

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: P517303

Luminaire Tested: HVL12-2-LD4-1HI-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: P517303
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-1HI-50-UNV-C-EDD-90
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2206.0 lumens
Efficiency: N/A
Efficacy: 99.8 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 2' x H: 0.17')
CIE Type: Direct

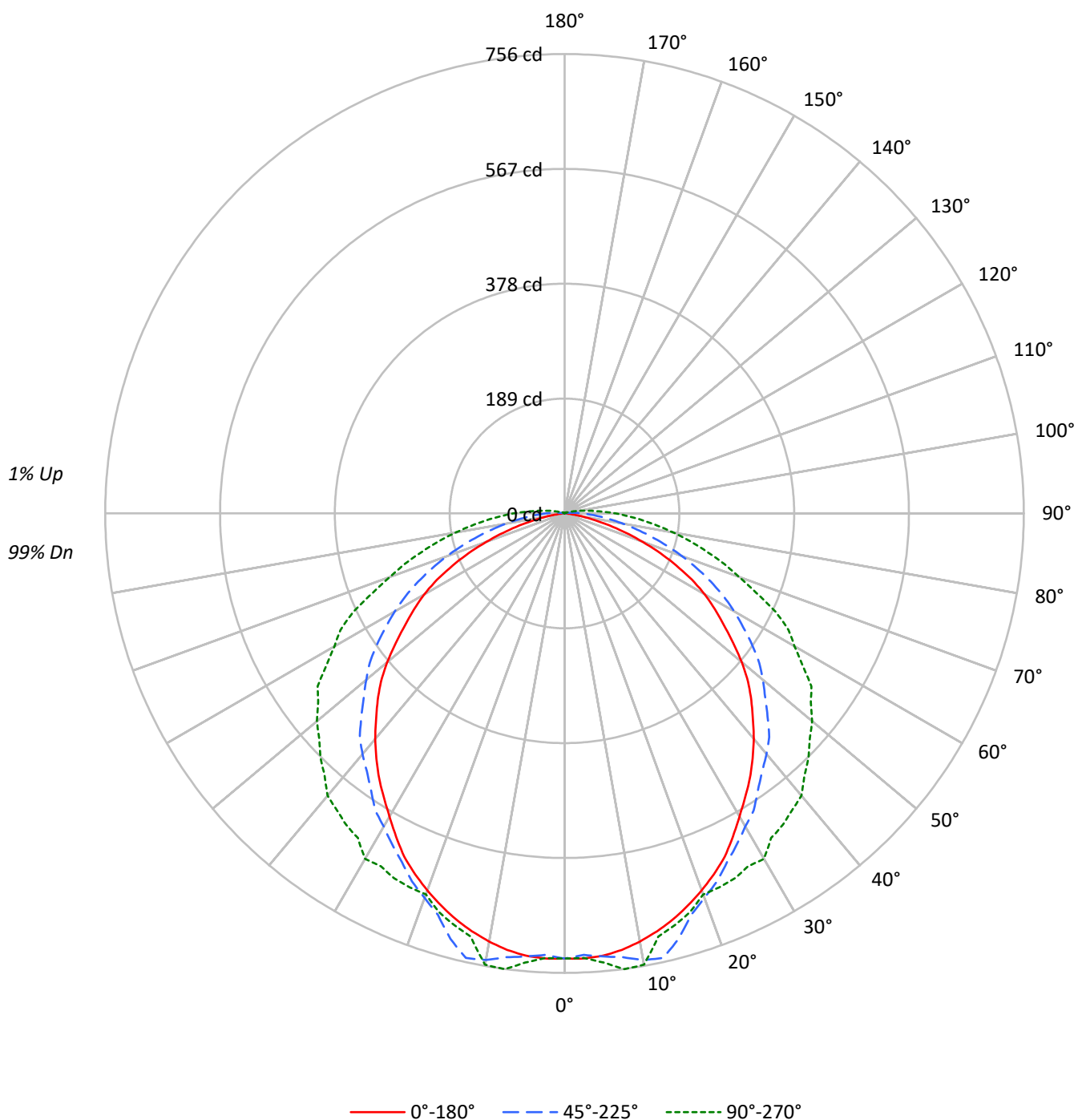
Input Watts (W): 22.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	3941	3941	3941
5°	3918	3892	3950
10°	3852	3954	4002
15°	3768	3857	3741
20°	3669	3622	3603
25°	3565	3474	3652
30°	3415	3356	3720
35°	3303	3245	3684
40°	3183	3164	3738
45°	3055	3057	3705
50°	2902	2945	3717
55°	2686	2825	3760
60°	2511	2657	3652
65°	2190	2453	3598
70°	1753	2185	3298
75°	1217	1855	3102
80°	650	1524	2904
85°	218	1179	2733

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 3760 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	70.4	3.2
10°-20°	200.4	9.1
20°-30°	298.2	13.5
30°-40°	358.5	16.2
40°-50°	377.3	17.1
50°-60°	350.1	15.9
60°-70°	276.8	12.5
70°-80°	169.1	7.7
80°-90°	73.7	3.3
90°-100°	22.9	1.0
100°-110°	5.1	0.2
110°-120°	2.1	0.1
120°-130°	1.2	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°	569.0	25.8
0°-40°	927.5	42.0
0°-60°	1654.8	75.0
0°-90°	2174.4	98.6
90°-120°	30.1	1.4
90°-150°	31.6	1.4
90°-180°	32.0	1.5
0°-180°	2206.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	732	732	732	732	732	
5°	730	729	732	740	742	69
15°	691	718	725	701	701	195
25°	624	664	633	652	663	286
35°	532	547	555	606	626	333
45°	435	437	473	548	568	335
55°	320	326	377	460	496	288
65°	203	209	266	352	384	201
75°	77	102	148	228	242	84
85°	7	24	58	112	129	11
90°	0	7	30	71	84	0
95°	0	2	13	39	48	0
105°	0	1	3	8	11	0
115°	0	1	2	3	4	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°	732.3	732.3	732.3	732.3	732.3
2.5°	733.2	731.2	727.2	731.1	732.1
5°	730.5	729.0	731.5	739.7	741.8
7.5°	724.4	730.0	736.7	751.7	756.4
10°	715.3	726.0	746.1	758.8	753.9
12.5°	704.2	722.4	749.4	724.7	713.2
15°	691.4	718.0	725.0	700.9	701.4
17.5°	676.3	714.2	692.6	692.0	687.7
20°	660.1	701.7	673.1	671.9	667.2
22.5°	642.6	685.1	655.7	653.4	665.9
25°	623.7	663.5	633.2	652.2	662.8
27.5°	600.0	635.2	614.4	641.3	654.6
30°	575.9	605.9	595.2	632.6	656.2
32.5°	553.4	575.3	579.4	629.3	633.2
35°	532.1	546.9	555.1	605.5	626.1
37.5°	508.7	512.7	534.5	595.5	615.3
40°	484.8	482.3	517.2	579.1	606.5
42.5°	459.1	458.2	498.8	570.9	584.6
45°	434.8	436.8	472.7	547.6	568.0
47.5°	409.9	412.5	448.0	522.1	547.5
50°	381.0	384.3	425.9	499.4	532.1
52.5°	349.7	355.9	404.4	477.9	510.9
55°	320.3	325.5	377.1	459.6	496.1
57.5°	293.4	296.5	348.9	436.5	464.1
60°	267.0	267.8	322.4	410.8	437.2
62.5°	236.7	238.1	295.1	380.5	415.9
65°	202.7	209.1	265.7	351.6	383.5
67.5°	170.9	182.1	235.7	325.0	341.7
70°	136.9	155.9	206.3	293.9	305.6
72.5°	105.8	128.0	176.2	259.0	275.5
75°	76.7	101.6	148.1	227.6	242.0
77.5°	51.6	77.0	121.9	193.0	212.0
80°	30.9	56.2	98.5	161.0	182.3
82.5°	15.8	37.7	76.4	135.0	154.1
85°	6.9	23.9	57.7	112.0	128.6
87.5°	1.9	13.6	42.5	90.5	104.6
90°	0.1	7.2	30.3	71.0	83.7
92.5°	0.1	3.4	21.3	53.7	63.4
95°	0.1	1.8	13.3	38.9	47.6
97.5°	0.1	1.0	8.1	27.6	34.9
100°	0.1	0.9	4.8	18.3	24.9
102.5°	0.1	1.0	3.3	11.6	16.3
105°	0.1	1.0	2.7	7.6	10.7
107.5°	0.3	1.0	2.4	5.7	7.5
110°	0.1	0.9	2.5	4.3	5.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.7	2.4	3.6	4.3
115°	0.1	0.6	2.1	3.4	3.6
117.5°	0.3	0.4	1.6	3.4	3.6
120°	0.3	0.3	1.3	3.3	3.7
122.5°	0.3	0.3	1.0	3.0	3.6
125°	0.1	0.3	0.9	2.2	3.1
127.5°	0.3	0.3	0.7	1.8	2.4
130°	0.3	0.3	0.6	1.3	1.8
132.5°	0.3	0.3	0.4	1.0	1.3
135°	0.3	0.3	0.3	0.7	1.0
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)