

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 FEU4C409050 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: FLDSQ4C40D010 FEU4C409050 F4LC-DFSSQ-MW
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

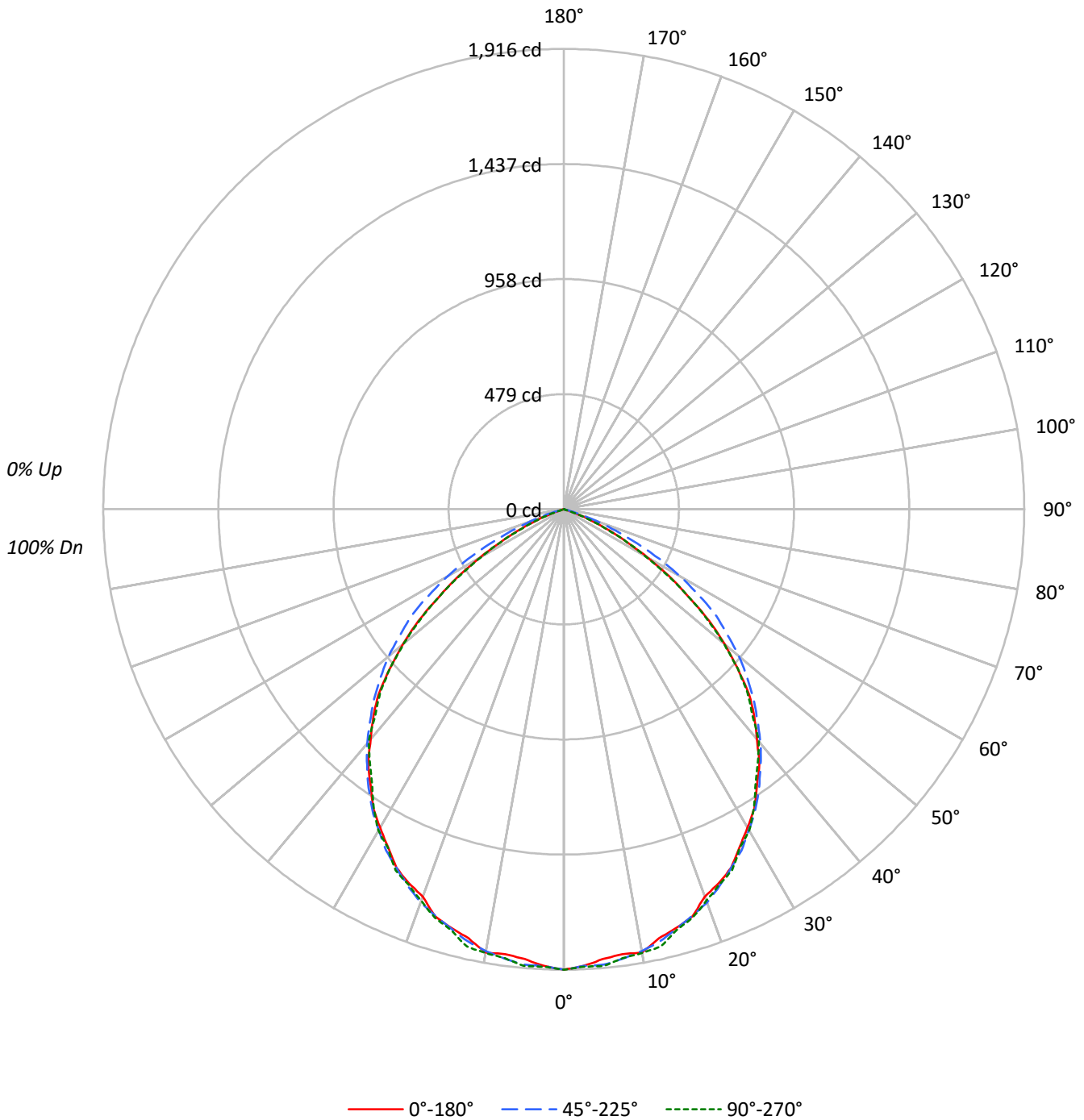
Lumens per Lamp: N/A
 Luminaire Lumens: 4093.0 lumens
 Efficiency: N/A
 Efficacy: 87.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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	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°	184882	184882	184882
5°	181898	184262	184785
10°	183463	182934	183727
15°	180256	180516	181065
20°	176057	178850	178019
25°	175303	175303	176453
30°	170410	171625	171937
35°	165096	166710	163812
40°	157346	160432	159059
45°	148914	152271	147441
50°	131151	142590	130326
55°	106216	130474	106687
60°	77731	108203	76149
65°	47238	77055	45982
70°	18422	41471	17660
75°	2013	11184	2013
80°	1556	1556	1556
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	180.9	4.4
10°-20°	511.8	12.5
20°-30°	759.4	18.6
30°-40°	879.9	21.5
40°-50°	843.6	20.6
50°-60°	620.3	15.2
60°-70°	267.9	6.5
70°-80°	28.9	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°	1452.0	35.5
0°-40°	2331.9	57.0
0°-60°	3795.8	92.7
0°-90°	4093.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4093.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1916	1916	1916	1916	1916	
5°	1878	1897	1902	1905	1908	179
15°	1804	1815	1807	1810	1813	509
25°	1647	1644	1647	1649	1657	754
35°	1402	1410	1415	1412	1391	876
45°	1091	1094	1116	1100	1080	830
55°	631	697	776	694	634	568
65°	207	258	338	256	201	213
75°	5	8	30	5	5	17
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°	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1
2.5°	1902.4	1924.2	1926.9	1913.3	1907.8	1899.7	1918.7	1905.2	1910.6	1905.2	1902.4
5°	1878.0	1902.4	1905.2	1905.2	1899.7	1897.0	1905.2	1902.4	1899.7	1894.3	1902.4
7.5°	1867.1	1880.6	1894.3	1878.0	1886.1	1883.4	1902.4	1894.3	1891.5	1891.5	1886.1
10°	1872.5	1869.8	1880.6	1864.3	1869.8	1864.3	1880.6	1880.6	1875.2	1869.8	1867.1
12.5°	1828.9	1850.7	1850.7	1848.0	1842.5	1834.3	1850.7	1861.6	1845.2	1845.2	1842.5
15°	1804.5	1809.9	1812.6	1812.6	1809.9	1815.3	1823.5	1812.6	1815.3	1801.7	1807.1
17.5°	1777.3	1766.4	1774.5	1769.0	1771.8	1777.3	1788.1	1788.1	1771.8	1769.0	1774.5
20°	1714.6	1747.3	1750.0	1733.7	1736.4	1736.4	1755.5	1739.2	1750.0	1736.4	1741.8
22.5°	1684.6	1706.4	1709.2	1687.4	1701.0	1684.6	1703.7	1679.2	1706.4	1687.4	1695.5
25°	1646.6	1643.9	1652.0	1641.1	1643.9	1643.9	1657.4	1646.6	1654.8	1643.9	1646.6
27.5°	1584.0	1605.8	1603.0	1592.1	1597.6	1594.9	1622.1	1592.1	1608.5	1594.9	1600.4
30°	1529.5	1548.6	1543.2	1532.3	1532.3	1524.1	1554.1	1545.8	1543.2	1543.2	1540.4
32.5°	1475.1	1477.9	1472.4	1475.1	1477.9	1467.0	1491.4	1480.5	1477.9	1480.5	1483.3
35°	1401.6	1401.6	1407.0	1398.9	1409.8	1409.8	1431.6	1417.9	1415.3	1407.0	1415.3
37.5°	1336.3	1328.2	1330.9	1330.9	1336.3	1341.7	1352.6	1347.2	1347.2	1339.1	1344.5
40°	1249.2	1243.8	1251.9	1251.9	1260.1	1260.1	1271.0	1265.6	1273.7	1273.7	1273.7
42.5°	1173.1	1173.1	1167.6	1175.7	1178.5	1175.7	1194.8	1192.1	1194.8	1189.4	1192.1
45°	1091.3	1091.3	1085.9	1083.2	1096.8	1094.1	1115.9	1107.7	1118.5	1113.1	1115.9
47.5°	979.7	993.4	985.2	993.4	1009.7	1012.5	1026.0	1020.6	1031.5	1023.4	1034.3
50°	873.7	873.7	881.8	892.7	909.0	911.8	928.1	939.0	944.4	947.1	949.9
52.5°	762.1	759.3	767.5	781.1	794.7	805.6	821.9	838.3	849.2	865.5	857.3
55°	631.4	636.8	645.1	661.4	683.1	696.7	710.3	732.1	751.2	759.3	775.6
57.5°	519.8	514.4	519.8	541.6	566.1	577.0	596.1	617.8	645.1	661.4	666.8
60°	402.8	405.5	411.0	430.1	449.1	465.4	473.6	508.9	533.5	549.8	560.7
62.5°	296.7	302.1	307.6	323.9	342.9	356.6	370.1	400.1	421.9	438.2	449.1
65°	206.9	209.5	217.8	225.9	245.0	258.5	269.4	293.9	315.7	329.4	337.5
67.5°	127.9	130.6	136.0	147.0	160.6	171.5	182.3	198.7	217.8	231.3	234.1
70°	65.3	68.1	70.7	79.0	89.8	95.3	103.4	117.0	130.6	141.5	147.0
72.5°	21.8	21.8	24.5	30.0	35.4	40.9	43.5	57.2	68.1	73.5	76.2
75°	5.4	5.4	5.4	5.4	5.4	8.2	8.2	16.3	21.8	27.2	30.0
77.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	5.4	5.4
80°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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°	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1	1916.1
2.5°	1916.1	1910.6	1907.8	1910.6	1910.6	1907.8	1916.1	1926.9	1940.5	1905.2
5°	1913.3	1907.8	1913.3	1897.0	1905.2	1899.7	1910.6	1907.8	1918.7	1907.8
7.5°	1905.2	1894.3	1897.0	1888.9	1899.7	1886.1	1894.3	1910.6	1899.7	1883.4
10°	1878.0	1872.5	1891.5	1864.3	1858.9	1869.8	1891.5	1875.2	1869.8	1875.2
12.5°	1850.7	1850.7	1858.9	1837.1	1839.8	1845.2	1856.1	1845.2	1850.7	1864.3
15°	1820.8	1815.3	1828.9	1812.6	1809.9	1804.5	1815.3	1815.3	1820.8	1812.6
17.5°	1785.4	1777.3	1777.3	1771.8	1769.0	1782.7	1788.1	1790.8	1793.6	1782.7
20°	1741.8	1739.2	1747.3	1739.2	1741.8	1744.6	1744.6	1739.2	1763.6	1733.7
22.5°	1695.5	1703.7	1692.9	1687.4	1692.9	1698.3	1698.3	1701.0	1695.5	1690.1
25°	1649.3	1654.8	1657.4	1641.1	1649.3	1641.1	1660.2	1662.9	1652.0	1657.4
27.5°	1608.5	1600.4	1597.6	1586.7	1592.1	1589.5	1592.1	1592.1	1608.5	1586.7
30°	1545.8	1537.7	1540.4	1532.3	1535.0	1532.3	1535.0	1535.0	1545.8	1543.2
32.5°	1486.0	1477.9	1480.5	1472.4	1472.4	1475.1	1469.7	1469.7	1477.9	1472.4
35°	1428.8	1409.8	1412.5	1409.8	1412.5	1401.6	1401.6	1398.9	1404.4	1390.7
37.5°	1347.2	1339.1	1336.3	1333.6	1336.3	1330.9	1336.3	1328.2	1336.3	1325.4
40°	1273.7	1268.2	1271.0	1254.7	1254.7	1257.4	1251.9	1249.2	1251.9	1262.8
42.5°	1200.3	1189.4	1183.9	1178.5	1181.2	1173.1	1170.3	1164.8	1170.3	1159.4
45°	1113.1	1113.1	1110.4	1096.8	1099.6	1099.6	1088.7	1077.8	1080.5	1080.5
47.5°	1034.3	1028.8	1026.0	1012.5	1009.7	1007.1	996.1	988.0	988.0	979.7
50°	947.1	941.7	933.5	919.9	914.4	898.1	890.0	879.1	868.2	868.2
52.5°	865.5	846.4	835.5	813.7	805.6	797.4	775.6	767.5	759.3	751.2
55°	767.5	751.2	729.4	704.9	694.0	680.4	658.6	642.3	631.4	634.2
57.5°	672.3	645.1	623.3	590.6	577.0	568.8	547.0	525.2	514.4	514.4
60°	555.2	533.5	506.2	476.3	465.4	451.8	424.5	411.0	402.8	394.6
62.5°	443.6	427.3	402.8	364.7	356.6	342.9	323.9	307.6	299.4	299.4
65°	332.0	315.7	293.9	266.7	255.8	245.0	228.6	212.3	204.1	201.4
67.5°	234.1	215.0	196.0	174.2	166.0	160.6	144.2	133.4	127.9	125.1
70°	141.5	130.6	117.0	100.7	92.5	87.1	76.2	68.1	65.3	62.6
72.5°	73.5	65.3	54.4	43.5	38.1	32.6	27.2	21.8	19.1	19.1
75°	27.2	21.8	13.7	8.2	5.4	5.4	5.4	5.4	5.4	5.4
77.5°	5.4	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
80°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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)