

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 FEU4C309050 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 FEU4C309050 F4LC-CSSQ-MMS
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

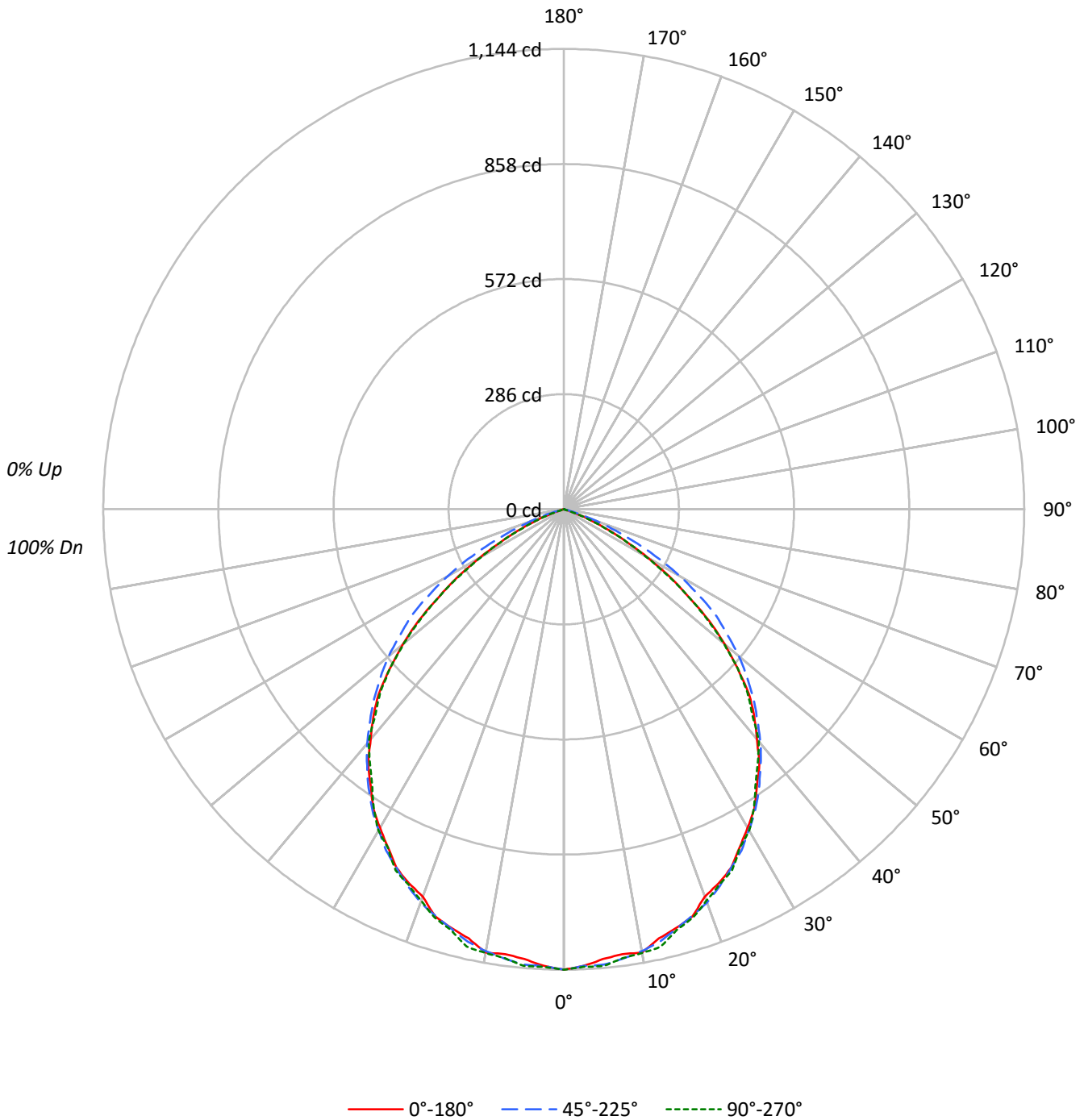
Lumens per Lamp: N/A
 Luminaire Lumens: 2444.0 lumens
 Efficiency: N/A
 Efficacy: 77.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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°	110393	110393	110393
5°	108616	110030	110340
10°	109549	109235	109705
15°	107634	107794	108114
20°	105125	106799	106296
25°	104675	104675	105367
30°	101756	102480	102670
35°	98579	99545	97814
40°	93952	95791	94972
45°	88928	90921	88041
50°	78312	85142	77817
55°	63420	77904	63706
60°	46411	64609	45485
65°	28197	46005	27466
70°	11002	24770	10551
75°	1193	6673	1193
80°	945	945	945
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	108.0	4.4
10°-20°	305.6	12.5
20°-30°	453.4	18.6
30°-40°	525.4	21.5
40°-50°	503.7	20.6
50°-60°	370.4	15.2
60°-70°	160.0	6.5
70°-80°	17.3	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°	867.0	35.5
0°-40°	1392.4	57.0
0°-60°	2266.5	92.7
0°-90°	2444.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2444.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1144	1144	1144	1144	1144	
5°	1121	1133	1136	1138	1139	107
15°	1078	1084	1079	1081	1082	304
25°	983	982	983	985	990	450
35°	837	842	845	843	830	523
45°	652	653	666	657	645	495
55°	377	416	463	414	379	339
65°	124	154	202	153	120	127
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°	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1
2.5°	1136.0	1149.0	1150.6	1142.5	1139.2	1134.4	1145.7	1137.6	1140.9	1137.6	1136.0
5°	1121.4	1136.0	1137.6	1137.6	1134.4	1132.7	1137.6	1136.0	1134.4	1131.1	1136.0
7.5°	1114.9	1123.0	1131.1	1121.4	1126.2	1124.6	1136.0	1131.1	1129.5	1129.5	1126.2
10°	1118.1	1116.5	1123.0	1113.2	1116.5	1113.2	1123.0	1123.0	1119.7	1116.5	1114.9
12.5°	1092.1	1105.1	1105.1	1103.5	1100.2	1095.3	1105.1	1111.6	1101.8	1101.8	1100.2
15°	1077.5	1080.7	1082.3	1082.3	1080.7	1084.0	1088.8	1082.3	1084.0	1075.8	1079.1
17.5°	1061.2	1054.7	1059.6	1056.3	1058.0	1061.2	1067.7	1067.7	1058.0	1056.3	1059.6
20°	1023.8	1043.3	1045.0	1035.2	1036.8	1036.8	1048.2	1038.5	1045.0	1036.8	1040.1
22.5°	1005.9	1018.9	1020.6	1007.6	1015.7	1005.9	1017.3	1002.7	1018.9	1007.6	1012.4
25°	983.2	981.6	986.4	979.9	981.6	981.6	989.7	983.2	988.1	981.6	983.2
27.5°	945.9	958.9	957.2	950.7	953.9	952.4	968.6	950.7	960.4	952.4	955.6
30°	913.3	924.7	921.5	915.0	915.0	910.1	928.0	923.0	921.5	921.5	919.8
32.5°	880.8	882.5	879.2	880.8	882.5	876.0	890.6	884.1	882.5	884.1	885.7
35°	836.9	836.9	840.2	835.3	841.8	841.8	854.8	846.7	845.1	840.2	845.1
37.5°	797.9	793.1	794.7	794.7	797.9	801.2	807.7	804.4	804.4	799.6	802.8
40°	745.9	742.7	747.5	747.5	752.4	752.4	758.9	755.7	760.5	760.5	760.5
42.5°	700.5	700.5	697.2	702.0	703.7	702.0	713.5	711.8	713.5	710.2	711.8
45°	651.7	651.7	648.4	646.8	654.9	653.3	666.3	661.4	667.9	664.7	666.3
47.5°	585.0	593.2	588.3	593.2	602.9	604.6	612.7	609.4	615.9	611.1	617.6
50°	521.7	521.7	526.5	533.0	542.8	544.4	554.2	560.7	563.9	565.5	567.2
52.5°	455.1	453.4	458.3	466.4	474.6	481.1	490.8	500.5	507.0	516.8	511.9
55°	377.0	380.3	385.2	394.9	407.9	416.0	424.2	437.2	448.6	453.4	463.1
57.5°	310.4	307.1	310.4	323.4	338.0	344.5	355.9	368.9	385.2	394.9	398.2
60°	240.5	242.1	245.4	256.8	268.1	277.9	282.8	303.9	318.5	328.3	334.8
62.5°	177.2	180.4	183.7	193.4	204.8	212.9	221.0	238.9	251.9	261.6	268.1
65°	123.5	125.1	130.0	134.9	146.3	154.4	160.9	175.5	188.5	196.7	201.5
67.5°	76.4	78.0	81.2	87.8	95.9	102.4	108.9	118.6	130.0	138.1	139.8
70°	39.0	40.6	42.2	47.1	53.6	56.9	61.7	69.9	78.0	84.5	87.8
72.5°	13.0	13.0	14.7	17.9	21.2	24.4	26.0	34.1	40.6	43.9	45.5
75°	3.2	3.2	3.2	3.2	3.2	4.9	4.9	9.7	13.0	16.2	17.9
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	3.2	3.2
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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1	1144.1
2.5°	1144.1	1140.9	1139.2	1140.9	1140.9	1139.2	1144.1	1150.6	1158.7	1137.6
5°	1142.5	1139.2	1142.5	1132.7	1137.6	1134.4	1140.9	1139.2	1145.7	1139.2
7.5°	1137.6	1131.1	1132.7	1127.9	1134.4	1126.2	1131.1	1140.9	1134.4	1124.6
10°	1121.4	1118.1	1129.5	1113.2	1110.0	1116.5	1129.5	1119.7	1116.5	1119.7
12.5°	1105.1	1105.1	1110.0	1097.0	1098.6	1101.8	1108.3	1101.8	1105.1	1113.2
15°	1087.2	1084.0	1092.1	1082.3	1080.7	1077.5	1084.0	1084.0	1087.2	1082.3
17.5°	1066.1	1061.2	1061.2	1058.0	1056.3	1064.5	1067.7	1069.3	1071.0	1064.5
20°	1040.1	1038.5	1043.3	1038.5	1040.1	1041.7	1041.7	1038.5	1053.1	1035.2
22.5°	1012.4	1017.3	1010.8	1007.6	1010.8	1014.1	1014.1	1015.7	1012.4	1009.2
25°	984.8	988.1	989.7	979.9	984.8	979.9	991.3	992.9	986.4	989.7
27.5°	960.4	955.6	953.9	947.4	950.7	949.1	950.7	950.7	960.4	947.4
30°	923.0	918.2	919.8	915.0	916.6	915.0	916.6	916.6	923.0	921.5
32.5°	887.3	882.5	884.1	879.2	879.2	880.8	877.6	877.6	882.5	879.2
35°	853.2	841.8	843.4	841.8	843.4	836.9	836.9	835.3	838.6	830.4
37.5°	804.4	799.6	797.9	796.3	797.9	794.7	797.9	793.1	797.9	791.4
40°	760.5	757.3	758.9	749.2	749.2	750.8	747.5	745.9	747.5	754.0
42.5°	716.7	710.2	707.0	703.7	705.3	700.5	698.8	695.6	698.8	692.3
45°	664.7	664.7	663.1	654.9	656.6	656.6	650.1	643.6	645.2	645.2
47.5°	617.6	614.3	612.7	604.6	602.9	601.3	594.8	589.9	589.9	585.0
50°	565.5	562.3	557.4	549.3	546.0	536.3	531.4	524.9	518.4	518.4
52.5°	516.8	505.4	498.9	485.9	481.1	476.1	463.1	458.3	453.4	448.6
55°	458.3	448.6	435.6	420.9	414.4	406.3	393.3	383.5	377.0	378.7
57.5°	401.4	385.2	372.2	352.7	344.5	339.6	326.6	313.6	307.1	307.1
60°	331.5	318.5	302.3	284.4	277.9	269.8	253.5	245.4	240.5	235.7
62.5°	264.9	255.1	240.5	217.8	212.9	204.8	193.4	183.7	178.8	178.8
65°	198.3	188.5	175.5	159.3	152.8	146.3	136.5	126.8	121.9	120.3
67.5°	139.8	128.4	117.0	104.0	99.1	95.9	86.1	79.6	76.4	74.7
70°	84.5	78.0	69.9	60.1	55.2	52.0	45.5	40.6	39.0	37.4
72.5°	43.9	39.0	32.5	26.0	22.7	19.5	16.2	13.0	11.4	11.4
75°	16.2	13.0	8.2	4.9	3.2	3.2	3.2	3.2	3.2	3.2
77.5°	3.2	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)