

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: P517727

Luminaire Tested: HVL8-1-LD4-1HI-35-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: P517727
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-1HI-35-UNV-C-EDD-90
Description: 1 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 989.0 lumens
Efficiency: N/A
Efficacy: 92.4 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.36
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 1' x H: 0.17')
CIE Type: Direct

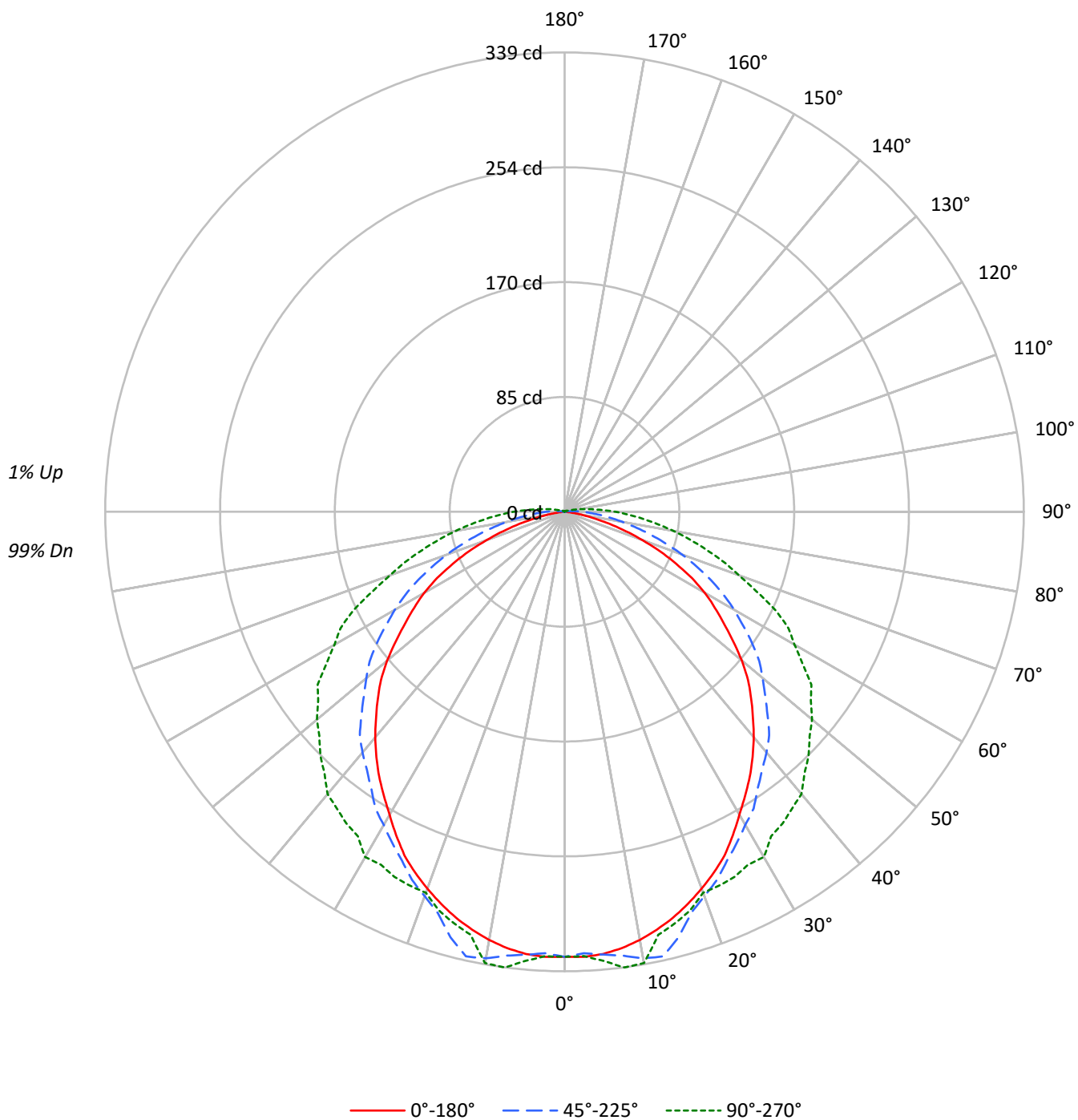
Input Watts (W): 10.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5301	5301	5301
5°	5232	5182	5275
10°	5108	5213	5307
15°	4960	5035	4927
20°	4793	4682	4710
25°	4622	4447	4740
30°	4391	4251	4793
35°	4210	4065	4708
40°	4018	3919	4737
45°	3814	3737	4652
50°	3579	3549	4615
55°	3265	3350	4613
60°	2999	3089	4416
65°	2558	2788	4275
70°	1988	2413	3834
75°	1323	1973	3501
80°	660	1535	3142
85°	198	1098	2766

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4652 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	31.6	3.2
10°-20°	89.9	9.1
20°-30°	133.7	13.5
30°-40°	160.7	16.2
40°-50°	169.1	17.1
50°-60°	156.9	15.9
60°-70°	124.1	12.5
70°-80°	75.8	7.7
80°-90°	33.0	3.3
90°-100°	10.3	1.0
100°-110°	2.3	0.2
110°-120°	0.9	0.1
120°-130°	0.5	0.1
130°-140°	0.1	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°	255.1	25.8
0°-40°	415.8	42.0
0°-60°	741.9	75.0
0°-90°	974.8	98.6
90°-120°	13.5	1.4
90°-150°	14.2	1.4
90°-180°	14.0	1.4
0°-180°	989.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	328	328	328	328	328	
5°	328	327	328	332	333	31
15°	310	322	325	314	314	87
25°	280	298	284	292	297	128
35°	238	245	249	271	281	149
45°	195	196	212	246	255	150
55°	144	146	169	206	222	129
65°	91	94	119	158	172	90
75°	34	46	66	102	108	38
85°	3	11	26	50	58	5
90°	0	3	14	32	38	0
95°	0	1	6	18	21	0
105°	0	0	1	3	5	0
115°	0	0	1	2	2	0
125°	0	0	0	1	1	0
135°	0	0	0	0	0	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°	328.3	328.3	328.3	328.3	328.3
2.5°	328.7	327.8	326.0	327.8	328.2
5°	327.5	326.8	328.0	331.6	332.6
7.5°	324.7	327.3	330.3	337.0	339.1
10°	320.7	325.5	334.5	340.2	338.0
12.5°	315.7	323.9	336.0	324.9	319.7
15°	310.0	321.9	325.0	314.3	314.5
17.5°	303.2	320.2	310.5	310.2	308.3
20°	295.9	314.6	301.7	301.2	299.1
22.5°	288.1	307.2	294.0	292.9	298.5
25°	279.6	297.5	283.9	292.4	297.1
27.5°	269.0	284.8	275.5	287.5	293.5
30°	258.2	271.7	266.8	283.6	294.2
32.5°	248.1	257.9	259.7	282.1	283.9
35°	238.5	245.2	248.8	271.4	280.7
37.5°	228.0	229.9	239.6	267.0	275.9
40°	217.3	216.2	231.9	259.6	271.9
42.5°	205.8	205.4	223.6	255.9	262.1
45°	194.9	195.8	211.9	245.5	254.7
47.5°	183.8	184.9	200.8	234.1	245.4
50°	170.8	172.3	190.9	223.9	238.5
52.5°	156.8	159.6	181.3	214.3	229.1
55°	143.6	145.9	169.1	206.0	222.4
57.5°	131.5	132.9	156.4	195.7	208.1
60°	119.7	120.0	144.5	184.2	196.0
62.5°	106.1	106.7	132.3	170.6	186.5
65°	90.9	93.8	119.1	157.6	171.9
67.5°	76.6	81.7	105.7	145.7	153.2
70°	61.4	69.9	92.5	131.7	137.0
72.5°	47.4	57.4	79.0	116.1	123.5
75°	34.4	45.5	66.4	102.1	108.5
77.5°	23.1	34.5	54.6	86.5	95.0
80°	13.8	25.2	44.1	72.2	81.7
82.5°	7.1	16.9	34.2	60.5	69.1
85°	3.1	10.7	25.9	50.2	57.6
87.5°	0.9	6.1	19.1	40.6	46.9
90°	0.1	3.2	13.6	31.8	37.5
92.5°	0.1	1.5	9.6	24.1	28.4
95°	0.1	0.8	6.0	17.5	21.3
97.5°	0.1	0.5	3.6	12.4	15.6
100°	0.1	0.4	2.1	8.2	11.2
102.5°	0.1	0.5	1.5	5.2	7.3
105°	0.1	0.5	1.2	3.4	4.8
107.5°	0.1	0.5	1.1	2.5	3.3
110°	0.1	0.4	1.1	1.9	2.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.1	0.3	1.1	1.6	1.9
115°	0.1	0.3	0.9	1.5	1.6
117.5°	0.1	0.2	0.7	1.5	1.6
120°	0.1	0.1	0.6	1.5	1.7
122.5°	0.1	0.1	0.5	1.3	1.6
125°	0.1	0.1	0.4	1.0	1.4
127.5°	0.1	0.1	0.3	0.8	1.1
130°	0.1	0.1	0.3	0.6	0.8
132.5°	0.1	0.1	0.2	0.5	0.6
135°	0.1	0.1	0.1	0.3	0.5
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)