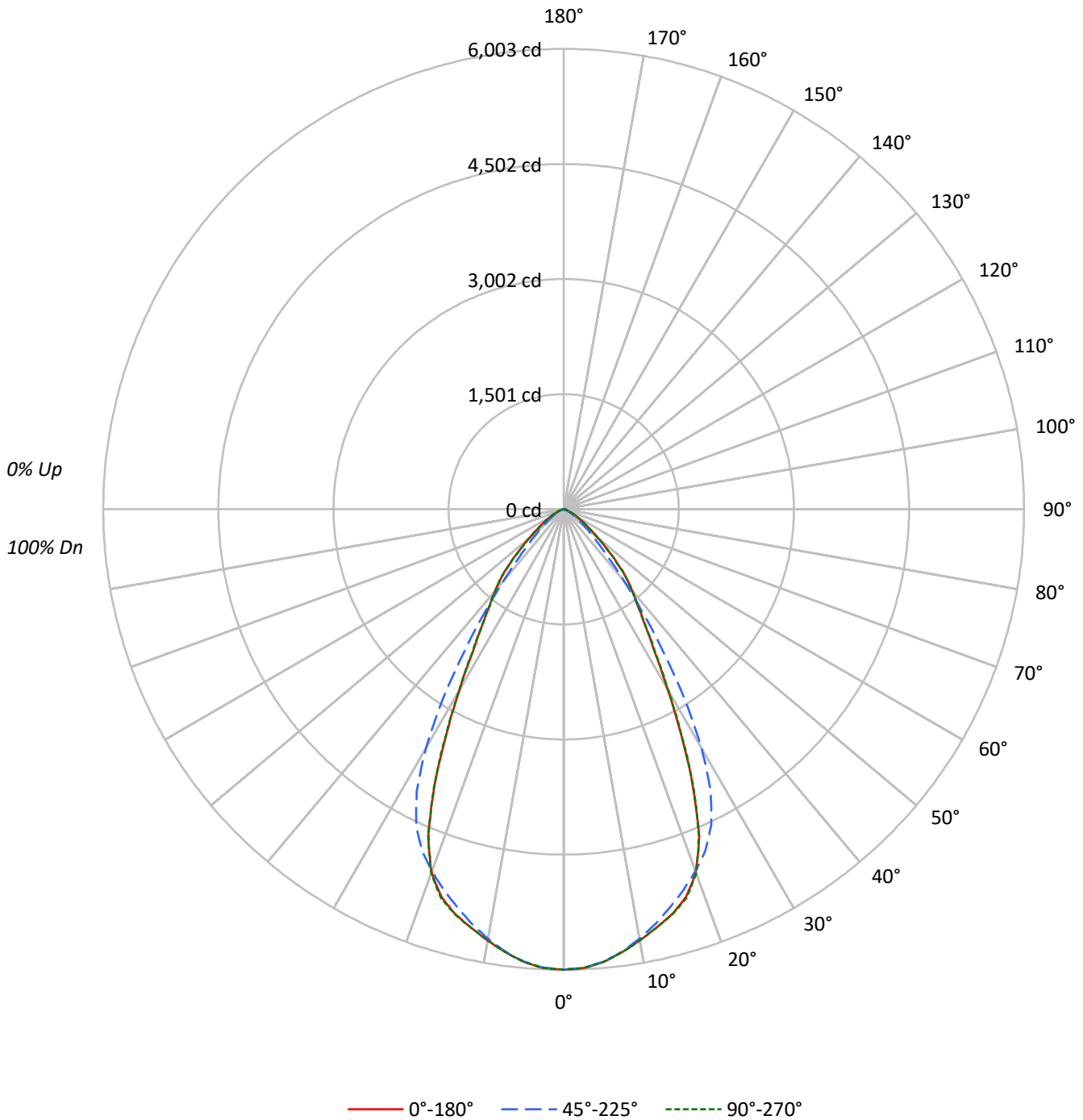
Lumens per Lamp: N/A  
 Luminaire Lumens: 6354.0 lumens  
 Efficiency: N/A  
 Efficacy: 65.4 lumens/watt  
 Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 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°	579252	579252	579252
5°	573948	573580	573764
10°	559255	557031	559255
15°	545793	535954	546363
20°	517483	515542	518459
25°	424481	484346	426696
30°	302683	400139	303107
35°	218314	265148	218986
40°	175030	154046	175030
45°	133563	89897	132526
50°	88100	57402	87814
55°	59231	38540	58592
60°	39831	26303	40197
65°	27238	18585	26804
70°	18168	13344	18168
75°	12004	9879	12004
80°	8390	7390	8390
85°	6310	6310	6310

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	558.1	8.8
10°-20°	1521.7	23.9
20°-30°	1902.3	29.9
30°-40°	1279.7	20.1
40°-50°	675.7	10.6
50°-60°	274.6	4.3
60°-70°	101.8	1.6
70°-80°	32.9	0.5
80°-90°	7.1	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°	3982.1	62.7
0°-40°	5261.8	82.8
0°-60°	6212.2	97.8
0°-90°	6354.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6354.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	6003	6003	6003	6003	6003	
5°	5926	5920	5922	5922	5924	558
15°	5464	5418	5365	5416	5470	1531
25°	3987	4210	4549	4218	4008	1795
35°	1853	1946	2251	1950	1859	1193
45°	979	930	659	926	971	751
55°	352	295	229	295	348	327
65°	119	97	81	97	117	123
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°	6003.3	6003.3	6003.3	6003.3	6003.3
2.5°	5988.2	5984.4	5982.5	5982.5	5984.4
5°	5925.7	5920.0	5921.9	5921.9	5923.8
7.5°	5825.4	5823.5	5817.8	5825.4	5825.4
10°	5708.0	5698.5	5685.3	5700.4	5708.0
12.5°	5586.8	5558.4	5535.7	5558.4	5586.8
15°	5463.8	5418.3	5365.3	5416.4	5469.5
17.5°	5302.9	5257.4	5198.7	5266.9	5318.0
20°	5039.7	5043.5	5020.8	5039.7	5049.2
22.5°	4617.5	4702.7	4822.0	4704.6	4604.3
25°	3987.1	4210.5	4549.4	4218.0	4007.9
27.5°	3311.2	3595.2	4149.9	3612.2	3332.0
30°	2716.7	2968.5	3591.4	2985.6	2720.5
32.5°	2199.9	2387.3	2919.3	2410.0	2224.5
35°	1853.4	1946.2	2251.0	1950.0	1859.1
37.5°	1588.4	1588.4	1671.7	1596.0	1580.8
40°	1389.6	1329.0	1223.0	1327.1	1389.6
42.5°	1204.1	1113.2	887.9	1109.4	1207.9
45°	978.8	929.6	658.8	925.8	971.2
47.5°	751.6	717.5	496.0	713.7	757.3
50°	586.9	533.9	382.4	530.1	585.0
52.5°	450.6	393.8	295.3	393.8	446.8
55°	352.1	295.3	229.1	295.3	348.3
57.5°	270.7	225.3	174.2	221.5	268.8
60°	206.4	168.5	136.3	168.5	208.3
62.5°	157.1	128.7	104.1	126.8	155.2
65°	119.3	96.6	81.4	96.6	117.4
67.5°	87.1	71.9	62.5	71.9	89.0
70°	64.4	54.9	47.3	53.0	64.4
72.5°	47.3	39.8	36.0	39.8	47.3
75°	32.2	28.4	26.5	28.4	32.2
77.5°	22.7	20.8	18.9	20.8	22.7
80°	15.1	13.3	13.3	15.1	15.1
82.5°	9.5	9.5	9.5	9.5	9.5
85°	5.7	5.7	5.7	5.7	5.7
87.5°	3.8	3.8	3.8	3.8	3.8
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)