

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: P517263

Luminaire Tested: HVL12-1-LD4-3LO-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: P517263
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-3LO-35-UNV-C-EDD-90
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1866.0 lumens
Efficiency: N/A
Efficacy: 107.9 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

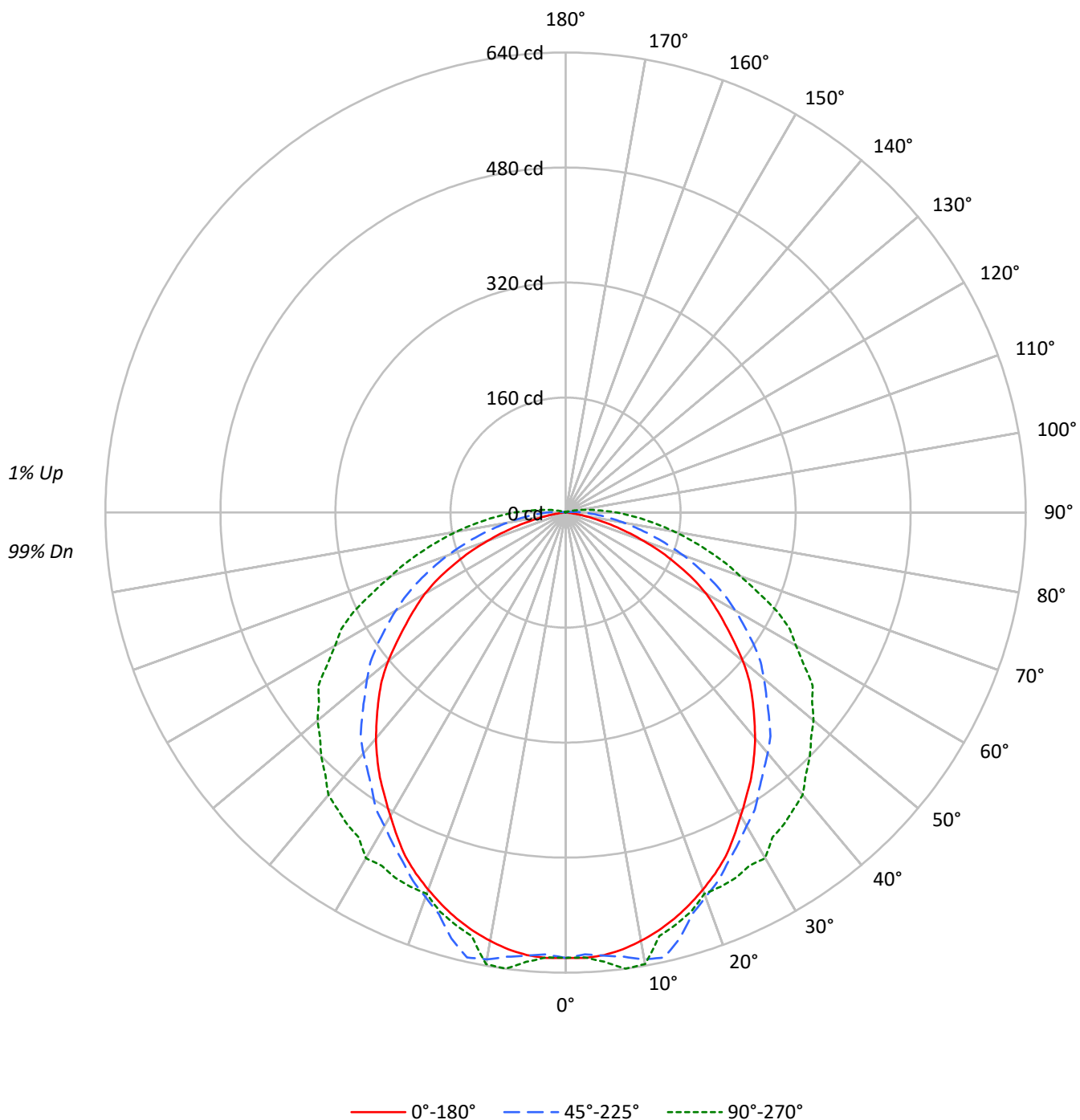
Input Watts (W): 17.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	44	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°	6667	6667	6667
5°	6580	6551	6683
10°	6424	6623	6771
15°	6238	6427	6329
20°	6029	6006	6095
25°	5814	5731	6178
30°	5524	5508	6294
35°	5296	5295	6232
40°	5055	5132	6324
45°	4799	4926	6269
50°	4503	4709	6288
55°	4106	4479	6362
60°	3774	4169	6177
65°	3218	3801	6086
70°	2500	3333	5580
75°	1664	2772	5248
80°	832	2209	4913
85°	247	1631	4625

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6362 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.5	3.2
10°-20°	169.5	9.1
20°-30°	252.2	13.5
30°-40°	303.2	16.2
40°-50°	319.1	17.1
50°-60°	296.1	15.9
60°-70°	234.1	12.5
70°-80°	143.0	7.7
80°-90°	62.3	3.3
90°-100°	19.4	1.0
100°-110°	4.4	0.2
110°-120°	1.8	0.1
120°-130°	1.0	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°	481.3	25.8
0°-40°	784.5	42.0
0°-60°	1399.8	75.0
0°-90°	1839.3	98.6
90°-120°	25.5	1.4
90°-150°	26.8	1.4
90°-180°	27.0	1.4
0°-180°	1866.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	619	619	619	619	619	
5°	618	617	619	626	628	59
15°	585	607	613	593	593	165
25°	528	561	536	552	561	242
35°	450	463	470	512	530	281
45°	368	370	400	463	480	284
55°	271	275	319	389	420	243
65°	172	177	225	297	324	170
75°	65	86	125	192	205	71
85°	6	20	49	95	109	9
90°	0	6	26	60	71	0
95°	0	2	11	33	40	0
105°	0	1	2	6	9	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°	619.4	619.4	619.4	619.4	619.4
2.5°	620.2	618.5	615.1	618.4	619.3
5°	617.9	616.6	618.8	625.7	627.5
7.5°	612.7	617.5	623.2	635.8	639.9
10°	605.0	614.1	631.1	641.9	637.7
12.5°	595.7	611.1	633.9	613.0	603.3
15°	584.8	607.3	613.2	592.9	593.3
17.5°	572.1	604.1	585.8	585.3	581.7
20°	558.3	593.5	569.3	568.3	564.4
22.5°	543.6	579.5	554.7	552.7	563.3
25°	527.6	561.2	535.6	551.7	560.6
27.5°	507.5	537.3	519.7	542.4	553.7
30°	487.2	512.5	503.5	535.1	555.1
32.5°	468.1	486.7	490.1	532.3	535.6
35°	450.1	462.6	469.5	512.2	529.6
37.5°	430.3	433.7	452.1	503.7	520.5
40°	410.1	407.9	437.5	489.8	513.0
42.5°	388.4	387.6	421.9	482.9	494.5
45°	367.8	369.5	399.9	463.2	480.5
47.5°	346.7	348.9	378.9	441.6	463.1
50°	322.3	325.0	360.2	422.4	450.1
52.5°	295.8	301.1	342.1	404.3	432.2
55°	270.9	275.3	319.0	388.8	419.7
57.5°	248.2	250.8	295.1	369.2	392.5
60°	225.9	226.5	272.7	347.5	369.8
62.5°	200.2	201.4	249.6	321.9	351.8
65°	171.5	176.9	224.7	297.4	324.4
67.5°	144.6	154.1	199.4	274.9	289.1
70°	115.8	131.9	174.5	248.6	258.5
72.5°	89.5	108.3	149.0	219.0	233.1
75°	64.9	85.9	125.3	192.5	204.7
77.5°	43.7	65.1	103.1	163.3	179.3
80°	26.1	47.6	83.3	136.1	154.2
82.5°	13.4	31.9	64.6	114.2	130.3
85°	5.8	20.2	48.8	94.8	108.8
87.5°	1.6	11.5	36.0	76.6	88.5
90°	0.1	6.1	25.6	60.1	70.8
92.5°	0.1	2.9	18.0	45.4	53.6
95°	0.1	1.5	11.2	32.9	40.3
97.5°	0.1	0.9	6.8	23.3	29.5
100°	0.1	0.8	4.0	15.5	21.1
102.5°	0.1	0.9	2.8	9.8	13.8
105°	0.1	0.9	2.3	6.4	9.1
107.5°	0.3	0.9	2.0	4.8	6.3
110°	0.1	0.8	2.1	3.7	4.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.6	2.0	3.0	3.7
115°	0.1	0.5	1.8	2.9	3.0
117.5°	0.3	0.4	1.4	2.9	3.0
120°	0.3	0.3	1.1	2.8	3.2
122.5°	0.3	0.3	0.9	2.5	3.0
125°	0.1	0.3	0.8	1.9	2.6
127.5°	0.3	0.3	0.6	1.5	2.0
130°	0.3	0.3	0.5	1.1	1.5
132.5°	0.3	0.3	0.4	0.9	1.1
135°	0.3	0.3	0.3	0.6	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)