

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 FEU4C259030 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 FEU4C259030 F4LC-CSSQ-MW
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

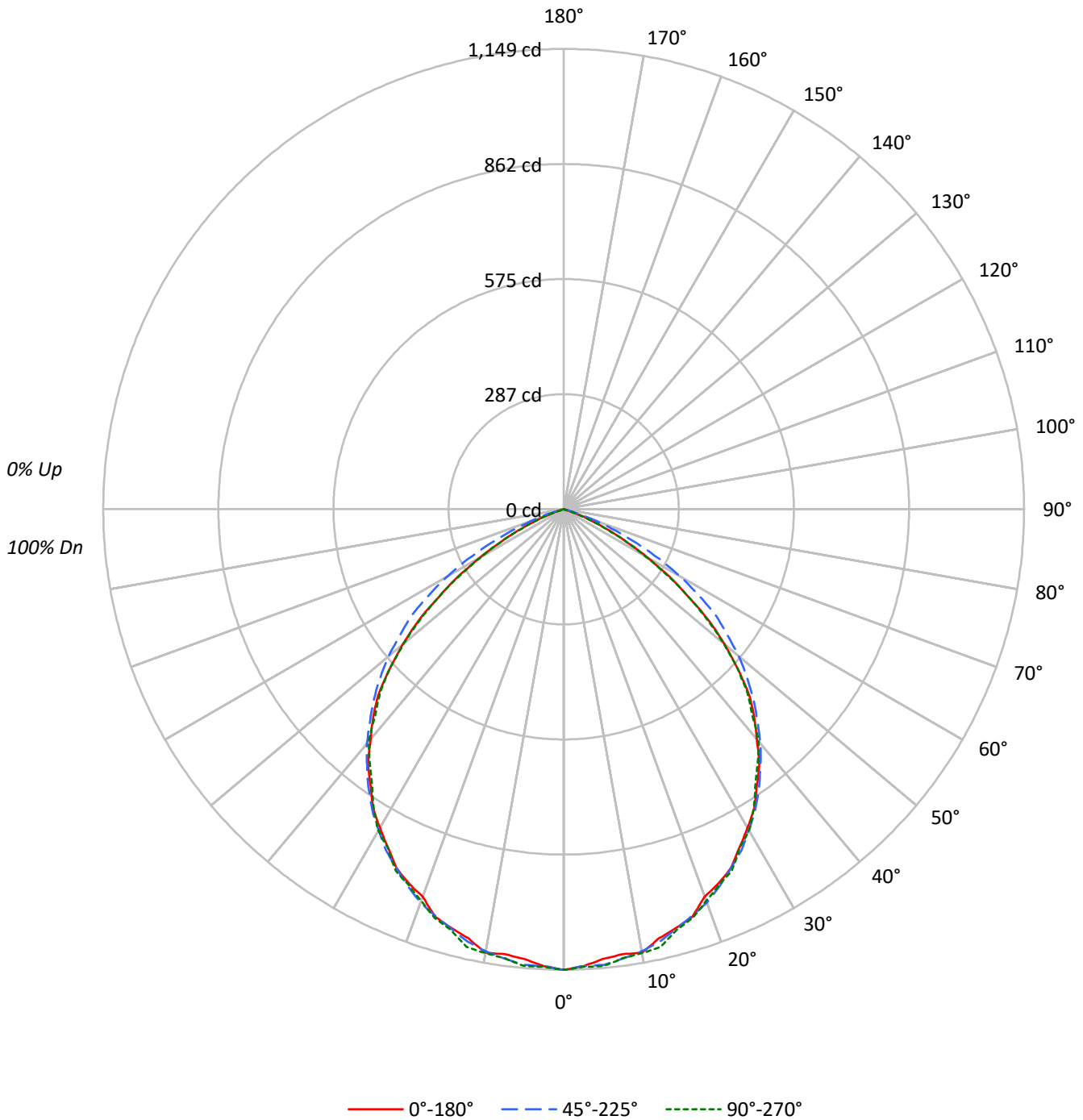
Lumens per Lamp: N/A
 Luminaire Lumens: 2455.0 lumens
 Efficiency: N/A
 Efficacy: 77.9 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C259030 F4LC-CSSQ-MW

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259030 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	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°	110895	110895	110895
5°	109100	110524	110834
10°	110048	109725	110205
15°	108114	108274	108603
20°	105597	107281	106778
25°	105144	105144	105836
30°	102213	102937	103126
35°	99027	99993	98261
40°	94380	96231	95400
45°	89324	91330	88437
50°	78658	85518	78177
55°	63706	78257	63992
60°	46623	64898	45678
65°	28334	46210	27580
70°	11059	24883	10608
75°	1230	6710	1230
80°	945	945	945
85°	0	0	0

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259030 F4LC-CSSQ-MW

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	108.5	4.4
10°-20°	307.0	12.5
20°-30°	455.5	18.6
30°-40°	527.8	21.5
40°-50°	506.0	20.6
50°-60°	372.0	15.2
60°-70°	160.7	6.5
70°-80°	17.4	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°	870.9	35.5
0°-40°	1398.7	57.0
0°-60°	2276.7	92.7
0°-90°	2455.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2455.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1149	1149	1149	1149	1149	
5°	1126	1138	1141	1143	1144	107
15°	1082	1089	1084	1086	1087	305
25°	988	986	988	989	994	452
35°	841	846	849	847	834	526
45°	655	656	669	660	648	498
55°	379	418	465	416	380	341
65°	124	155	202	154	121	128
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 FEU4C259030 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3
2.5°	1141.1	1154.1	1155.8	1147.6	1144.3	1139.5	1150.9	1142.7	1146.0	1142.7	1141.1
5°	1126.4	1141.1	1142.7	1142.7	1139.5	1137.8	1142.7	1141.1	1139.5	1136.2	1141.1
7.5°	1119.9	1128.0	1136.2	1126.4	1131.3	1129.7	1141.1	1136.2	1134.5	1134.5	1131.3
10°	1123.2	1121.5	1128.0	1118.2	1121.5	1118.2	1128.0	1128.0	1124.8	1121.5	1119.9
12.5°	1097.0	1110.0	1110.0	1108.4	1105.2	1100.2	1110.0	1116.6	1106.8	1106.8	1105.2
15°	1082.3	1085.6	1087.2	1087.2	1085.6	1088.9	1093.7	1087.2	1088.9	1080.7	1083.9
17.5°	1066.0	1059.5	1064.3	1061.1	1062.7	1066.0	1072.5	1072.5	1062.7	1061.1	1064.3
20°	1028.4	1048.0	1049.7	1039.9	1041.5	1041.5	1053.0	1043.2	1049.7	1041.5	1044.8
22.5°	1010.5	1023.5	1025.2	1012.1	1020.3	1010.5	1021.9	1007.2	1023.5	1012.1	1017.0
25°	987.6	986.0	990.9	984.3	986.0	986.0	994.1	987.6	992.5	986.0	987.6
27.5°	950.1	963.2	961.5	955.0	958.2	956.6	973.0	955.0	964.8	956.6	959.9
30°	917.4	928.9	925.6	919.1	919.1	914.1	932.1	927.2	925.6	925.6	923.9
32.5°	884.8	886.4	883.2	884.8	886.4	879.9	894.6	888.0	886.4	888.0	889.7
35°	840.7	840.7	843.9	839.1	845.6	845.6	858.7	850.5	848.9	843.9	848.9
37.5°	801.5	796.7	798.3	798.3	801.5	804.8	811.3	808.0	808.0	803.2	806.4
40°	749.3	746.0	750.9	750.9	755.8	755.8	762.4	759.1	764.0	764.0	764.0
42.5°	703.6	703.6	700.3	705.2	706.9	705.2	716.7	715.0	716.7	713.4	715.0
45°	654.6	654.6	651.3	649.7	657.9	656.3	669.3	664.4	670.9	667.6	669.3
47.5°	587.7	595.8	590.9	595.8	605.6	607.3	615.4	612.2	618.7	613.8	620.4
50°	524.0	524.0	528.9	535.4	545.2	546.9	556.7	563.2	566.5	568.1	569.7
52.5°	457.1	455.4	460.4	468.5	476.7	483.2	493.0	502.8	509.3	519.1	514.2
55°	378.7	382.0	386.9	396.7	409.8	417.9	426.1	439.1	450.6	455.4	465.2
57.5°	311.8	308.5	311.8	324.8	339.6	346.1	357.5	370.6	386.9	396.7	400.0
60°	241.6	243.2	246.5	258.0	269.3	279.1	284.1	305.2	320.0	329.8	336.3
62.5°	178.0	181.2	184.5	194.3	205.7	213.9	222.0	240.0	253.0	262.8	269.3
65°	124.1	125.7	130.6	135.5	146.9	155.1	161.6	176.3	189.4	197.5	202.4
67.5°	76.7	78.3	81.6	88.2	96.3	102.8	109.4	119.2	130.6	138.7	140.4
70°	39.2	40.8	42.4	47.4	53.9	57.1	62.0	70.2	78.3	84.9	88.2
72.5°	13.1	13.1	14.7	18.0	21.2	24.5	26.1	34.3	40.8	44.1	45.7
75°	3.3	3.3	3.3	3.3	3.3	4.9	4.9	9.8	13.1	16.3	18.0
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 FEU4C259030 F4LC-CSSQ-MW

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3	1149.3
2.5°	1149.3	1146.0	1144.3	1146.0	1146.0	1144.3	1149.3	1155.8	1163.9	1142.7
5°	1147.6	1144.3	1147.6	1137.8	1142.7	1139.5	1146.0	1144.3	1150.9	1144.3
7.5°	1142.7	1136.2	1137.8	1132.9	1139.5	1131.3	1136.2	1146.0	1139.5	1129.7
10°	1126.4	1123.2	1134.5	1118.2	1115.0	1121.5	1134.5	1124.8	1121.5	1124.8
12.5°	1110.0	1110.0	1115.0	1101.9	1103.5	1106.8	1113.3	1106.8	1110.0	1118.2
15°	1092.1	1088.9	1097.0	1087.2	1085.6	1082.3	1088.9	1088.9	1092.1	1087.2
17.5°	1070.9	1066.0	1066.0	1062.7	1061.1	1069.3	1072.5	1074.1	1075.8	1069.3
20°	1044.8	1043.2	1048.0	1043.2	1044.8	1046.4	1046.4	1043.2	1057.8	1039.9
22.5°	1017.0	1021.9	1015.4	1012.1	1015.4	1018.7	1018.7	1020.3	1017.0	1013.7
25°	989.3	992.5	994.1	984.3	989.3	984.3	995.8	997.4	990.9	994.1
27.5°	964.8	959.9	958.2	951.7	955.0	953.4	955.0	955.0	964.8	951.7
30°	927.2	922.3	923.9	919.1	920.7	919.1	920.7	920.7	927.2	925.6
32.5°	891.3	886.4	888.0	883.2	883.2	884.8	881.5	881.5	886.4	883.2
35°	857.0	845.6	847.2	845.6	847.2	840.7	840.7	839.1	842.3	834.2
37.5°	808.0	803.2	801.5	799.9	801.5	798.3	801.5	796.7	801.5	795.0
40°	764.0	760.7	762.4	752.6	752.6	754.2	750.9	749.3	750.9	757.4
42.5°	719.9	713.4	710.1	706.9	708.5	703.6	701.9	698.7	701.9	695.4
45°	667.6	667.6	666.0	657.9	659.5	659.5	653.0	646.5	648.1	648.1
47.5°	620.4	617.1	615.4	607.3	605.6	604.0	597.4	592.6	592.6	587.7
50°	568.1	564.8	559.9	551.8	548.5	538.7	533.8	527.3	520.8	520.8
52.5°	519.1	507.7	501.1	488.1	483.2	478.3	465.2	460.4	455.4	450.6
55°	460.4	450.6	437.5	422.8	416.3	408.1	395.0	385.2	378.7	380.4
57.5°	403.2	386.9	373.9	354.3	346.1	341.1	328.1	315.0	308.5	308.5
60°	333.0	320.0	303.6	285.7	279.1	271.0	254.6	246.5	241.6	236.7
62.5°	266.1	256.3	241.6	218.7	213.9	205.7	194.3	184.5	179.6	179.6
65°	199.1	189.4	176.3	160.0	153.5	146.9	137.1	127.3	122.4	120.8
67.5°	140.4	128.9	117.6	104.5	99.6	96.3	86.5	80.0	76.7	75.1
70°	84.9	78.3	70.2	60.4	55.5	52.2	45.7	40.8	39.2	37.6
72.5°	44.1	39.2	32.6	26.1	22.8	19.6	16.3	13.1	11.5	11.5
75°	16.3	13.1	8.2	4.9	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)