

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 FEU4C409035 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 FEU4C409035 F4LC-SQ-LI
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

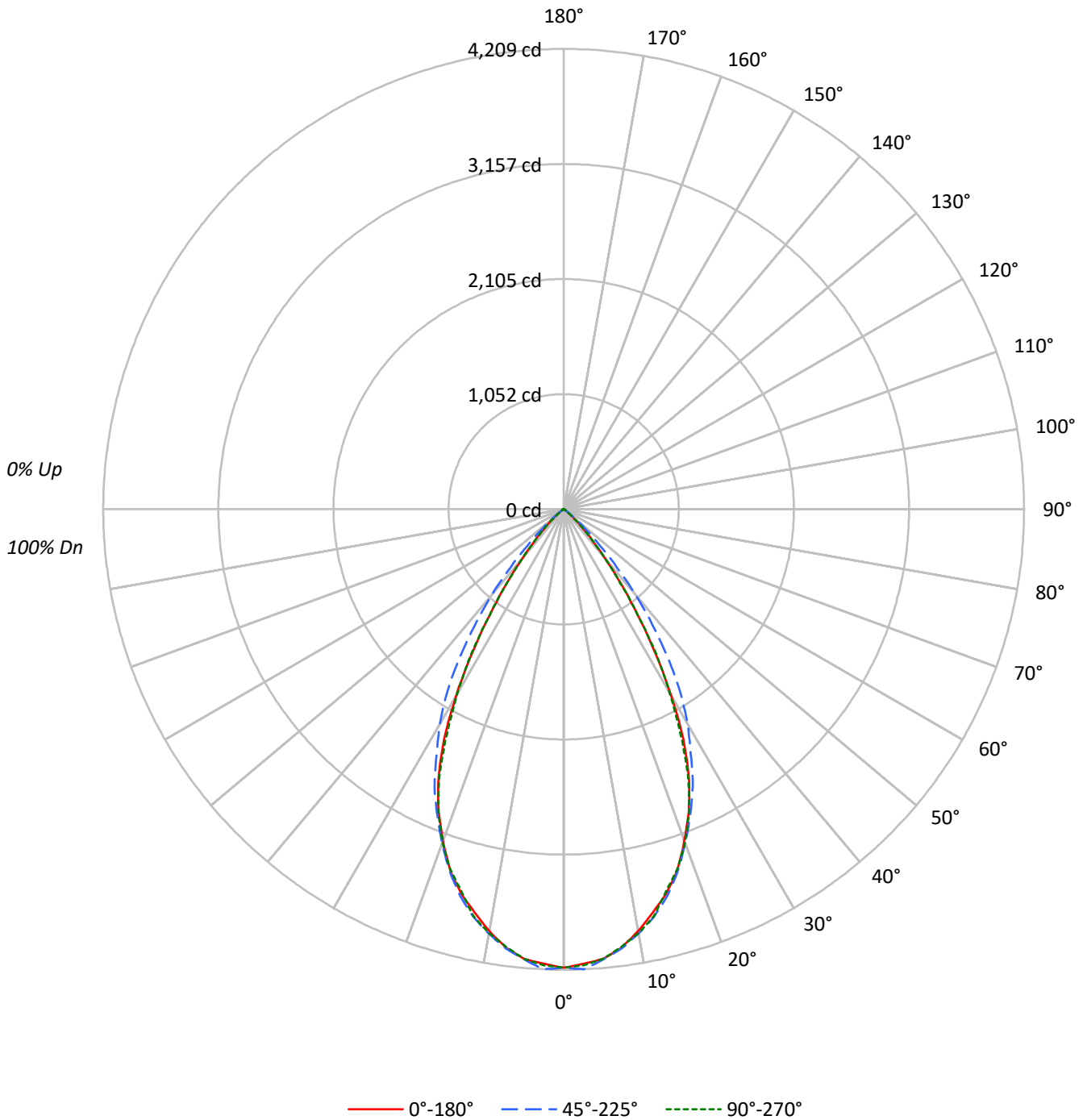
Lumens per Lamp: N/A
 Luminaire Lumens: 3869.0 lumens
 Efficiency: N/A
 Efficacy: 82.3 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	404356	404356	404356
5°	399711	400234	399711
10°	383728	386080	385561
15°	362770	365427	360902
20°	331075	333530	332718
25°	288282	297343	286292
30°	219211	252145	215957
35°	137992	196016	139241
40°	74453	129446	73106
45°	35247	63943	34864
50°	13195	23973	13195
55°	6275	7621	5837
60°	4110	3609	4110
65°	2420	2420	2420
70°	1495	2257	1495
75°	1007	1007	1007
80°	1500	1500	1500
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	388.5	10.0
10°-20°	1018.3	26.3
20°-30°	1244.0	32.2
30°-40°	870.1	22.5
40°-50°	285.1	7.4
50°-60°	45.3	1.2
60°-70°	12.4	0.3
70°-80°	4.1	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°	2650.8	68.5
0°-40°	3520.9	91.0
0°-60°	3851.3	99.5
0°-90°	3869.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3869.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4191	4191	4191	4191	4191	
5°	4127	4128	4132	4107	4127	387
15°	3632	3646	3658	3634	3613	1013
25°	2708	2749	2793	2742	2689	1216
35°	1172	1383	1664	1362	1182	748
45°	258	318	469	314	256	217
55°	37	40	45	40	35	37
65°	11	13	11	13	11	12
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°	4190.7	4190.7	4190.7	4190.7	4190.7	4190.7	4190.7	4190.7	4190.7	4190.7	4190.7
2.5°	4158.8	4188.1	4180.1	4198.8	4198.8	4177.5	4182.8	4190.7	4201.4	4209.4	4145.4
5°	4126.8	4153.5	4129.5	4156.1	4140.1	4116.2	4156.1	4134.8	4148.1	4132.2	4142.8
7.5°	4041.7	4084.3	4036.3	4068.3	4057.6	4044.3	4060.2	4054.9	4063.0	4049.6	4020.4
10°	3916.5	3951.2	3919.2	3964.4	3943.1	3929.9	3943.1	3956.5	3953.8	3940.5	3956.5
12.5°	3772.8	3812.6	3796.7	3823.3	3799.4	3799.4	3831.3	3823.3	3826.0	3815.3	3833.9
15°	3631.6	3661.0	3636.9	3671.6	3661.0	3631.6	3644.9	3644.9	3666.3	3658.2	3636.9
17.5°	3455.9	3479.8	3453.2	3461.3	3450.6	3445.3	3501.1	3463.9	3485.2	3469.2	3471.9
20°	3224.3	3234.9	3226.9	3248.2	3234.9	3250.9	3245.6	3240.3	3240.3	3248.2	3229.6
22.5°	2989.9	2989.9	2998.0	3003.3	3013.9	2998.0	3029.9	3003.3	3005.9	3024.6	3019.3
25°	2707.8	2699.7	2718.4	2745.0	2755.7	2742.3	2784.9	2763.6	2779.6	2792.9	2763.6
27.5°	2364.3	2364.3	2382.9	2428.2	2436.1	2452.1	2510.7	2510.7	2532.0	2513.4	2534.7
30°	1967.5	1996.9	2020.8	2079.3	2098.0	2132.7	2193.9	2223.2	2271.1	2263.1	2252.4
32.5°	1560.2	1600.2	1602.8	1664.1	1714.6	1773.2	1855.7	1924.9	1959.6	1983.5	1956.9
35°	1171.5	1195.5	1216.8	1259.4	1344.5	1421.8	1496.3	1586.8	1648.1	1664.1	1640.1
37.5°	857.4	862.7	884.0	923.8	987.7	1062.4	1152.9	1251.3	1315.3	1339.2	1312.6
40°	591.1	596.4	607.0	641.7	694.9	748.2	820.1	921.2	979.8	1027.7	993.1
42.5°	396.7	402.0	412.7	439.3	468.6	519.1	575.1	639.0	694.9	716.2	697.5
45°	258.3	258.3	263.6	282.3	298.2	338.1	378.1	418.0	455.2	468.6	455.2
47.5°	151.8	154.4	159.7	173.1	191.7	207.6	237.0	263.6	274.2	284.9	279.6
50°	87.9	87.9	95.8	103.9	117.1	127.8	138.4	149.1	154.4	159.7	154.4
52.5°	47.9	50.6	53.2	56.0	61.3	71.9	79.9	79.9	82.6	85.2	82.6
55°	37.3	37.3	37.3	37.3	40.0	40.0	40.0	42.6	42.6	45.3	42.6
57.5°	26.6	26.6	26.6	29.3	29.3	29.3	26.6	26.6	26.6	26.6	26.6
60°	21.3	21.3	21.3	21.3	21.3	21.3	21.3	18.7	18.7	18.7	18.7
62.5°	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
65°	10.6	10.6	13.4	13.4	13.4	13.4	13.4	10.6	10.6	10.6	10.6
67.5°	8.0	8.0	8.0	8.0	10.6	10.6	8.0	8.0	8.0	8.0	8.0
70°	5.3	5.3	5.3	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
72.5°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
75°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
80°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	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°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
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°	4190.7	4190.7	4190.7	4190.7	4190.7	4190.7	4190.7	4190.7
2.5°	4190.7	4145.4	4150.7	4174.8	4161.4	4174.8	4172.1	4172.1
5°	4145.4	4132.2	4110.9	4102.8	4118.8	4153.5	4148.1	4126.8
7.5°	4060.2	4025.7	4049.6	4060.2	4047.0	4068.3	4078.9	4033.6
10°	3959.1	3945.8	3940.5	3945.8	3940.5	3961.8	3935.2	3935.2
12.5°	3815.3	3794.0	3794.0	3826.0	3807.3	3791.3	3812.6	3810.0
15°	3671.6	3628.9	3628.9	3639.6	3647.6	3636.9	3639.6	3612.9
17.5°	3458.5	3445.3	3426.6	3455.9	3463.9	3453.2	3461.3	3447.9
20°	3258.8	3258.8	3224.3	3237.5	3248.2	3256.2	3261.6	3240.3
22.5°	3003.3	3008.6	2984.6	3011.2	3019.3	2992.6	2998.0	2992.6
25°	2768.9	2766.3	2747.6	2737.0	2742.3	2731.7	2729.1	2689.1
27.5°	2510.7	2484.1	2444.2	2454.8	2409.5	2372.3	2372.3	2311.0
30°	2231.1	2185.9	2132.7	2079.3	2039.5	1996.9	1972.9	1938.3
32.5°	1903.7	1842.5	1775.9	1704.0	1658.8	1594.9	1560.2	1578.9
35°	1578.9	1488.3	1397.8	1326.0	1256.6	1219.4	1176.8	1182.1
37.5°	1264.7	1136.9	1057.1	979.8	921.2	873.3	854.6	849.3
40°	923.8	822.7	742.8	686.9	647.0	609.7	588.4	580.4
42.5°	639.0	567.1	503.2	458.0	431.3	407.3	396.7	394.1
45°	415.4	372.8	330.2	298.2	276.9	261.0	258.3	255.5
47.5°	261.0	239.6	213.0	189.0	170.4	159.7	151.8	151.8
50°	149.1	141.1	127.8	114.5	103.9	98.5	90.5	87.9
52.5°	79.9	79.9	74.5	63.9	56.0	50.6	50.6	47.9
55°	42.6	42.6	40.0	40.0	37.3	37.3	37.3	34.7
57.5°	26.6	26.6	29.3	29.3	26.6	26.6	26.6	26.6
60°	18.7	21.3	21.3	21.3	21.3	21.3	21.3	21.3
62.5°	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
65°	10.6	13.4	13.4	13.4	13.4	10.6	10.6	10.6
67.5°	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
70°	8.0	8.0	8.0	8.0	8.0	5.3	5.3	5.3
72.5°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
75°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
80°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
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°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)