

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: **FLDSQ4C20D010 FEU4C209035 F4LC-SQ-WLI**

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: FLDSQ4C20D010 FEU4C209035 F4LC-SQ-WLI  
 Description: 4 INCH 2000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQW TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

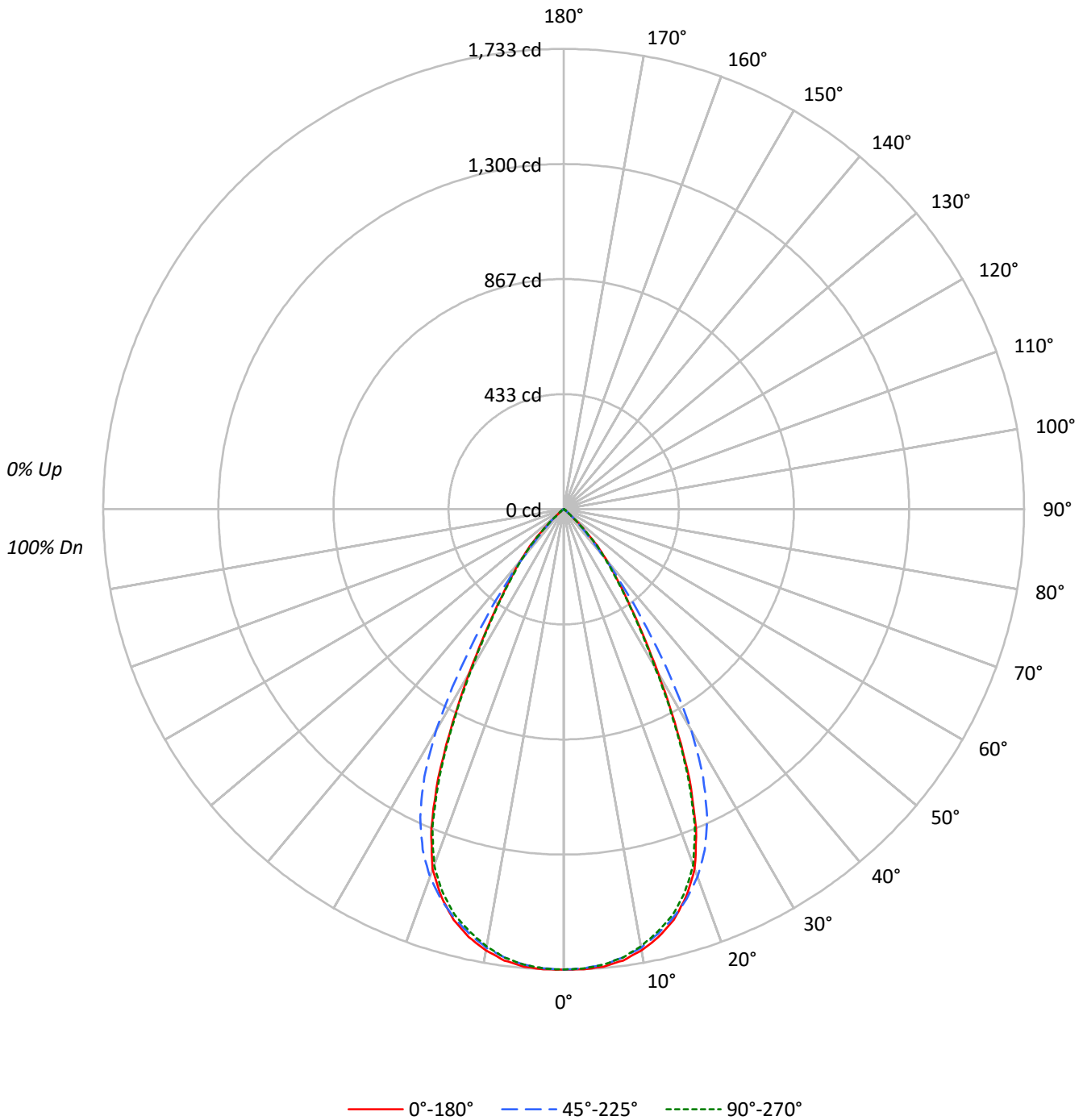
Lumens per Lamp: N/A  
 Luminaire Lumens: 1551.0 lumens  
 Efficiency: N/A  
 Efficacy: 71.1 lumens/watt  
 Spacing Criteria (0/90/45): 0.91 / 0.91 / 0.9  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 21.8  
 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	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	114	111	108	106	111	109	106	104	105	103	101		101	100	98		97	96	95	94
2	108	103	99	96	106	102	98	95	98	95	93		95	93	91		93	91	89	87
3	103	96	91	88	101	95	90	87	92	89	85		90	87	84		88	85	83	81
4	98	90	85	80	96	89	84	80	87	82	79		85	81	78		83	80	77	76
5	93	84	79	74	91	84	78	74	82	77	73		80	76	73		79	75	72	71
6	88	79	73	69	87	79	73	69	77	72	68		76	71	68		74	71	68	66
7	84	75	69	65	82	74	68	64	73	68	64		71	67	64		70	66	63	62
8	80	70	64	60	79	70	64	60	69	64	60		68	63	60		67	63	59	58
9	76	66	61	57	75	66	60	57	65	60	56		64	60	56		63	59	56	55
10	72	63	57	53	71	62	57	53	62	57	53		61	56	53		60	56	53	52

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

	0°	45°	90°
0°	167167	167167	167167
5°	167341	166575	166575
10°	165141	164171	163661
15°	159788	159029	157960
20°	147984	151209	146341
25°	118984	136018	117419
30°	78537	106647	76665
35°	49084	64043	48188
40°	32031	29676	30784
45°	15420	11844	14560
50°	3888	4713	3648
55°	2136	1935	2069
60°	1467	1235	1389
65°	1005	913	1005
70°	790	677	790
75°	596	596	596
80°	445	667	667
85°	443	886	886

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	162.9	10.5
10°-20°	444.9	28.7
20°-30°	530.3	34.2
30°-40°	300.3	19.4
40°-50°	92.8	6.0
50°-60°	12.9	0.8
60°-70°	4.4	0.3
70°-80°	1.8	0.1
80°-90°	0.7	0.0
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°	1138.1	73.4
0°-40°	1438.4	92.7
0°-60°	1544.1	99.6
0°-90°	1551.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1551.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1732	1732	1732	1732	1732	
5°	1728	1724	1720	1719	1720	164
15°	1600	1597	1592	1586	1581	446
25°	1118	1183	1278	1185	1103	498
35°	417	454	544	456	409	271
45°	113	132	87	128	107	93
55°	13	13	12	12	12	13
65°	4	4	4	4	4	5
75°	2	2	2	2	2	2
85°	0	1	1	1	1	1
90°	0	0	0	0	0	

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1732.5	1732.5	1732.5	1732.5	1732.5
2.5°	1732.9	1730.1	1729.3	1728.5	1730.1
5°	1727.7	1723.7	1719.8	1718.6	1719.8
7.5°	1713.0	1709.0	1702.2	1700.7	1701.8
10°	1685.5	1681.9	1675.6	1672.0	1670.4
12.5°	1649.3	1643.3	1637.4	1633.4	1629.4
15°	1599.6	1596.8	1592.0	1585.6	1581.3
17.5°	1530.7	1534.7	1537.5	1524.7	1513.2
20°	1441.2	1455.9	1472.6	1446.7	1425.2
22.5°	1301.5	1343.6	1386.2	1337.3	1289.5
25°	1117.6	1182.9	1277.6	1184.8	1102.9
27.5°	903.1	985.8	1135.1	986.2	891.1
30°	704.9	790.0	957.2	778.9	688.1
32.5°	541.3	605.0	747.8	595.4	529.7
35°	416.7	454.5	543.7	455.7	409.1
37.5°	324.0	343.1	365.8	336.3	314.4
40°	254.3	255.1	235.6	251.1	244.4
42.5°	188.7	187.9	144.9	183.1	184.3
45°	113.0	131.7	86.8	128.2	106.7
47.5°	53.7	74.4	52.1	70.4	49.8
50°	25.9	35.8	31.4	33.4	24.3
52.5°	17.5	18.3	17.9	17.5	16.7
55°	12.7	12.7	11.5	12.3	12.3
57.5°	9.6	9.6	8.4	9.2	9.2
60°	7.6	7.2	6.4	7.2	7.2
62.5°	5.6	5.6	4.8	5.6	5.6
65°	4.4	4.4	4.0	4.4	4.4
67.5°	3.6	3.6	2.8	3.6	3.2
70°	2.8	2.8	2.4	2.8	2.8
72.5°	2.0	2.0	2.0	2.0	2.0
75°	1.6	1.6	1.6	1.6	1.6
77.5°	1.2	1.2	1.2	1.2	1.2
80°	0.8	0.8	1.2	1.2	1.2
82.5°	0.8	0.8	0.8	0.8	0.8
85°	0.4	0.8	0.8	0.8	0.8
87.5°	0.4	0.4	0.8	0.8	0.8
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)