

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 FEU4C209050 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 FEU4C209050 F4LC-SQ-WLI  
 Description: 4 INCH 2000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQW TRIM WITH LI FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

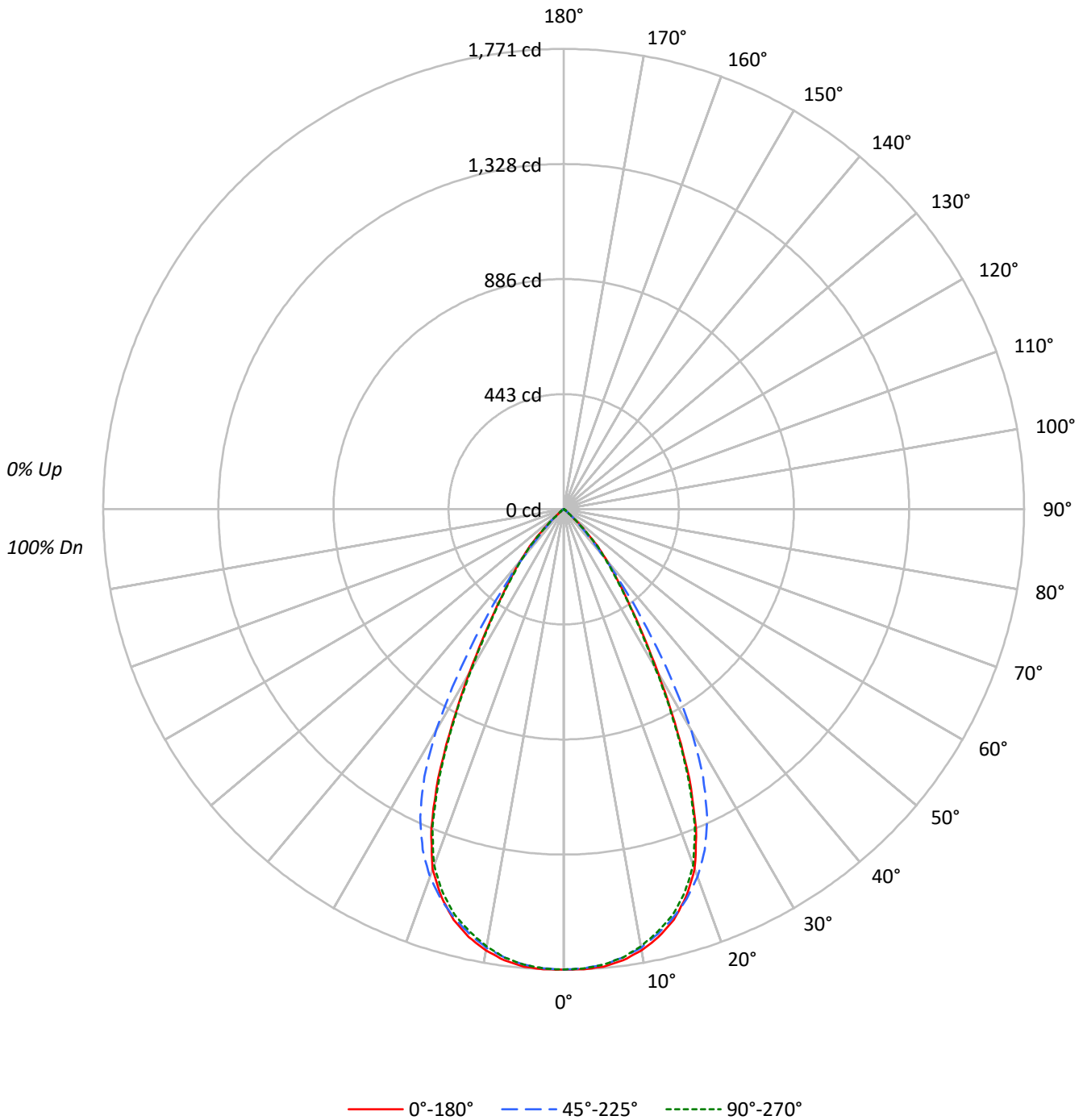
Lumens per Lamp: N/A  
 Luminaire Lumens: 1585.0 lumens  
 Efficiency: N/A  
 Efficacy: 72.7 lumens/watt  
 Spacing Criteria (0/90/45): 0.91 / 0.91 / 0.9  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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

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

	0°	45°	90°
0°	170834	170834	170834
5°	171012	170227	170227
10°	168766	167767	167247
15°	163285	162515	161417
20°	151229	154525	149555
25°	121592	138999	119985
30°	80253	108987	78348
35°	50155	65445	49248
40°	32736	30331	31452
45°	15761	12104	14874
50°	3963	4819	3723
55°	2187	1985	2120
60°	1486	1254	1409
65°	1027	936	1027
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°	166.5	10.5
10°-20°	454.7	28.7
20°-30°	541.9	34.2
30°-40°	306.8	19.4
40°-50°	94.9	6.0
50°-60°	13.2	0.8
60°-70°	4.5	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°	1163.1	73.4
0°-40°	1469.9	92.7
0°-60°	1578.0	99.6
0°-90°	1585.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1585.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1770	1770	1770	1770	1770	
5°	1766	1762	1758	1756	1758	167
15°	1635	1632	1627	1620	1616	456
25°	1142	1209	1306	1211	1127	509
35°	426	464	556	466	418	277
45°	116	135	89	131	109	95
55°	13	13	12	13	13	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°	1770.5	1770.5	1770.5	1770.5	1770.5
2.5°	1770.9	1768.0	1767.2	1766.4	1768.0
5°	1765.6	1761.5	1757.5	1756.2	1757.5
7.5°	1750.5	1746.5	1739.6	1737.9	1739.2
10°	1722.5	1718.8	1712.3	1708.7	1707.0
12.5°	1685.5	1679.4	1673.3	1669.2	1665.1
15°	1634.6	1631.8	1626.9	1620.4	1615.9
17.5°	1564.3	1568.3	1571.2	1558.2	1546.4
20°	1472.8	1487.8	1504.9	1478.4	1456.5
22.5°	1330.0	1373.1	1416.6	1366.6	1317.8
25°	1142.1	1208.8	1305.6	1210.8	1127.0
27.5°	922.9	1007.5	1160.0	1007.9	910.7
30°	720.3	807.3	978.2	796.0	703.2
32.5°	553.1	618.2	764.2	608.5	541.4
35°	425.8	464.5	555.6	465.7	418.1
37.5°	331.1	350.6	373.8	343.7	321.3
40°	259.9	260.7	240.8	256.6	249.7
42.5°	192.8	192.0	148.0	187.1	188.3
45°	115.5	134.6	88.7	131.0	109.0
47.5°	54.9	76.1	53.3	72.0	50.8
50°	26.4	36.6	32.1	34.2	24.8
52.5°	17.9	18.7	18.3	17.9	17.1
55°	13.0	13.0	11.8	12.6	12.6
57.5°	9.8	9.8	8.5	9.4	9.4
60°	7.7	7.3	6.5	7.3	7.3
62.5°	5.7	5.7	4.9	5.7	5.7
65°	4.5	4.5	4.1	4.5	4.5
67.5°	3.7	3.7	2.8	3.7	3.3
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)