

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 FEU4C1009035 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 FEU4C1009035 F4LC-SQ-LI
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

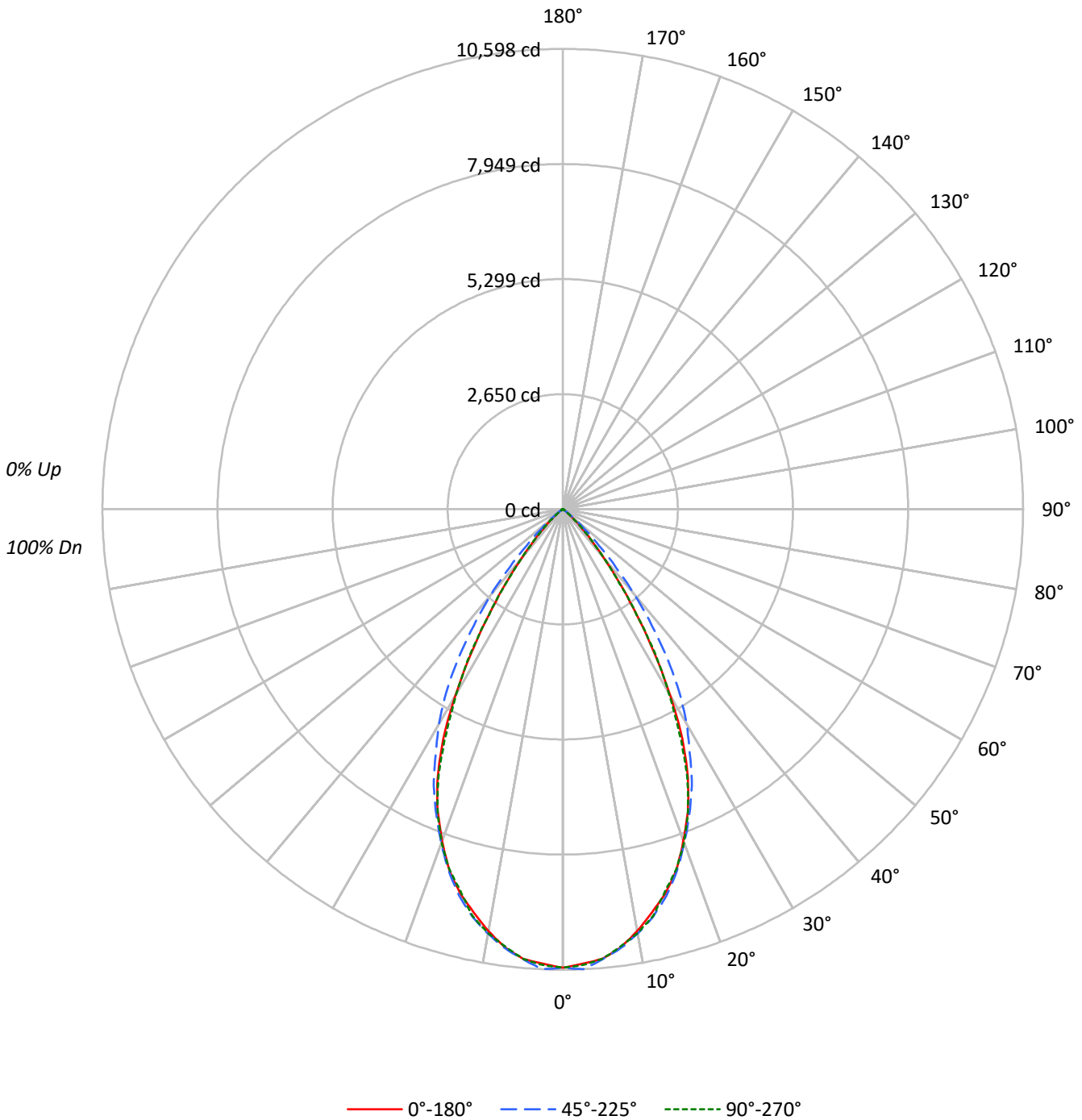
Lumens per Lamp: N/A
 Luminaire Lumens: 9740.9 lumens
 Efficiency: N/A
 Efficacy: 85.1 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	1018054	1018054	1018054
5°	1006368	1007666	1006368
10°	966116	972034	970721
15°	913348	920051	908654
20°	833547	839728	837674
25°	725806	748632	720791
30°	551920	634814	543720
35°	347413	493510	350570
40°	187437	325915	184061
45°	88724	160991	87796
50°	33219	60359	33219
55°	15779	19194	14686
60°	10344	9070	10344
65°	6119	6119	6119
70°	3780	5699	3780
75°	2535	2535	2535
80°	3778	3778	3778
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	978.3	10.0
10°-20°	2563.8	26.3
20°-30°	3131.9	32.2
30°-40°	2190.5	22.5
40°-50°	717.9	7.4
50°-60°	114.1	1.2
60°-70°	31.1	0.3
70°-80°	10.4	0.1
80°-90°	2.9	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°	6674.0	68.5
0°-40°	8864.5	91.0
0°-60°	9696.5	99.5
0°-90°	9740.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9740.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	10551	10551	10551	10551	10551	
5°	10390	10394	10404	10340	10390	975
15°	9143	9180	9210	9150	9096	2550
25°	6817	6921	7032	6904	6770	3062
35°	2949	3482	4190	3429	2976	1882
45°	650	801	1180	791	643	545
55°	94	101	114	101	87	93
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	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	10551.0	10551.0	10551.0	10551.0	10551.0	10551.0	10551.0	10551.0	10551.0	10551.0	10551.0
2.5°	10470.6	10544.4	10524.2	10571.3	10571.3	10517.6	10531.0	10551.0	10577.8	10598.1	10437.0
5°	10390.2	10457.2	10396.7	10463.8	10423.6	10363.4	10463.8	10410.1	10443.8	10403.6	10430.4
7.5°	10175.7	10282.9	10162.3	10242.7	10215.9	10182.3	10222.5	10209.1	10229.3	10195.7	10122.1
10°	9860.6	9947.8	9867.4	9981.2	9927.6	9894.2	9927.6	9961.2	9954.4	9921.0	9961.2
12.5°	9498.7	9599.1	9558.9	9625.9	9565.7	9565.7	9646.1	9625.9	9632.7	9605.9	9652.7
15°	9143.3	9217.2	9156.7	9244.0	9217.2	9143.3	9176.7	9176.7	9230.6	9210.4	9156.7
17.5°	8701.0	8761.2	8694.2	8714.4	8687.6	8674.2	8814.8	8721.0	8774.6	8734.4	8741.2
20°	8117.8	8144.6	8124.4	8178.0	8144.6	8184.8	8171.4	8158.0	8158.0	8178.0	8131.2
22.5°	7527.8	7527.8	7548.0	7561.4	7588.2	7548.0	7628.4	7561.4	7568.0	7615.0	7601.6
25°	6817.4	6797.1	6844.2	6911.2	6938.0	6904.4	7011.6	6958.0	6998.2	7031.8	6958.0
27.5°	5952.7	5952.7	5999.5	6113.5	6133.5	6173.7	6321.2	6321.2	6374.8	6328.0	6381.6
30°	4953.7	5027.5	5087.7	5235.2	5282.2	5369.5	5523.5	5597.3	5718.0	5697.7	5670.9
32.5°	3928.1	4028.8	4035.4	4189.7	4316.9	4464.3	4672.2	4846.5	4933.7	4993.9	4926.9
35°	2949.4	3009.8	3063.5	3170.7	3385.2	3579.6	3767.3	3995.2	4149.4	4189.7	4129.2
37.5°	2158.6	2172.0	2225.6	2326.0	2486.8	2674.7	2902.6	3150.5	3311.6	3371.8	3304.7
40°	1488.1	1501.5	1528.3	1615.6	1749.6	1883.7	2064.7	2319.4	2466.9	2587.5	2500.2
42.5°	998.7	1012.1	1038.9	1106.0	1179.8	1307.0	1447.9	1608.7	1749.6	1803.2	1756.2
45°	650.2	650.2	663.6	710.7	750.9	851.3	951.9	1052.3	1146.2	1179.8	1146.2
47.5°	382.1	388.7	402.1	435.8	482.5	522.8	596.6	663.6	690.4	717.2	703.8
50°	221.3	221.3	241.3	261.5	294.9	321.7	348.5	375.3	388.7	402.1	388.7
52.5°	120.6	127.5	134.0	140.9	154.3	181.1	201.1	201.1	207.9	214.5	207.9
55°	93.8	93.8	93.8	93.8	100.7	100.7	100.7	107.2	107.2	114.1	107.2
57.5°	67.0	67.0	67.0	73.9	73.9	73.9	67.0	67.0	67.0	67.0	67.0
60°	53.6	53.6	53.6	53.6	53.6	53.6	53.6	47.0	47.0	47.0	47.0
62.5°	40.2	40.2	40.2	40.2	40.2	40.2	40.2	40.2	40.2	40.2	40.2
65°	26.8	26.8	33.6	33.6	33.6	33.6	33.6	26.8	26.8	26.8	26.8
67.5°	20.2	20.2	20.2	20.2	26.8	26.8	20.2	20.2	20.2	20.2	20.2
70°	13.4	13.4	13.4	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
72.5°	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4
75°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
77.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
80°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	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°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
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°	10551.0	10551.0	10551.0	10551.0	10551.0	10551.0	10551.0	10551.0
2.5°	10551.0	10437.0	10450.4	10510.8	10477.2	10510.8	10504.2	10504.2
5°	10437.0	10403.6	10350.0	10329.7	10369.9	10457.2	10443.8	10390.2
7.5°	10222.5	10135.5	10195.7	10222.5	10189.1	10242.7	10269.5	10155.5
10°	9967.8	9934.4	9921.0	9934.4	9921.0	9974.6	9907.6	9907.6
12.5°	9605.9	9552.3	9552.3	9632.7	9585.7	9545.5	9599.1	9592.5
15°	9244.0	9136.5	9136.5	9163.3	9183.6	9156.7	9163.3	9096.3
17.5°	8707.6	8674.2	8627.2	8701.0	8721.0	8694.2	8714.4	8680.8
20°	8204.8	8204.8	8117.8	8151.2	8178.0	8198.2	8211.6	8158.0
22.5°	7561.4	7574.8	7514.4	7581.4	7601.6	7534.6	7548.0	7534.6
25°	6971.4	6964.8	6917.8	6891.0	6904.4	6877.5	6871.0	6770.3
27.5°	6321.2	6254.1	6153.7	6180.5	6066.5	5972.6	5972.6	5818.4
30°	5617.3	5503.5	5369.5	5235.2	5134.8	5027.5	4967.1	4880.1
32.5°	4792.8	4638.8	4471.1	4290.1	4176.3	4015.4	3928.1	3975.2
35°	3975.2	3747.1	3519.2	3338.4	3163.9	3070.0	2962.8	2976.2
37.5°	3184.1	2862.4	2661.3	2466.9	2319.4	2198.8	2151.7	2138.3
40°	2326.0	2071.3	1870.2	1729.4	1629.0	1535.1	1481.5	1461.3
42.5°	1608.7	1427.9	1266.8	1153.0	1086.0	1025.5	998.7	992.2
45°	1045.8	938.5	831.3	750.9	697.3	657.1	650.2	643.4
47.5°	657.1	603.2	536.2	476.0	428.9	402.1	382.1	382.1
50°	375.3	355.3	321.7	288.3	261.5	248.1	227.9	221.3
52.5°	201.1	201.1	187.7	160.8	140.9	127.5	127.5	120.6
55°	107.2	107.2	100.7	100.7	93.8	93.8	93.8	87.3
57.5°	67.0	67.0	73.9	73.9	67.0	67.0	67.0	67.0
60°	47.0	53.6	53.6	53.6	53.6	53.6	53.6	53.6
62.5°	40.2	40.2	40.2	40.2	40.2	40.2	40.2	40.2
65°	26.8	33.6	33.6	33.6	33.6	26.8	26.8	26.8
67.5°	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
70°	20.2	20.2	20.2	20.2	20.2	13.4	13.4	13.4
72.5°	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4
75°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
77.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
80°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
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°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)