

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 FEU4C309035 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 FEU4C309035 F4LC-SQ-LI
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

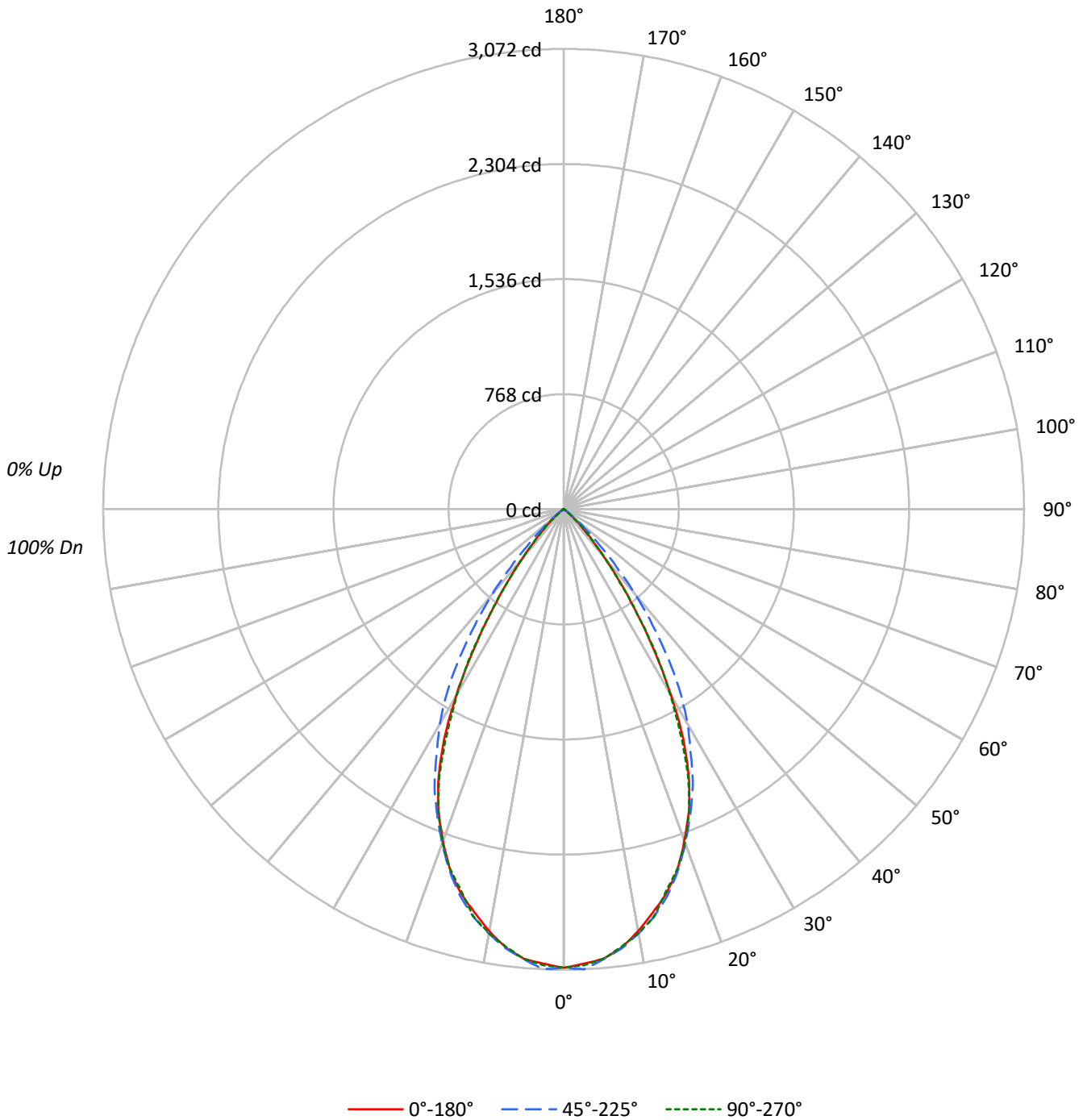
Lumens per Lamp: N/A
 Luminaire Lumens: 2824.0 lumens
 Efficiency: N/A
 Efficacy: 89.4 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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°	295140	295140	295140
5°	291754	292132	291754
10°	280088	281803	281420
15°	264785	266733	263427
20°	241650	243447	242852
25°	210415	217037	208967
30°	160004	184037	157631
35°	100723	143069	101630
40°	54338	94481	53356
45°	25722	46668	25449
50°	9637	17503	9637
55°	4576	5568	4256
60°	2991	2624	2991
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°	283.6	10.0
10°-20°	743.3	26.3
20°-30°	908.0	32.2
30°-40°	635.1	22.5
40°-50°	208.1	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°	1934.8	68.5
0°-40°	2569.9	91.0
0°-60°	2811.1	99.5
0°-90°	2824.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2824.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3059	3059	3059	3059	3059	
5°	3012	3013	3016	2998	3012	283
15°	2651	2661	2670	2653	2637	739
25°	1976	2006	2039	2002	1963	888
35°	855	1010	1215	994	863	546
45°	188	232	342	229	186	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#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	3058.8	3058.8	3058.8	3058.8	3058.8	3058.8	3058.8	3058.8	3058.8	3058.8	3058.8
2.5°	3035.5	3056.9	3051.1	3064.7	3064.7	3049.2	3053.0	3058.8	3066.6	3072.5	3025.8
5°	3012.2	3031.6	3014.1	3033.5	3021.9	3004.4	3033.5	3018.0	3027.7	3016.1	3023.9
7.5°	2950.0	2981.1	2946.1	2969.5	2961.7	2951.9	2963.6	2959.7	2965.6	2955.8	2934.5
10°	2858.7	2884.0	2860.6	2893.6	2878.1	2868.4	2878.1	2887.9	2885.9	2876.2	2887.9
12.5°	2753.7	2782.9	2771.2	2790.6	2773.2	2773.2	2796.5	2790.6	2792.6	2784.8	2798.4
15°	2650.7	2672.1	2654.6	2679.9	2672.1	2650.7	2660.4	2660.4	2676.0	2670.2	2654.6
17.5°	2522.5	2539.9	2520.5	2526.4	2518.6	2514.7	2555.5	2528.3	2543.8	2532.2	2534.2
20°	2353.4	2361.2	2355.3	2370.9	2361.2	2372.9	2369.0	2365.1	2365.1	2370.9	2357.3
22.5°	2182.4	2182.4	2188.2	2192.1	2199.9	2188.2	2211.5	2192.1	2194.0	2207.7	2203.8
25°	1976.4	1970.5	1984.2	2003.6	2011.4	2001.6	2032.7	2017.2	2028.8	2038.6	2017.2
27.5°	1725.7	1725.7	1739.3	1772.4	1778.2	1789.8	1832.6	1832.6	1848.1	1834.5	1850.1
30°	1436.1	1457.5	1475.0	1517.7	1531.4	1556.7	1601.3	1622.7	1657.7	1651.8	1644.1
32.5°	1138.8	1168.0	1169.9	1214.6	1251.5	1294.2	1354.5	1405.0	1430.3	1447.8	1428.3
35°	855.1	872.6	888.1	919.2	981.4	1037.8	1092.2	1158.2	1203.0	1214.6	1197.1
37.5°	625.8	629.7	645.2	674.3	721.0	775.4	841.5	913.3	960.1	977.5	958.1
40°	431.4	435.3	443.1	468.4	507.2	546.1	598.6	672.4	715.2	750.1	724.8
42.5°	289.5	293.4	301.2	320.6	342.0	378.9	419.8	466.4	507.2	522.8	509.1
45°	188.5	188.5	192.4	206.0	217.7	246.8	276.0	305.1	332.3	342.0	332.3
47.5°	110.8	112.7	116.6	126.3	139.9	151.6	173.0	192.4	200.2	207.9	204.0
50°	64.2	64.2	69.9	75.8	85.5	93.3	101.0	108.8	112.7	116.6	112.7
52.5°	35.0	37.0	38.9	40.8	44.7	52.5	58.3	58.3	60.3	62.2	60.3
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°	19.4	19.4	19.4	21.4	21.4	21.4	19.4	19.4	19.4	19.4	19.4
60°	15.5	15.5	15.5	15.5	15.5	15.5	15.5	13.6	13.6	13.6	13.6
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°	3058.8	3058.8	3058.8	3058.8	3058.8	3058.8	3058.8	3058.8
2.5°	3058.8	3025.8	3029.6	3047.2	3037.4	3047.2	3045.3	3045.3
5°	3025.8	3016.1	3000.5	2994.7	3006.3	3031.6	3027.7	3012.2
7.5°	2963.6	2938.4	2955.8	2963.6	2953.9	2969.5	2977.2	2944.2
10°	2889.8	2880.1	2876.2	2880.1	2876.2	2891.7	2872.3	2872.3
12.5°	2784.8	2769.3	2769.3	2792.6	2779.0	2767.3	2782.9	2781.0
15°	2679.9	2648.8	2648.8	2656.5	2662.4	2654.6	2656.5	2637.1
17.5°	2524.4	2514.7	2501.1	2522.5	2528.3	2520.5	2526.4	2516.6
20°	2378.6	2378.6	2353.4	2363.1	2370.9	2376.7	2380.6	2365.1
22.5°	2192.1	2196.0	2178.5	2197.9	2203.8	2184.3	2188.2	2184.3
25°	2021.1	2019.2	2005.5	1997.7	2001.6	1993.9	1992.0	1962.8
27.5°	1832.6	1813.1	1784.0	1791.8	1758.7	1731.5	1731.5	1686.8
30°	1628.5	1595.5	1556.7	1517.7	1488.6	1457.5	1440.0	1414.8
32.5°	1389.5	1344.8	1296.2	1243.7	1210.7	1164.1	1138.8	1152.4
35°	1152.4	1086.3	1020.2	967.8	917.2	890.0	858.9	862.8
37.5°	923.1	829.8	771.5	715.2	672.4	637.4	623.8	619.9
40°	674.3	600.5	542.2	501.4	472.3	445.1	429.5	423.6
42.5°	466.4	414.0	367.3	334.3	314.8	297.3	289.5	287.6
45°	303.2	272.1	241.0	217.7	202.1	190.5	188.5	186.5
47.5°	190.5	174.9	155.4	138.0	124.3	116.6	110.8	110.8
50°	108.8	103.0	93.3	83.6	75.8	71.9	66.1	64.2
52.5°	58.3	58.3	54.4	46.6	40.8	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°	19.4	19.4	21.4	21.4	19.4	19.4	19.4	19.4
60°	13.6	15.5	15.5	15.5	15.5	15.5	15.5	15.5
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)