

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 FEU4C259027 F4LC-CSSQ-MW**

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 FEU4C259027 F4LC-CSSQ-MW
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

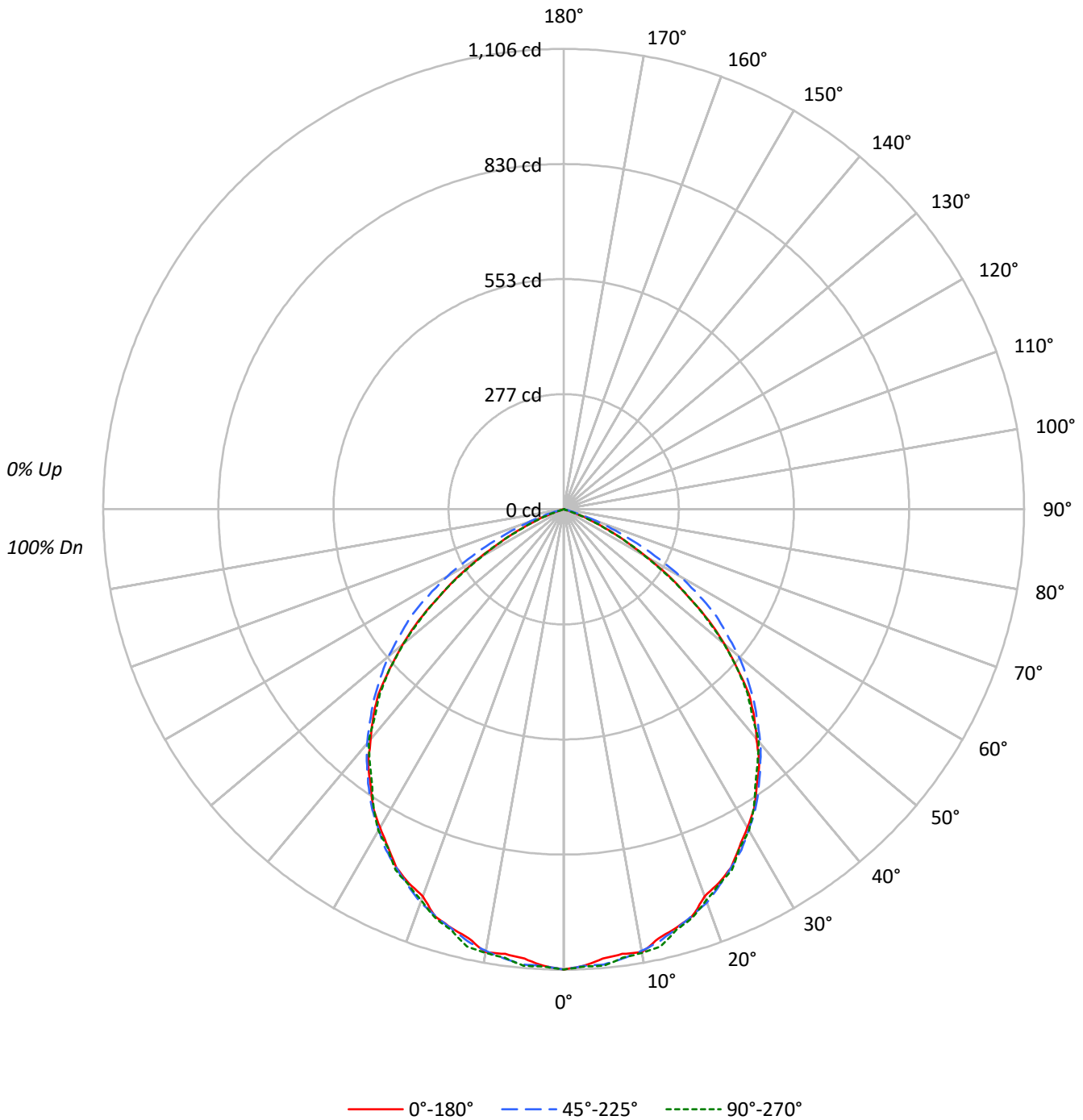
Lumens per Lamp: N/A
 Luminaire Lumens: 2362.0 lumens
 Efficiency: N/A
 Efficacy: 75.0 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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 FEU4C259027 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°	106688	106688	106688
5°	104964	106330	106640
10°	105874	105571	106021
15°	104018	104178	104488
20°	101603	103215	102733
25°	101162	101162	101833
30°	98347	99037	99216
35°	95270	96200	94539
40°	90803	92579	91785
45°	85940	87878	85080
50°	75685	82290	75220
55°	61301	75297	61570
60°	44848	62428	43941
65°	27260	44452	26530
70°	10636	23923	10184
75°	1156	6450	1156
80°	889	889	889
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	104.4	4.4
10°-20°	295.3	12.5
20°-30°	438.2	18.6
30°-40°	507.8	21.5
40°-50°	486.8	20.6
50°-60°	357.9	15.2
60°-70°	154.6	6.5
70°-80°	16.7	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°	837.9	35.5
0°-40°	1345.7	57.0
0°-60°	2190.5	92.7
0°-90°	2362.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2362.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1106	1106	1106	1106	1106	
5°	1084	1095	1098	1099	1101	103
15°	1041	1048	1043	1044	1046	293
25°	950	949	950	952	956	435
35°	809	814	817	815	803	506
45°	630	631	644	634	624	479
55°	364	402	448	400	366	328
65°	119	149	195	148	116	123
75°	3	5	17	3	3	10
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°	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7
2.5°	1097.8	1110.4	1112.0	1104.1	1101.0	1096.3	1107.3	1099.4	1102.6	1099.4	1097.8
5°	1083.7	1097.8	1099.4	1099.4	1096.3	1094.7	1099.4	1097.8	1096.3	1093.2	1097.8
7.5°	1077.5	1085.3	1093.2	1083.7	1088.4	1086.9	1097.8	1093.2	1091.6	1091.6	1088.4
10°	1080.6	1079.0	1085.3	1075.9	1079.0	1075.9	1085.3	1085.3	1082.1	1079.0	1077.5
12.5°	1055.4	1068.0	1068.0	1066.4	1063.3	1058.6	1068.0	1074.3	1064.8	1064.8	1063.3
15°	1041.3	1044.5	1046.0	1046.0	1044.5	1047.6	1052.3	1046.0	1047.6	1039.7	1042.9
17.5°	1025.6	1019.3	1024.0	1020.9	1022.5	1025.6	1031.9	1031.9	1022.5	1020.9	1024.0
20°	989.5	1008.3	1009.9	1000.5	1002.0	1002.0	1013.1	1003.6	1009.9	1002.0	1005.2
22.5°	972.2	984.7	986.3	973.8	981.6	972.2	983.2	969.0	984.7	973.8	978.5
25°	950.2	948.7	953.3	947.1	948.7	948.7	956.5	950.2	954.9	948.7	950.2
27.5°	914.1	926.7	925.1	918.8	921.9	920.4	936.1	918.8	928.2	920.4	923.5
30°	882.7	893.7	890.5	884.3	884.3	879.5	896.8	892.1	890.5	890.5	888.9
32.5°	851.3	852.9	849.7	851.3	852.9	846.6	860.7	854.4	852.9	854.4	856.0
35°	808.8	808.8	812.0	807.3	813.6	813.6	826.1	818.3	816.7	812.0	816.7
37.5°	771.2	766.5	768.0	768.0	771.2	774.3	780.6	777.4	777.4	772.8	775.9
40°	720.9	717.8	722.5	722.5	727.2	727.2	733.5	730.3	735.0	735.0	735.0
42.5°	677.0	677.0	673.8	678.5	680.1	678.5	689.5	687.9	689.5	686.4	687.9
45°	629.8	629.8	626.7	625.1	632.9	631.4	644.0	639.2	645.5	642.4	644.0
47.5°	565.4	573.3	568.5	573.3	582.7	584.3	592.1	589.0	595.3	590.6	596.9
50°	504.2	504.2	508.9	515.2	524.6	526.2	535.6	541.9	545.0	546.6	548.2
52.5°	439.8	438.2	442.9	450.7	458.6	464.9	474.3	483.8	490.0	499.5	494.7
55°	364.4	367.5	372.2	381.7	394.2	402.0	409.9	422.5	433.5	438.2	447.6
57.5°	300.0	296.8	300.0	312.5	326.7	333.0	344.0	356.5	372.2	381.7	384.8
60°	232.4	234.0	237.2	248.2	259.1	268.6	273.3	293.7	307.8	317.3	323.5
62.5°	171.2	174.4	177.5	186.9	197.9	205.8	213.6	230.9	243.4	252.9	259.1
65°	119.4	120.9	125.7	130.3	141.4	149.2	155.5	169.6	182.2	190.1	194.7
67.5°	73.8	75.4	78.5	84.8	92.7	98.9	105.2	114.6	125.7	133.5	135.1
70°	37.7	39.3	40.8	45.6	51.8	55.0	59.7	67.5	75.4	81.6	84.8
72.5°	12.6	12.6	14.2	17.3	20.4	23.6	25.1	33.0	39.3	42.4	44.0
75°	3.1	3.1	3.1	3.1	3.1	4.7	4.7	9.4	12.6	15.7	17.3
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	3.1	3.1
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°	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7	1105.7
2.5°	1105.7	1102.6	1101.0	1102.6	1102.6	1101.0	1105.7	1112.0	1119.8	1099.4
5°	1104.1	1101.0	1104.1	1094.7	1099.4	1096.3	1102.6	1101.0	1107.3	1101.0
7.5°	1099.4	1093.2	1094.7	1090.0	1096.3	1088.4	1093.2	1102.6	1096.3	1086.9
10°	1083.7	1080.6	1091.6	1075.9	1072.7	1079.0	1091.6	1082.1	1079.0	1082.1
12.5°	1068.0	1068.0	1072.7	1060.2	1061.7	1064.8	1071.1	1064.8	1068.0	1075.9
15°	1050.7	1047.6	1055.4	1046.0	1044.5	1041.3	1047.6	1047.6	1050.7	1046.0
17.5°	1030.3	1025.6	1025.6	1022.5	1020.9	1028.8	1031.9	1033.4	1035.0	1028.8
20°	1005.2	1003.6	1008.3	1003.6	1005.2	1006.8	1006.8	1003.6	1017.7	1000.5
22.5°	978.5	983.2	976.9	973.8	976.9	980.1	980.1	981.6	978.5	975.3
25°	951.8	954.9	956.5	947.1	951.8	947.1	958.1	959.6	953.3	956.5
27.5°	928.2	923.5	921.9	915.7	918.8	917.3	918.8	918.8	928.2	915.7
30°	892.1	887.4	888.9	884.3	885.8	884.3	885.8	885.8	892.1	890.5
32.5°	857.5	852.9	854.4	849.7	849.7	851.3	848.1	848.1	852.9	849.7
35°	824.5	813.6	815.1	813.6	815.1	808.8	808.8	807.3	810.4	802.6
37.5°	777.4	772.8	771.2	769.6	771.2	768.0	771.2	766.5	771.2	764.9
40°	735.0	731.9	733.5	724.1	724.1	725.6	722.5	720.9	722.5	728.7
42.5°	692.7	686.4	683.2	680.1	681.6	677.0	675.4	672.2	675.4	669.1
45°	642.4	642.4	640.8	632.9	634.5	634.5	628.3	622.0	623.5	623.5
47.5°	596.9	593.7	592.1	584.3	582.7	581.2	574.8	570.1	570.1	565.4
50°	546.6	543.4	538.7	530.9	527.7	518.3	513.6	507.3	501.1	501.1
52.5°	499.5	488.4	482.2	469.6	464.9	460.2	447.6	442.9	438.2	433.5
55°	442.9	433.5	421.0	406.8	400.5	392.6	380.1	370.6	364.4	366.0
57.5°	387.9	372.2	359.7	340.8	333.0	328.2	315.7	303.1	296.8	296.8
60°	320.4	307.8	292.1	274.8	268.6	260.7	245.0	237.2	232.4	227.7
62.5°	256.0	246.6	232.4	210.4	205.8	197.9	186.9	177.5	172.8	172.8
65°	191.6	182.2	169.6	153.9	147.6	141.4	131.9	122.5	117.8	116.2
67.5°	135.1	124.1	113.1	100.5	95.8	92.7	83.2	77.0	73.8	72.2
70°	81.6	75.4	67.5	58.1	53.4	50.2	44.0	39.3	37.7	36.1
72.5°	42.4	37.7	31.4	25.1	22.0	18.8	15.7	12.6	11.0	11.0
75°	15.7	12.6	7.9	4.7	3.1	3.1	3.1	3.1	3.1	3.1
77.5°	3.1	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)