

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: **FLDSQ4C25D010 FEU4C259027 F4LC-SQ-LI**

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: FLDSQ4C25D010 FEU4C259027 F4LC-SQ-LI
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

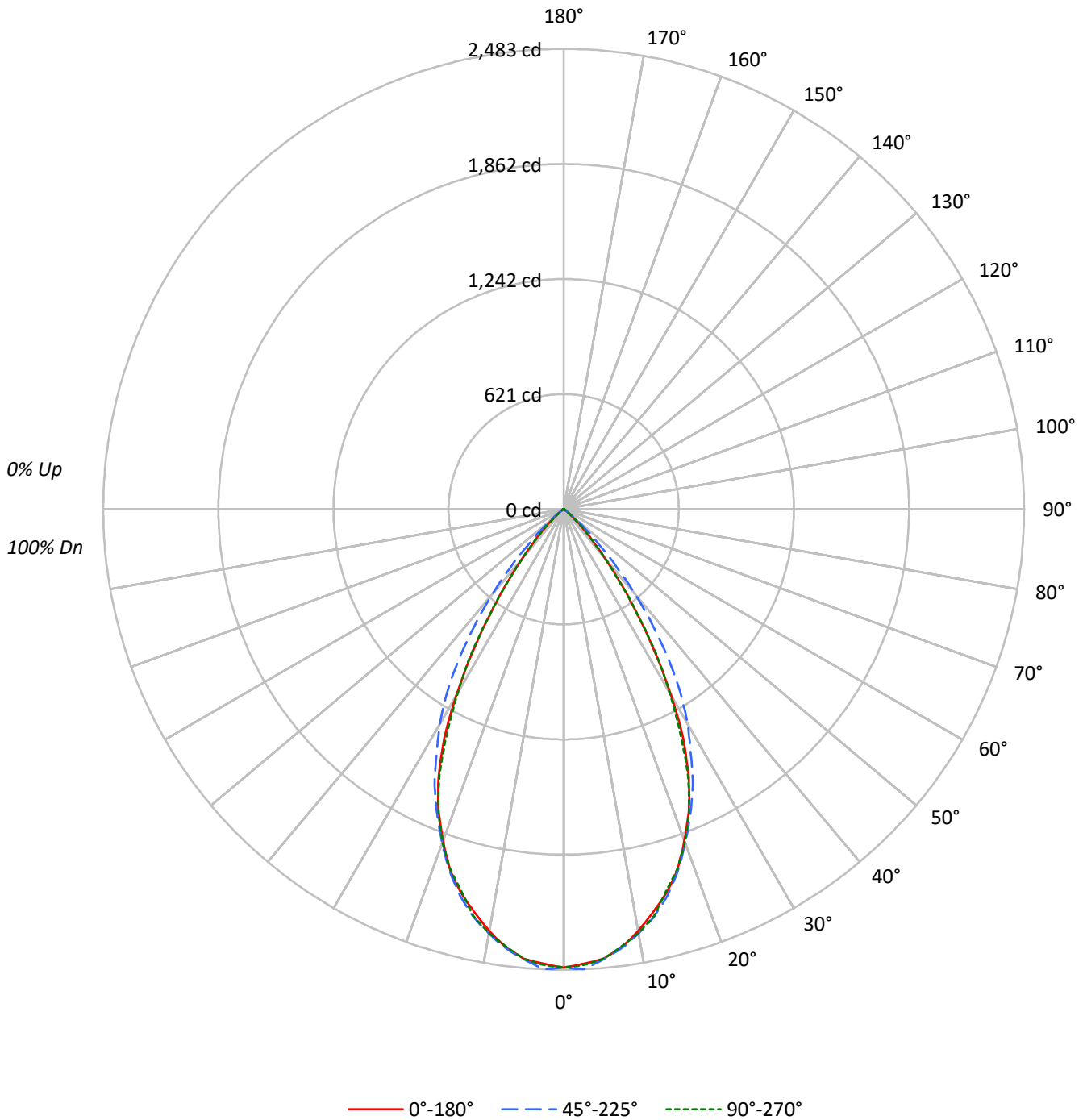
Lumens per Lamp: N/A
 Luminaire Lumens: 2282.0 lumens
 Efficiency: N/A
 Efficacy: 72.4 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 31.5
 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	113	111	108	106	111	108	106	104	104	103	101		101	99	98		97	96	95	93
2	108	103	99	95	105	101	97	94	98	95	92		95	92	90		92	90	88	87
3	102	96	91	87	100	94	90	86	92	88	84		89	86	83		87	84	82	80
4	97	89	84	79	95	88	83	79	86	81	78		84	80	77		82	79	76	75
5	92	83	77	73	90	82	77	73	81	76	72		79	75	71		77	74	71	69
6	87	78	72	68	86	77	71	67	76	71	67		74	70	66		73	69	66	64
7	83	73	67	63	81	73	67	63	71	66	62		70	65	62		69	65	62	60
8	79	69	63	59	77	68	62	58	67	62	58		66	61	58		65	61	58	56
9	75	65	59	55	74	64	59	55	63	58	55		63	58	54		62	57	54	53
10	71	61	55	51	70	61	55	51	60	55	51		59	54	51		58	54	51	50

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	238501	238501	238501
5°	235761	236061	235761
10°	226328	227719	227406
15°	213970	215538	212871
20°	195269	196717	196245
25°	170033	175378	168862
30°	129298	148718	127371
35°	81382	115612	82124
40°	43909	76355	43115
45°	20782	37716	20564
50°	7776	14140	7776
55°	3701	4492	3432
60°	2432	2123	2432
65°	1438	1438	1438
70°	875	1326	875
75°	596	596	596
80°	889	889	889
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	229.2	10.0
10°-20°	600.6	26.3
20°-30°	733.7	32.2
30°-40°	513.2	22.5
40°-50°	168.2	7.4
50°-60°	26.7	1.2
60°-70°	7.3	0.3
70°-80°	2.4	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°	1563.5	68.5
0°-40°	2076.7	91.0
0°-60°	2271.6	99.5
0°-90°	2282.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2282.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2472	2472	2472	2472	2472	
5°	2434	2435	2437	2422	2434	228
15°	2142	2151	2158	2144	2131	597
25°	1597	1621	1647	1617	1586	717
35°	691	816	982	803	697	441
45°	152	188	276	185	151	128
55°	22	24	27	24	20	22
65°	6	8	6	8	6	7
75°	2	2	2	2	2	2
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	2471.8	2471.8	2471.8	2471.8	2471.8	2471.8	2471.8	2471.8	2471.8	2471.8	2471.8
2.5°	2452.9	2470.2	2465.5	2476.5	2476.5	2463.9	2467.1	2471.8	2478.0	2482.8	2445.0
5°	2434.1	2449.8	2435.6	2451.3	2441.9	2427.8	2451.3	2438.8	2446.6	2437.2	2443.5
7.5°	2383.8	2409.0	2380.7	2399.5	2393.3	2385.4	2394.8	2391.7	2396.4	2388.5	2371.3
10°	2310.0	2330.5	2311.6	2338.3	2325.7	2317.9	2325.7	2333.6	2332.0	2324.2	2333.6
12.5°	2225.2	2248.8	2239.3	2255.0	2240.9	2240.9	2259.8	2255.0	2256.6	2250.4	2261.3
15°	2142.0	2159.3	2145.1	2165.6	2159.3	2142.0	2149.8	2149.8	2162.4	2157.7	2145.1
17.5°	2038.4	2052.5	2036.8	2041.5	2035.2	2032.1	2065.0	2043.0	2055.6	2046.2	2047.8
20°	1901.7	1908.0	1903.3	1915.8	1908.0	1917.4	1914.3	1911.2	1911.2	1915.8	1904.9
22.5°	1763.5	1763.5	1768.3	1771.4	1777.7	1768.3	1787.1	1771.4	1772.9	1784.0	1780.8
25°	1597.1	1592.3	1603.4	1619.1	1625.3	1617.5	1642.6	1630.0	1639.4	1647.3	1630.0
27.5°	1394.5	1394.5	1405.5	1432.2	1436.9	1446.3	1480.8	1480.8	1493.4	1482.4	1495.0
30°	1160.5	1177.8	1191.9	1226.4	1237.5	1257.9	1294.0	1311.3	1339.5	1334.8	1328.5
32.5°	920.2	943.8	945.4	981.5	1011.3	1045.8	1094.5	1135.4	1155.8	1169.9	1154.2
35°	690.9	705.1	717.7	742.8	793.0	838.6	882.6	935.9	972.1	981.5	967.3
37.5°	505.7	508.8	521.4	544.9	582.6	626.6	680.0	738.0	775.8	789.9	774.2
40°	348.6	351.8	358.0	378.5	409.9	441.3	483.7	543.4	577.9	606.2	585.7
42.5°	234.0	237.1	243.4	259.1	276.4	306.2	339.2	376.9	409.9	422.4	411.4
45°	152.3	152.3	155.5	166.5	175.9	199.4	223.0	246.5	268.5	276.4	268.5
47.5°	89.5	91.1	94.2	102.1	113.0	122.5	139.8	155.5	161.7	168.0	164.9
50°	51.8	51.8	56.5	61.3	69.1	75.4	81.6	87.9	91.1	94.2	91.1
52.5°	28.3	29.9	31.4	33.0	36.1	42.4	47.1	47.1	48.7	50.2	48.7
55°	22.0	22.0	22.0	22.0	23.6	23.6	23.6	25.1	25.1	26.7	25.1
57.5°	15.7	15.7	15.7	17.3	17.3	17.3	15.7	15.7	15.7	15.7	15.7
60°	12.6	12.6	12.6	12.6	12.6	12.6	12.6	11.0	11.0	11.0	11.0
62.5°	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
65°	6.3	6.3	7.9	7.9	7.9	7.9	7.9	6.3	6.3	6.3	6.3
67.5°	4.7	4.7	4.7	4.7	6.3	6.3	4.7	4.7	4.7	4.7	4.7
70°	3.1	3.1	3.1	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
72.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	2471.8	2471.8	2471.8	2471.8	2471.8	2471.8	2471.8	2471.8
2.5°	2471.8	2445.0	2448.2	2462.3	2454.5	2462.3	2460.8	2460.8
5°	2445.0	2437.2	2424.7	2419.9	2429.3	2449.8	2446.6	2434.1
7.5°	2394.8	2374.4	2388.5	2394.8	2387.0	2399.5	2405.8	2379.1
10°	2335.1	2327.3	2324.2	2327.3	2324.2	2336.7	2321.0	2321.0
12.5°	2250.4	2237.8	2237.8	2256.6	2245.6	2236.2	2248.8	2247.2
15°	2165.6	2140.4	2140.4	2146.7	2151.4	2145.1	2146.7	2131.0
17.5°	2039.9	2032.1	2021.1	2038.4	2043.0	2036.8	2041.5	2033.6
20°	1922.1	1922.1	1901.7	1909.6	1915.8	1920.6	1923.7	1911.2
22.5°	1771.4	1774.5	1760.4	1776.1	1780.8	1765.1	1768.3	1765.1
25°	1633.2	1631.6	1620.6	1614.3	1617.5	1611.2	1609.6	1586.1
27.5°	1480.8	1465.1	1441.6	1447.9	1421.2	1399.2	1399.2	1363.1
30°	1316.0	1289.3	1257.9	1226.4	1202.9	1177.8	1163.6	1143.2
32.5°	1122.8	1086.7	1047.4	1005.0	978.4	940.7	920.2	931.3
35°	931.3	877.8	824.4	782.1	741.2	719.2	694.1	697.2
37.5°	745.9	670.6	623.5	577.9	543.4	515.1	504.1	500.9
40°	544.9	485.2	438.1	405.1	381.6	359.6	347.1	342.3
42.5°	376.9	334.5	296.8	270.1	254.4	240.2	234.0	232.4
45°	245.0	219.9	194.7	175.9	163.3	153.9	152.3	150.7
47.5°	153.9	141.3	125.6	111.5	100.5	94.2	89.5	89.5
50°	87.9	83.2	75.4	67.5	61.3	58.1	53.4	51.8
52.5°	47.1	47.1	44.0	37.7	33.0	29.9	29.9	28.3
55°	25.1	25.1	23.6	23.6	22.0	22.0	22.0	20.4
57.5°	15.7	15.7	17.3	17.3	15.7	15.7	15.7	15.7
60°	11.0	12.6	12.6	12.6	12.6	12.6	12.6	12.6
62.5°	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
65°	6.3	7.9	7.9	7.9	7.9	6.3	6.3	6.3
67.5°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
70°	4.7	4.7	4.7	4.7	4.7	3.1	3.1	3.1
72.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)