

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: **FLDSQ4C90D010 FEU4C909040 F4LC-CSSQ-MMS**

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: FLDSQ4C90D010 FEU4C909040 F4LC-CSSQ-MMS
 Description: 4 INCH 9000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

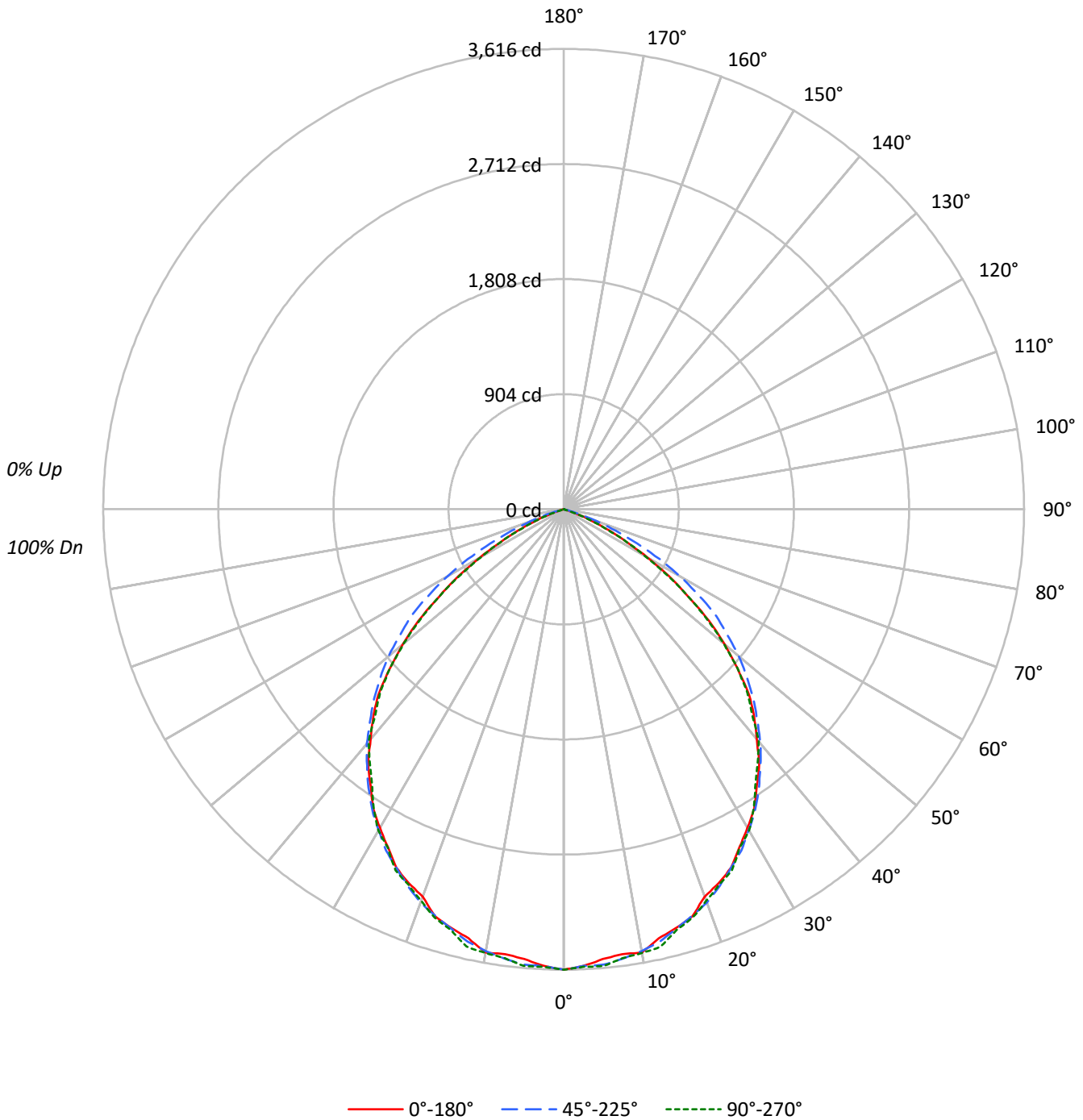
Lumens per Lamp: N/A
 Luminaire Lumens: 7725.0 lumens
 Efficiency: N/A
 Efficacy: 79.6 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 97.1
 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	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	348933	348933	348933
5°	343302	347767	348764
10°	346272	345263	346762
15°	340204	340704	341733
20°	332287	337565	335994
25°	330857	330857	333040
30°	321635	323919	324498
35°	311593	314632	309178
40°	296982	302789	300207
45°	281072	287390	278261
50°	247532	269117	245985
55°	200472	246262	201346
60°	146702	204209	143730
65°	89133	145412	86804
70°	34757	78287	33346
75°	3840	21101	3840
80°	2889	2889	2889
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	341.3	4.4
10°-20°	965.9	12.5
20°-30°	1433.2	18.6
30°-40°	1660.7	21.5
40°-50°	1592.2	20.6
50°-60°	1170.7	15.2
60°-70°	505.6	6.5
70°-80°	54.6	0.7
80°-90°	0.7	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°	2740.5	35.5
0°-40°	4401.2	57.0
0°-60°	7164.1	92.7
0°-90°	7725.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7725.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3616	3616	3616	3616	3616	
5°	3544	3580	3590	3596	3601	338
15°	3406	3426	3411	3416	3421	960
25°	3108	3103	3108	3113	3128	1423
35°	2645	2661	2671	2666	2625	1654
45°	2060	2065	2106	2075	2039	1566
55°	1192	1315	1464	1310	1197	1072
65°	390	488	637	483	380	401
75°	10	16	57	10	10	32
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3
2.5°	3590.5	3631.6	3636.9	3611.1	3600.8	3585.5	3621.3	3595.8	3606.0	3595.8	3590.5
5°	3544.4	3590.5	3595.8	3595.8	3585.5	3580.3	3595.8	3590.5	3585.5	3575.2	3590.5
7.5°	3523.9	3549.5	3575.2	3544.4	3559.7	3554.7	3590.5	3575.2	3570.0	3570.0	3559.7
10°	3534.2	3528.9	3549.5	3518.6	3528.9	3518.6	3549.5	3549.5	3539.2	3528.9	3523.9
12.5°	3451.8	3492.9	3492.9	3487.8	3477.6	3462.1	3492.9	3513.6	3482.6	3482.6	3477.6
15°	3405.7	3416.0	3421.0	3421.0	3416.0	3426.2	3441.5	3421.0	3426.2	3400.4	3410.7
17.5°	3354.3	3333.8	3349.1	3338.8	3344.1	3354.3	3374.9	3374.9	3344.1	3338.8	3349.1
20°	3236.1	3297.8	3303.0	3272.2	3277.2	3277.2	3313.3	3282.4	3303.0	3277.2	3287.5
22.5°	3179.6	3220.6	3225.9	3184.8	3210.4	3179.6	3215.6	3169.3	3220.6	3184.8	3200.1
25°	3107.7	3102.6	3117.9	3097.4	3102.6	3102.6	3128.2	3107.7	3123.2	3102.6	3107.7
27.5°	2989.7	3030.7	3025.5	3005.0	3015.2	3010.2	3061.6	3005.0	3035.8	3010.2	3020.5
30°	2886.8	2922.8	2912.5	2892.0	2892.0	2876.5	2933.1	2917.6	2912.5	2912.5	2907.3
32.5°	2784.1	2789.3	2779.0	2784.1	2789.3	2768.8	2814.9	2794.3	2789.3	2794.3	2799.6
35°	2645.3	2645.3	2655.6	2640.3	2660.8	2660.8	2701.9	2676.1	2671.1	2655.6	2671.1
37.5°	2522.1	2506.8	2511.8	2511.8	2522.1	2532.4	2552.9	2542.6	2542.6	2527.3	2537.6
40°	2357.8	2347.5	2362.8	2362.8	2378.3	2378.3	2398.9	2388.6	2403.9	2403.9	2403.9
42.5°	2214.0	2214.0	2203.7	2219.0	2224.3	2219.0	2255.1	2249.8	2255.1	2244.8	2249.8
45°	2059.8	2059.8	2049.5	2044.5	2070.0	2065.0	2106.1	2090.6	2111.1	2100.8	2106.1
47.5°	1849.1	1874.9	1859.4	1874.9	1905.7	1911.0	1936.5	1926.3	1946.8	1931.5	1952.0
50°	1649.0	1649.0	1664.3	1684.8	1715.6	1720.9	1751.7	1772.2	1782.5	1787.5	1792.8
52.5°	1438.3	1433.1	1448.6	1474.2	1500.0	1520.5	1551.3	1582.1	1602.7	1633.5	1618.0
55°	1191.7	1201.9	1217.5	1248.3	1289.3	1314.9	1340.7	1381.8	1417.8	1433.1	1463.9
57.5°	981.0	970.8	981.0	1022.1	1068.4	1089.0	1125.0	1166.1	1217.5	1248.3	1258.5
60°	760.2	765.4	775.7	811.7	847.5	878.4	893.9	960.5	1006.8	1037.6	1058.2
62.5°	560.0	570.3	580.5	611.3	647.2	673.0	698.5	755.1	796.2	827.0	847.5
65°	390.4	395.5	411.0	426.3	462.3	487.9	508.4	554.8	595.8	621.6	636.9
67.5°	241.4	246.5	256.7	277.5	303.1	323.6	344.1	374.9	411.0	436.6	441.8
70°	123.2	128.5	133.5	149.0	169.5	179.8	195.1	220.9	246.5	267.0	277.5
72.5°	41.1	41.1	46.3	56.6	66.9	77.1	82.2	107.9	128.5	138.7	143.8
75°	10.3	10.3	10.3	10.3	10.3	15.5	15.5	30.8	41.1	51.3	56.6
77.5°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	10.3	10.3
80°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
82.5°	0.0	0.0	0.0	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	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3	3616.3
2.5°	3616.3	3606.0	3600.8	3606.0	3606.0	3600.8	3616.3	3636.9	3662.4	3595.8
5°	3611.1	3600.8	3611.1	3580.3	3595.8	3585.5	3606.0	3600.8	3621.3	3600.8
7.5°	3595.8	3575.2	3580.3	3565.0	3585.5	3559.7	3575.2	3606.0	3585.5	3554.7
10°	3544.4	3534.2	3570.0	3518.6	3508.4	3528.9	3570.0	3539.2	3528.9	3539.2
12.5°	3492.9	3492.9	3508.4	3467.3	3472.3	3482.6	3503.1	3482.6	3492.9	3518.6
15°	3436.5	3426.2	3451.8	3421.0	3416.0	3405.7	3426.2	3426.2	3436.5	3421.0
17.5°	3369.6	3354.3	3354.3	3344.1	3338.8	3364.6	3374.9	3379.9	3385.1	3364.6
20°	3287.5	3282.4	3297.8	3282.4	3287.5	3292.7	3292.7	3282.4	3328.6	3272.2
22.5°	3200.1	3215.6	3195.1	3184.8	3195.1	3205.3	3205.3	3210.4	3200.1	3189.8
25°	3112.9	3123.2	3128.2	3097.4	3112.9	3097.4	3133.4	3138.5	3117.9	3128.2
27.5°	3035.8	3020.5	3015.2	2994.7	3005.0	2999.9	3005.0	3005.0	3035.8	2994.7
30°	2917.6	2902.3	2907.3	2892.0	2897.0	2892.0	2897.0	2897.0	2917.6	2912.5
32.5°	2804.6	2789.3	2794.3	2779.0	2779.0	2784.1	2773.8	2773.8	2789.3	2779.0
35°	2696.7	2660.8	2665.9	2660.8	2665.9	2645.3	2645.3	2640.3	2650.6	2624.8
37.5°	2542.6	2527.3	2522.1	2517.1	2522.1	2511.8	2522.1	2506.8	2522.1	2501.6
40°	2403.9	2393.6	2398.9	2368.1	2368.1	2373.1	2362.8	2357.8	2362.8	2383.4
42.5°	2265.4	2244.8	2234.5	2224.3	2229.3	2214.0	2208.8	2198.5	2208.8	2188.2
45°	2100.8	2100.8	2095.8	2070.0	2075.3	2075.3	2054.7	2034.2	2039.2	2039.2
47.5°	1952.0	1941.8	1936.5	1911.0	1905.7	1900.7	1879.9	1864.6	1864.6	1849.1
50°	1787.5	1777.2	1761.9	1736.2	1725.9	1695.1	1679.8	1659.2	1638.7	1638.7
52.5°	1633.5	1597.4	1576.9	1535.8	1520.5	1505.0	1463.9	1448.6	1433.1	1417.8
55°	1448.6	1417.8	1376.7	1330.4	1309.9	1284.1	1243.0	1212.2	1191.7	1196.9
57.5°	1268.8	1217.5	1176.4	1114.8	1089.0	1073.5	1032.4	991.3	970.8	970.8
60°	1047.9	1006.8	955.5	898.9	878.4	852.8	801.2	775.7	760.2	744.8
62.5°	837.3	806.5	760.2	688.3	673.0	647.2	611.3	580.5	565.0	565.0
65°	626.6	595.8	554.8	503.4	482.9	462.3	431.5	400.7	385.2	380.2
67.5°	441.8	405.8	369.9	328.8	313.3	303.1	272.2	251.7	241.4	236.2
70°	267.0	246.5	220.9	190.1	174.6	164.3	143.8	128.5	123.2	118.2
72.5°	138.7	123.2	102.7	82.2	71.9	61.6	51.3	41.1	36.0	36.0
75°	51.3	41.1	25.8	15.5	10.3	10.3	10.3	10.3	10.3	10.3
77.5°	10.3	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
80°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
82.5°	0.0	0.0	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	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)