

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-CSSQ-MW**

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

Summary

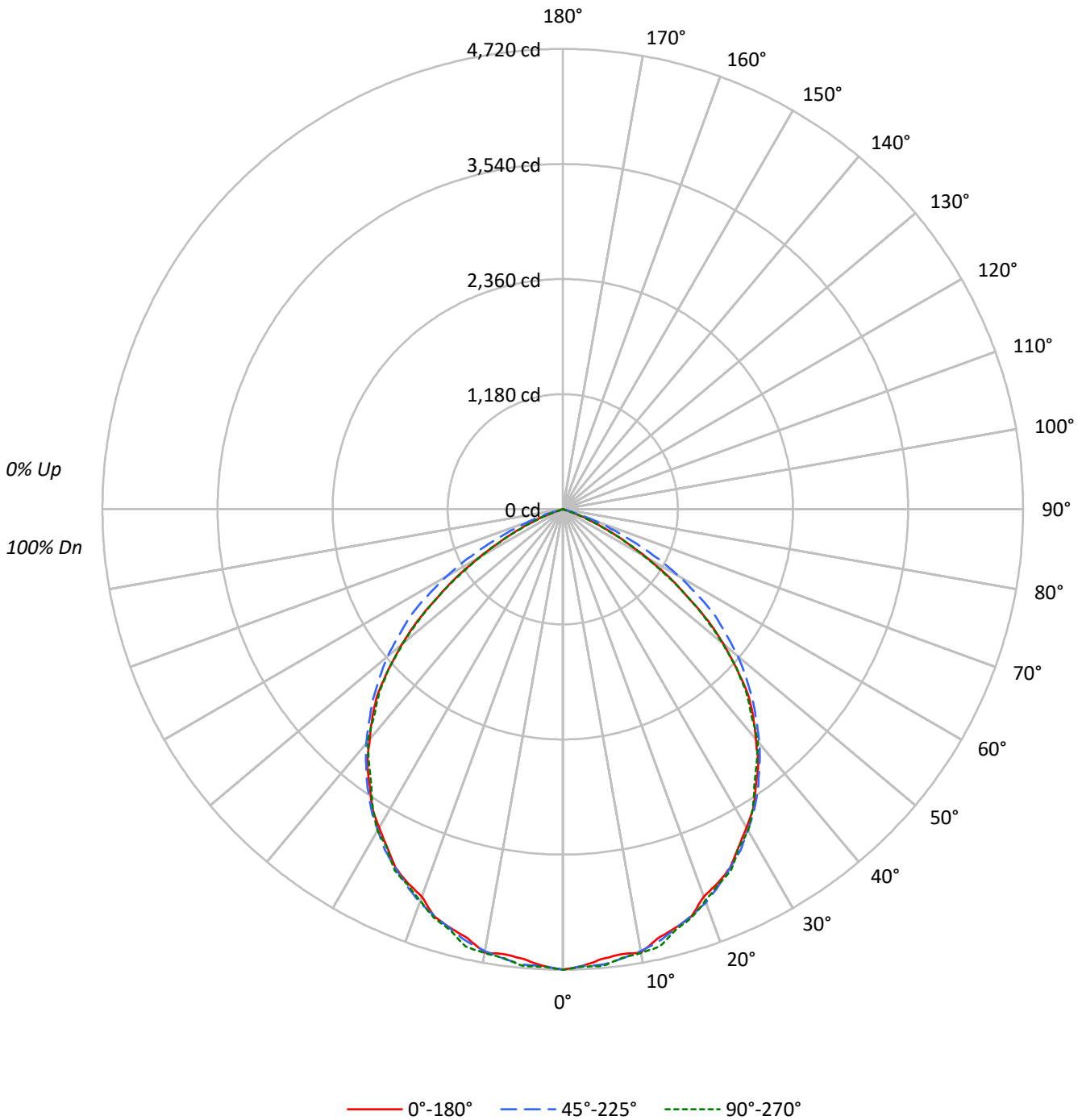
Lumens per Lamp: N/A
 Luminaire Lumens: 10083.0 lumens
 Efficiency: N/A
 Efficacy: 88.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	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
1	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89				89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77				77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67				67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59				59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52				52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46				46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41				41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37				37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33				33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31				31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	455447	455447	455447
5°	448092	453923	455220
10°	451960	450647	452607
15°	444043	444702	446041
20°	433716	440606	438552
25°	431849	431849	434702
30°	419804	422789	423558
35°	406709	410667	403553
40°	387634	395216	391841
45°	366862	375104	363205
50°	323082	351258	321070
55°	261654	321441	262815
60°	191473	266541	187613
65°	116348	189796	113289
70°	45392	102182	43530
75°	4996	27550	4996
80°	3778	3778	3778
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	445.5	4.4
10°-20°	1260.8	12.5
20°-30°	1870.7	18.6
30°-40°	2167.6	21.5
40°-50°	2078.2	20.6
50°-60°	1528.0	15.2
60°-70°	660.0	6.5
70°-80°	71.2	0.7
80°-90°	0.9	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°	3577.0	35.5
0°-40°	5744.6	57.0
0°-60°	9350.8	92.7
0°-90°	10083.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	10083.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4720	4720	4720	4720	4720	
5°	4626	4673	4686	4693	4700	441
15°	4445	4472	4452	4459	4465	1253
25°	4056	4050	4056	4063	4083	1857
35°	3453	3473	3486	3480	3426	2159
45°	2688	2695	2749	2709	2662	2044
55°	1555	1716	1911	1710	1562	1400
65°	510	637	831	630	496	524
75°	13	20	74	13	13	41
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2
2.5°	4686.5	4740.1	4747.0	4713.3	4699.9	4680.0	4726.7	4693.4	4706.8	4693.4	4686.5
5°	4626.3	4686.5	4693.4	4693.4	4680.0	4673.1	4693.4	4686.5	4680.0	4666.5	4686.5
7.5°	4599.5	4632.9	4666.5	4626.3	4646.3	4639.7	4686.5	4666.5	4659.7	4659.7	4646.3
10°	4612.9	4606.1	4632.9	4592.7	4606.1	4592.7	4632.9	4632.9	4619.5	4606.1	4599.5
12.5°	4505.4	4559.0	4559.0	4552.5	4539.1	4518.8	4559.0	4586.1	4545.6	4545.6	4539.1
15°	4445.2	4458.6	4465.2	4465.2	4458.6	4472.1	4492.0	4465.2	4472.1	4438.4	4451.8
17.5°	4378.2	4351.4	4371.4	4358.0	4364.8	4378.2	4405.0	4405.0	4364.8	4358.0	4371.4
20°	4223.9	4304.4	4311.2	4271.0	4277.6	4277.6	4324.6	4284.4	4311.2	4277.6	4291.0
22.5°	4150.1	4203.7	4210.5	4156.9	4190.3	4150.1	4197.1	4136.7	4203.7	4156.9	4176.9
25°	4056.3	4049.7	4069.7	4042.9	4049.7	4049.7	4083.1	4056.3	4076.5	4049.7	4056.3
27.5°	3902.2	3955.9	3949.0	3922.2	3935.6	3929.0	3996.1	3922.2	3962.4	3929.0	3942.4
30°	3767.9	3815.0	3801.6	3774.8	3774.8	3754.5	3828.4	3808.1	3801.6	3801.6	3794.7
32.5°	3633.9	3640.7	3627.3	3633.9	3640.7	3613.9	3674.1	3647.3	3640.7	3647.3	3654.1
35°	3452.8	3452.8	3466.2	3446.2	3473.0	3473.0	3526.7	3493.0	3486.4	3466.2	3486.4
37.5°	3291.9	3272.0	3278.5	3278.5	3291.9	3305.4	3332.2	3318.8	3318.8	3298.8	3312.2
40°	3077.5	3064.1	3084.0	3084.0	3104.3	3104.3	3131.1	3117.7	3137.7	3137.7	3137.7
42.5°	2889.8	2889.8	2876.4	2896.4	2903.2	2896.4	2943.4	2936.6	2943.4	2930.0	2936.6
45°	2688.5	2688.5	2675.1	2668.5	2701.9	2695.3	2748.9	2728.7	2755.5	2742.1	2748.9
47.5°	2413.6	2447.2	2427.0	2447.2	2487.4	2494.3	2527.6	2514.2	2541.0	2521.1	2547.9
50°	2152.3	2152.3	2172.3	2199.1	2239.3	2246.1	2286.4	2313.2	2326.6	2333.1	2340.0
52.5°	1877.4	1870.6	1890.8	1924.2	1957.8	1984.6	2024.8	2065.1	2091.9	2132.1	2111.8
55°	1555.4	1568.8	1589.1	1629.3	1682.9	1716.3	1749.9	1803.5	1850.6	1870.6	1910.8
57.5°	1280.5	1267.1	1280.5	1334.1	1394.6	1421.4	1468.4	1522.0	1589.1	1629.3	1642.7
60°	992.2	999.0	1012.4	1059.5	1106.3	1146.5	1166.7	1253.7	1314.1	1354.4	1381.2
62.5°	730.9	744.3	757.7	798.0	844.7	878.4	911.8	985.6	1039.2	1079.4	1106.3
65°	509.6	516.2	536.4	556.4	603.5	636.8	663.6	724.1	777.7	811.4	831.3
67.5°	315.1	321.7	335.1	362.2	395.6	422.4	449.2	489.4	536.4	569.8	576.6
70°	160.9	167.7	174.3	194.5	221.3	234.7	254.7	288.3	321.7	348.5	362.2
72.5°	53.6	53.6	60.5	73.9	87.3	100.7	107.2	140.9	167.7	181.1	187.7
75°	13.4	13.4	13.4	13.4	13.4	20.2	20.2	40.2	53.6	67.0	73.9
77.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	13.4	13.4
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	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	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2	4720.2
2.5°	4720.2	4706.8	4699.9	4706.8	4706.8	4699.9	4720.2	4747.0	4780.4	4693.4
5°	4713.3	4699.9	4713.3	4673.1	4693.4	4680.0	4706.8	4699.9	4726.7	4699.9
7.5°	4693.4	4666.5	4673.1	4653.1	4680.0	4646.3	4666.5	4706.8	4680.0	4639.7
10°	4626.3	4612.9	4659.7	4592.7	4579.3	4606.1	4659.7	4619.5	4606.1	4619.5
12.5°	4559.0	4559.0	4579.3	4525.7	4532.2	4545.6	4572.5	4545.6	4559.0	4592.7
15°	4485.5	4472.1	4505.4	4465.2	4458.6	4445.2	4472.1	4472.1	4485.5	4465.2
17.5°	4398.2	4378.2	4378.2	4364.8	4358.0	4391.6	4405.0	4411.6	4418.4	4391.6
20°	4291.0	4284.4	4304.4	4284.4	4291.0	4297.8	4297.8	4284.4	4344.6	4271.0
22.5°	4176.9	4197.1	4170.3	4156.9	4170.3	4183.7	4183.7	4190.3	4176.9	4163.5
25°	4063.1	4076.5	4083.1	4042.9	4063.1	4042.9	4089.9	4096.5	4069.7	4083.1
27.5°	3962.4	3942.4	3935.6	3908.8	3922.2	3915.6	3922.2	3922.2	3962.4	3908.8
30°	3808.1	3788.2	3794.7	3774.8	3781.3	3774.8	3781.3	3781.3	3808.1	3801.6
32.5°	3660.7	3640.7	3647.3	3627.3	3627.3	3633.9	3620.5	3620.5	3640.7	3627.3
35°	3519.8	3473.0	3479.6	3473.0	3479.6	3452.8	3452.8	3446.2	3459.6	3426.0
37.5°	3318.8	3298.8	3291.9	3285.4	3291.9	3278.5	3291.9	3272.0	3291.9	3265.1
40°	3137.7	3124.3	3131.1	3090.9	3090.9	3097.5	3084.0	3077.5	3084.0	3110.9
42.5°	2956.8	2930.0	2916.6	2903.2	2909.8	2889.8	2883.0	2869.6	2883.0	2856.2
45°	2742.1	2742.1	2735.5	2701.9	2708.7	2708.7	2681.9	2655.1	2661.7	2661.7
47.5°	2547.9	2534.5	2527.6	2494.3	2487.4	2480.9	2453.8	2433.8	2433.8	2413.6
50°	2333.1	2319.7	2299.8	2266.1	2252.7	2212.5	2192.5	2165.7	2138.9	2138.9
52.5°	2132.1	2085.0	2058.2	2004.6	1984.6	1964.4	1910.8	1890.8	1870.6	1850.6
55°	1890.8	1850.6	1797.0	1736.5	1709.7	1676.1	1622.4	1582.2	1555.4	1562.3
57.5°	1656.1	1589.1	1535.5	1455.0	1421.4	1401.1	1347.5	1293.9	1267.1	1267.1
60°	1367.8	1314.1	1247.1	1173.3	1146.5	1113.1	1045.8	1012.4	992.2	972.2
62.5°	1092.8	1052.6	992.2	898.4	878.4	844.7	798.0	757.7	737.5	737.5
65°	817.9	777.7	724.1	657.1	630.3	603.5	563.2	523.0	502.8	496.2
67.5°	576.6	529.6	482.8	429.2	409.0	395.6	355.3	328.5	315.1	308.3
70°	348.5	321.7	288.3	248.1	227.9	214.5	187.7	167.7	160.9	154.3
72.5°	181.1	160.9	134.0	107.2	93.8	80.4	67.0	53.6	47.0	47.0
75°	67.0	53.6	33.6	20.2	13.4	13.4	13.4	13.4	13.4	13.4
77.5°	13.4	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
82.5°	0.0	0.0	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	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)