

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: **FLDSQ4C30D010 FEU4C309035 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: FLDSQ4C30D010 FEU4C309035 F4LC-CSSQ-MMS
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

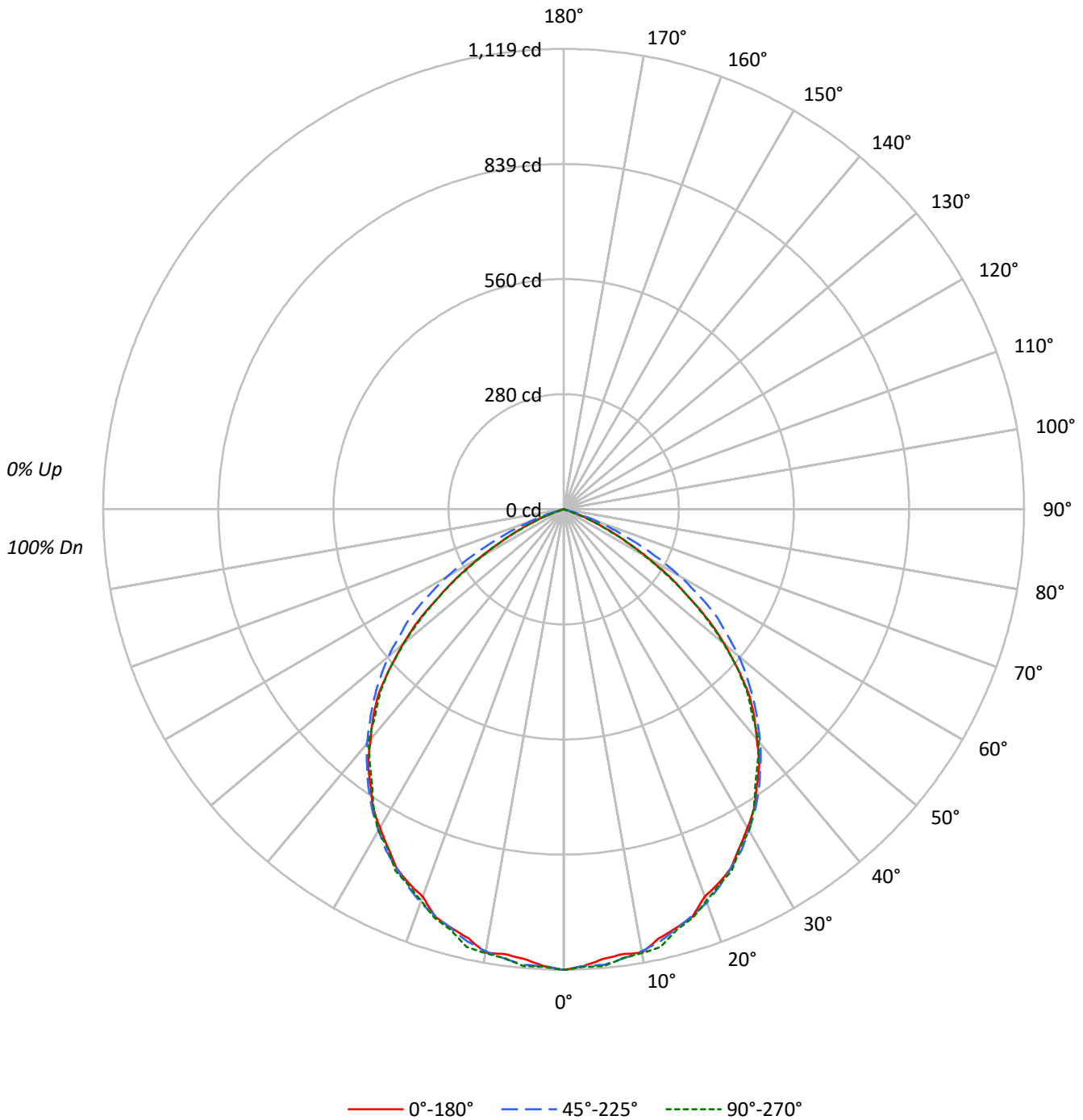
Lumens per Lamp: N/A
 Luminaire Lumens: 2391.0 lumens
 Efficiency: N/A
 Efficacy: 75.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 31.6
 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°	108000	108000	108000
5°	106262	107638	107948
10°	107177	106864	107324
15°	105297	105457	105766
20°	102846	104478	103996
25°	102407	102407	103078
30°	99550	100263	100441
35°	96447	97378	95694
40°	91924	93712	92919
45°	86991	88956	86131
50°	76616	83296	76136
55°	62041	76222	62327
60°	45408	63200	44481
65°	27580	45000	26872
70°	10749	24234	10325
75°	1193	6524	1193
80°	889	889	889
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	105.7	4.4
10°-20°	299.0	12.5
20°-30°	443.6	18.6
30°-40°	514.0	21.5
40°-50°	492.8	20.6
50°-60°	362.3	15.2
60°-70°	156.5	6.5
70°-80°	16.9	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°	848.2	35.5
0°-40°	1362.2	57.0
0°-60°	2217.4	92.7
0°-90°	2391.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2391.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1119	1119	1119	1119	1119	
5°	1097	1108	1111	1113	1114	105
15°	1054	1060	1056	1057	1059	297
25°	962	960	962	964	968	440
35°	819	824	827	825	812	512
45°	638	639	652	642	631	485
55°	369	407	453	405	370	332
65°	121	151	197	150	118	124
75°	3	5	18	3	3	10
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°	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3
2.5°	1111.3	1124.0	1125.7	1117.7	1114.5	1109.8	1120.9	1112.9	1116.1	1112.9	1111.3
5°	1097.1	1111.3	1112.9	1112.9	1109.8	1108.1	1112.9	1111.3	1109.8	1106.6	1111.3
7.5°	1090.7	1098.6	1106.6	1097.1	1101.8	1100.2	1111.3	1106.6	1105.0	1105.0	1101.8
10°	1093.9	1092.3	1098.6	1089.1	1092.3	1089.1	1098.6	1098.6	1095.4	1092.3	1090.7
12.5°	1068.4	1081.1	1081.1	1079.5	1076.4	1071.6	1081.1	1087.5	1077.9	1077.9	1076.4
15°	1054.1	1057.3	1058.8	1058.8	1057.3	1060.5	1065.2	1058.8	1060.5	1052.5	1055.7
17.5°	1038.2	1031.9	1036.6	1033.4	1035.0	1038.2	1044.6	1044.6	1035.0	1033.4	1036.6
20°	1001.6	1020.7	1022.3	1012.8	1014.3	1014.3	1025.5	1016.0	1022.3	1014.3	1017.5
22.5°	984.1	996.8	998.5	985.7	993.7	984.1	995.3	980.9	996.8	985.7	990.5
25°	961.9	960.3	965.0	958.7	960.3	960.3	968.2	961.9	966.7	960.3	961.9
27.5°	925.3	938.1	936.4	930.1	933.3	931.7	947.6	930.1	939.6	931.7	934.9
30°	893.5	904.7	901.5	895.1	895.1	890.3	907.8	903.0	901.5	901.5	899.9
32.5°	861.7	863.3	860.2	861.7	863.3	857.0	871.2	864.9	863.3	864.9	866.5
35°	818.8	818.8	821.9	817.2	823.6	823.6	836.3	828.3	826.7	821.9	826.7
37.5°	780.6	775.9	777.4	777.4	780.6	783.8	790.2	787.0	787.0	782.2	785.4
40°	729.8	726.6	731.3	731.3	736.1	736.1	742.5	739.3	744.0	744.0	744.0
42.5°	685.3	685.3	682.1	686.8	688.4	686.8	698.0	696.4	698.0	694.8	696.4
45°	637.5	637.5	634.3	632.8	640.7	639.1	651.9	647.1	653.4	650.2	651.9
47.5°	572.3	580.3	575.5	580.3	589.8	591.5	599.4	596.2	602.6	597.8	604.2
50°	510.4	510.4	515.1	521.5	531.0	532.6	542.2	548.5	551.7	553.3	554.9
52.5°	445.2	443.6	448.4	456.3	464.3	470.6	480.2	489.7	496.0	505.6	500.8
55°	368.8	372.0	376.8	386.4	399.1	407.0	415.0	427.7	438.8	443.6	453.1
57.5°	303.6	300.5	303.6	316.4	330.7	337.1	348.2	360.9	376.8	386.4	389.5
60°	235.3	236.9	240.1	251.2	262.3	271.9	276.7	297.3	311.6	321.2	327.5
62.5°	173.3	176.5	179.7	189.2	200.3	208.3	216.2	233.7	246.4	256.0	262.3
65°	120.8	122.4	127.2	131.9	143.1	151.0	157.4	171.7	184.4	192.4	197.1
67.5°	74.7	76.3	79.5	85.9	93.8	100.2	106.5	116.0	127.2	135.1	136.7
70°	38.1	39.8	41.3	46.1	52.5	55.7	60.4	68.4	76.3	82.6	85.9
72.5°	12.7	12.7	14.3	17.5	20.7	23.9	25.4	33.4	39.8	42.9	44.5
75°	3.2	3.2	3.2	3.2	3.2	4.8	4.8	9.5	12.7	15.9	17.5
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.2	3.2
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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°	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3	1119.3
2.5°	1119.3	1116.1	1114.5	1116.1	1116.1	1114.5	1119.3	1125.7	1133.6	1112.9
5°	1117.7	1114.5	1117.7	1108.1	1112.9	1109.8	1116.1	1114.5	1120.9	1114.5
7.5°	1112.9	1106.6	1108.1	1103.4	1109.8	1101.8	1106.6	1116.1	1109.8	1100.2
10°	1097.1	1093.9	1105.0	1089.1	1085.9	1092.3	1105.0	1095.4	1092.3	1095.4
12.5°	1081.1	1081.1	1085.9	1073.2	1074.7	1077.9	1084.3	1077.9	1081.1	1089.1
15°	1063.6	1060.5	1068.4	1058.8	1057.3	1054.1	1060.5	1060.5	1063.6	1058.8
17.5°	1043.0	1038.2	1038.2	1035.0	1033.4	1041.4	1044.6	1046.1	1047.8	1041.4
20°	1017.5	1016.0	1020.7	1016.0	1017.5	1019.1	1019.1	1016.0	1030.2	1012.8
22.5°	990.5	995.3	988.9	985.7	988.9	992.1	992.1	993.7	990.5	987.3
25°	963.5	966.7	968.2	958.7	963.5	958.7	969.8	971.4	965.0	968.2
27.5°	939.6	934.9	933.3	926.9	930.1	928.5	930.1	930.1	939.6	926.9
30°	903.0	898.3	899.9	895.1	896.7	895.1	896.7	896.7	903.0	901.5
32.5°	868.1	863.3	864.9	860.2	860.2	861.7	858.5	858.5	863.3	860.2
35°	834.7	823.6	825.1	823.6	825.1	818.8	818.8	817.2	820.4	812.4
37.5°	787.0	782.2	780.6	779.1	780.6	777.4	780.6	775.9	780.6	774.3
40°	744.0	740.9	742.5	732.9	732.9	734.5	731.3	729.8	731.3	737.7
42.5°	701.2	694.8	691.6	688.4	690.0	685.3	683.6	680.5	683.6	677.3
45°	650.2	650.2	648.7	640.7	642.3	642.3	636.0	629.6	631.2	631.2
47.5°	604.2	601.0	599.4	591.5	589.8	588.3	581.9	577.1	577.1	572.3
50°	553.3	550.1	545.3	537.4	534.2	524.7	519.9	513.6	507.2	507.2
52.5°	505.6	494.4	488.1	475.4	470.6	465.8	453.1	448.4	443.6	438.8
55°	448.4	438.8	426.1	411.8	405.4	397.4	384.7	375.2	368.8	370.5
57.5°	392.7	376.8	364.1	345.0	337.1	332.3	319.5	306.8	300.5	300.5
60°	324.3	311.6	295.7	278.2	271.9	263.9	248.0	240.1	235.3	230.5
62.5°	259.1	249.6	235.3	213.0	208.3	200.3	189.2	179.7	174.9	174.9
65°	194.0	184.4	171.7	155.8	149.5	143.1	133.6	124.0	119.2	117.7
67.5°	136.7	125.6	114.5	101.8	97.0	93.8	84.3	77.9	74.7	73.1
70°	82.6	76.3	68.4	58.8	54.0	50.9	44.5	39.8	38.1	36.6
72.5°	42.9	38.1	31.8	25.4	22.3	19.1	15.9	12.7	11.2	11.2
75°	15.9	12.7	8.0	4.8	3.2	3.2	3.2	3.2	3.2	3.2
77.5°	3.2	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
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)