

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 FEU4C409040 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 FEU4C409040 F4LC-DFSSQ-MW
 Description: 4 INCH 4000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

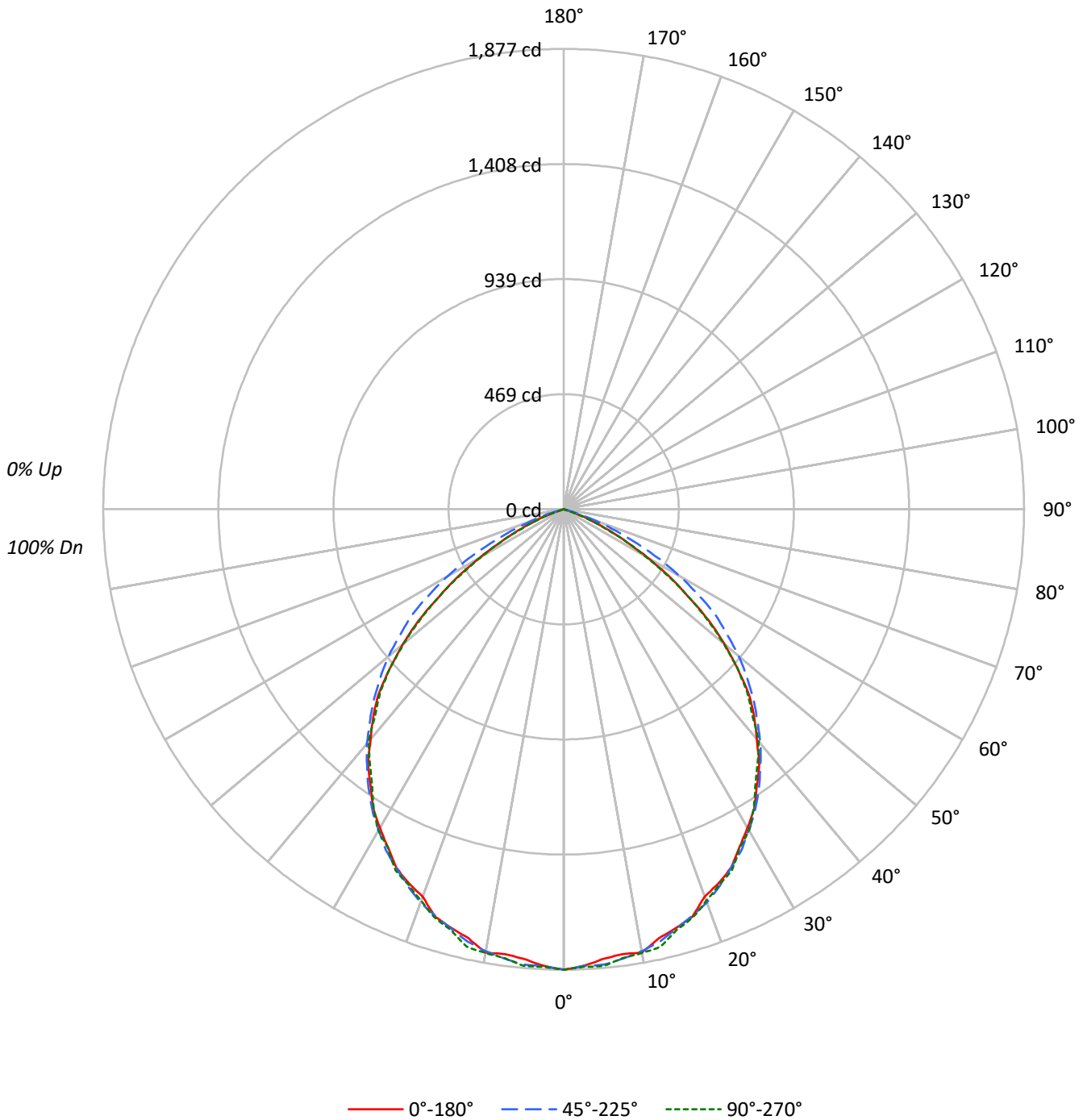
Lumens per Lamp: N/A
 Luminaire Lumens: 4010.0 lumens
 Efficiency: N/A
 Efficacy: 85.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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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CATALOG NUMBER: FLDSQ4C40D010 FEU4C409040 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				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°	181129	181129	181129
5°	178208	180523	181046
10°	179749	179220	180004
15°	176600	176860	177389
20°	172494	175226	174415
25°	171747	171747	172876
30°	166957	168149	168450
35°	161751	163329	160490
40°	154159	157170	155834
45°	145899	149187	144439
50°	128494	139692	127684
55°	104063	127833	104517
60°	76149	106003	74605
65°	46279	75480	45046
70°	18055	40625	17322
75°	1976	10960	1976
80°	1500	1500	1500
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	177.2	4.4
10°-20°	501.4	12.5
20°-30°	744.0	18.6
30°-40°	862.0	21.5
40°-50°	826.5	20.6
50°-60°	607.7	15.2
60°-70°	262.5	6.5
70°-80°	28.3	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°	1422.6	35.5
0°-40°	2284.6	57.0
0°-60°	3718.8	92.7
0°-90°	4010.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4010.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1877	1877	1877	1877	1877	
5°	1840	1858	1864	1866	1869	176
15°	1768	1778	1770	1773	1776	498
25°	1613	1611	1613	1616	1624	739
35°	1373	1381	1387	1384	1362	859
45°	1069	1072	1093	1077	1058	813
55°	619	683	760	680	621	557
65°	203	253	331	251	197	208
75°	5	8	29	5	5	16
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°	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2
2.5°	1863.8	1885.1	1887.9	1874.5	1869.2	1861.2	1879.8	1866.5	1871.9	1866.5	1863.8
5°	1839.9	1863.8	1866.5	1866.5	1861.2	1858.5	1866.5	1863.8	1861.2	1855.9	1863.8
7.5°	1829.2	1842.5	1855.9	1839.9	1847.8	1845.2	1863.8	1855.9	1853.2	1853.2	1847.8
10°	1834.6	1831.8	1842.5	1826.5	1831.8	1826.5	1842.5	1842.5	1837.2	1831.8	1829.2
12.5°	1791.8	1813.1	1813.1	1810.5	1805.2	1797.1	1813.1	1823.9	1807.8	1807.8	1805.2
15°	1767.9	1773.2	1775.8	1775.8	1773.2	1778.5	1786.5	1775.8	1778.5	1765.2	1770.5
17.5°	1741.2	1730.6	1738.5	1733.2	1735.9	1741.2	1751.9	1751.9	1735.9	1733.2	1738.5
20°	1679.9	1711.8	1714.6	1698.6	1701.2	1701.2	1719.9	1703.9	1714.6	1701.2	1706.5
22.5°	1650.5	1671.8	1674.5	1653.2	1666.5	1650.5	1669.2	1645.2	1671.8	1653.2	1661.1
25°	1613.2	1610.6	1618.5	1607.8	1610.6	1610.6	1623.8	1613.2	1621.2	1610.6	1613.2
27.5°	1551.9	1573.2	1570.5	1559.9	1565.2	1562.6	1589.2	1559.9	1575.9	1562.6	1567.9
30°	1498.5	1517.2	1511.9	1501.2	1501.2	1493.2	1522.5	1514.5	1511.9	1511.9	1509.2
32.5°	1445.2	1447.9	1442.6	1445.2	1447.9	1437.2	1461.2	1450.5	1447.9	1450.5	1453.2
35°	1373.2	1373.2	1378.5	1370.6	1381.2	1381.2	1402.5	1389.2	1386.6	1378.5	1386.6
37.5°	1309.2	1301.3	1303.9	1303.9	1309.2	1314.5	1325.2	1319.9	1319.9	1311.9	1317.3
40°	1223.9	1218.6	1226.5	1226.5	1234.6	1234.6	1245.2	1239.9	1247.8	1247.8	1247.8
42.5°	1149.3	1149.3	1143.9	1151.9	1154.6	1151.9	1170.6	1167.9	1170.6	1165.3	1167.9
45°	1069.2	1069.2	1063.9	1061.3	1074.5	1071.9	1093.3	1085.2	1095.9	1090.5	1093.3
47.5°	959.9	973.3	965.2	973.3	989.2	992.0	1005.2	999.9	1010.6	1002.6	1013.3
50°	856.0	856.0	863.9	874.6	890.6	893.3	909.3	919.9	925.3	927.9	930.6
52.5°	746.6	743.9	752.0	765.2	778.6	789.3	805.3	821.3	831.9	847.9	839.9
55°	618.6	623.9	632.0	648.0	669.3	682.6	695.9	717.3	736.0	743.9	759.9
57.5°	509.3	503.9	509.3	530.6	554.6	565.3	584.0	605.3	632.0	648.0	653.3
60°	394.6	397.3	402.6	421.3	440.0	455.9	464.0	498.6	522.6	538.6	549.3
62.5°	290.7	296.0	301.4	317.3	336.0	349.3	362.6	392.0	413.3	429.3	440.0
65°	202.7	205.3	213.3	221.3	240.0	253.3	263.9	288.0	309.3	322.7	330.6
67.5°	125.3	127.9	133.3	144.0	157.3	168.0	178.6	194.6	213.3	226.6	229.3
70°	64.0	66.7	69.3	77.4	88.0	93.3	101.3	114.7	127.9	138.6	144.0
72.5°	21.3	21.3	24.0	29.4	34.7	40.0	42.6	56.0	66.7	72.0	74.6
75°	5.3	5.3	5.3	5.3	5.3	8.0	8.0	16.0	21.3	26.7	29.4
77.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	5.3	5.3
80°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
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°	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2	1877.2
2.5°	1877.2	1871.9	1869.2	1871.9	1871.9	1869.2	1877.2	1887.9	1901.1	1866.5
5°	1874.5	1869.2	1874.5	1858.5	1866.5	1861.2	1871.9	1869.2	1879.8	1869.2
7.5°	1866.5	1855.9	1858.5	1850.6	1861.2	1847.8	1855.9	1871.9	1861.2	1845.2
10°	1839.9	1834.6	1853.2	1826.5	1821.2	1831.8	1853.2	1837.2	1831.8	1837.2
12.5°	1813.1	1813.1	1821.2	1799.9	1802.5	1807.8	1818.5	1807.8	1813.1	1826.5
15°	1783.9	1778.5	1791.8	1775.8	1773.2	1767.9	1778.5	1778.5	1783.9	1775.8
17.5°	1749.2	1741.2	1741.2	1735.9	1733.2	1746.5	1751.9	1754.5	1757.2	1746.5
20°	1706.5	1703.9	1711.8	1703.9	1706.5	1709.2	1709.2	1703.9	1727.8	1698.6
22.5°	1661.1	1669.2	1658.5	1653.2	1658.5	1663.9	1663.9	1666.5	1661.1	1655.8
25°	1615.9	1621.2	1623.8	1607.8	1615.9	1607.8	1626.5	1629.2	1618.5	1623.8
27.5°	1575.9	1567.9	1565.2	1554.5	1559.9	1557.2	1559.9	1559.9	1575.9	1554.5
30°	1514.5	1506.6	1509.2	1501.2	1503.8	1501.2	1503.8	1503.8	1514.5	1511.9
32.5°	1455.9	1447.9	1450.5	1442.6	1442.6	1445.2	1439.9	1439.9	1447.9	1442.6
35°	1399.8	1381.2	1383.8	1381.2	1383.8	1373.2	1373.2	1370.6	1375.9	1362.5
37.5°	1319.9	1311.9	1309.2	1306.6	1309.2	1303.9	1309.2	1301.3	1309.2	1298.5
40°	1247.8	1242.5	1245.2	1229.2	1229.2	1231.9	1226.5	1223.9	1226.5	1237.2
42.5°	1175.9	1165.3	1159.9	1154.6	1157.2	1149.3	1146.6	1141.2	1146.6	1135.9
45°	1090.5	1090.5	1087.9	1074.5	1077.3	1077.3	1066.6	1055.9	1058.5	1058.5
47.5°	1013.3	1008.0	1005.2	992.0	989.2	986.6	975.9	967.9	967.9	959.9
50°	927.9	922.6	914.6	901.2	895.9	879.9	872.0	861.3	850.6	850.6
52.5°	847.9	829.2	818.6	797.2	789.3	781.2	759.9	752.0	743.9	736.0
55°	752.0	736.0	714.7	690.6	679.9	666.6	645.2	629.3	618.6	621.3
57.5°	658.6	632.0	610.6	578.7	565.3	557.2	535.9	514.6	503.9	503.9
60°	544.0	522.6	496.0	466.6	455.9	442.7	415.9	402.6	394.6	386.6
62.5°	434.6	418.6	394.6	357.3	349.3	336.0	317.3	301.4	293.3	293.3
65°	325.3	309.3	288.0	261.3	250.7	240.0	224.0	208.0	200.0	197.3
67.5°	229.3	210.6	192.0	170.7	162.6	157.3	141.3	130.7	125.3	122.6
70°	138.6	127.9	114.7	98.7	90.6	85.3	74.6	66.7	64.0	61.4
72.5°	72.0	64.0	53.3	42.6	37.3	32.0	26.7	21.3	18.7	18.7
75°	26.7	21.3	13.4	8.0	5.3	5.3	5.3	5.3	5.3	5.3
77.5°	5.3	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
80°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
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)