

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: P517203

Luminaire Tested: HVL12-1-LD4-2HI-40-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: P517203
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-2HI-40-UNV-C-EDD-90
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1990.0 lumens
Efficiency: N/A
Efficacy: 90.0 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

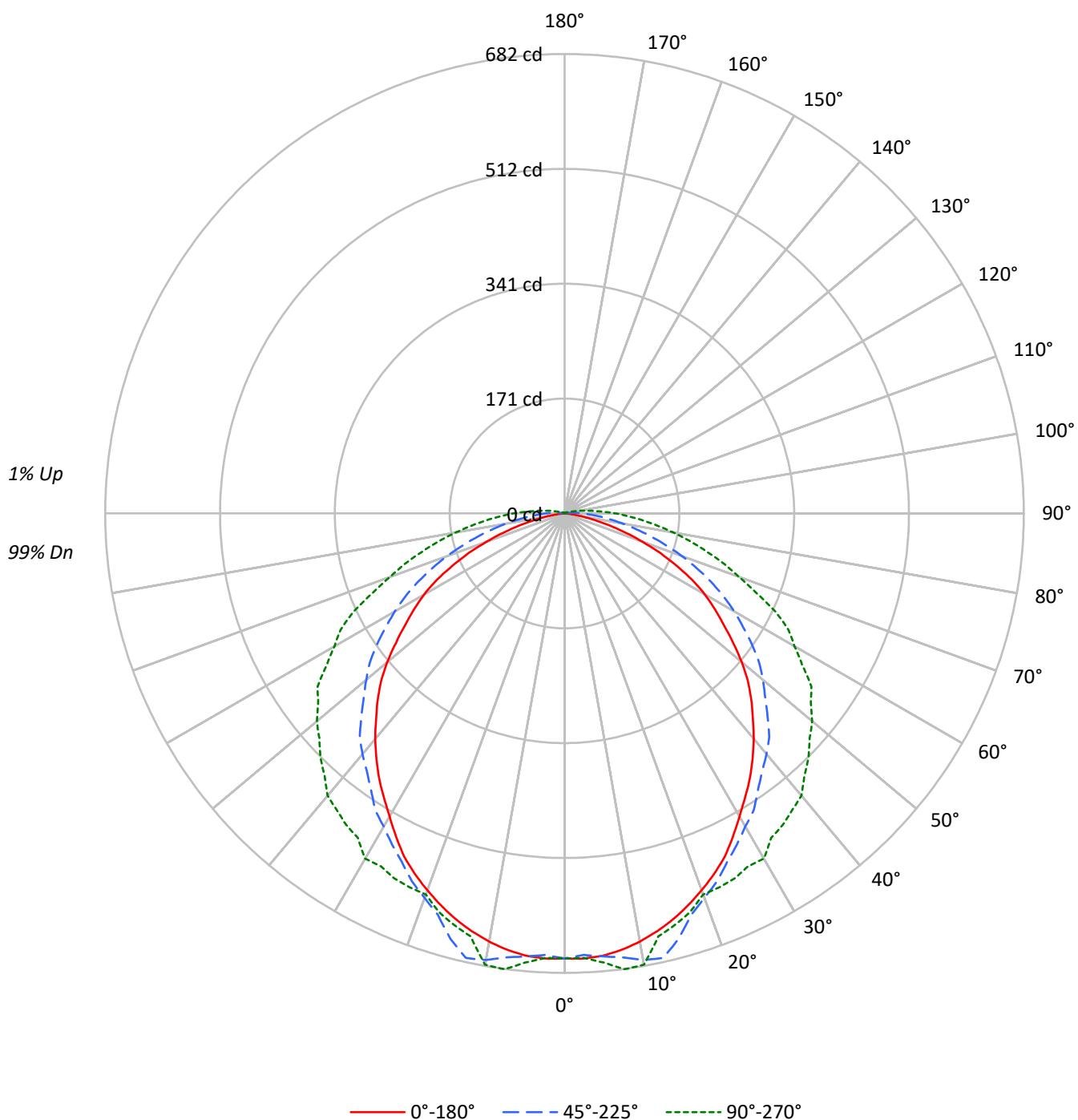
Input Watts (W): 22.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	7111	7111	7111
5°	7018	6986	7127
10°	6851	7063	7221
15°	6653	6855	6749
20°	6430	6406	6500
25°	6200	6112	6589
30°	5890	5874	6711
35°	5648	5647	6646
40°	5391	5472	6744
45°	5119	5253	6686
50°	4802	5023	6706
55°	4379	4776	6785
60°	4024	4445	6588
65°	3432	4055	6492
70°	2666	3555	5951
75°	1774	2956	5597
80°	889	2355	5238
85°	264	1742	4931

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6785 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.5	3.2
10°-20°	180.8	9.1
20°-30°	269.0	13.5
30°-40°	323.3	16.2
40°-50°	340.3	17.1
50°-60°	315.8	15.9
60°-70°	249.7	12.5
70°-80°	152.5	7.7
80°-90°	66.5	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°	513.3	25.8
0°-40°	836.6	42.0
0°-60°	1492.8	75.0
0°-90°	1961.5	98.6
90°-120°	27.2	1.4
90°-150°	28.5	1.4
90°-180°	29.0	1.5
0°-180°	1990.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	661	661	661	661	661	
5°	659	658	660	667	669	62
15°	624	648	654	632	633	176
25°	563	598	571	588	598	258
35°	480	493	501	546	565	300
45°	392	394	426	494	512	302
55°	289	294	340	415	448	260
65°	183	189	240	317	346	181
75°	69	92	134	205	218	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°	660.6	660.6	660.6	660.6	660.6
2.5°	661.4	659.6	656.0	659.5	660.4
5°	659.0	657.6	659.9	667.3	669.2
7.5°	653.4	658.6	664.6	678.1	682.4
10°	645.2	654.9	673.1	684.5	680.1
12.5°	635.3	651.7	676.0	653.7	643.3
15°	623.7	647.7	654.0	632.3	632.7
17.5°	610.1	644.3	624.8	624.2	620.3
20°	595.4	633.0	607.2	606.1	601.9
22.5°	579.7	618.0	591.5	589.4	600.7
25°	562.6	598.5	571.2	588.3	597.9
27.5°	541.2	573.0	554.3	578.5	590.5
30°	519.5	546.6	536.9	570.7	591.9
32.5°	499.2	519.0	522.6	567.7	571.2
35°	480.0	493.3	500.7	546.2	564.8
37.5°	458.9	462.5	482.1	537.2	555.1
40°	437.3	435.0	466.5	522.4	547.1
42.5°	414.2	413.4	450.0	515.0	527.4
45°	392.3	394.0	426.4	494.0	512.4
47.5°	369.8	372.1	404.1	471.0	493.8
50°	343.7	346.6	384.2	450.5	480.0
52.5°	315.4	321.1	364.8	431.1	460.9
55°	288.9	293.6	340.2	414.6	447.6
57.5°	264.7	267.5	314.7	393.7	418.6
60°	240.9	241.5	290.8	370.6	394.4
62.5°	213.6	214.8	266.2	343.3	375.2
65°	182.9	188.7	239.7	317.2	346.0
67.5°	154.2	164.3	212.6	293.2	308.3
70°	123.5	140.6	186.1	265.1	275.7
72.5°	95.4	115.5	158.9	233.6	248.5
75°	69.2	91.6	133.6	205.3	218.3
77.5°	46.6	69.4	109.9	174.1	191.2
80°	27.9	50.7	88.8	145.2	164.4
82.5°	14.3	34.0	68.9	121.8	139.0
85°	6.2	21.5	52.1	101.1	116.0
87.5°	1.7	12.2	38.4	81.7	94.3
90°	0.1	6.5	27.3	64.1	75.5
92.5°	0.1	3.1	19.2	48.4	57.2
95°	0.1	1.6	12.0	35.1	42.9
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	5.2

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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)