

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: **FLDSQ4C25D010 FEU4C259035 F4LC-CSSQ-MW**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.



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: FLDSQ4C25D010 FEU4C259035 F4LC-CSSQ-MW
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

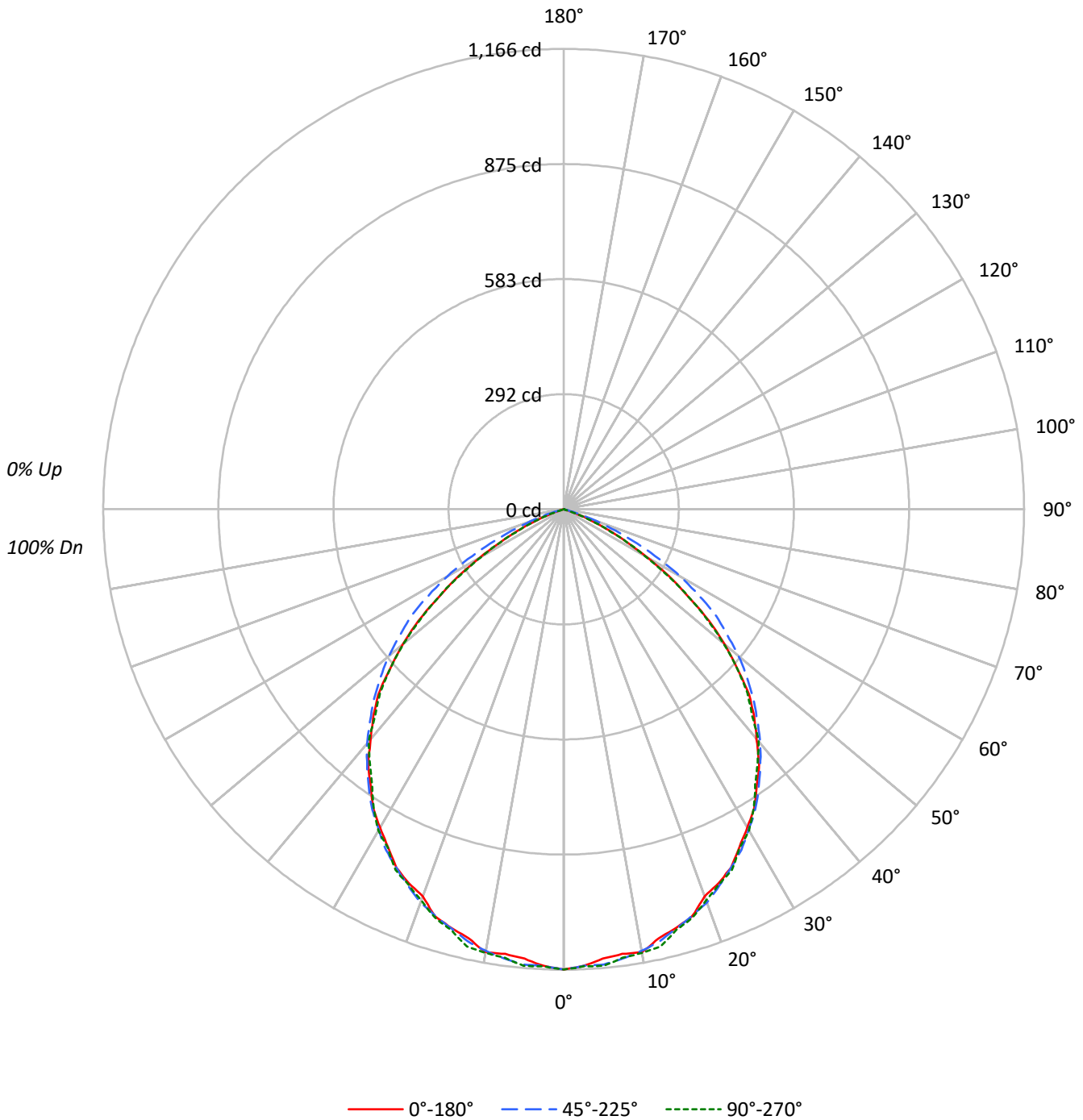
Lumens per Lamp: N/A
 Luminaire Lumens: 2490.0 lumens
 Efficiency: N/A
 Efficacy: 79.0 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 31.5
 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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C25D010 FEU4C259035 F4LC-CSSQ-MW

Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C25D010 FEU4C259035 F4LC-CSSQ-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°	112467	112467	112467
5°	110660	112093	112413
10°	111616	111293	111773
15°	109662	109822	110152
20°	107107	108811	108298
25°	106645	106645	107347
30°	103672	104408	104597
35°	100441	101418	99651
40°	95728	97592	96760
45°	90593	92640	89692
50°	79784	86749	79288
55°	64615	79385	64901
60°	47280	65825	46334
65°	28745	46872	27968
70°	11200	25221	10749
75°	1230	6785	1230
80°	945	945	945
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259035 F4LC-CSSQ-MW

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	110.0	4.4
10°-20°	311.3	12.5
20°-30°	462.0	18.6
30°-40°	535.3	21.5
40°-50°	513.2	20.6
50°-60°	377.3	15.2
60°-70°	163.0	6.5
70°-80°	17.6	0.7
80°-90°	0.2	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°	883.3	35.5
0°-40°	1418.6	57.0
0°-60°	2309.2	92.7
0°-90°	2490.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2490.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1166	1166	1166	1166	1166	
5°	1142	1154	1157	1159	1161	109
15°	1098	1104	1099	1101	1103	309
25°	1002	1000	1002	1003	1008	459
35°	853	858	861	859	846	533
45°	664	666	679	669	657	505
55°	384	424	472	422	386	346
65°	126	157	205	156	122	129
75°	3	5	18	3	3	10
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259035 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6
2.5°	1157.3	1170.6	1172.3	1164.0	1160.6	1155.7	1167.3	1159.0	1162.3	1159.0	1157.3
5°	1142.5	1157.3	1159.0	1159.0	1155.7	1154.0	1159.0	1157.3	1155.7	1152.4	1157.3
7.5°	1135.9	1144.1	1152.4	1142.5	1147.4	1145.8	1157.3	1152.4	1150.7	1150.7	1147.4
10°	1139.2	1137.5	1144.1	1134.2	1137.5	1134.2	1144.1	1144.1	1140.8	1137.5	1135.9
12.5°	1112.6	1125.9	1125.9	1124.2	1120.9	1115.9	1125.9	1132.5	1122.5	1122.5	1120.9
15°	1097.8	1101.1	1102.7	1102.7	1101.1	1104.4	1109.3	1102.7	1104.4	1096.1	1099.4
17.5°	1081.2	1074.6	1079.5	1076.2	1077.9	1081.2	1087.8	1087.8	1077.9	1076.2	1079.5
20°	1043.1	1063.0	1064.7	1054.7	1056.3	1056.3	1068.0	1058.0	1064.7	1056.3	1059.7
22.5°	1024.9	1038.1	1039.8	1026.6	1034.8	1024.9	1036.5	1021.6	1038.1	1026.6	1031.5
25°	1001.7	1000.1	1005.0	998.4	1000.1	1000.1	1008.3	1001.7	1006.7	1000.1	1001.7
27.5°	963.7	976.9	975.2	968.6	971.9	970.3	986.8	968.6	978.5	970.3	973.6
30°	930.5	942.1	938.8	932.2	932.2	927.2	945.4	940.4	938.8	938.8	937.1
32.5°	897.4	899.1	895.8	897.4	899.1	892.5	907.3	900.7	899.1	900.7	902.4
35°	852.7	852.7	856.0	851.0	857.7	857.7	870.9	862.6	861.0	856.0	861.0
37.5°	812.9	808.0	809.6	809.6	812.9	816.3	822.9	819.6	819.6	814.6	817.9
40°	760.0	756.7	761.6	761.6	766.6	766.6	773.2	769.9	774.8	774.8	774.8
42.5°	713.6	713.6	710.3	715.3	717.0	715.3	726.9	725.2	726.9	723.6	725.2
45°	663.9	663.9	660.6	659.0	667.2	665.6	678.9	673.9	680.5	677.2	678.9
47.5°	596.0	604.3	599.3	604.3	614.3	616.0	624.2	620.9	627.5	622.6	629.2
50°	531.5	531.5	536.4	543.1	553.0	554.7	564.6	571.2	574.5	576.2	577.9
52.5°	463.6	461.9	466.9	475.2	483.5	490.1	500.0	510.0	516.6	526.5	521.5
55°	384.1	387.4	392.4	402.4	415.6	423.8	432.1	445.4	457.0	461.9	471.9
57.5°	316.2	312.9	316.2	329.5	344.4	351.0	362.6	375.9	392.4	402.4	405.7
60°	245.0	246.7	250.0	261.6	273.2	283.1	288.1	309.6	324.5	334.5	341.1
62.5°	180.5	183.8	187.1	197.1	208.6	216.9	225.2	243.4	256.6	266.6	273.2
65°	125.9	127.5	132.5	137.4	149.0	157.3	163.9	178.8	192.1	200.4	205.3
67.5°	77.8	79.4	82.8	89.4	97.7	104.3	110.9	120.9	132.5	140.7	142.4
70°	39.7	41.4	43.0	48.0	54.7	58.0	62.9	71.2	79.4	86.1	89.4
72.5°	13.2	13.2	14.9	18.2	21.5	24.9	26.5	34.8	41.4	44.7	46.3
75°	3.3	3.3	3.3	3.3	3.3	5.0	5.0	9.9	13.2	16.6	18.2
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	3.3	3.3
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259035 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6	1165.6
2.5°	1165.6	1162.3	1160.6	1162.3	1162.3	1160.6	1165.6	1172.3	1180.5	1159.0
5°	1164.0	1160.6	1164.0	1154.0	1159.0	1155.7	1162.3	1160.6	1167.3	1160.6
7.5°	1159.0	1152.4	1154.0	1149.1	1155.7	1147.4	1152.4	1162.3	1155.7	1145.8
10°	1142.5	1139.2	1150.7	1134.2	1130.9	1137.5	1150.7	1140.8	1137.5	1140.8
12.5°	1125.9	1125.9	1130.9	1117.6	1119.2	1122.5	1129.2	1122.5	1125.9	1134.2
15°	1107.7	1104.4	1112.6	1102.7	1101.1	1097.8	1104.4	1104.4	1107.7	1102.7
17.5°	1086.1	1081.2	1081.2	1077.9	1076.2	1084.5	1087.8	1089.4	1091.1	1084.5
20°	1059.7	1058.0	1063.0	1058.0	1059.7	1061.3	1061.3	1058.0	1072.9	1054.7
22.5°	1031.5	1036.5	1029.9	1026.6	1029.9	1033.2	1033.2	1034.8	1031.5	1028.2
25°	1003.4	1006.7	1008.3	998.4	1003.4	998.4	1010.0	1011.6	1005.0	1008.3
27.5°	978.5	973.6	971.9	965.3	968.6	967.0	968.6	968.6	978.5	965.3
30°	940.4	935.5	937.1	932.2	933.8	932.2	933.8	933.8	940.4	938.8
32.5°	904.0	899.1	900.7	895.8	895.8	897.4	894.1	894.1	899.1	895.8
35°	869.2	857.7	859.3	857.7	859.3	852.7	852.7	851.0	854.4	846.0
37.5°	819.6	814.6	812.9	811.3	812.9	809.6	812.9	808.0	812.9	806.3
40°	774.8	771.5	773.2	763.3	763.3	764.9	761.6	760.0	761.6	768.2
42.5°	730.2	723.6	720.3	717.0	718.6	713.6	712.0	708.6	712.0	705.3
45°	677.2	677.2	675.5	667.2	668.9	668.9	662.3	655.7	657.3	657.3
47.5°	629.2	625.9	624.2	616.0	614.3	612.6	606.0	601.0	601.0	596.0
50°	576.2	572.9	567.9	559.6	556.3	546.4	541.4	534.8	528.2	528.2
52.5°	526.5	514.9	508.3	495.0	490.1	485.1	471.9	466.9	461.9	457.0
55°	466.9	457.0	443.8	428.8	422.2	413.9	400.7	390.7	384.1	385.8
57.5°	409.0	392.4	379.2	359.3	351.0	346.0	332.8	319.5	312.9	312.9
60°	337.8	324.5	308.0	289.7	283.1	274.9	258.3	250.0	245.0	240.1
62.5°	269.9	259.9	245.0	221.8	216.9	208.6	197.1	187.1	182.1	182.1
65°	202.0	192.1	178.8	162.3	155.6	149.0	139.1	129.2	124.2	122.5
67.5°	142.4	130.8	119.2	106.0	101.0	97.7	87.8	81.1	77.8	76.1
70°	86.1	79.4	71.2	61.3	56.3	53.0	46.3	41.4	39.7	38.1
72.5°	44.7	39.7	33.1	26.5	23.2	19.9	16.6	13.2	11.6	11.6
75°	16.6	13.2	8.3	5.0	3.3	3.3	3.3	3.3	3.3	3.3
77.5°	3.3	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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)