

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: **FLDSQ4C80D010 FEU4C809027 F4LC-DFSSQ-MW**

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: FLDSQ4C80D010 FEU4C809027 F4LC-DFSSQ-MW
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

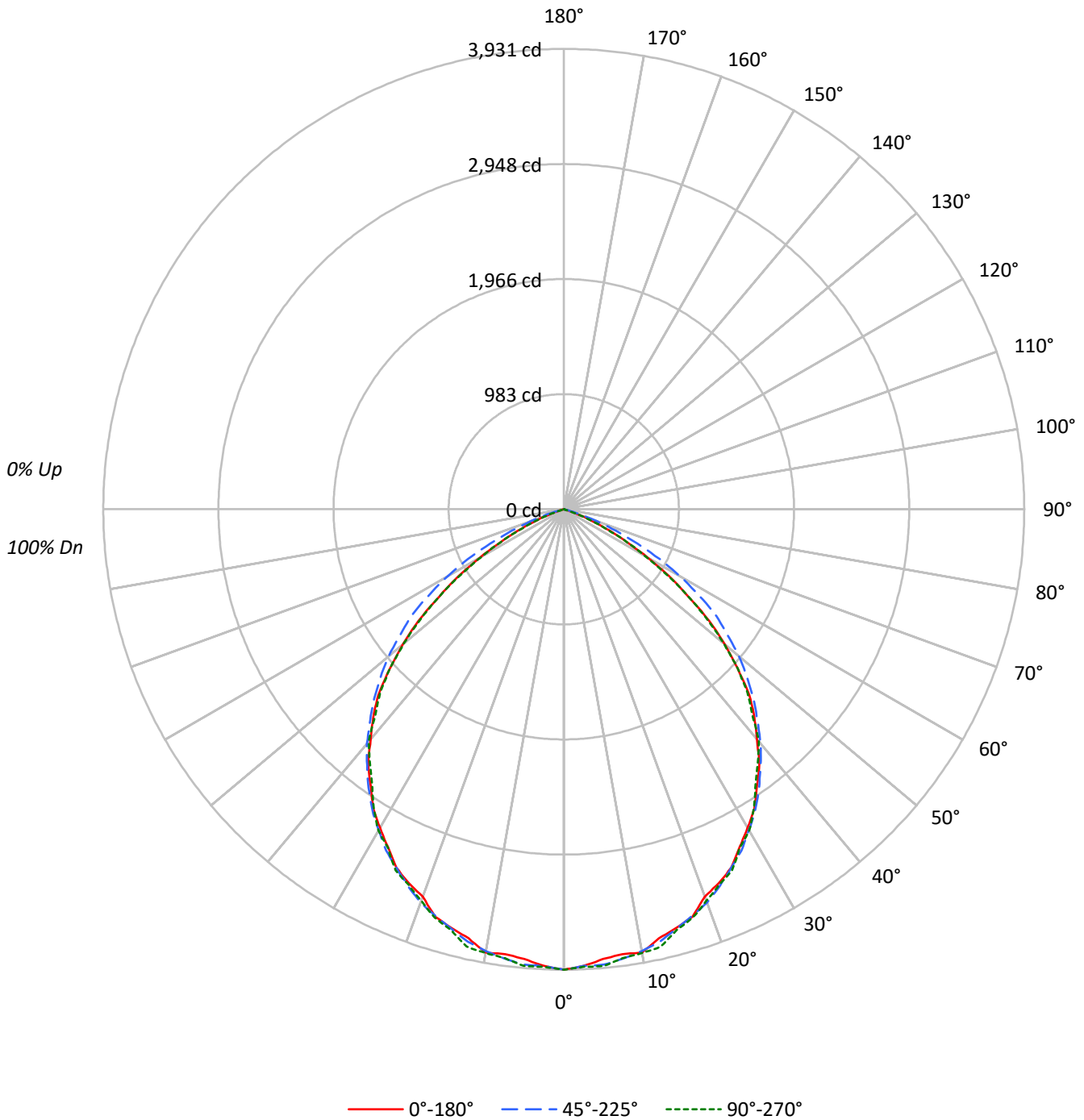
Lumens per Lamp: N/A
 Luminaire Lumens: 8398.0 lumens
 Efficiency: N/A
 Efficacy: 93.8 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 89.5
 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	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89				89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77				77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67				67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59				59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52				52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46				46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41				41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37				37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33				33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31				31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	379336	379336	379336
5°	373211	378064	379149
10°	376429	375342	376968
15°	369843	370392	371501
20°	361243	366973	365268
25°	359677	359677	362051
30°	349656	352141	352776
35°	338744	342042	336117
40°	322854	329164	326355
45°	305552	312429	302509
50°	269087	292550	267421
55°	217933	267727	218892
60°	159477	222002	156254
65°	96919	158083	94361
70°	37803	85114	36252
75°	4175	22927	4175
80°	3167	3167	3167
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	371.1	4.4
10°-20°	1050.1	12.5
20°-30°	1558.1	18.6
30°-40°	1805.4	21.5
40°-50°	1730.9	20.6
50°-60°	1272.7	15.2
60°-70°	549.7	6.5
70°-80°	59.4	0.7
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°	2979.2	35.5
0°-40°	4784.6	57.0
0°-60°	7788.2	92.7
0°-90°	8398.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	8398.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3931	3931	3931	3931	3931	
5°	3853	3892	3903	3909	3914	368
15°	3702	3725	3708	3714	3719	1043
25°	3378	3373	3378	3384	3401	1547
35°	2876	2893	2904	2898	2854	1798
45°	2239	2245	2290	2256	2217	1702
55°	1296	1430	1592	1424	1301	1166
65°	424	530	692	525	413	436
75°	11	17	62	11	11	34
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°	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4
2.5°	3903.3	3948.0	3953.7	3925.7	3914.5	3897.9	3936.8	3909.0	3920.2	3909.0	3903.3
5°	3853.2	3903.3	3909.0	3909.0	3897.9	3892.2	3909.0	3903.3	3897.9	3886.7	3903.3
7.5°	3830.9	3858.7	3886.7	3853.2	3869.9	3864.4	3903.3	3886.7	3881.0	3881.0	3869.9
10°	3842.0	3836.4	3858.7	3825.2	3836.4	3825.2	3858.7	3858.7	3847.5	3836.4	3830.9
12.5°	3752.5	3797.2	3797.2	3791.7	3780.5	3763.7	3797.2	3819.7	3786.0	3786.0	3780.5
15°	3702.4	3713.6	3719.0	3719.0	3713.6	3724.7	3741.4	3719.0	3724.7	3696.7	3707.9
17.5°	3646.6	3624.2	3640.9	3629.7	3635.4	3646.6	3668.9	3668.9	3635.4	3629.7	3640.9
20°	3518.1	3585.1	3590.7	3557.3	3562.7	3562.7	3601.9	3568.4	3590.7	3562.7	3573.9
22.5°	3456.6	3501.2	3506.9	3462.2	3490.0	3456.6	3495.7	3445.4	3501.2	3462.2	3478.9
25°	3378.4	3372.9	3389.6	3367.2	3372.9	3372.9	3400.7	3378.4	3395.3	3372.9	3378.4
27.5°	3250.1	3294.8	3289.1	3266.8	3277.9	3272.5	3328.3	3266.8	3300.3	3272.5	3283.6
30°	3138.3	3177.4	3166.3	3144.0	3144.0	3127.1	3188.6	3171.8	3166.3	3166.3	3160.6
32.5°	3026.6	3032.3	3021.1	3026.6	3032.3	3010.0	3060.1	3037.8	3032.3	3037.8	3043.5
35°	2875.8	2875.8	2887.0	2870.3	2892.6	2892.6	2937.3	2909.3	2903.8	2887.0	2903.8
37.5°	2741.8	2725.2	2730.7	2730.7	2741.8	2753.0	2775.3	2764.1	2764.1	2747.5	2758.7
40°	2563.2	2552.0	2568.7	2568.7	2585.5	2585.5	2607.8	2596.7	2613.3	2613.3	2613.3
42.5°	2406.9	2406.9	2395.7	2412.4	2418.1	2412.4	2451.5	2445.9	2451.5	2440.4	2445.9
45°	2239.2	2239.2	2228.0	2222.6	2250.4	2244.9	2289.6	2272.7	2295.0	2283.9	2289.6
47.5°	2010.2	2038.2	2021.4	2038.2	2071.7	2077.4	2105.2	2094.1	2116.4	2099.8	2122.1
50°	1792.6	1792.6	1809.3	1831.6	1865.1	1870.8	1904.3	1926.6	1937.8	1943.2	1948.9
52.5°	1563.7	1558.0	1574.8	1602.6	1630.6	1653.0	1686.5	1720.0	1742.3	1775.8	1758.9
55°	1295.5	1306.7	1323.5	1357.0	1401.7	1429.5	1457.5	1502.1	1541.3	1558.0	1591.5
57.5°	1066.5	1055.4	1066.5	1111.2	1161.5	1183.9	1223.0	1267.7	1323.5	1357.0	1368.2
60°	826.4	832.1	843.2	882.4	921.4	954.9	971.7	1044.2	1094.5	1128.0	1150.4
62.5°	608.8	619.9	631.1	664.6	703.6	731.6	759.4	820.9	865.6	899.1	921.4
65°	424.5	429.9	446.8	463.4	502.6	530.4	552.7	603.1	647.7	675.8	692.4
67.5°	262.5	267.9	279.1	301.7	329.5	351.8	374.1	407.6	446.8	474.6	480.3
70°	134.0	139.7	145.1	162.0	184.3	195.5	212.1	240.1	267.9	290.3	301.7
72.5°	44.7	44.7	50.3	61.5	72.7	83.8	89.3	117.3	139.7	150.8	156.3
75°	11.2	11.2	11.2	11.2	11.2	16.9	16.9	33.5	44.7	55.8	61.5
77.5°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	11.2	11.2
80°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
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°	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4	3931.4
2.5°	3931.4	3920.2	3914.5	3920.2	3920.2	3914.5	3931.4	3953.7	3981.5	3909.0
5°	3925.7	3914.5	3925.7	3892.2	3909.0	3897.9	3920.2	3914.5	3936.8	3914.5
7.5°	3909.0	3886.7	3892.2	3875.5	3897.9	3869.9	3886.7	3920.2	3897.9	3864.4
10°	3853.2	3842.0	3881.0	3825.2	3814.0	3836.4	3881.0	3847.5	3836.4	3847.5
12.5°	3797.2	3797.2	3814.0	3769.4	3774.8	3786.0	3808.3	3786.0	3797.2	3825.2
15°	3735.9	3724.7	3752.5	3719.0	3713.6	3702.4	3724.7	3724.7	3735.9	3719.0
17.5°	3663.2	3646.6	3646.6	3635.4	3629.7	3657.7	3668.9	3674.4	3680.1	3657.7
20°	3573.9	3568.4	3585.1	3568.4	3573.9	3579.6	3579.6	3568.4	3618.5	3557.3
22.5°	3478.9	3495.7	3473.4	3462.2	3473.4	3484.6	3484.6	3490.0	3478.9	3467.7
25°	3384.1	3395.3	3400.7	3367.2	3384.1	3367.2	3406.4	3411.9	3389.6	3400.7
27.5°	3300.3	3283.6	3277.9	3255.6	3266.8	3261.3	3266.8	3266.8	3300.3	3255.6
30°	3171.8	3155.1	3160.6	3144.0	3149.4	3144.0	3149.4	3149.4	3171.8	3166.3
32.5°	3048.9	3032.3	3037.8	3021.1	3021.1	3026.6	3015.5	3015.5	3032.3	3021.1
35°	2931.6	2892.6	2898.1	2892.6	2898.1	2875.8	2875.8	2870.3	2881.5	2853.5
37.5°	2764.1	2747.5	2741.8	2736.3	2741.8	2730.7	2741.8	2725.2	2741.8	2719.5
40°	2613.3	2602.2	2607.8	2574.4	2574.4	2579.8	2568.7	2563.2	2568.7	2591.0
42.5°	2462.7	2440.4	2429.2	2418.1	2423.5	2406.9	2401.2	2390.0	2401.2	2378.9
45°	2283.9	2283.9	2278.4	2250.4	2256.1	2256.1	2233.7	2211.4	2216.9	2216.9
47.5°	2122.1	2110.9	2105.2	2077.4	2071.7	2066.3	2043.7	2027.1	2027.1	2010.2
50°	1943.2	1932.1	1915.4	1887.4	1876.3	1842.8	1826.1	1803.8	1781.5	1781.5
52.5°	1775.8	1736.6	1714.3	1669.6	1653.0	1636.1	1591.5	1574.8	1558.0	1541.3
55°	1574.8	1541.3	1496.7	1446.3	1424.0	1396.0	1351.3	1317.8	1295.5	1301.2
57.5°	1379.3	1323.5	1278.9	1211.9	1183.9	1167.0	1122.3	1077.7	1055.4	1055.4
60°	1139.2	1094.5	1038.7	977.2	954.9	927.1	871.0	843.2	826.4	809.7
62.5°	910.2	876.7	826.4	748.2	731.6	703.6	664.6	631.1	614.3	614.3
65°	681.2	647.7	603.1	547.3	524.9	502.6	469.1	435.6	418.8	413.3
67.5°	480.3	441.1	402.1	357.5	340.6	329.5	296.0	273.6	262.5	256.8
70°	290.3	267.9	240.1	206.6	189.8	178.6	156.3	139.7	134.0	128.5
72.5°	150.8	134.0	111.6	89.3	78.2	67.0	55.8	44.7	39.2	39.2
75°	55.8	44.7	28.0	16.9	11.2	11.2	11.2	11.2	11.2	11.2
77.5°	11.2	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
80°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
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)