

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: **FLDSQ4C30D010 FEU4C309040 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: FLDSQ4C30D010 FEU4C309040 F4LC-SQ-LI
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

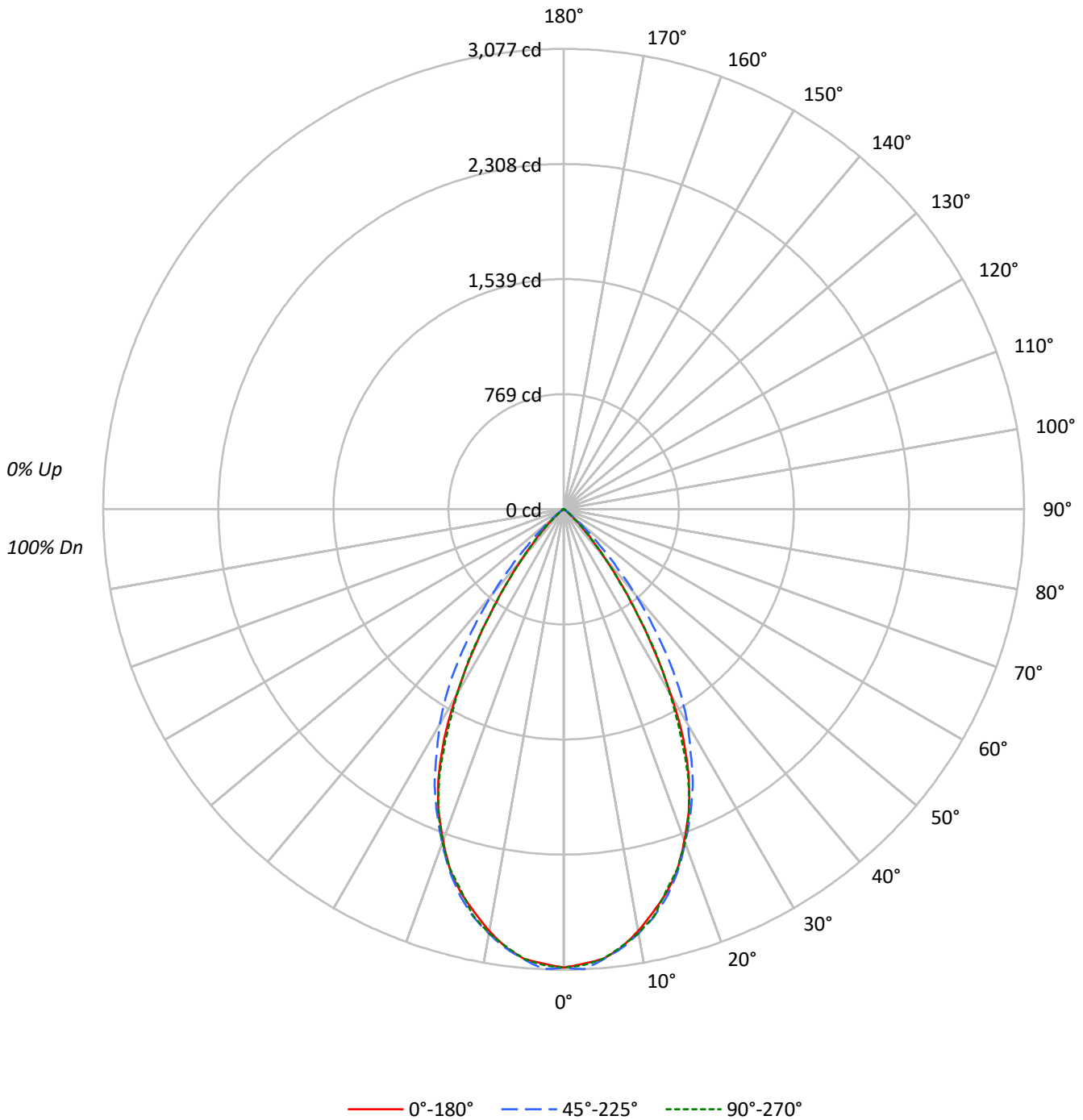
Lumens per Lamp: N/A
 Luminaire Lumens: 2828.1 lumens
 Efficiency: N/A
 Efficacy: 89.5 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 31.6
 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°	295565	295565	295565
5°	292171	292548	292171
10°	280480	282204	281822
15°	265165	267103	263797
20°	241999	243786	243190
25°	210713	217346	209265
30°	160227	184304	157854
35°	100865	143269	101772
40°	54414	94619	53431
45°	25763	46736	25490
50°	9637	17518	9637
55°	4576	5568	4256
60°	3010	2644	3010
65°	1781	1781	1781
70°	1100	1664	1100
75°	746	746	746
80°	1111	1111	1111
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.0	10.0
10°-20°	744.3	26.3
20°-30°	909.3	32.2
30°-40°	636.0	22.5
40°-50°	208.4	7.4
50°-60°	33.1	1.2
60°-70°	9.1	0.3
70°-80°	3.0	0.1
80°-90°	0.8	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°	1937.6	68.5
0°-40°	2573.5	91.0
0°-60°	2815.1	99.5
0°-90°	2828.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2828.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3063	3063	3063	3063	3063	
5°	3016	3017	3020	3002	3016	283
15°	2654	2665	2674	2656	2641	740
25°	1979	2009	2042	2004	1966	889
35°	856	1011	1216	995	864	546
45°	189	233	342	230	187	158
55°	27	29	33	29	25	27
65°	8	10	8	10	8	9
75°	2	2	2	2	2	3
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C30D010 FEU4C309040 F4LC-SQ-LI

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	3063.2	3063.2	3063.2	3063.2	3063.2	3063.2	3063.2	3063.2	3063.2	3063.2	3063.2
2.5°	3039.8	3061.3	3055.4	3069.0	3069.0	3053.5	3057.4	3063.2	3070.9	3076.8	3030.0
5°	3016.5	3035.9	3018.4	3037.8	3026.2	3008.7	3037.8	3022.3	3032.0	3020.4	3028.1
7.5°	2954.2	2985.3	2950.3	2973.7	2965.9	2956.1	2967.8	2963.9	2969.8	2960.0	2938.6
10°	2862.7	2888.1	2864.7	2897.7	2882.2	2872.5	2882.2	2891.9	2890.0	2880.3	2891.9
12.5°	2757.6	2786.8	2775.1	2794.6	2777.1	2777.1	2800.5	2794.6	2796.6	2788.8	2802.4
15°	2654.5	2675.9	2658.4	2683.7	2675.9	2654.5	2664.2	2664.2	2679.8	2673.9	2658.4
17.5°	2526.1	2543.5	2524.1	2530.0	2522.2	2518.3	2559.1	2531.9	2547.4	2535.8	2537.7
20°	2356.8	2364.5	2358.7	2374.2	2364.5	2376.2	2372.3	2368.4	2368.4	2374.2	2360.6
22.5°	2185.5	2185.5	2191.3	2195.2	2203.0	2191.3	2214.7	2195.2	2197.1	2210.8	2206.9
25°	1979.2	1973.3	1987.0	2006.5	2014.2	2004.5	2035.6	2020.0	2031.7	2041.5	2020.0
27.5°	1728.2	1728.2	1741.8	1774.9	1780.7	1792.3	1835.2	1835.2	1850.7	1837.1	1852.7
30°	1438.1	1459.6	1477.1	1519.9	1533.5	1558.9	1603.6	1625.0	1660.0	1654.2	1646.4
32.5°	1140.4	1169.6	1171.5	1216.3	1253.3	1296.1	1356.4	1407.0	1432.4	1449.8	1430.4
35°	856.3	873.8	889.4	920.5	982.8	1039.2	1093.7	1159.9	1204.7	1216.3	1198.8
37.5°	626.7	630.6	646.1	675.3	722.0	776.5	842.7	914.6	961.4	978.9	959.4
40°	432.0	435.9	443.7	469.0	507.9	546.9	599.4	673.4	716.2	751.2	725.9
42.5°	289.9	293.8	301.6	321.1	342.5	379.5	420.4	467.0	507.9	523.5	509.9
45°	188.8	188.8	192.7	206.3	218.0	247.1	276.4	305.5	332.8	342.5	332.8
47.5°	110.9	112.9	116.7	126.5	140.1	151.8	173.2	192.7	200.4	208.2	204.3
50°	64.2	64.2	70.0	75.9	85.6	93.4	101.2	109.0	112.9	116.7	112.9
52.5°	35.0	37.0	38.9	40.9	44.8	52.6	58.4	58.4	60.4	62.3	60.4
55°	27.2	27.2	27.2	27.2	29.2	29.2	29.2	31.1	31.1	33.1	31.1
57.5°	19.5	19.5	19.5	21.4	21.4	21.4	19.5	19.5	19.5	19.5	19.5
60°	15.6	15.6	15.6	15.6	15.6	15.6	15.6	13.7	13.7	13.7	13.7
62.5°	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
65°	7.8	7.8	9.8	9.8	9.8	9.8	9.8	7.8	7.8	7.8	7.8
67.5°	5.9	5.9	5.9	5.9	7.8	7.8	5.9	5.9	5.9	5.9	5.9
70°	3.9	3.9	3.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
72.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
80°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	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°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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°	3063.2	3063.2	3063.2	3063.2	3063.2	3063.2	3063.2	3063.2
2.5°	3063.2	3030.0	3033.9	3051.5	3041.7	3051.5	3049.6	3049.6
5°	3030.0	3020.4	3004.8	2998.9	3010.6	3035.9	3032.0	3016.5
7.5°	2967.8	2942.5	2960.0	2967.8	2958.1	2973.7	2981.4	2948.3
10°	2893.8	2884.2	2880.3	2884.2	2880.3	2895.8	2876.4	2876.4
12.5°	2788.8	2773.2	2773.2	2796.6	2782.9	2771.2	2786.8	2784.9
15°	2683.7	2652.5	2652.5	2660.3	2666.2	2658.4	2660.3	2640.8
17.5°	2528.0	2518.3	2504.6	2526.1	2531.9	2524.1	2530.0	2520.2
20°	2382.0	2382.0	2356.8	2366.4	2374.2	2380.1	2384.0	2368.4
22.5°	2195.2	2199.1	2181.6	2201.0	2206.9	2187.4	2191.3	2187.4
25°	2023.9	2022.0	2008.4	2000.6	2004.5	1996.7	1994.8	1965.6
27.5°	1835.2	1815.7	1786.5	1794.3	1761.2	1734.0	1734.0	1689.2
30°	1630.8	1597.8	1558.9	1519.9	1490.7	1459.6	1442.0	1416.8
32.5°	1391.5	1346.7	1298.1	1245.5	1212.4	1165.7	1140.4	1154.1
35°	1154.1	1087.8	1021.7	969.2	918.5	891.3	860.2	864.0
37.5°	924.4	831.0	772.6	716.2	673.4	638.3	624.7	620.8
40°	675.3	601.3	543.0	502.1	472.9	445.7	430.1	424.2
42.5°	467.0	414.6	367.8	334.7	315.3	297.7	289.9	288.0
45°	303.6	272.5	241.3	218.0	202.4	190.8	188.8	186.8
47.5°	190.8	175.1	155.7	138.2	124.5	116.7	110.9	110.9
50°	109.0	103.2	93.4	83.7	75.9	72.0	66.2	64.2
52.5°	58.4	58.4	54.5	46.7	40.9	37.0	37.0	35.0
55°	31.1	31.1	29.2	29.2	27.2	27.2	27.2	25.3
57.5°	19.5	19.5	21.4	21.4	19.5	19.5	19.5	19.5
60°	13.7	15.6	15.6	15.6	15.6	15.6	15.6	15.6
62.5°	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
65°	7.8	9.8	9.8	9.8	9.8	7.8	7.8	7.8
67.5°	5.9	5.9	5.9	5.9	5.9	5.9	5.9	5.9
70°	5.9	5.9	5.9	5.9	5.9	3.9	3.9	3.9
72.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
80°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
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°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)