

LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: FAIL-SAFE

Report Number: P517271

Luminaire Tested: HVL12-1-LD4-3LO-50-UNV-C-EDD-90

Issue Date: 4/27/2021

Tested By:

Approved By:



NVLAP Lab Code: 200050-0

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Test Information

Test Method: LM-79-2019
Report Number: P517271
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-3LO-50-UNV-C-EDD-90
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1993.0 lumens
Efficiency: N/A
Efficacy: 115.2 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 1' x H: 0.17')
CIE Type: Direct

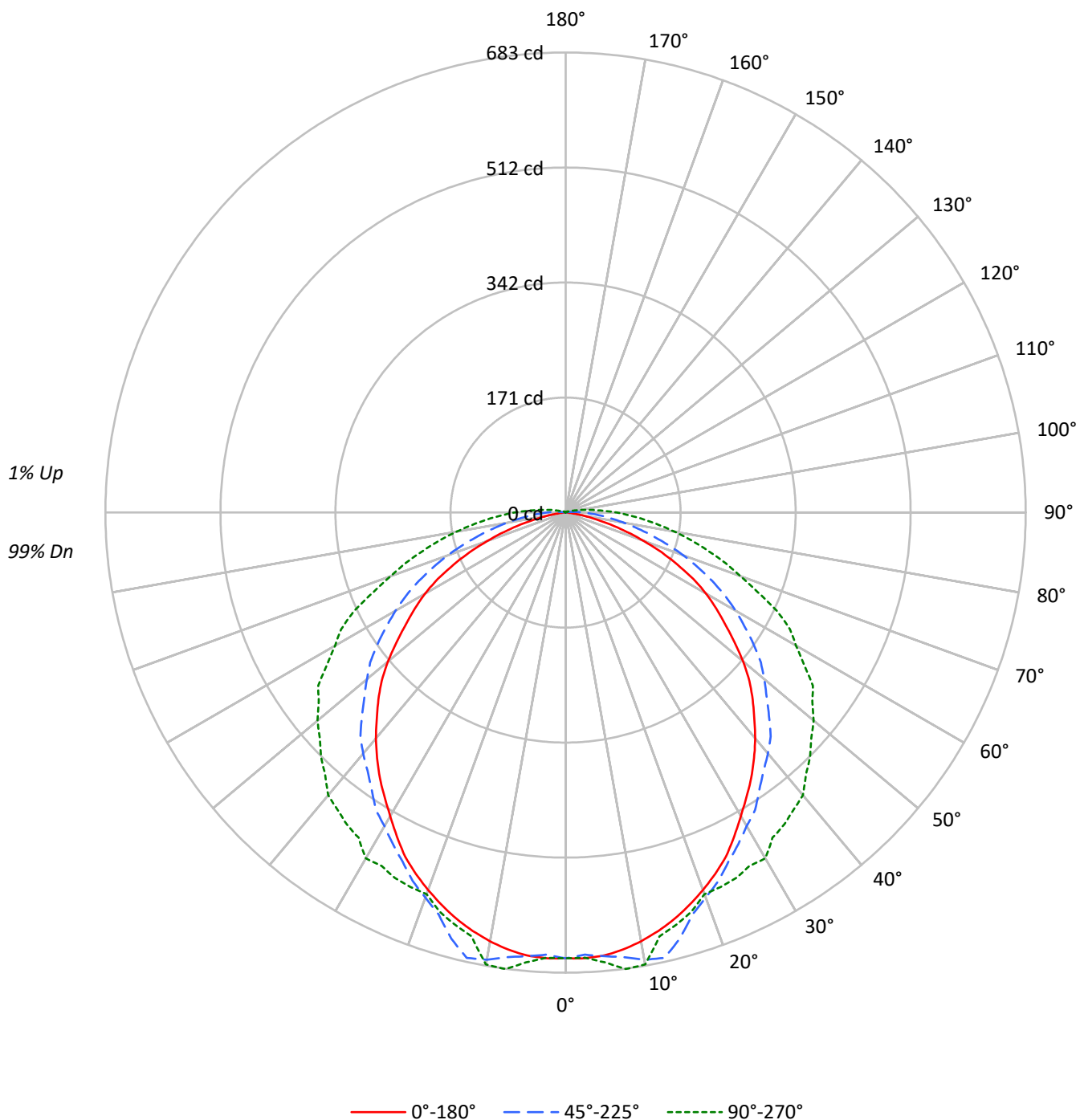
Input Watts (W): 17.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	P3	10/30/2015	4/30/2016
Power Meter	IN0214	1/12/2016	1/12/2017
AC Power Source	IN0062	1/12/2016	1/12/2017
DC Power Supply	--	--	--
Room Thermometer	IN0145	1/13/2016	1/13/2017

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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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	110	110	110	105	105	105	101	101	101			99
1	108	103	98	94	105	100	96	92	96	92	89	91	89	86	87	85	83			81
2	98	89	82	76	95	87	80	75	83	78	73	80	75	71	76	72	69			67
3	89	78	69	63	86	76	68	62	73	66	61	70	64	59	67	62	58			56
4	81	69	60	53	79	67	59	52	65	57	51	62	56	51	60	54	50			47
5	75	61	52	45	72	60	51	45	58	50	44	56	49	44	54	48	43			41
6	69	55	46	39	67	54	46	39	52	45	39	50	44	38	49	43	38			36
7	64	50	41	35	62	49	41	35	47	40	34	46	39	34	44	38	34			32
8	59	46	37	31	58	45	37	31	43	36	31	42	35	30	41	35	30			28
9	55	42	34	28	54	41	33	28	40	33	28	39	32	27	38	32	27			25
10	52	39	31	25	51	38	30	25	37	30	25	36	29	25	35	29	25			23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	7121	7121	7121
5°	7029	6997	7137
10°	6861	7074	7232
15°	6663	6865	6760
20°	6440	6415	6510
25°	6210	6122	6599
30°	5899	5882	6721
35°	5656	5656	6655
40°	5399	5481	6755
45°	5125	5261	6696
50°	4809	5030	6716
55°	4385	4783	6794
60°	4029	4451	6598
65°	3435	4060	6501
70°	2670	3560	5960
75°	1777	2960	5605
80°	889	2358	5248
85°	264	1745	4939

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6794 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.6	3.2
10°-20°	181.1	9.1
20°-30°	269.4	13.5
30°-40°	323.8	16.2
40°-50°	340.9	17.1
50°-60°	316.3	15.9
60°-70°	250.1	12.5
70°-80°	152.8	7.7
80°-90°	66.6	3.3
90°-100°	20.7	1.0
100°-110°	4.6	0.2
110°-120°	1.9	0.1
120°-130°	1.1	0.1
130°-140°	0.3	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°	514.1	25.8
0°-40°	837.9	42.0
0°-60°	1495.1	75.0
0°-90°	1964.4	98.6
90°-120°	27.2	1.4
90°-150°	28.6	1.4
90°-180°	29.0	1.5
0°-180°	1993.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	662	662	662	662	662	
5°	660	659	661	668	670	63
15°	625	649	655	633	634	176
25°	564	599	572	589	599	259
35°	481	494	502	547	566	300
45°	393	395	427	495	513	303
55°	289	294	341	415	448	260
65°	183	189	240	318	346	181
75°	69	92	134	206	219	76
85°	6	22	52	101	116	10
90°	0	6	27	64	76	0
95°	0	2	12	35	43	0
105°	0	1	2	7	10	0
115°	0	0	2	3	3	0
125°	0	0	1	2	3	0
135°	0	0	0	1	1	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	661.6	661.6	661.6	661.6	661.6
2.5°	662.4	660.6	657.0	660.5	661.4
5°	660.0	658.6	660.9	668.3	670.2
7.5°	654.4	659.5	665.6	679.1	683.4
10°	646.2	655.9	674.1	685.6	681.1
12.5°	636.2	652.7	677.1	654.7	644.3
15°	624.6	648.6	655.0	633.3	633.7
17.5°	611.0	645.3	625.7	625.2	621.3
20°	596.3	633.9	608.1	607.0	602.8
22.5°	580.6	619.0	592.4	590.3	601.6
25°	563.5	599.4	572.1	589.2	598.8
27.5°	542.0	573.8	555.1	579.4	591.4
30°	520.3	547.4	537.7	571.5	592.8
32.5°	500.0	519.8	523.4	568.6	572.1
35°	480.7	494.1	501.5	547.0	565.6
37.5°	459.6	463.2	482.9	538.0	555.9
40°	438.0	435.7	467.2	523.2	548.0
42.5°	414.8	414.0	450.7	515.8	528.1
45°	392.8	394.6	427.1	494.7	513.2
47.5°	370.3	372.6	404.7	471.7	494.6
50°	344.2	347.2	384.8	451.2	480.7
52.5°	315.9	321.6	365.4	431.8	461.6
55°	289.3	294.1	340.7	415.2	448.2
57.5°	265.1	267.9	315.2	394.3	419.3
60°	241.2	241.9	291.2	371.1	395.0
62.5°	213.9	215.1	266.6	343.8	375.7
65°	183.1	188.9	240.0	317.6	346.5
67.5°	154.4	164.5	212.9	293.7	308.7
70°	123.7	140.8	186.4	265.5	276.1
72.5°	95.5	115.6	159.2	234.0	248.9
75°	69.3	91.8	133.8	205.7	218.6
77.5°	46.6	69.5	110.1	174.4	191.5
80°	27.9	50.8	88.9	145.4	164.7
82.5°	14.3	34.1	69.0	122.0	139.2
85°	6.2	21.6	52.2	101.2	116.2
87.5°	1.8	12.3	38.4	81.8	94.5
90°	0.1	6.5	27.4	64.1	75.6
92.5°	0.1	3.1	19.3	48.5	57.3
95°	0.1	1.6	12.0	35.2	43.0
97.5°	0.1	0.9	7.3	24.9	31.5
100°	0.1	0.8	4.3	16.6	22.5
102.5°	0.1	0.9	3.0	10.5	14.7
105°	0.1	0.9	2.4	6.9	9.7
107.5°	0.3	0.9	2.2	5.1	6.7
110°	0.1	0.8	2.3	3.9	5.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.7	2.2	3.2	3.9
115°	0.1	0.5	1.9	3.1	3.2
117.5°	0.3	0.4	1.5	3.1	3.2
120°	0.3	0.3	1.2	3.0	3.4
122.5°	0.3	0.3	0.9	2.7	3.2
125°	0.1	0.3	0.8	2.0	2.8
127.5°	0.3	0.3	0.7	1.6	2.2
130°	0.3	0.3	0.5	1.2	1.6
132.5°	0.3	0.3	0.4	0.9	1.2
135°	0.3	0.3	0.3	0.7	0.9
137.5°	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)