

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: **FLDSQ4C40D010 FEU4C409027 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: FLDSQ4C40D010 FEU4C409027 F4LC-SQ-LI
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

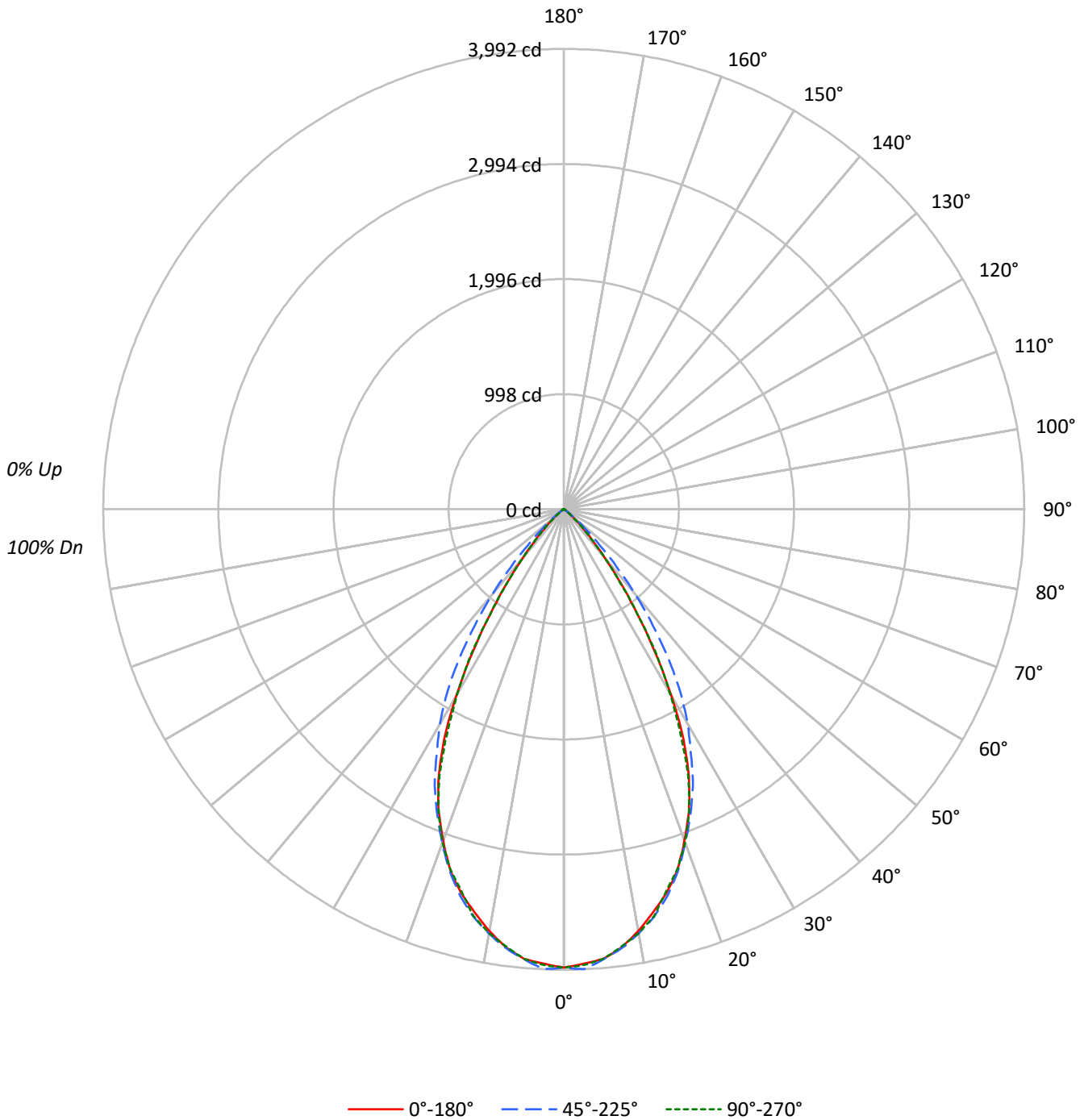
Lumens per Lamp: N/A
 Luminaire Lumens: 3669.0 lumens
 Efficiency: N/A
 Efficacy: 78.1 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 47
 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	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°	383457	383457	383457
5°	379052	379546	379052
10°	363888	366122	365632
15°	344020	346538	342252
20°	313958	316289	315519
25°	273378	281980	271493
30°	207880	239109	204793
35°	130854	185886	132044
40°	70599	122758	69327
45°	33418	60641	33063
50°	12519	22742	12519
55°	5938	7234	5535
60°	3898	3416	3898
65°	2306	2306	2306
70°	1411	2144	1411
75°	969	969	969
80°	1445	1445	1445
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	368.5	10.0
10°-20°	965.7	26.3
20°-30°	1179.7	32.2
30°-40°	825.1	22.5
40°-50°	270.4	7.4
50°-60°	43.0	1.2
60°-70°	11.7	0.3
70°-80°	3.9	0.1
80°-90°	1.1	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°	2513.8	68.5
0°-40°	3338.9	91.0
0°-60°	3652.2	99.5
0°-90°	3669.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3669.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3974	3974	3974	3974	3974	
5°	3914	3915	3919	3895	3914	367
15°	3444	3458	3469	3446	3426	961
25°	2568	2607	2649	2601	2550	1153
35°	1111	1312	1578	1291	1121	709
45°	245	302	444	298	242	205
55°	35	38	43	38	33	35
65°	10	13	10	13	10	11
75°	3	3	3	3	3	4
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°	3974.1	3974.1	3974.1	3974.1	3974.1	3974.1	3974.1	3974.1	3974.1	3974.1	3974.1
2.5°	3943.8	3971.6	3964.0	3981.7	3981.7	3961.5	3966.6	3974.1	3984.2	3991.8	3931.1
5°	3913.5	3938.8	3916.0	3941.2	3926.1	3903.4	3941.2	3921.0	3933.7	3918.6	3928.7
7.5°	3832.7	3873.1	3827.7	3858.0	3847.9	3835.2	3850.4	3845.3	3852.9	3840.3	3812.5
10°	3714.0	3746.9	3716.6	3759.5	3739.3	3726.7	3739.3	3752.0	3749.4	3736.8	3752.0
12.5°	3577.7	3615.5	3600.4	3625.6	3603.0	3603.0	3633.3	3625.6	3628.2	3618.1	3635.7
15°	3443.9	3471.7	3448.9	3481.8	3471.7	3443.9	3456.5	3456.5	3476.8	3469.1	3448.9
17.5°	3277.3	3300.0	3274.7	3282.3	3272.2	3267.2	3320.1	3284.8	3305.0	3289.9	3292.4
20°	3057.6	3067.7	3060.1	3080.3	3067.7	3082.9	3077.8	3072.8	3072.8	3080.3	3062.7
22.5°	2835.4	2835.4	2843.0	2848.0	2858.1	2843.0	2873.3	2848.0	2850.5	2868.2	2863.2
25°	2567.8	2560.2	2577.9	2603.1	2613.2	2600.6	2641.0	2620.8	2635.9	2648.6	2620.8
27.5°	2242.1	2242.1	2259.7	2302.7	2310.2	2325.4	2380.9	2380.9	2401.1	2383.5	2403.7
30°	1865.8	1893.6	1916.3	1971.9	1989.6	2022.4	2080.4	2108.3	2153.7	2146.1	2136.0
32.5°	1479.6	1517.5	1519.9	1578.1	1626.0	1681.5	1759.8	1825.4	1858.3	1881.0	1855.7
35°	1110.9	1133.7	1153.9	1194.3	1275.0	1348.3	1419.0	1504.8	1562.9	1578.1	1555.3
37.5°	813.0	818.1	838.3	876.1	936.7	1007.5	1093.3	1186.6	1247.3	1270.0	1244.7
40°	560.5	565.6	575.6	608.5	659.0	709.5	777.7	873.6	929.2	974.6	941.7
42.5°	376.2	381.2	391.3	416.6	444.4	492.3	545.4	605.9	659.0	679.2	661.5
45°	244.9	244.9	250.0	267.7	282.8	320.6	358.6	396.4	431.7	444.4	431.7
47.5°	143.9	146.4	151.5	164.1	181.8	196.9	224.7	250.0	260.1	270.2	265.1
50°	83.4	83.4	90.9	98.5	111.1	121.2	131.3	141.4	146.4	151.5	146.4
52.5°	45.4	48.0	50.5	53.1	58.1	68.2	75.7	75.7	78.3	80.8	78.3
55°	35.3	35.3	35.3	35.3	37.9	37.9	37.9	40.4	40.4	43.0	40.4
57.5°	25.2	25.2	25.2	27.8	27.8	27.8	25.2	25.2	25.2	25.2	25.2
60°	20.2	20.2	20.2	20.2	20.2	20.2	20.2	17.7	17.7	17.7	17.7
62.5°	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
65°	10.1	10.1	12.7	12.7	12.7	12.7	12.7	10.1	10.1	10.1	10.1
67.5°	7.6	7.6	7.6	7.6	10.1	10.1	7.6	7.6	7.6	7.6	7.6
70°	5.0	5.0	5.0	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
72.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
75°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
77.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
80°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	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°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
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°	3974.1	3974.1	3974.1	3974.1	3974.1	3974.1	3974.1	3974.1
2.5°	3974.1	3931.1	3936.2	3959.0	3946.3	3959.0	3956.5	3956.5
5°	3931.1	3918.6	3898.4	3890.7	3905.9	3938.8	3933.7	3913.5
7.5°	3850.4	3817.6	3840.3	3850.4	3837.8	3858.0	3868.1	3825.1
10°	3754.4	3741.9	3736.8	3741.9	3736.8	3757.0	3731.8	3731.8
12.5°	3618.1	3597.9	3597.9	3628.2	3610.5	3595.3	3615.5	3613.1
15°	3481.8	3441.3	3441.3	3451.4	3459.0	3448.9	3451.4	3426.2
17.5°	3279.8	3267.2	3249.5	3277.3	3284.8	3274.7	3282.3	3269.7
20°	3090.4	3090.4	3057.6	3070.2	3080.3	3087.9	3093.0	3072.8
22.5°	2848.0	2853.1	2830.3	2855.6	2863.2	2837.9	2843.0	2837.9
25°	2625.8	2623.3	2605.6	2595.5	2600.6	2590.5	2588.0	2550.1
27.5°	2380.9	2355.7	2317.8	2327.9	2285.0	2249.6	2249.6	2191.5
30°	2115.8	2072.9	2022.4	1971.9	1934.0	1893.6	1870.9	1838.1
32.5°	1805.2	1747.2	1684.1	1615.9	1573.0	1512.4	1479.6	1497.3
35°	1497.3	1411.4	1325.5	1257.4	1191.7	1156.3	1116.0	1121.0
37.5°	1199.3	1078.1	1002.4	929.2	873.6	828.2	810.5	805.4
40°	876.1	780.2	704.4	651.4	613.6	578.2	558.0	550.4
42.5°	605.9	537.8	477.1	434.3	409.0	386.3	376.2	373.7
45°	393.9	353.5	313.1	282.8	262.6	247.5	244.9	242.3
47.5°	247.5	227.2	201.9	179.3	161.6	151.5	143.9	143.9
50°	141.4	133.8	121.2	108.6	98.5	93.4	85.8	83.4
52.5°	75.7	75.7	70.7	60.6	53.1	48.0	48.0	45.4
55°	40.4	40.4	37.9	37.9	35.3	35.3	35.3	32.9
57.5°	25.2	25.2	27.8	27.8	25.2	25.2	25.2	25.2
60°	17.7	20.2	20.2	20.2	20.2	20.2	20.2	20.2
62.5°	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
65°	10.1	12.7	12.7	12.7	12.7	10.1	10.1	10.1
67.5°	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
70°	7.6	7.6	7.6	7.6	7.6	5.0	5.0	5.0
72.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
75°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
77.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
80°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
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°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)