

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 FEU4C309027 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 FEU4C309027 F4LC-CSSQ-MMS
 Description: 4 INCH 3000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

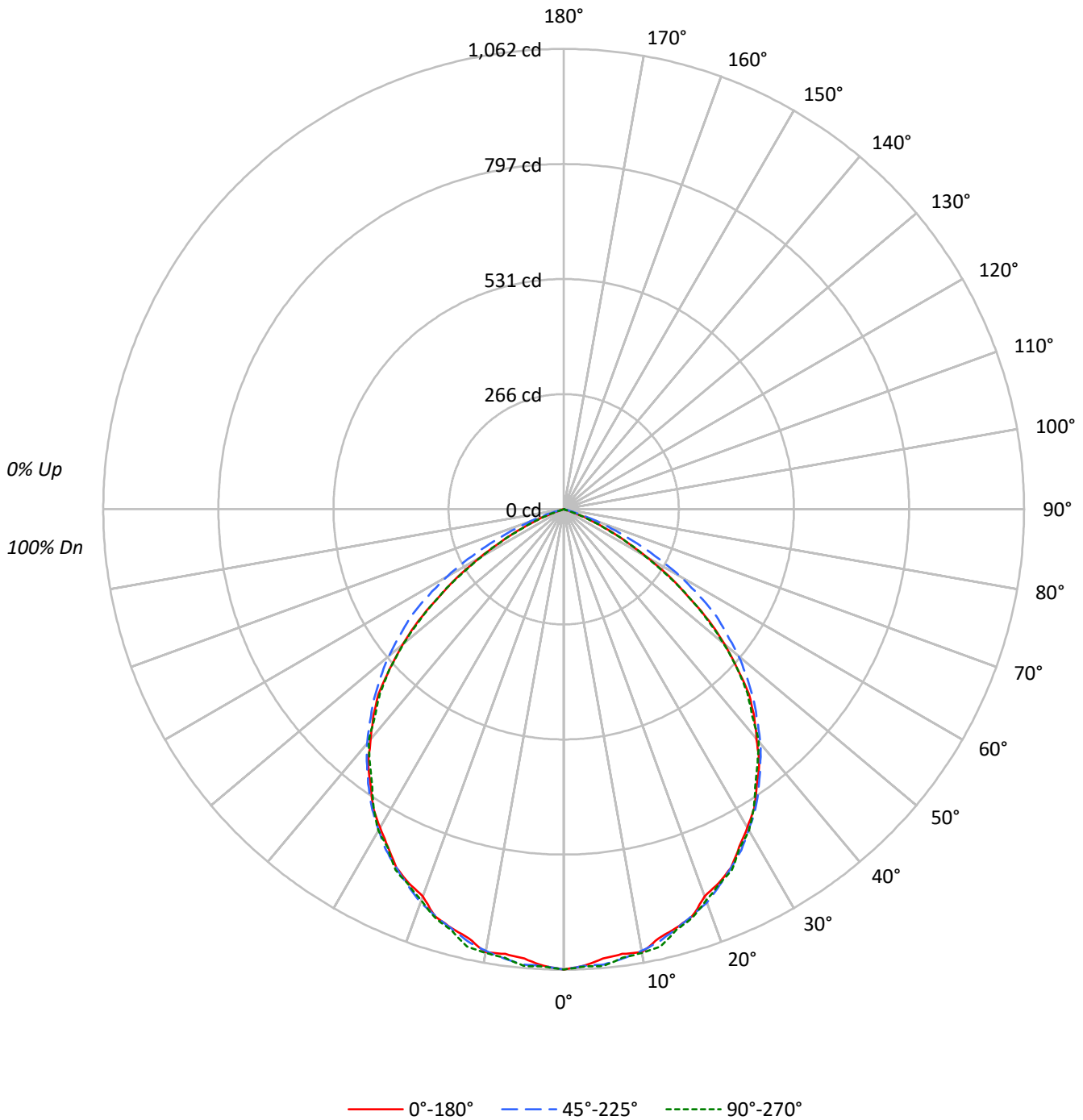
Lumens per Lamp: N/A
 Luminaire Lumens: 2268.0 lumens
 Efficiency: N/A
 Efficacy: 71.8 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	102442	102442	102442
5°	100790	102107	102398
10°	101661	101367	101808
15°	99883	100033	100332
20°	97558	99108	98646
25°	97137	97137	97776
30°	94425	95105	95272
35°	91477	92372	90770
40°	87188	88901	88132
45°	82515	84371	81696
50°	72668	79003	72218
55°	58861	72302	59114
60°	43073	59958	42204
65°	26165	42694	25480
70°	10213	22992	9789
75°	1118	6189	1118
80°	833	833	833
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	100.2	4.4
10°-20°	283.6	12.5
20°-30°	420.8	18.6
30°-40°	487.6	21.5
40°-50°	467.5	20.6
50°-60°	343.7	15.2
60°-70°	148.5	6.5
70°-80°	16.0	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°	804.6	35.5
0°-40°	1292.2	57.0
0°-60°	2103.3	92.7
0°-90°	2268.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2268.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1062	1062	1062	1062	1062	
5°	1041	1051	1054	1056	1057	99
15°	1000	1006	1001	1003	1004	282
25°	912	911	912	914	918	418
35°	777	781	784	783	771	486
45°	605	606	618	609	599	460
55°	350	386	430	385	351	315
65°	115	143	187	142	112	118
75°	3	5	17	3	3	9
85°	0	0	0	0	0	0
90°	0	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°	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7
2.5°	1054.2	1066.2	1067.8	1060.2	1057.2	1052.7	1063.2	1055.7	1058.7	1055.7	1054.2
5°	1040.6	1054.2	1055.7	1055.7	1052.7	1051.1	1055.7	1054.2	1052.7	1049.7	1054.2
7.5°	1034.6	1042.1	1049.7	1040.6	1045.1	1043.6	1054.2	1049.7	1048.1	1048.1	1045.1
10°	1037.6	1036.1	1042.1	1033.0	1036.1	1033.0	1042.1	1042.1	1039.1	1036.1	1034.6
12.5°	1013.4	1025.5	1025.5	1024.0	1021.0	1016.4	1025.5	1031.6	1022.5	1022.5	1021.0
15°	999.9	1002.9	1004.4	1004.4	1002.9	1005.9	1010.4	1004.4	1005.9	998.3	1001.4
17.5°	984.8	978.8	983.3	980.3	981.8	984.8	990.8	990.8	981.8	980.3	983.3
20°	950.1	968.2	969.7	960.7	962.2	962.2	972.7	963.7	969.7	962.2	965.2
22.5°	933.5	945.6	947.1	935.0	942.5	933.5	944.1	930.5	945.6	935.0	939.5
25°	912.4	910.9	915.4	909.4	910.9	910.9	918.4	912.4	916.9	910.9	912.4
27.5°	877.7	889.8	888.3	882.2	885.3	883.8	898.8	882.2	891.3	883.8	886.8
30°	847.5	858.1	855.1	849.1	849.1	844.5	861.1	856.6	855.1	855.1	853.6
32.5°	817.4	818.9	815.9	817.4	818.9	812.9	826.4	820.4	818.9	820.4	821.9
35°	776.6	776.6	779.7	775.2	781.2	781.2	793.3	785.7	784.2	779.7	784.2
37.5°	740.5	736.0	737.5	737.5	740.5	743.5	749.5	746.5	746.5	742.0	745.0
40°	692.2	689.2	693.7	693.7	698.3	698.3	704.3	701.3	705.8	705.8	705.8
42.5°	650.0	650.0	647.0	651.5	653.0	651.5	662.1	660.5	662.1	659.1	660.5
45°	604.7	604.7	601.7	600.2	607.7	606.3	618.3	613.8	619.8	616.8	618.3
47.5°	542.9	550.5	545.9	550.5	559.5	561.0	568.5	565.5	571.6	567.1	573.1
50°	484.1	484.1	488.6	494.6	503.7	505.2	514.3	520.3	523.3	524.8	526.3
52.5°	422.3	420.8	425.3	432.8	440.4	446.4	455.5	464.5	470.5	479.6	475.0
55°	349.9	352.9	357.4	366.5	378.5	386.0	393.6	405.7	416.3	420.8	429.8
57.5°	288.0	285.0	288.0	300.1	313.7	319.7	330.3	342.4	357.4	366.5	369.5
60°	223.2	224.7	227.7	238.3	248.8	257.9	262.4	282.0	295.6	304.6	310.7
62.5°	164.4	167.4	170.4	179.5	190.0	197.6	205.1	221.7	233.8	242.8	248.8
65°	114.6	116.1	120.7	125.2	135.7	143.2	149.3	162.9	174.9	182.5	187.0
67.5°	70.9	72.4	75.4	81.5	89.0	95.0	101.0	110.1	120.7	128.2	129.7
70°	36.2	37.7	39.2	43.7	49.8	52.8	57.3	64.9	72.4	78.4	81.5
72.5°	12.1	12.1	13.6	16.6	19.6	22.6	24.1	31.7	37.7	40.7	42.2
75°	3.0	3.0	3.0	3.0	3.0	4.6	4.6	9.0	12.1	15.1	16.6
77.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	3.0	3.0
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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°	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7	1061.7
2.5°	1061.7	1058.7	1057.2	1058.7	1058.7	1057.2	1061.7	1067.8	1075.3	1055.7
5°	1060.2	1057.2	1060.2	1051.1	1055.7	1052.7	1058.7	1057.2	1063.2	1057.2
7.5°	1055.7	1049.7	1051.1	1046.6	1052.7	1045.1	1049.7	1058.7	1052.7	1043.6
10°	1040.6	1037.6	1048.1	1033.0	1030.0	1036.1	1048.1	1039.1	1036.1	1039.1
12.5°	1025.5	1025.5	1030.0	1018.0	1019.5	1022.5	1028.5	1022.5	1025.5	1033.0
15°	1008.9	1005.9	1013.4	1004.4	1002.9	999.9	1005.9	1005.9	1008.9	1004.4
17.5°	989.3	984.8	984.8	981.8	980.3	987.8	990.8	992.3	993.9	987.8
20°	965.2	963.7	968.2	963.7	965.2	966.7	966.7	963.7	977.2	960.7
22.5°	939.5	944.1	938.0	935.0	938.0	941.1	941.1	942.5	939.5	936.5
25°	913.9	916.9	918.4	909.4	913.9	909.4	920.0	921.4	915.4	918.4
27.5°	891.3	886.8	885.3	879.2	882.2	880.8	882.2	882.2	891.3	879.2
30°	856.6	852.1	853.6	849.1	850.5	849.1	850.5	850.5	856.6	855.1
32.5°	823.4	818.9	820.4	815.9	815.9	817.4	814.4	814.4	818.9	815.9
35°	791.7	781.2	782.7	781.2	782.7	776.6	776.6	775.2	778.2	770.6
37.5°	746.5	742.0	740.5	739.0	740.5	737.5	740.5	736.0	740.5	734.4
40°	705.8	702.7	704.3	695.2	695.2	696.7	693.7	692.2	693.7	699.7
42.5°	665.1	659.1	656.0	653.0	654.5	650.0	648.5	645.5	648.5	642.4
45°	616.8	616.8	615.3	607.7	609.3	609.3	603.3	597.2	598.7	598.7
47.5°	573.1	570.1	568.5	561.0	559.5	558.0	551.9	547.4	547.4	542.9
50°	524.8	521.8	517.3	509.7	506.7	497.7	493.2	487.1	481.1	481.1
52.5°	479.6	469.0	463.0	450.9	446.4	441.9	429.8	425.3	420.8	416.3
55°	425.3	416.3	404.2	390.6	384.6	377.0	364.9	355.9	349.9	351.4
57.5°	372.5	357.4	345.4	327.3	319.7	315.2	303.1	291.0	285.0	285.0
60°	307.7	295.6	280.5	263.9	257.9	250.4	235.2	227.7	223.2	218.7
62.5°	245.8	236.8	223.2	202.1	197.6	190.0	179.5	170.4	165.9	165.9
65°	184.0	174.9	162.9	147.8	141.8	135.7	126.7	117.6	113.1	111.6
67.5°	129.7	119.1	108.6	96.5	92.0	89.0	79.9	73.9	70.9	69.3
70°	78.4	72.4	64.9	55.8	51.3	48.2	42.2	37.7	36.2	34.7
72.5°	40.7	36.2	30.2	24.1	21.1	18.1	15.1	12.1	10.6	10.6
75°	15.1	12.1	7.6	4.6	3.0	3.0	3.0	3.0	3.0	3.0
77.5°	3.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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)