

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

Summary

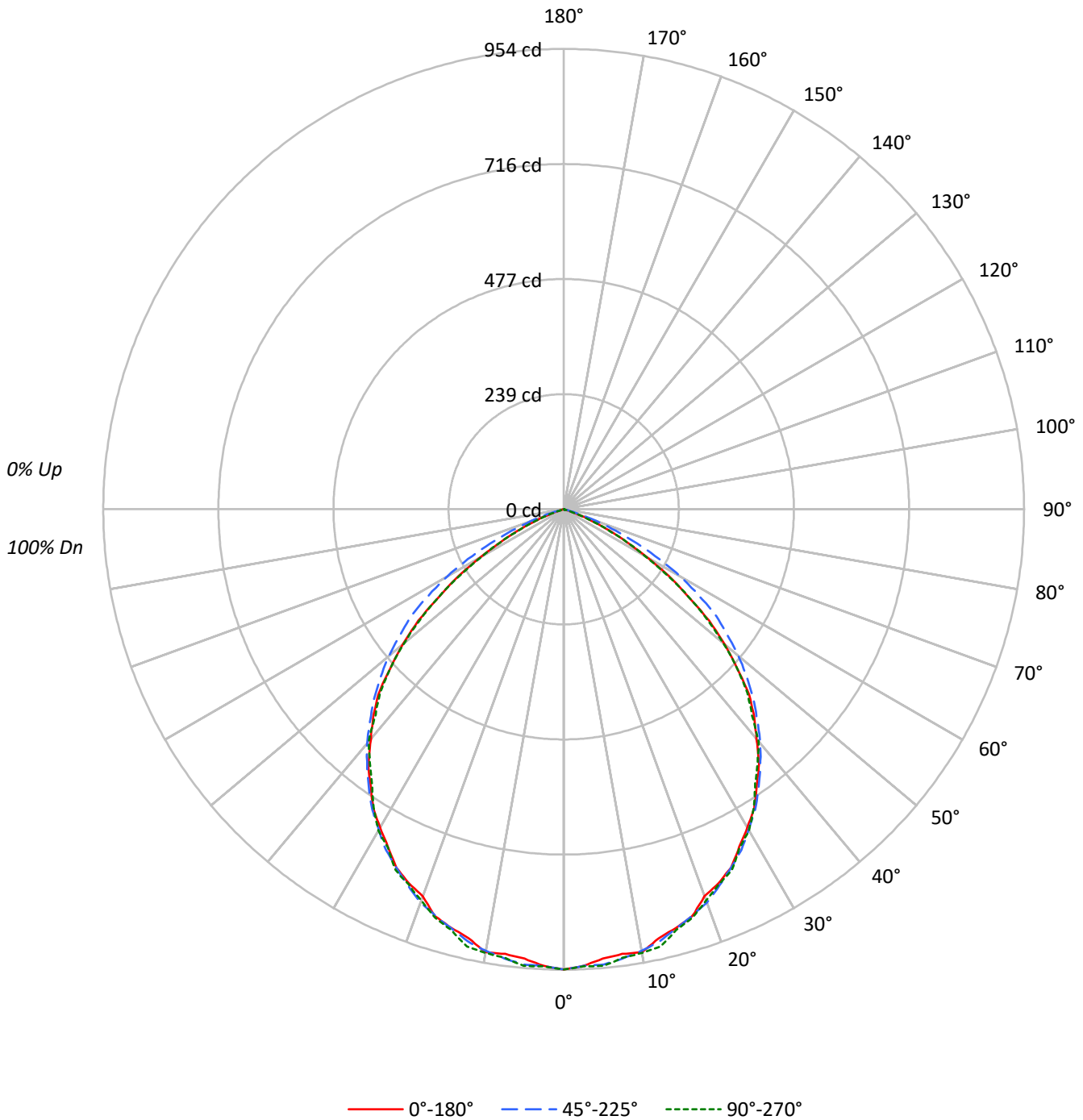
Lumens per Lamp: N/A
 Luminaire Lumens: 2037.0 lumens
 Efficiency: N/A
 Efficacy: 64.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 31.5
 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

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Luminous Intensity Polar Plot



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CATALOG NUMBER: FLDSQ4C25D010 FEU4C259035 F4LC-CSSQ-MMS

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°	92012	92012	92012
5°	90523	91705	91966
10°	91305	91041	91433
15°	89704	89843	90113
20°	87618	89014	88593
25°	87247	87247	87822
30°	84810	85411	85567
35°	82159	82960	81523
40°	78308	79844	79164
45°	74109	75774	73372
50°	65268	70957	64863
55°	52856	64934	53091
60°	38673	53841	37901
65°	23516	38334	22877
70°	9169	20651	8802
75°	1007	5555	1007
80°	778	778	778
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	90.0	4.4
10°-20°	254.7	12.5
20°-30°	377.9	18.6
30°-40°	437.9	21.5
40°-50°	419.8	20.6
50°-60°	308.7	15.2
60°-70°	133.3	6.5
70°-80°	14.4	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°	722.6	35.5
0°-40°	1160.5	57.0
0°-60°	1889.1	92.7
0°-90°	2037.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2037.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	954	954	954	954	954	
5°	935	944	947	948	950	89
15°	898	904	899	901	902	253
25°	820	818	820	821	825	375
35°	698	702	704	703	692	436
45°	543	544	555	547	538	413
55°	314	347	386	345	316	283
65°	103	129	168	127	100	106
75°	3	4	15	3	3	8
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	953.6	953.6	953.6	953.6	953.6	953.6	953.6	953.6	953.6	953.6	953.6
2.5°	946.8	957.6	959.0	952.2	949.5	945.5	954.9	948.2	950.9	948.2	946.8
5°	934.6	946.8	948.2	948.2	945.5	944.1	948.2	946.8	945.5	942.8	946.8
7.5°	929.2	936.0	942.8	934.6	938.7	937.3	946.8	942.8	941.4	941.4	938.7
10°	931.9	930.5	936.0	927.8	930.5	927.8	936.0	936.0	933.2	930.5	929.2
12.5°	910.2	921.0	921.0	919.7	917.0	912.9	921.0	926.5	918.3	918.3	917.0
15°	898.0	900.8	902.1	902.1	900.8	903.5	907.5	902.1	903.5	896.7	899.4
17.5°	884.5	879.1	883.1	880.4	881.8	884.5	889.9	889.9	881.8	880.4	883.1
20°	853.3	869.6	871.0	862.8	864.2	864.2	873.7	865.5	871.0	864.2	866.9
22.5°	838.4	849.2	850.6	839.8	846.5	838.4	847.9	835.7	849.2	839.8	843.8
25°	819.5	818.1	822.2	816.7	818.1	818.1	824.9	819.5	823.5	818.1	819.5
27.5°	788.3	799.2	797.8	792.4	795.1	793.8	807.3	792.4	800.5	793.8	796.5
30°	761.2	770.7	768.0	762.6	762.6	758.5	773.4	769.3	768.0	768.0	766.6
32.5°	734.1	735.5	732.8	734.1	735.5	730.1	742.3	736.8	735.5	736.8	738.2
35°	697.5	697.5	700.3	696.2	701.6	701.6	712.5	705.7	704.3	700.3	704.3
37.5°	665.0	661.0	662.3	662.3	665.0	667.8	673.2	670.5	670.5	666.4	669.1
40°	621.7	619.0	623.0	623.0	627.1	627.1	632.6	629.8	633.9	633.9	633.9
42.5°	583.8	583.8	581.1	585.1	586.5	585.1	594.6	593.3	594.6	591.9	593.3
45°	543.1	543.1	540.4	539.1	545.8	544.5	555.3	551.3	556.7	554.0	555.3
47.5°	487.6	494.4	490.3	494.4	502.5	503.9	510.6	507.9	513.3	509.3	514.7
50°	434.8	434.8	438.9	444.3	452.4	453.8	461.9	467.3	470.0	471.3	472.7
52.5°	379.3	377.9	382.0	388.7	395.5	400.9	409.1	417.2	422.6	430.7	426.6
55°	314.2	316.9	321.0	329.2	340.0	346.7	353.5	364.4	373.9	377.9	386.0
57.5°	258.7	256.0	258.7	269.5	281.7	287.2	296.7	307.5	321.0	329.2	331.9
60°	200.4	201.8	204.5	214.0	223.5	231.6	235.7	253.3	265.5	273.6	279.0
62.5°	147.7	150.4	153.1	161.2	170.7	177.5	184.2	199.1	209.9	218.1	223.5
65°	103.0	104.3	108.4	112.4	121.9	128.7	134.1	146.3	157.1	163.9	167.9
67.5°	63.7	65.0	67.7	73.2	79.9	85.3	90.7	98.9	108.4	115.1	116.5
70°	32.5	33.9	35.2	39.3	44.7	47.4	51.5	58.2	65.0	70.4	73.2
72.5°	10.8	10.8	12.2	14.9	17.6	20.3	21.7	28.5	33.9	36.6	37.9
75°	2.7	2.7	2.7	2.7	2.7	4.1	4.1	8.1	10.8	13.5	14.9
77.5°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	2.7	2.7
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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°	953.6	953.6	953.6	953.6	953.6	953.6	953.6	953.6	953.6	953.6
2.5°	953.6	950.9	949.5	950.9	950.9	949.5	953.6	959.0	965.7	948.2
5°	952.2	949.5	952.2	944.1	948.2	945.5	950.9	949.5	954.9	949.5
7.5°	948.2	942.8	944.1	940.0	945.5	938.7	942.8	950.9	945.5	937.3
10°	934.6	931.9	941.4	927.8	925.1	930.5	941.4	933.2	930.5	933.2
12.5°	921.0	921.0	925.1	914.3	915.6	918.3	923.7	918.3	921.0	927.8
15°	906.2	903.5	910.2	902.1	900.8	898.0	903.5	903.5	906.2	902.1
17.5°	888.5	884.5	884.5	881.8	880.4	887.2	889.9	891.2	892.6	887.2
20°	866.9	865.5	869.6	865.5	866.9	868.3	868.3	865.5	877.7	862.8
22.5°	843.8	847.9	842.5	839.8	842.5	845.2	845.2	846.5	843.8	841.1
25°	820.8	823.5	824.9	816.7	820.8	816.7	826.3	827.6	822.2	824.9
27.5°	800.5	796.5	795.1	789.7	792.4	791.1	792.4	792.4	800.5	789.7
30°	769.3	765.3	766.6	762.6	763.9	762.6	763.9	763.9	769.3	768.0
32.5°	739.5	735.5	736.8	732.8	732.8	734.1	731.4	731.4	735.5	732.8
35°	711.1	701.6	703.0	701.6	703.0	697.5	697.5	696.2	698.9	692.1
37.5°	670.5	666.4	665.0	663.7	665.0	662.3	665.0	661.0	665.0	659.6
40°	633.9	631.2	632.6	624.4	624.4	625.8	623.0	621.7	623.0	628.5
42.5°	597.3	591.9	589.2	586.5	587.8	583.8	582.4	579.7	582.4	577.0
45°	554.0	554.0	552.6	545.8	547.2	547.2	541.8	536.4	537.7	537.7
47.5°	514.7	512.0	510.6	503.9	502.5	501.2	495.7	491.7	491.7	487.6
50°	471.3	468.6	464.6	457.8	455.1	447.0	442.9	437.5	432.1	432.1
52.5°	430.7	421.2	415.8	405.0	400.9	396.9	386.0	382.0	377.9	373.9
55°	382.0	373.9	363.0	350.8	345.4	338.6	327.8	319.6	314.2	315.6
57.5°	334.6	321.0	310.2	293.9	287.2	283.1	272.2	261.4	256.0	256.0
60°	276.3	265.5	251.9	237.0	231.6	224.9	211.3	204.5	200.4	196.4
62.5°	220.8	212.7	200.4	181.5	177.5	170.7	161.2	153.1	149.0	149.0
65°	165.2	157.1	146.3	132.7	127.3	121.9	113.8	105.7	101.6	100.2
67.5°	116.5	107.0	97.5	86.7	82.6	79.9	71.8	66.4	63.7	62.3
70°	70.4	65.0	58.2	50.1	46.0	43.3	37.9	33.9	32.5	31.2
72.5°	36.6	32.5	27.1	21.7	19.0	16.2	13.5	10.8	9.5	9.5
75°	13.5	10.8	6.8	4.1	2.7	2.7	2.7	2.7	2.7	2.7
77.5°	2.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
80°	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
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)