

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: **FLDSQ4C55D010 FEU4C559040 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: FLDSQ4C55D010 FEU4C559040 F4LC-CSSQ-MMS  
 Description: 4 INCH 5500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

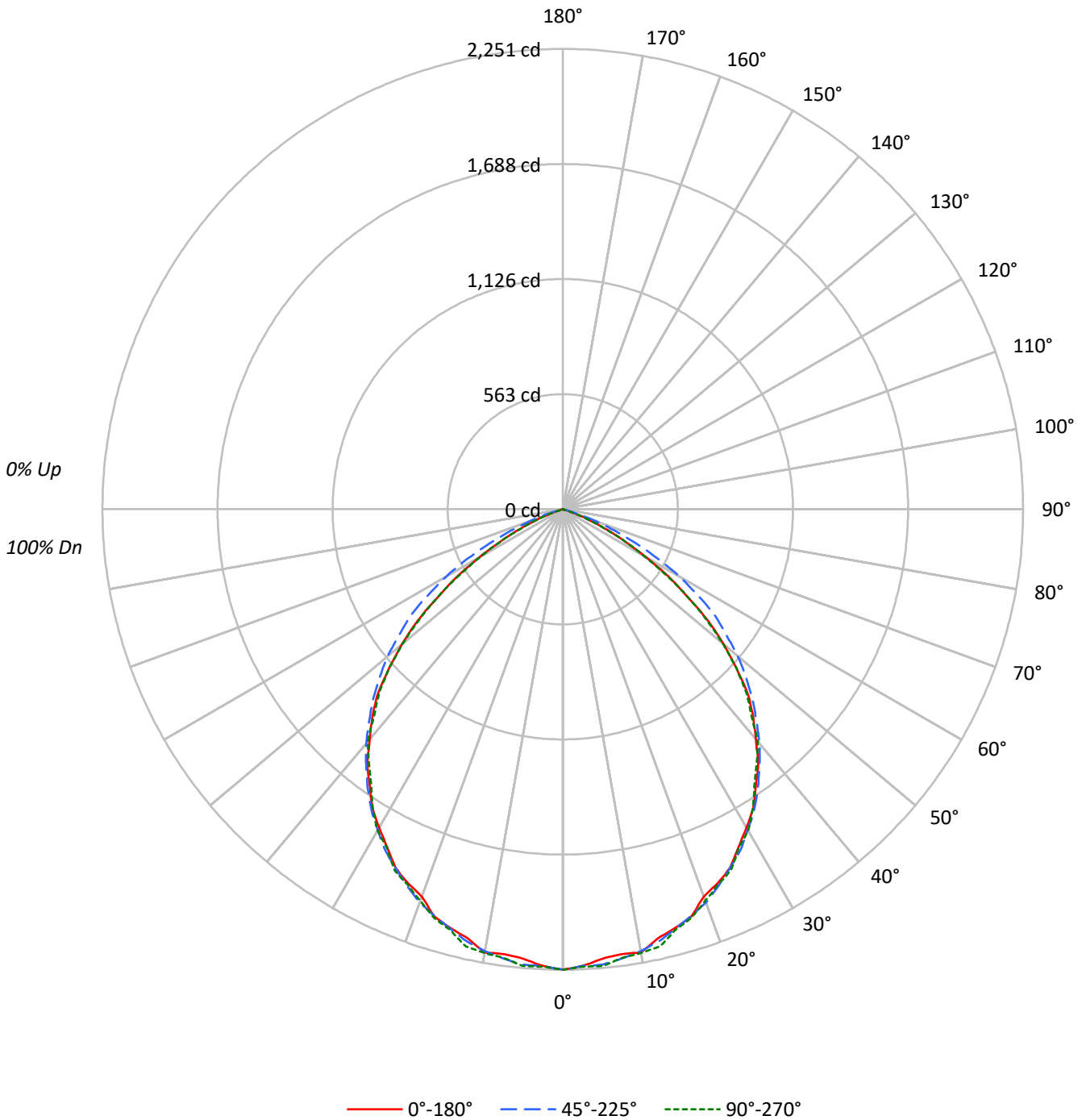
Lumens per Lamp: N/A  
 Luminaire Lumens: 4808.0 lumens  
 Efficiency: N/A  
 Efficacy: 75.2 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 63.9  
 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



TEST NUMBER: P#

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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°	217177	217177	217177
5°	213668	216447	217067
10°	215511	214884	215825
15°	211742	212052	212691
20°	206821	210096	209121
25°	205922	205922	207285
30°	200181	201607	201975
35°	193931	195828	192435
40°	184842	188457	186845
45°	174936	178866	173190
50°	154058	167493	153097
55°	124771	153268	125326
60°	91298	127095	89465
65°	55480	90503	54019
70°	21638	48721	20764
75°	2386	13123	2386
80°	1834	1834	1834
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	212.5	4.4
10°-20°	601.2	12.5
20°-30°	892.0	18.6
30°-40°	1033.6	21.5
40°-50°	991.0	20.6
50°-60°	728.6	15.2
60°-70°	314.7	6.5
70°-80°	34.0	0.7
80°-90°	0.4	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°	1705.7	35.5
0°-40°	2739.3	57.0
0°-60°	4458.9	92.7
0°-90°	4808.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4808.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2251	2251	2251	2251	2251	
5°	2206	2228	2235	2238	2241	210
15°	2120	2132	2123	2126	2129	597
25°	1934	1931	1934	1938	1947	886
35°	1646	1656	1662	1659	1634	1030
45°	1282	1285	1311	1292	1269	975
55°	742	818	911	815	745	667
65°	243	304	396	300	237	250
75°	6	10	35	6	6	20
85°	0	0	0	0	0	0
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°	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8
2.5°	2234.7	2260.3	2263.6	2247.5	2241.1	2231.6	2253.9	2238.0	2244.4	2238.0	2234.7
5°	2206.0	2234.7	2238.0	2238.0	2231.6	2228.3	2238.0	2234.7	2231.6	2225.2	2234.7
7.5°	2193.2	2209.2	2225.2	2206.0	2215.6	2212.4	2234.7	2225.2	2221.9	2221.9	2215.6
10°	2199.6	2196.4	2209.2	2190.0	2196.4	2190.0	2209.2	2209.2	2202.8	2196.4	2193.2
12.5°	2148.4	2173.9	2173.9	2170.8	2164.4	2154.8	2173.9	2186.9	2167.6	2167.6	2164.4
15°	2119.7	2126.1	2129.2	2129.2	2126.1	2132.5	2142.0	2129.2	2132.5	2116.4	2122.8
17.5°	2087.7	2074.9	2084.5	2078.1	2081.3	2087.7	2100.5	2100.5	2081.3	2078.1	2084.5
20°	2014.2	2052.5	2055.8	2036.6	2039.7	2039.7	2062.2	2043.0	2055.8	2039.7	2046.1
22.5°	1978.9	2004.5	2007.8	1982.2	1998.1	1978.9	2001.4	1972.5	2004.5	1982.2	1991.7
25°	1934.2	1931.1	1940.6	1927.8	1931.1	1931.1	1947.0	1934.2	1943.8	1931.1	1934.2
27.5°	1860.8	1886.3	1883.1	1870.3	1876.7	1873.5	1905.5	1870.3	1889.5	1873.5	1879.9
30°	1796.7	1819.1	1812.8	1800.0	1800.0	1790.3	1825.5	1815.9	1812.8	1812.8	1809.5
32.5°	1732.8	1736.0	1729.7	1732.8	1736.0	1723.3	1752.0	1739.2	1736.0	1739.2	1742.4
35°	1646.4	1646.4	1652.8	1643.3	1656.1	1656.1	1681.7	1665.6	1662.5	1652.8	1662.5
37.5°	1569.7	1560.2	1563.3	1563.3	1569.7	1576.1	1588.9	1582.5	1582.5	1573.0	1579.4
40°	1467.5	1461.1	1470.6	1470.6	1480.3	1480.3	1493.0	1486.6	1496.2	1496.2	1496.2
42.5°	1378.0	1378.0	1371.6	1381.1	1384.4	1381.1	1403.6	1400.3	1403.6	1397.2	1400.3
45°	1282.0	1282.0	1275.6	1272.5	1288.4	1285.2	1310.8	1301.2	1313.9	1307.6	1310.8
47.5°	1150.9	1166.9	1157.3	1166.9	1186.1	1189.4	1205.3	1198.9	1211.7	1202.2	1214.9
50°	1026.3	1026.3	1035.8	1048.6	1067.8	1071.1	1090.2	1103.0	1109.4	1112.5	1115.8
52.5°	895.2	892.0	901.6	917.5	933.6	946.4	965.5	984.7	997.5	1016.7	1007.0
55°	741.7	748.1	757.7	776.9	802.5	818.4	834.4	860.0	882.4	892.0	911.1
57.5°	610.6	604.2	610.6	636.2	665.0	677.8	700.2	725.8	757.7	776.9	783.3
60°	473.1	476.4	482.8	505.2	527.5	546.7	556.3	597.8	626.6	645.8	658.6
62.5°	348.5	354.9	361.3	380.5	402.8	418.8	434.8	470.0	495.5	514.7	527.5
65°	243.0	246.1	255.8	265.3	287.8	303.7	316.5	345.3	370.8	386.9	396.4
67.5°	150.3	153.4	159.8	172.7	188.6	201.4	214.2	233.4	255.8	271.7	275.0
70°	76.7	80.0	83.1	92.7	105.5	111.9	121.4	137.5	153.4	166.2	172.7
72.5°	25.6	25.6	28.8	35.2	41.6	48.0	51.1	67.2	80.0	86.4	89.5
75°	6.4	6.4	6.4	6.4	6.4	9.7	9.7	19.2	25.6	32.0	35.2
77.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	6.4	6.4
80°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
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°	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8	2250.8
2.5°	2250.8	2244.4	2241.1	2244.4	2244.4	2241.1	2250.8	2263.6	2279.5	2238.0
5°	2247.5	2241.1	2247.5	2228.3	2238.0	2231.6	2244.4	2241.1	2253.9	2241.1
7.5°	2238.0	2225.2	2228.3	2218.8	2231.6	2215.6	2225.2	2244.4	2231.6	2212.4
10°	2206.0	2199.6	2221.9	2190.0	2183.6	2196.4	2221.9	2202.8	2196.4	2202.8
12.5°	2173.9	2173.9	2183.6	2158.0	2161.2	2167.6	2180.3	2167.6	2173.9	2190.0
15°	2138.9	2132.5	2148.4	2129.2	2126.1	2119.7	2132.5	2132.5	2138.9	2129.2
17.5°	2097.2	2087.7	2087.7	2081.3	2078.1	2094.1	2100.5	2103.6	2106.9	2094.1
20°	2046.1	2043.0	2052.5	2043.0	2046.1	2049.4	2049.4	2043.0	2071.7	2036.6
22.5°	1991.7	2001.4	1988.6	1982.2	1988.6	1995.0	1995.0	1998.1	1991.7	1985.3
25°	1937.5	1943.8	1947.0	1927.8	1937.5	1927.8	1950.2	1953.4	1940.6	1947.0
27.5°	1889.5	1879.9	1876.7	1863.9	1870.3	1867.1	1870.3	1870.3	1889.5	1863.9
30°	1815.9	1806.4	1809.5	1800.0	1803.1	1800.0	1803.1	1803.1	1815.9	1812.8
32.5°	1745.6	1736.0	1739.2	1729.7	1729.7	1732.8	1726.4	1726.4	1736.0	1729.7
35°	1678.4	1656.1	1659.2	1656.1	1659.2	1646.4	1646.4	1643.3	1649.7	1633.7
37.5°	1582.5	1573.0	1569.7	1566.6	1569.7	1563.3	1569.7	1560.2	1569.7	1557.0
40°	1496.2	1489.8	1493.0	1473.9	1473.9	1477.0	1470.6	1467.5	1470.6	1483.4
42.5°	1409.9	1397.2	1390.8	1384.4	1387.5	1378.0	1374.7	1368.3	1374.7	1361.9
45°	1307.6	1307.6	1304.4	1288.4	1291.6	1291.6	1278.9	1266.1	1269.2	1269.2
47.5°	1214.9	1208.5	1205.3	1189.4	1186.1	1183.0	1170.1	1160.5	1160.5	1150.9
50°	1112.5	1106.1	1096.6	1080.6	1074.2	1055.0	1045.5	1032.7	1019.9	1019.9
52.5°	1016.7	994.2	981.4	955.9	946.4	936.7	911.1	901.6	892.0	882.4
55°	901.6	882.4	856.9	828.0	815.3	799.2	773.7	754.5	741.7	745.0
57.5°	789.7	757.7	732.2	693.8	677.8	668.1	642.6	617.0	604.2	604.2
60°	652.2	626.6	594.7	559.5	546.7	530.8	498.7	482.8	473.1	463.6
62.5°	521.1	501.9	473.1	428.4	418.8	402.8	380.5	361.3	351.7	351.7
65°	390.0	370.8	345.3	313.3	300.5	287.8	268.6	249.4	239.8	236.6
67.5°	275.0	252.5	230.2	204.7	195.0	188.6	169.4	156.7	150.3	147.0
70°	166.2	153.4	137.5	118.3	108.7	102.3	89.5	80.0	76.7	73.6
72.5°	86.4	76.7	63.9	51.1	44.7	38.4	32.0	25.6	22.4	22.4
75°	32.0	25.6	16.0	9.7	6.4	6.4	6.4	6.4	6.4	6.4
77.5°	6.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
80°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
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)