

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: **FLDSQ4C60D010 FEU4C609040 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: FLDSQ4C60D010 FEU4C609040 F4LC-DFSSQ-MW
 Description: 4 INCH 6000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

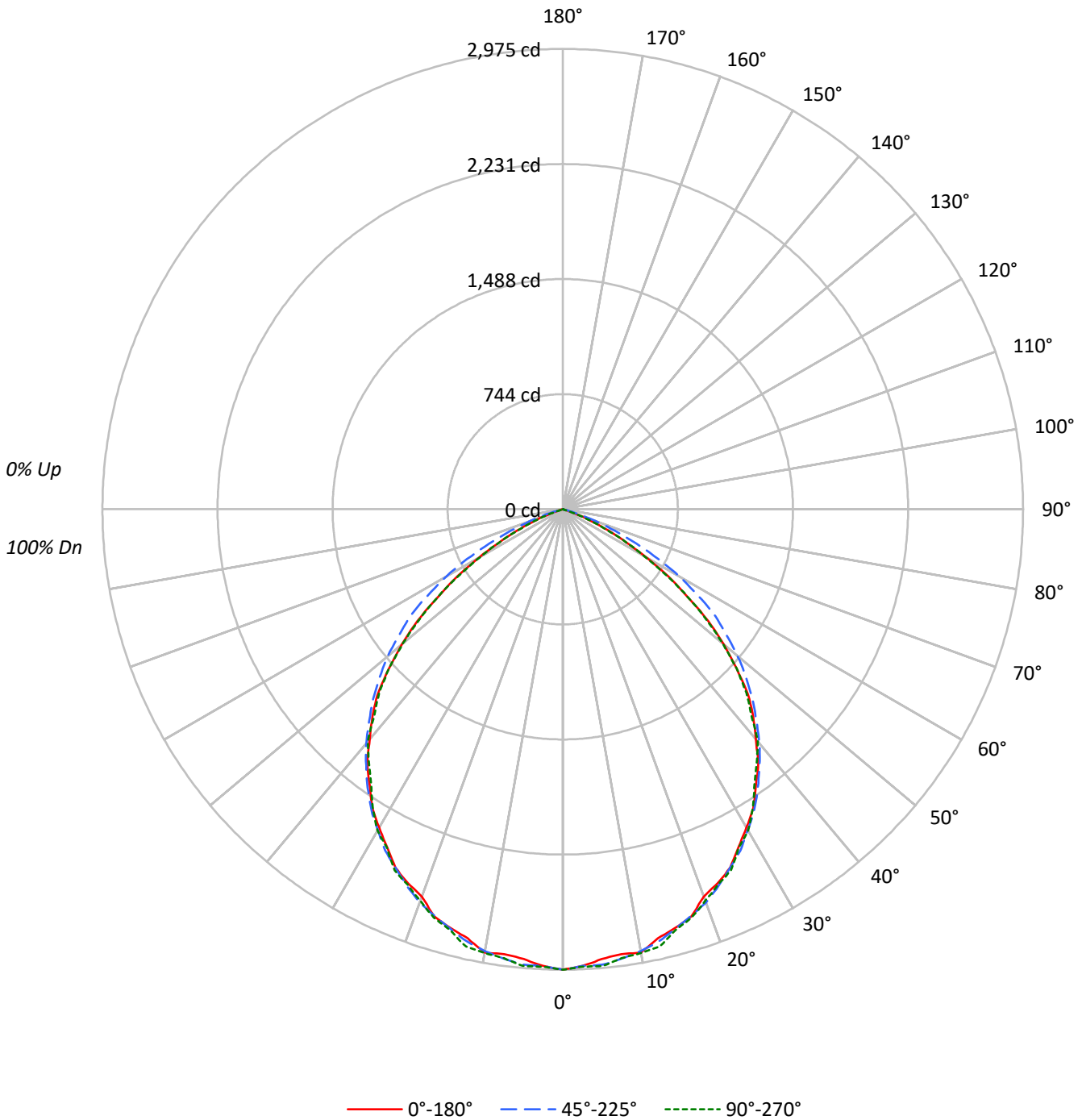
Lumens per Lamp: N/A
 Luminaire Lumens: 6355.0 lumens
 Efficiency: N/A
 Efficacy: 88.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 72
 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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CATALOG NUMBER: FLDSQ4C60D010 FEU4C609040 F4LC-DFSSQ-MW

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				
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°	287054	287054	287054
5°	282417	286098	286911
10°	284859	284027	285261
15°	279869	280279	281128
20°	273358	277702	276408
25°	272174	272174	273974
30°	264590	266473	266952
35°	256337	258834	254347
40°	244307	249093	246964
45°	231225	236423	228918
50°	203624	221382	202363
55°	164909	202591	165633
60°	120669	167987	118257
65°	73334	119636	71416
70°	28606	64407	27422
75°	3132	17335	3132
80°	2389	2389	2389
85°	0	0	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	280.8	4.4
10°-20°	794.6	12.5
20°-30°	1179.0	18.6
30°-40°	1366.2	21.5
40°-50°	1309.8	20.6
50°-60°	963.1	15.2
60°-70°	416.0	6.5
70°-80°	44.9	0.7
80°-90°	0.6	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°	2254.5	35.5
0°-40°	3620.6	57.0
0°-60°	5893.5	92.7
0°-90°	6355.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6355.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2975	2975	2975	2975	2975	
5°	2916	2945	2954	2958	2962	278
15°	2802	2819	2806	2810	2814	790
25°	2556	2552	2556	2561	2573	1171
35°	2176	2189	2197	2193	2159	1361
45°	1694	1699	1733	1707	1678	1288
55°	980	1082	1204	1078	985	882
65°	321	401	524	397	313	330
75°	8	13	46	8	8	26
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°	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0
2.5°	2953.8	2987.6	2991.9	2970.7	2962.2	2949.6	2979.1	2958.1	2966.5	2958.1	2953.8
5°	2915.8	2953.8	2958.1	2958.1	2949.6	2945.3	2958.1	2953.8	2949.6	2941.2	2953.8
7.5°	2898.9	2920.0	2941.2	2915.8	2928.4	2924.3	2953.8	2941.2	2936.9	2936.9	2928.4
10°	2907.4	2903.1	2920.0	2894.6	2903.1	2894.6	2920.0	2920.0	2911.5	2903.1	2898.9
12.5°	2839.6	2873.4	2873.4	2869.3	2860.8	2848.1	2873.4	2890.5	2865.0	2865.0	2860.8
15°	2801.7	2810.1	2814.3	2814.3	2810.1	2818.6	2831.2	2814.3	2818.6	2797.4	2805.8
17.5°	2759.5	2742.6	2755.1	2746.7	2751.0	2759.5	2776.4	2776.4	2751.0	2746.7	2755.1
20°	2662.2	2712.9	2717.2	2691.9	2696.0	2696.0	2725.7	2700.3	2717.2	2696.0	2704.5
22.5°	2615.7	2649.5	2653.8	2620.0	2641.0	2615.7	2645.3	2607.2	2649.5	2620.0	2632.6
25°	2556.5	2552.4	2565.0	2548.1	2552.4	2552.4	2573.4	2556.5	2569.3	2552.4	2556.5
27.5°	2459.5	2493.3	2488.9	2472.0	2480.5	2476.4	2518.6	2472.0	2497.4	2476.4	2484.8
30°	2374.8	2404.5	2396.0	2379.1	2379.1	2366.4	2412.9	2400.2	2396.0	2396.0	2391.7
32.5°	2290.3	2294.6	2286.2	2290.3	2294.6	2277.7	2315.7	2298.8	2294.6	2298.8	2303.1
35°	2176.2	2176.2	2184.6	2172.0	2188.9	2188.9	2222.7	2201.5	2197.4	2184.6	2197.4
37.5°	2074.8	2062.2	2066.4	2066.4	2074.8	2083.3	2100.2	2091.7	2091.7	2079.1	2087.6
40°	1939.6	1931.2	1943.8	1943.8	1956.5	1956.5	1973.4	1965.0	1977.6	1977.6	1977.6
42.5°	1821.4	1821.4	1812.9	1825.5	1829.8	1825.5	1855.2	1850.8	1855.2	1846.7	1850.8
45°	1694.5	1694.5	1686.0	1681.9	1702.9	1698.8	1732.6	1719.8	1736.7	1728.3	1732.6
47.5°	1521.2	1542.4	1529.6	1542.4	1567.7	1572.1	1593.1	1584.6	1601.5	1588.9	1605.8
50°	1356.5	1356.5	1369.1	1386.0	1411.4	1415.7	1441.0	1457.9	1466.4	1470.5	1474.8
52.5°	1183.3	1179.0	1191.7	1212.7	1234.0	1250.8	1276.2	1301.5	1318.4	1343.8	1331.0
55°	980.3	988.8	1001.5	1026.9	1060.7	1081.7	1102.9	1136.7	1166.4	1179.0	1204.3
57.5°	807.1	798.6	807.1	840.9	879.0	895.9	925.5	959.3	1001.5	1026.9	1035.3
60°	625.3	629.6	638.1	667.7	697.2	722.6	735.3	790.2	828.3	853.6	870.5
62.5°	460.7	469.1	477.6	502.9	532.4	553.6	574.7	621.2	655.0	680.3	697.2
65°	321.2	325.3	338.1	350.7	380.3	401.4	418.3	456.4	490.2	511.4	524.0
67.5°	198.6	202.8	211.2	228.3	249.3	266.2	283.1	308.4	338.1	359.1	363.4
70°	101.4	105.7	109.8	122.6	139.5	147.9	160.5	181.7	202.8	219.7	228.3
72.5°	33.8	33.8	38.1	46.5	55.0	63.4	67.6	88.8	105.7	114.1	118.3
75°	8.4	8.4	8.4	8.4	8.4	12.8	12.8	25.3	33.8	42.2	46.5
77.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	8.4	8.4
80°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
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°	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0	2975.0
2.5°	2975.0	2966.5	2962.2	2966.5	2966.5	2962.2	2975.0	2991.9	3012.9	2958.1
5°	2970.7	2962.2	2970.7	2945.3	2958.1	2949.6	2966.5	2962.2	2979.1	2962.2
7.5°	2958.1	2941.2	2945.3	2932.7	2949.6	2928.4	2941.2	2966.5	2949.6	2924.3
10°	2915.8	2907.4	2936.9	2894.6	2886.2	2903.1	2936.9	2911.5	2903.1	2911.5
12.5°	2873.4	2873.4	2886.2	2852.4	2856.5	2865.0	2881.9	2865.0	2873.4	2894.6
15°	2827.0	2818.6	2839.6	2814.3	2810.1	2801.7	2818.6	2818.6	2827.0	2814.3
17.5°	2772.0	2759.5	2759.5	2751.0	2746.7	2767.9	2776.4	2780.5	2784.8	2767.9
20°	2704.5	2700.3	2712.9	2700.3	2704.5	2708.8	2708.8	2700.3	2738.3	2691.9
22.5°	2632.6	2645.3	2628.4	2620.0	2628.4	2636.9	2636.9	2641.0	2632.6	2624.1
25°	2560.8	2569.3	2573.4	2548.1	2560.8	2548.1	2577.7	2581.9	2565.0	2573.4
27.5°	2497.4	2484.8	2480.5	2463.6	2472.0	2467.9	2472.0	2472.0	2497.4	2463.6
30°	2400.2	2387.6	2391.7	2379.1	2383.3	2379.1	2383.3	2383.3	2400.2	2396.0
32.5°	2307.2	2294.6	2298.8	2286.2	2286.2	2290.3	2281.9	2281.9	2294.6	2286.2
35°	2218.4	2188.9	2193.1	2188.9	2193.1	2176.2	2176.2	2172.0	2180.5	2159.3
37.5°	2091.7	2079.1	2074.8	2070.7	2074.8	2066.4	2074.8	2062.2	2074.8	2057.9
40°	1977.6	1969.1	1973.4	1948.1	1948.1	1952.2	1943.8	1939.6	1943.8	1960.7
42.5°	1863.6	1846.7	1838.3	1829.8	1834.0	1821.4	1817.1	1808.6	1817.1	1800.2
45°	1728.3	1728.3	1724.1	1702.9	1707.2	1707.2	1690.3	1673.4	1677.6	1677.6
47.5°	1605.8	1597.4	1593.1	1572.1	1567.7	1563.6	1546.5	1534.0	1534.0	1521.2
50°	1470.5	1462.1	1449.5	1428.3	1419.8	1394.5	1381.9	1365.0	1348.1	1348.1
52.5°	1343.8	1314.1	1297.2	1263.4	1250.8	1238.1	1204.3	1191.7	1179.0	1166.4
55°	1191.7	1166.4	1132.6	1094.5	1077.6	1056.4	1022.6	997.2	980.3	984.6
57.5°	1043.8	1001.5	967.7	917.1	895.9	883.1	849.3	815.5	798.6	798.6
60°	862.1	828.3	786.0	739.5	722.6	701.5	659.1	638.1	625.3	612.8
62.5°	688.8	663.4	625.3	566.2	553.6	532.4	502.9	477.6	464.8	464.8
65°	515.5	490.2	456.4	414.1	397.2	380.3	355.0	329.7	316.9	312.8
67.5°	363.4	333.8	304.3	270.5	257.8	249.3	224.0	207.1	198.6	194.3
70°	219.7	202.8	181.7	156.4	143.6	135.2	118.3	105.7	101.4	97.2
72.5°	114.1	101.4	84.5	67.6	59.1	50.7	42.2	33.8	29.7	29.7
75°	42.2	33.8	21.2	12.8	8.4	8.4	8.4	8.4	8.4	8.4
77.5°	8.4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
80°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
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)