

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 FEU4C259040 F4LC-SQ-LI**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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 FEU4C259040 F4LC-SQ-LI
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

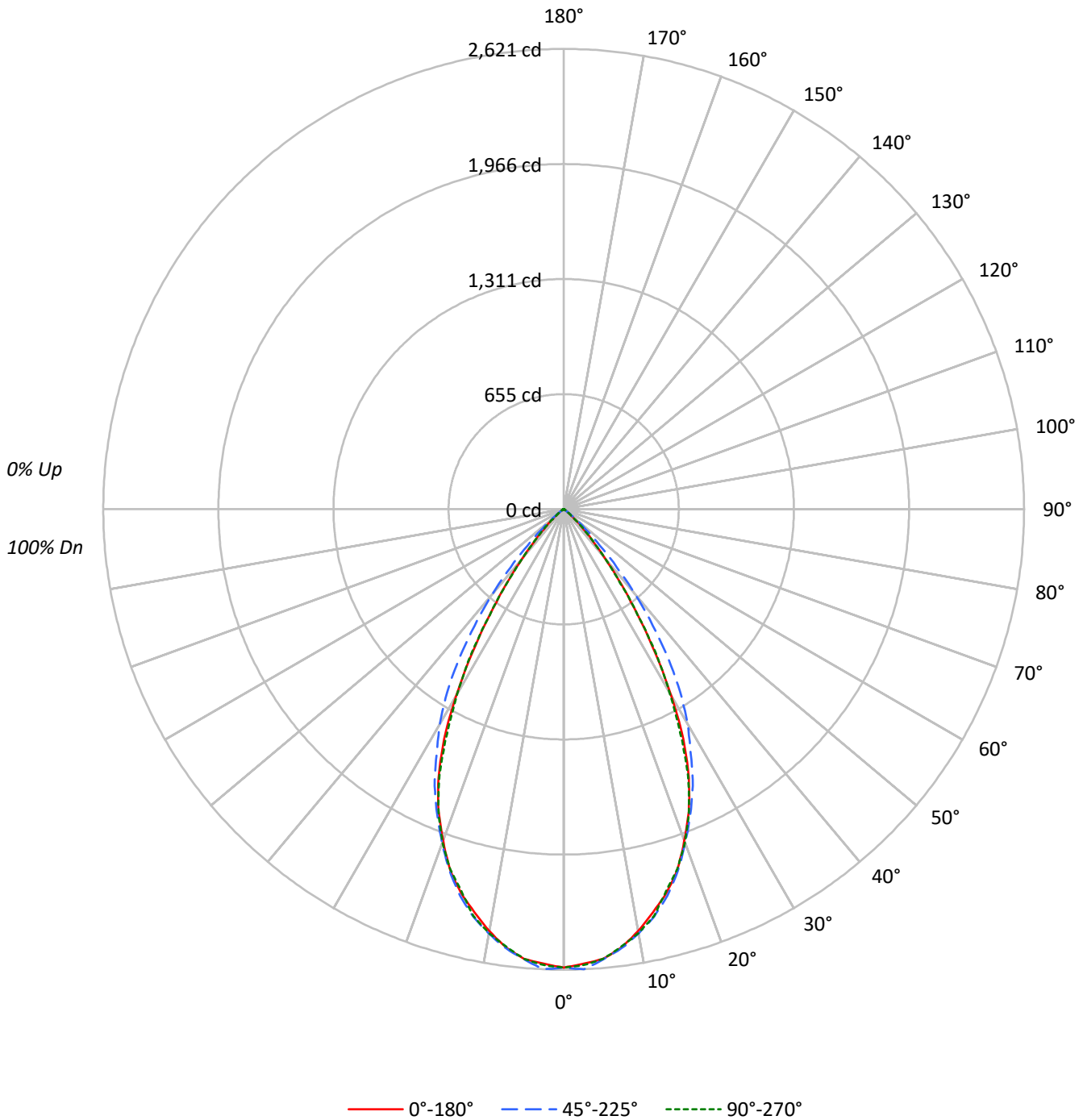
Lumens per Lamp: N/A
 Luminaire Lumens: 2409.0 lumens
 Efficiency: N/A
 Efficacy: 76.5 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C25D010 FEU4C259040 F4LC-SQ-LI

Luminous Intensity Polar Plot





TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259040 F4LC-SQ-LI

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				
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°	251768	251768	251768
5°	248875	249205	248875
10°	238928	240388	240064
15°	225877	227535	224719
20°	206143	207673	207160
25°	179498	185140	178252
30°	136495	156996	134468
35°	85917	122043	86694
40°	46352	80600	45521
45°	21942	39818	21710
50°	8211	14921	8211
55°	3903	4744	3634
60°	2567	2239	2567
65°	1507	1507	1507
70°	931	1411	931
75°	634	634	634
80°	945	945	945
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259040 F4LC-SQ-LI

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.9	10.0
10°-20°	634.0	26.3
20°-30°	774.5	32.2
30°-40°	541.7	22.5
40°-50°	177.5	7.4
50°-60°	28.2	1.2
60°-70°	7.7	0.3
70°-80°	2.6	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°	1650.5	68.5
0°-40°	2192.2	91.0
0°-60°	2398.0	99.5
0°-90°	2409.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2409.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2609	2609	2609	2609	2609	
5°	2570	2570	2573	2557	2570	241
15°	2261	2270	2278	2263	2250	631
25°	1686	1712	1739	1708	1674	757
35°	729	861	1036	848	736	465
45°	161	198	292	196	159	135
55°	23	25	28	25	22	23
65°	7	8	7	8	7	7
75°	2	2	2	2	2	2
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259040 F4LC-SQ-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	2609.3	2609.3	2609.3	2609.3	2609.3	2609.3	2609.3	2609.3	2609.3	2609.3	2609.3
2.5°	2589.4	2607.7	2602.7	2614.3	2614.3	2601.1	2604.4	2609.3	2616.0	2621.0	2581.1
5°	2569.5	2586.1	2571.2	2587.7	2577.8	2562.9	2587.7	2574.5	2582.8	2572.9	2579.5
7.5°	2516.5	2543.0	2513.2	2533.1	2526.5	2518.1	2528.1	2524.8	2529.8	2521.4	2503.2
10°	2438.6	2460.2	2440.3	2468.4	2455.1	2446.9	2455.1	2463.5	2461.8	2453.5	2463.5
12.5°	2349.1	2373.9	2364.0	2380.5	2365.6	2365.6	2385.5	2380.5	2382.2	2375.6	2387.2
15°	2261.2	2279.5	2264.5	2286.1	2279.5	2261.2	2269.5	2269.5	2282.8	2277.8	2264.5
17.5°	2151.8	2166.7	2150.1	2155.1	2148.5	2145.2	2179.9	2156.7	2170.0	2160.1	2161.7
20°	2007.6	2014.2	2009.2	2022.5	2014.2	2024.2	2020.8	2017.5	2017.5	2022.5	2010.9
22.5°	1861.7	1861.7	1866.7	1870.0	1876.6	1866.7	1886.6	1870.0	1871.6	1883.2	1879.9
25°	1686.0	1681.0	1692.6	1709.2	1715.8	1707.5	1734.0	1720.7	1730.7	1739.0	1720.7
27.5°	1472.1	1472.1	1483.7	1511.9	1516.8	1526.8	1563.3	1563.3	1576.5	1564.9	1578.2
30°	1225.1	1243.3	1258.2	1294.7	1306.3	1327.9	1366.0	1384.3	1414.1	1409.1	1402.4
32.5°	971.5	996.3	998.0	1036.1	1067.6	1104.0	1155.5	1198.6	1220.1	1235.0	1218.4
35°	729.4	744.4	757.6	784.1	837.2	885.3	931.7	988.0	1026.2	1036.1	1021.2
37.5°	533.8	537.1	550.4	575.2	615.0	661.5	717.8	779.1	819.0	833.9	817.3
40°	368.0	371.3	378.0	399.5	432.7	465.8	510.6	573.6	610.1	639.9	618.3
42.5°	247.0	250.3	256.9	273.5	291.8	323.2	358.1	397.8	432.7	445.9	434.3
45°	160.8	160.8	164.1	175.8	185.7	210.5	235.4	260.2	283.5	291.8	283.5
47.5°	94.5	96.1	99.4	107.8	119.3	129.3	147.5	164.1	170.7	177.4	174.1
50°	54.7	54.7	59.7	64.7	72.9	79.6	86.2	92.8	96.1	99.4	96.1
52.5°	29.8	31.5	33.1	34.8	38.2	44.8	49.7	49.7	51.4	53.0	51.4
55°	23.2	23.2	23.2	23.2	24.9	24.9	24.9	26.5	26.5	28.2	26.5
57.5°	16.6	16.6	16.6	18.3	18.3	18.3	16.6	16.6	16.6	16.6	16.6
60°	13.3	13.3	13.3	13.3	13.3	13.3	13.3	11.6	11.6	11.6	11.6
62.5°	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
65°	6.6	6.6	8.3	8.3	8.3	8.3	8.3	6.6	6.6	6.6	6.6
67.5°	5.0	5.0	5.0	5.0	6.6	6.6	5.0	5.0	5.0	5.0	5.0
70°	3.3	3.3	3.3	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
72.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
75°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	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°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259040 F4LC-SQ-LI

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	2609.3	2609.3	2609.3	2609.3	2609.3	2609.3	2609.3	2609.3
2.5°	2609.3	2581.1	2584.4	2599.4	2591.1	2599.4	2597.8	2597.8
5°	2581.1	2572.9	2559.6	2554.6	2564.5	2586.1	2582.8	2569.5
7.5°	2528.1	2506.6	2521.4	2528.1	2519.8	2533.1	2539.7	2511.5
10°	2465.1	2456.8	2453.5	2456.8	2453.5	2466.8	2450.2	2450.2
12.5°	2375.6	2362.3	2362.3	2382.2	2370.6	2360.6	2373.9	2372.3
15°	2286.1	2259.5	2259.5	2266.1	2271.1	2264.5	2266.1	2249.6
17.5°	2153.4	2145.2	2133.5	2151.8	2156.7	2150.1	2155.1	2146.8
20°	2029.1	2029.1	2007.6	2015.8	2022.5	2027.5	2030.8	2017.5
22.5°	1870.0	1873.3	1858.3	1874.9	1879.9	1863.3	1866.7	1863.3
25°	1724.1	1722.4	1710.8	1704.2	1707.5	1700.9	1699.2	1674.3
27.5°	1563.3	1546.7	1521.9	1528.5	1500.3	1477.1	1477.1	1438.9
30°	1389.2	1361.0	1327.9	1294.7	1269.9	1243.3	1228.4	1206.9
32.5°	1185.3	1147.2	1105.7	1061.0	1032.8	993.0	971.5	983.1
35°	983.1	926.7	870.3	825.6	782.4	759.2	732.7	736.0
37.5°	787.4	707.9	658.2	610.1	573.6	543.8	532.1	528.8
40°	575.2	512.2	462.5	427.7	402.9	379.7	366.4	361.4
42.5°	397.8	353.1	313.3	285.1	268.6	253.6	247.0	245.4
45°	258.6	232.1	205.6	185.7	172.4	162.5	160.8	159.1
47.5°	162.5	149.2	132.6	117.7	106.1	99.4	94.5	94.5
50°	92.8	87.9	79.6	71.3	64.7	61.4	56.4	54.7
52.5°	49.7	49.7	46.4	39.8	34.8	31.5	31.5	29.8
55°	26.5	26.5	24.9	24.9	23.2	23.2	23.2	21.6
57.5°	16.6	16.6	18.3	18.3	16.6	16.6	16.6	16.6
60°	11.6	13.3	13.3	13.3	13.3	13.3	13.3	13.3
62.5°	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9
65°	6.6	8.3	8.3	8.3	8.3	6.6	6.6	6.6
67.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
70°	5.0	5.0	5.0	5.0	5.0	3.3	3.3	3.3
72.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
75°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)