

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: **FLDSQ4C100D010 FEU4C1009050 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: FLDSQ4C100D010 FEU4C1009050 F4LC-SQ-LI
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

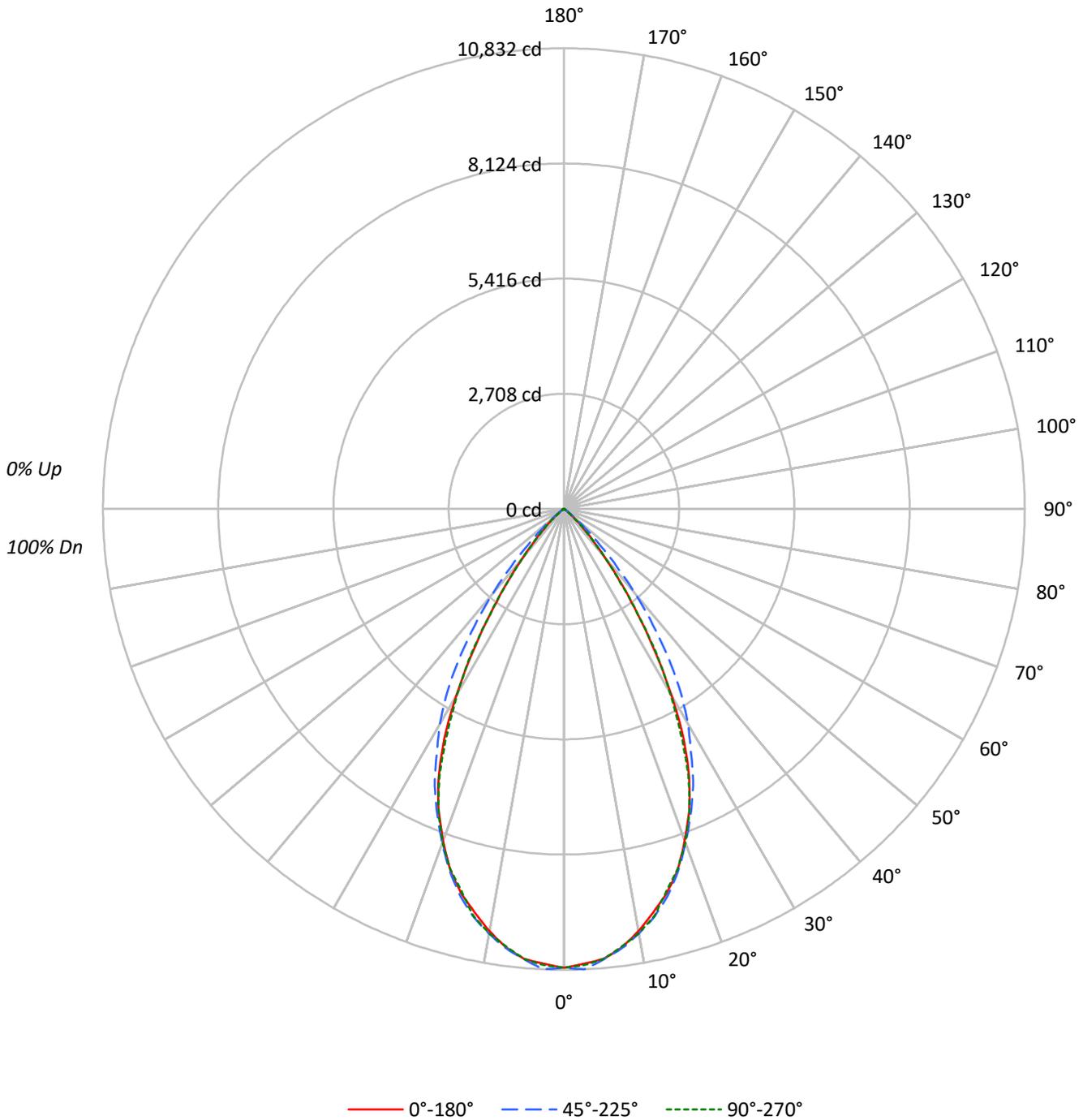
Lumens per Lamp: N/A
 Luminaire Lumens: 9956.0 lumens
 Efficiency: N/A
 Efficacy: 87.0 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 114.4
 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°	1040527	1040527	1040527
5°	1028578	1029905	1028578
10°	987436	993491	992148
15°	933507	940349	928712
20°	851947	858262	856167
25°	741818	765155	736697
30°	564098	648830	555720
35°	355082	504394	358309
40°	191568	333107	188117
45°	90689	164552	89733
50°	33955	61695	33955
55°	16133	19615	15006
60°	10575	9282	10575
65°	6256	6256	6256
70°	3865	5840	3865
75°	2610	2610	2610
80°	3890	3890	3890
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	999.8	10.0
10°-20°	2620.4	26.3
20°-30°	3201.0	32.2
30°-40°	2238.9	22.5
40°-50°	733.7	7.4
50°-60°	116.7	1.2
60°-70°	31.9	0.3
70°-80°	10.7	0.1
80°-90°	3.0	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°	6821.3	68.5
0°-40°	9060.1	91.0
0°-60°	9910.5	99.5
0°-90°	9956.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9956.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	10784	10784	10784	10784	10784	
5°	10620	10623	10633	10568	10620	996
15°	9345	9383	9414	9352	9297	2607
25°	6968	7074	7187	7057	6920	3130
35°	3014	3559	4282	3504	3042	1924
45°	665	819	1206	809	658	557
55°	96	103	117	103	89	95
65°	27	34	27	34	27	30
75°	7	7	7	7	7	10
85°	0	0	0	0	0	3
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C100D010 FEU4C1009050 F4LC-SQ-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	10783.9	10783.9	10783.9	10783.9	10783.9	10783.9	10783.9	10783.9	10783.9	10783.9	10783.9
2.5°	10701.7	10777.2	10756.5	10804.6	10804.6	10749.8	10763.5	10783.9	10811.3	10832.0	10667.3
5°	10619.5	10688.0	10626.2	10694.7	10653.6	10592.1	10694.7	10639.9	10674.3	10633.2	10660.6
7.5°	10400.3	10509.9	10386.6	10468.8	10441.4	10407.0	10448.1	10434.4	10455.1	10420.7	10345.5
10°	10078.2	10167.4	10085.2	10201.5	10146.7	10112.6	10146.7	10181.1	10174.1	10140.0	10181.1
12.5°	9708.3	9810.9	9769.8	9838.3	9776.8	9776.8	9859.0	9838.3	9845.3	9817.9	9865.7
15°	9345.1	9420.6	9358.8	9448.0	9420.6	9345.1	9379.3	9379.3	9434.3	9413.6	9358.8
17.5°	8893.1	8954.6	8886.1	8906.8	8879.4	8865.7	9009.4	8913.5	8968.3	8927.2	8934.2
20°	8297.0	8324.4	8303.7	8358.5	8324.4	8365.5	8351.8	8338.1	8338.1	8358.5	8310.7
22.5°	7693.9	7693.9	7714.6	7728.3	7755.7	7714.6	7796.8	7728.3	7735.0	7783.1	7769.4
25°	6967.8	6947.1	6995.2	7063.7	7091.1	7056.7	7166.3	7111.5	7152.6	7187.0	7111.5
27.5°	6084.1	6084.1	6131.9	6248.5	6268.9	6310.0	6460.7	6460.7	6515.5	6467.7	6522.5
30°	5063.0	5138.5	5200.0	5350.7	5398.8	5488.0	5645.4	5720.9	5844.2	5823.5	5796.1
32.5°	4014.8	4117.7	4124.4	4282.1	4412.1	4562.8	4775.3	4953.4	5042.6	5104.1	5035.6
35°	3014.5	3076.3	3131.1	3240.7	3459.9	3658.7	3850.5	4083.3	4241.0	4282.1	4220.3
37.5°	2206.2	2219.9	2274.7	2377.3	2541.7	2733.8	2966.7	3220.0	3384.7	3446.2	3377.7
40°	1520.9	1534.6	1562.0	1651.2	1788.2	1925.2	2110.3	2370.6	2521.3	2644.6	2555.4
42.5°	1020.8	1034.5	1061.9	1130.4	1205.9	1335.9	1479.8	1644.2	1788.2	1843.0	1794.9
45°	664.6	664.6	678.3	726.4	767.5	870.1	973.0	1075.6	1171.5	1205.9	1171.5
47.5°	390.6	397.3	411.0	445.4	493.2	534.3	609.8	678.3	705.7	733.1	719.4
50°	226.2	226.2	246.6	267.3	301.4	328.8	356.2	383.6	397.3	411.0	397.3
52.5°	123.3	130.3	137.0	144.0	157.7	185.1	205.5	205.5	212.5	219.2	212.5
55°	95.9	95.9	95.9	95.9	102.9	102.9	102.9	109.6	109.6	116.6	109.6
57.5°	68.5	68.5	68.5	75.5	75.5	75.5	68.5	68.5	68.5	68.5	68.5
60°	54.8	54.8	54.8	54.8	54.8	54.8	54.8	48.1	48.1	48.1	48.1
62.5°	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1
65°	27.4	27.4	34.4	34.4	34.4	34.4	34.4	27.4	27.4	27.4	27.4
67.5°	20.7	20.7	20.7	20.7	27.4	27.4	20.7	20.7	20.7	20.7	20.7
70°	13.7	13.7	13.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7
72.5°	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
75°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
77.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
80°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	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°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
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°	10783.9	10783.9	10783.9	10783.9	10783.9	10783.9	10783.9	10783.9
2.5°	10783.9	10667.3	10681.0	10742.8	10708.4	10742.8	10736.1	10736.1
5°	10667.3	10633.2	10578.4	10557.7	10598.8	10688.0	10674.3	10619.5
7.5°	10448.1	10359.2	10420.7	10448.1	10414.0	10468.8	10496.2	10379.6
10°	10187.8	10153.7	10140.0	10153.7	10140.0	10194.8	10126.3	10126.3
12.5°	9817.9	9763.1	9763.1	9845.3	9797.2	9756.1	9810.9	9804.2
15°	9448.0	9338.2	9338.2	9365.6	9386.2	9358.8	9365.6	9297.1
17.5°	8899.8	8865.7	8817.6	8893.1	8913.5	8886.1	8906.8	8872.4
20°	8385.9	8385.9	8297.0	8331.1	8358.5	8379.2	8392.9	8338.1
22.5°	7728.3	7742.0	7680.2	7748.7	7769.4	7700.9	7714.6	7700.9
25°	7125.2	7118.5	7070.4	7043.0	7056.7	7029.3	7022.6	6919.7
27.5°	6460.7	6392.2	6289.6	6317.0	6200.4	6104.5	6104.5	5946.8
30°	5741.3	5625.0	5488.0	5350.7	5248.1	5138.5	5076.7	4987.8
32.5°	4898.6	4741.2	4569.8	4384.7	4268.4	4104.0	4014.8	4062.9
35°	4062.9	3829.8	3596.9	3412.1	3233.7	3137.8	3028.2	3041.9
37.5°	3254.4	2925.6	2720.1	2521.3	2370.6	2247.3	2199.2	2185.5
40°	2377.3	2117.0	1911.5	1767.5	1664.9	1569.0	1514.2	1493.5
42.5°	1644.2	1459.4	1294.8	1178.5	1110.0	1048.2	1020.8	1014.1
45°	1068.9	959.3	849.7	767.5	712.7	671.6	664.6	657.6
47.5°	671.6	616.5	548.0	486.5	438.4	411.0	390.6	390.6
50°	383.6	363.2	328.8	294.7	267.3	253.6	232.9	226.2
52.5°	205.5	205.5	191.8	164.4	144.0	130.3	130.3	123.3
55°	109.6	109.6	102.9	102.9	95.9	95.9	95.9	89.2
57.5°	68.5	68.5	75.5	75.5	68.5	68.5	68.5	68.5
60°	48.1	54.8	54.8	54.8	54.8	54.8	54.8	54.8
62.5°	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1
65°	27.4	34.4	34.4	34.4	34.4	27.4	27.4	27.4
67.5°	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7
70°	20.7	20.7	20.7	20.7	20.7	13.7	13.7	13.7
72.5°	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
75°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
77.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
80°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
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°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)