

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: P563853

Luminaire Tested: **FLDSQ4C05D010 FEU4C059030 F4LC-SQ-LI-D2W**

Issue Date: 12/13/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P563853
 Test Lab: INNOVATION CENTER
 Issue Date: 12/13/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: FAIL-SAFE
 Catalog Number: FLDSQ4C05D010 FEU4C059030 F4LC-SQ-LI-D2W
 Description: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH, DIM TO WARM
 Light Source: -
 Ballast/Driver: -

Summary

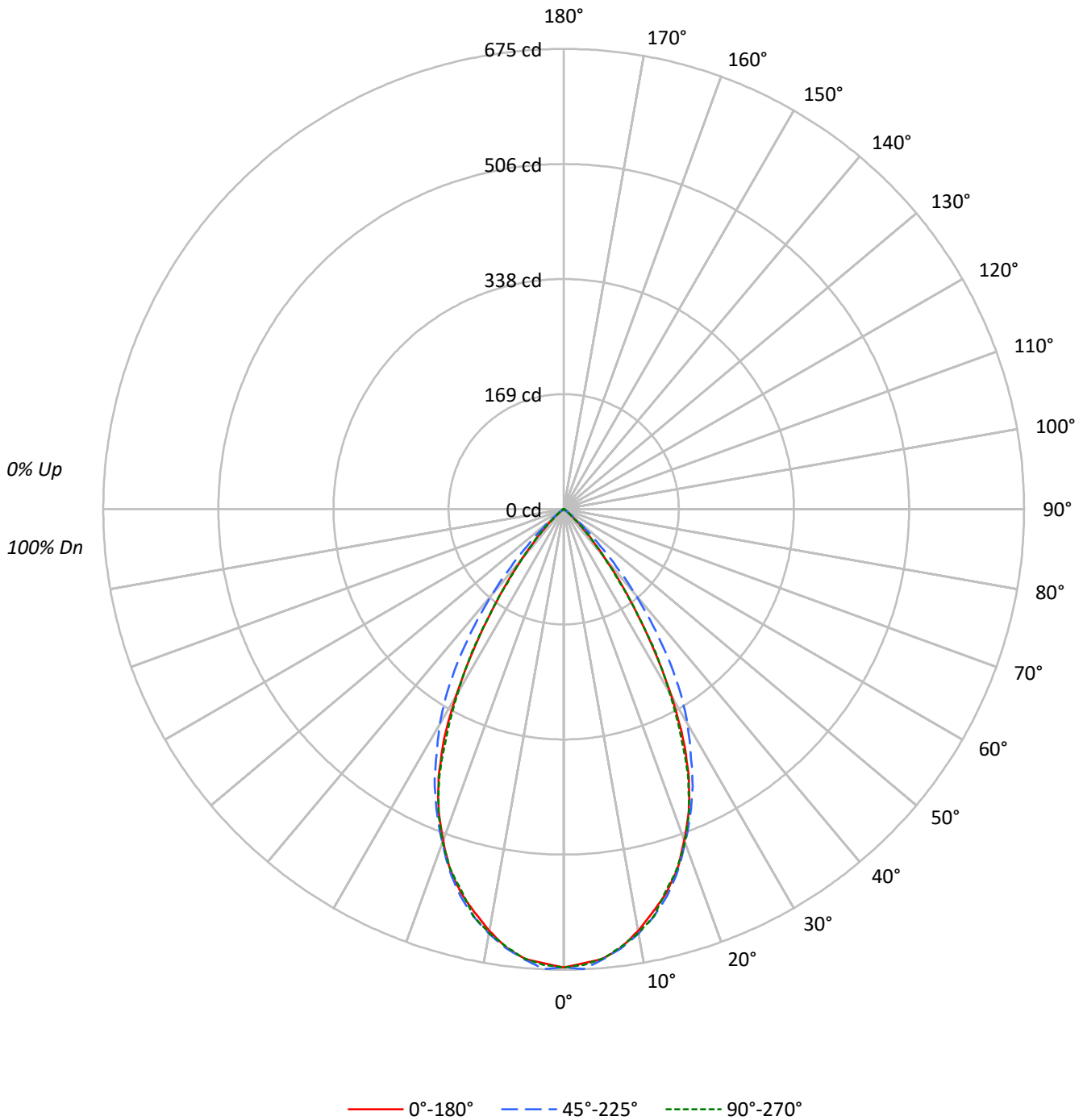
Lumens per Lamp: N/A
 Luminaire Lumens: 620.0 lumens
 Efficiency: N/A
 Efficacy: 86.1 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 7.2
 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	113	111	108	106	111	108	106	104	104	103	101		101	99	98		97	96	95	93
2	108	103	99	95	105	101	97	94	98	95	92		95	92	90		92	90	88	87
3	102	96	91	87	100	94	90	86	92	88	84		89	86	83		87	84	82	80
4	97	89	84	79	95	88	83	79	86	81	78		84	80	77		82	79	76	75
5	92	83	77	73	90	82	77	73	81	76	72		79	75	71		77	74	71	69
6	87	78	72	68	86	77	71	67	76	71	67		74	70	66		73	69	66	64
7	83	73	67	63	81	73	67	63	71	66	62		70	65	62		69	65	62	60
8	79	69	63	59	77	68	62	58	67	62	58		66	61	58		65	61	58	56
9	75	65	59	55	74	64	59	55	63	58	55		63	58	54		62	57	54	53
10	71	61	55	51	70	61	55	51	60	55	51		59	54	51		58	54	51	50

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	64802	64802	64802
5°	64052	64139	64052
10°	61491	61873	61785
15°	58138	58557	57838
20°	53055	53446	53312
25°	46195	47653	45875
30°	35129	40411	34606
35°	22109	31415	22310
40°	11928	20745	11714
45°	5649	10248	5595
50°	2117	3843	2117
55°	1009	1228	942
60°	656	579	656
65°	388	388	388
70°	254	367	254
75°	149	149	149
80°	222	222	222
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	62.3	10.0
10°-20°	163.2	26.3
20°-30°	199.3	32.2
30°-40°	139.4	22.5
40°-50°	45.7	7.4
50°-60°	7.3	1.2
60°-70°	2.0	0.3
70°-80°	0.7	0.1
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°	424.8	68.5
0°-40°	564.2	91.0
0°-60°	617.2	99.5
0°-90°	620.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	620.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	672	672	672	672	672	
5°	661	662	662	658	661	62
15°	582	584	586	582	579	162
25°	434	441	448	439	431	195
35°	188	222	267	218	189	120
45°	41	51	75	50	41	35
55°	6	6	7	6	6	6
65°	2	2	2	2	2	2
75°	0	0	0	0	0	1
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°	25°	30°	35°	40°	45°	50°
0°	671.6	671.6	671.6	671.6	671.6	671.6	671.6	671.6	671.6	671.6	671.6
2.5°	666.4	671.1	669.9	672.8	672.8	669.4	670.3	671.6	673.3	674.6	664.3
5°	661.3	665.6	661.7	666.0	663.4	659.6	666.0	662.6	664.7	662.2	663.9
7.5°	647.7	654.5	646.8	651.9	650.2	648.1	650.6	649.8	651.1	648.9	644.3
10°	627.6	633.2	628.0	635.3	631.9	629.8	631.9	634.0	633.6	631.5	634.0
12.5°	604.6	611.0	608.4	612.7	608.8	608.8	614.0	612.7	613.1	611.4	614.4
15°	582.0	586.7	582.8	588.4	586.7	582.0	584.1	584.1	587.5	586.2	582.8
17.5°	553.8	557.6	553.4	554.7	553.0	552.1	561.0	555.1	558.5	555.9	556.4
20°	516.7	518.4	517.1	520.5	518.4	521.0	520.1	519.2	519.2	520.5	517.5
22.5°	479.1	479.1	480.4	481.3	483.0	480.4	485.5	481.3	481.7	484.7	483.8
25°	433.9	432.6	435.6	439.9	441.6	439.5	446.3	442.9	445.4	447.6	442.9
27.5°	378.9	378.9	381.9	389.1	390.4	392.9	402.3	402.3	405.7	402.8	406.2
30°	315.3	320.0	323.8	333.2	336.2	341.8	351.6	356.3	363.9	362.7	360.9
32.5°	250.0	256.4	256.8	266.7	274.8	284.1	297.4	308.5	314.0	317.9	313.6
35°	187.7	191.6	195.0	201.8	215.5	227.8	239.8	254.3	264.1	266.7	262.8
37.5°	137.4	138.2	141.7	148.0	158.3	170.2	184.7	200.5	210.8	214.6	210.3
40°	94.7	95.6	97.3	102.8	111.4	119.9	131.4	147.6	157.0	164.7	159.1
42.5°	63.6	64.4	66.1	70.4	75.1	83.2	92.2	102.4	111.4	114.8	111.8
45°	41.4	41.4	42.2	45.2	47.8	54.2	60.6	67.0	73.0	75.1	73.0
47.5°	24.3	24.7	25.6	27.7	30.7	33.3	38.0	42.2	43.9	45.7	44.8
50°	14.1	14.1	15.4	16.6	18.8	20.5	22.2	23.9	24.7	25.6	24.7
52.5°	7.7	8.1	8.5	9.0	9.8	11.5	12.8	12.8	13.2	13.7	13.2
55°	6.0	6.0	6.0	6.0	6.4	6.4	6.4	6.8	6.8	7.3	6.8
57.5°	4.3	4.3	4.3	4.7	4.7	4.7	4.3	4.3	4.3	4.3	4.3
60°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.0	3.0	3.0	3.0
62.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
65°	1.7	1.7	2.1	2.1	2.1	2.1	2.1	1.7	1.7	1.7	1.7
67.5°	1.3	1.3	1.3	1.3	1.7	1.7	1.3	1.3	1.3	1.3	1.3
70°	0.9	0.9	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	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°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
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):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	671.6	671.6	671.6	671.6	671.6	671.6	671.6	671.6
2.5°	671.6	664.3	665.1	669.0	666.9	669.0	668.6	668.6
5°	664.3	662.2	658.8	657.5	660.0	665.6	664.7	661.3
7.5°	650.6	645.1	648.9	650.6	648.5	651.9	653.6	646.4
10°	634.4	632.3	631.5	632.3	631.5	634.9	630.6	630.6
12.5°	611.4	608.0	608.0	613.1	610.1	607.6	611.0	610.5
15°	588.4	581.5	581.5	583.2	584.5	582.8	583.2	579.0
17.5°	554.2	552.1	549.1	553.8	555.1	553.4	554.7	552.5
20°	522.2	522.2	516.7	518.8	520.5	521.8	522.7	519.2
22.5°	481.3	482.1	478.3	482.5	483.8	479.6	480.4	479.6
25°	443.7	443.3	440.3	438.6	439.5	437.7	437.3	430.9
27.5°	402.3	398.1	391.7	393.4	386.1	380.2	380.2	370.3
30°	357.5	350.3	341.8	333.2	326.8	320.0	316.1	310.6
32.5°	305.1	295.3	284.6	273.1	265.8	255.6	250.0	253.0
35°	253.0	238.5	224.0	212.5	201.4	195.4	188.6	189.4
37.5°	202.7	182.2	169.4	157.0	147.6	139.9	137.0	136.1
40°	148.0	131.8	119.0	110.1	103.7	97.7	94.3	93.0
42.5°	102.4	90.9	80.6	73.4	69.1	65.3	63.6	63.1
45°	66.6	59.7	52.9	47.8	44.4	41.8	41.4	41.0
47.5°	41.8	38.4	34.1	30.3	27.3	25.6	24.3	24.3
50°	23.9	22.6	20.5	18.4	16.6	15.8	14.5	14.1
52.5°	12.8	12.8	11.9	10.2	9.0	8.1	8.1	7.7
55°	6.8	6.8	6.4	6.4	6.0	6.0	6.0	5.6
57.5°	4.3	4.3	4.7	4.7	4.3	4.3	4.3	4.3
60°	3.0	3.4	3.4	3.4	3.4	3.4	3.4	3.4
62.5°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
65°	1.7	2.1	2.1	2.1	2.1	1.7	1.7	1.7
67.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
70°	1.3	1.3	1.3	1.3	1.3	0.9	0.9	0.9
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
77.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
80°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
82.5°	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
87.5°	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)