

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: **FLDSQ4C35D010 FEU4C359030 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: FLDSQ4C35D010 FEU4C359030 F4LC-SQ-LI
Description: 4 INCH 3500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS
AND F4LC-SQ TRIM WITH LI FINISH
Light Source: -
Ballast/Driver: -

Summary

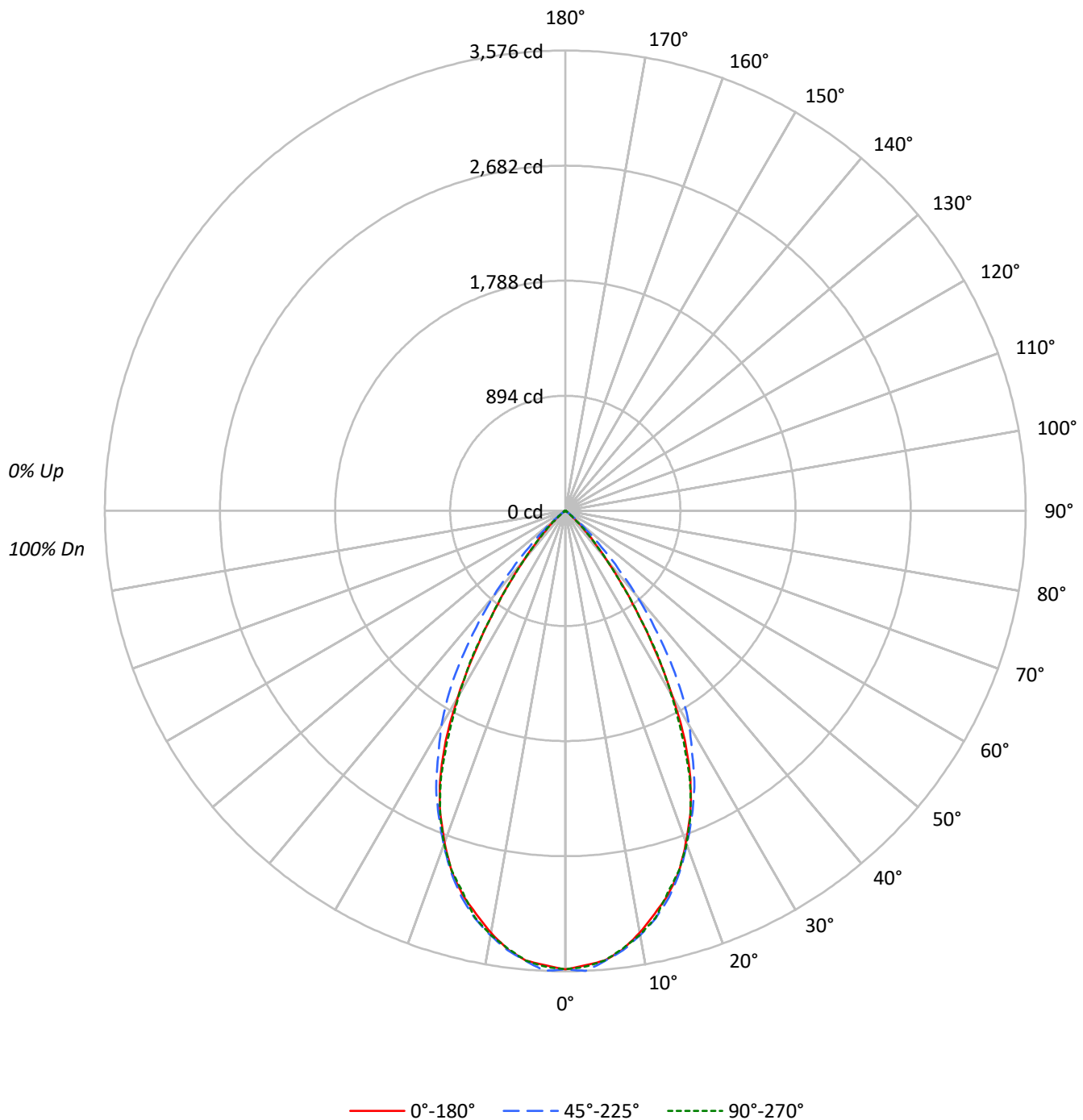
Lumens per Lamp: N/A
Luminaire Lumens: 3287.0 lumens
Efficiency: N/A
Efficacy: 81.4 lumens/watt
Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 40.4
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
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°	343529	343529	343529
5°	339592	340028	339592
10°	326010	328009	327558
15°	308199	310456	306621
20°	281275	283359	282661
25°	244909	252617	243227
30°	186243	214208	183468
35°	117226	166533	118298
40°	63243	109973	62110
45°	29938	54323	29625
50°	11213	20370	11213
55°	5333	6477	4946
60°	3493	3068	3493
65°	2055	2055	2055
70°	1270	1918	1270
75°	857	857	857
80°	1278	1278	1278
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	330.1	10.0
10°-20°	865.1	26.3
20°-30°	1056.8	32.2
30°-40°	739.2	22.5
40°-50°	242.2	7.4
50°-60°	38.5	1.2
60°-70°	10.5	0.3
70°-80°	3.5	0.1
80°-90°	1.0	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°	2252.1	68.5
0°-40°	2991.2	91.0
0°-60°	3272.0	99.5
0°-90°	3287.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3287.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3560	3560	3560	3560	3560	
5°	3506	3507	3511	3489	3506	329
15°	3085	3098	3108	3088	3070	861
25°	2300	2336	2373	2330	2285	1033
35°	995	1175	1414	1157	1004	635
45°	219	270	398	267	217	184
55°	32	34	38	34	29	31
65°	9	11	9	11	9	10
75°	2	2	2	2	2	3
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°	3560.3	3560.3	3560.3	3560.3	3560.3	3560.3	3560.3	3560.3	3560.3	3560.3	3560.3
2.5°	3533.2	3558.1	3551.3	3567.2	3567.2	3549.1	3553.6	3560.3	3569.4	3576.2	3521.8
5°	3506.1	3528.7	3508.3	3530.9	3517.3	3497.0	3530.9	3512.8	3524.1	3510.6	3519.6
7.5°	3433.7	3469.9	3429.2	3456.3	3447.3	3435.9	3449.5	3445.0	3451.8	3440.4	3415.6
10°	3327.4	3356.8	3329.7	3368.1	3350.0	3338.7	3350.0	3361.3	3359.0	3347.8	3361.3
12.5°	3205.2	3239.1	3225.5	3248.2	3227.8	3227.8	3255.0	3248.2	3250.5	3241.4	3257.2
15°	3085.3	3110.2	3089.8	3119.3	3110.2	3085.3	3096.6	3096.6	3114.8	3107.9	3089.8
17.5°	2936.1	2956.4	2933.8	2940.6	2931.5	2927.0	2974.5	2942.8	2960.9	2947.3	2949.6
20°	2739.3	2748.3	2741.5	2759.6	2748.3	2761.9	2757.4	2752.8	2752.8	2759.6	2743.8
22.5°	2540.2	2540.2	2547.0	2551.5	2560.6	2547.0	2574.1	2551.5	2553.7	2569.6	2565.1
25°	2300.4	2293.6	2309.5	2332.1	2341.2	2329.8	2366.0	2347.9	2361.5	2372.8	2347.9
27.5°	2008.7	2008.7	2024.5	2062.9	2069.7	2083.3	2133.0	2133.0	2151.1	2135.3	2153.4
30°	1671.6	1696.5	1716.8	1766.6	1782.4	1811.9	1863.8	1888.8	1929.5	1922.6	1913.6
32.5°	1325.5	1359.5	1361.7	1413.8	1456.7	1506.4	1576.6	1635.4	1664.8	1685.1	1662.5
35°	995.2	1015.6	1033.7	1069.9	1142.3	1207.9	1271.2	1348.1	1400.2	1413.8	1393.4
37.5°	728.4	732.9	751.0	784.9	839.2	902.6	979.5	1063.1	1117.5	1137.8	1115.1
40°	502.1	506.7	515.7	545.2	590.4	635.6	696.7	782.7	832.4	873.1	843.7
42.5°	337.0	341.5	350.6	373.2	398.1	441.0	488.6	542.9	590.4	608.5	592.6
45°	219.4	219.4	223.9	239.8	253.4	287.3	321.2	355.1	386.8	398.1	386.8
47.5°	129.0	131.2	135.7	147.0	162.8	176.4	201.3	223.9	233.0	242.0	237.5
50°	74.7	74.7	81.4	88.2	99.5	108.6	117.6	126.6	131.2	135.7	131.2
52.5°	40.7	43.0	45.2	47.5	52.1	61.1	67.8	67.8	70.2	72.4	70.2
55°	31.7	31.7	31.7	31.7	34.0	34.0	34.0	36.2	36.2	38.5	36.2
57.5°	22.6	22.6	22.6	24.9	24.9	24.9	22.6	22.6	22.6	22.6	22.6
60°	18.1	18.1	18.1	18.1	18.1	18.1	18.1	15.9	15.9	15.9	15.9
62.5°	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
65°	9.0	9.0	11.4	11.4	11.4	11.4	11.4	9.0	9.0	9.0	9.0
67.5°	6.8	6.8	6.8	6.8	9.0	9.0	6.8	6.8	6.8	6.8	6.8
70°	4.5	4.5	4.5	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
72.5°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
75°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
80°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	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°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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°	3560.3	3560.3	3560.3	3560.3	3560.3	3560.3	3560.3	3560.3
2.5°	3560.3	3521.8	3526.4	3546.8	3535.4	3546.8	3544.5	3544.5
5°	3521.8	3510.6	3492.5	3485.7	3499.2	3528.7	3524.1	3506.1
7.5°	3449.5	3420.1	3440.4	3449.5	3438.2	3456.3	3465.3	3426.9
10°	3363.5	3352.3	3347.8	3352.3	3347.8	3365.8	3343.2	3343.2
12.5°	3241.4	3223.3	3223.3	3250.5	3234.6	3221.0	3239.1	3236.9
15°	3119.3	3083.0	3083.0	3092.1	3098.9	3089.8	3092.1	3069.5
17.5°	2938.3	2927.0	2911.1	2936.1	2942.8	2933.8	2940.6	2929.2
20°	2768.6	2768.6	2739.3	2750.5	2759.6	2766.4	2770.9	2752.8
22.5°	2551.5	2556.0	2535.6	2558.3	2565.1	2542.5	2547.0	2542.5
25°	2352.4	2350.2	2334.3	2325.3	2329.8	2320.8	2318.5	2284.6
27.5°	2133.0	2110.4	2076.5	2085.6	2047.1	2015.4	2015.4	1963.3
30°	1895.5	1857.1	1811.9	1766.6	1732.7	1696.5	1676.1	1646.7
32.5°	1617.3	1565.3	1508.7	1447.6	1409.2	1355.0	1325.5	1341.4
35°	1341.4	1264.4	1187.5	1126.5	1067.6	1036.0	999.8	1004.3
37.5°	1074.4	965.9	898.0	832.4	782.7	742.0	726.1	721.6
40°	784.9	698.9	631.1	583.6	549.7	518.0	499.9	493.1
42.5°	542.9	481.8	427.5	389.1	366.5	346.1	337.0	334.8
45°	352.9	316.7	280.5	253.4	235.3	221.7	219.4	217.1
47.5°	221.7	203.5	180.9	160.6	144.7	135.7	129.0	129.0
50°	126.6	119.9	108.6	97.3	88.2	83.7	76.9	74.7
52.5°	67.8	67.8	63.3	54.3	47.5	43.0	43.0	40.7
55°	36.2	36.2	34.0	34.0	31.7	31.7	31.7	29.4
57.5°	22.6	22.6	24.9	24.9	22.6	22.6	22.6	22.6
60°	15.9	18.1	18.1	18.1	18.1	18.1	18.1	18.1
62.5°	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
65°	9.0	11.4	11.4	11.4	11.4	9.0	9.0	9.0
67.5°	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
70°	6.8	6.8	6.8	6.8	6.8	4.5	4.5	4.5
72.5°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
75°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
80°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)