

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: P517251

Luminaire Tested: HVL12-1-LD4-3HI-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: P517251
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-3HI-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: 3138.0 lumens
Efficiency: N/A
Efficacy: 97.2 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

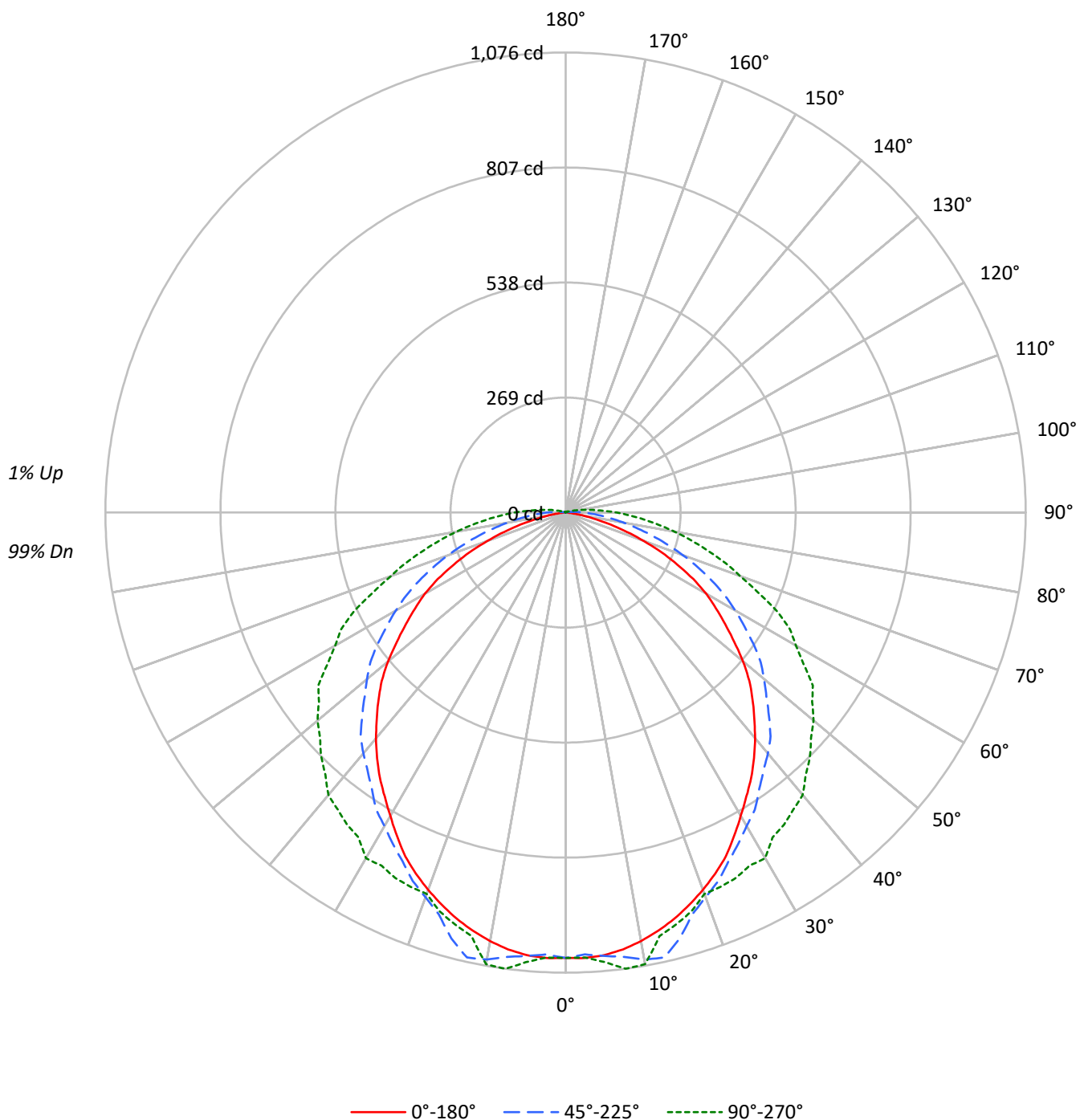
Input Watts (W): 32.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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				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	39	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°	11212	11212	11212
5°	11066	11016	11238
10°	10804	11138	11387
15°	10491	10809	10643
20°	10140	10100	10250
25°	9777	9639	10390
30°	9289	9262	10583
35°	8906	8906	10480
40°	8501	8630	10636
45°	8070	8283	10542
50°	7570	7920	10574
55°	6906	7531	10697
60°	6344	7009	10389
65°	5411	6393	10235
70°	4205	5606	9385
75°	2797	4661	8825
80°	1399	3713	8262
85°	417	2744	7775

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 10697 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	100.1	3.2
10°-20°	285.1	9.1
20°-30°	424.2	13.5
30°-40°	509.9	16.2
40°-50°	536.7	17.1
50°-60°	498.0	15.9
60°-70°	393.7	12.5
70°-80°	240.5	7.7
80°-90°	104.8	3.3
90°-100°	32.6	1.0
100°-110°	7.3	0.2
110°-120°	2.9	0.1
120°-130°	1.6	0.1
130°-140°	0.4	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°	809.4	25.8
0°-40°	1319.3	42.0
0°-60°	2354.0	75.0
0°-90°	3093.0	98.6
90°-120°	42.9	1.4
90°-150°	45.0	1.4
90°-180°	45.0	1.4
0°-180°	3138.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1042	1042	1042	1042	1042	
5°	1039	1037	1041	1052	1055	98
15°	984	1021	1031	997	998	277
25°	887	944	901	928	943	407
35°	757	778	790	861	891	473
45°	618	621	672	779	808	477
55°	456	463	536	654	706	409
65°	288	298	378	500	546	286
75°	109	144	211	324	344	119
85°	10	34	82	159	183	15
90°	0	10	43	101	119	0
95°	0	2	19	55	68	0
105°	0	2	4	11	15	0
115°	0	1	3	5	5	0
125°	0	0	1	3	4	0
135°	0	0	0	1	2	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°	1041.6	1041.6	1041.6	1041.6	1041.6
2.5°	1042.9	1040.2	1034.4	1039.9	1041.4
5°	1039.1	1037.0	1040.6	1052.3	1055.2
7.5°	1030.4	1038.5	1048.0	1069.2	1076.0
10°	1017.5	1032.7	1061.4	1079.4	1072.4
12.5°	1001.8	1027.6	1066.0	1030.8	1014.5
15°	983.5	1021.3	1031.2	997.1	997.7
17.5°	962.1	1016.0	985.2	984.4	978.2
20°	938.9	998.1	957.4	955.7	949.1
22.5°	914.1	974.6	932.8	929.4	947.2
25°	887.2	943.8	900.8	927.7	942.8
27.5°	853.4	903.5	874.0	912.2	931.1
30°	819.3	861.9	846.6	899.9	933.4
32.5°	787.2	818.4	824.1	895.2	900.8
35°	756.9	777.9	789.6	861.3	890.6
37.5°	723.6	729.3	760.3	847.1	875.3
40°	689.6	686.0	735.7	823.7	862.8
42.5°	653.1	651.9	709.6	812.1	831.6
45°	618.5	621.3	672.4	779.0	808.0
47.5°	583.1	586.7	637.2	742.7	778.7
50°	541.9	546.6	605.8	710.4	756.9
52.5°	497.4	506.3	575.2	679.9	726.8
55°	455.6	463.0	536.4	653.8	705.7
57.5°	417.4	421.8	496.3	620.9	660.1
60°	379.8	380.9	458.5	584.4	621.9
62.5°	336.7	338.7	419.7	541.3	591.6
65°	288.4	297.5	377.9	500.1	545.5
67.5°	243.2	259.1	335.3	462.4	486.1
70°	194.8	221.7	293.5	418.0	434.8
72.5°	150.4	182.1	250.6	368.4	391.9
75°	109.1	144.5	210.7	323.8	344.2
77.5°	73.4	109.5	173.4	274.6	301.5
80°	43.9	80.0	140.0	229.0	259.3
82.5°	22.5	53.7	108.6	192.0	219.2
85°	9.8	34.0	82.1	159.4	182.9
87.5°	2.8	19.3	60.5	128.8	148.7
90°	0.2	10.2	43.1	101.0	119.0
92.5°	0.2	4.9	30.3	76.4	90.2
95°	0.2	2.5	18.9	55.4	67.7
97.5°	0.2	1.5	11.5	39.3	49.7
100°	0.2	1.3	6.8	26.1	35.4
102.5°	0.2	1.5	4.7	16.6	23.1
105°	0.2	1.5	3.8	10.8	15.3
107.5°	0.4	1.5	3.4	8.1	10.6
110°	0.2	1.3	3.6	6.2	8.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.1	3.4	5.1	6.2
115°	0.2	0.8	3.0	4.9	5.1
117.5°	0.4	0.6	2.3	4.9	5.1
120°	0.4	0.4	1.9	4.7	5.3
122.5°	0.4	0.4	1.5	4.2	5.1
125°	0.2	0.4	1.3	3.2	4.5
127.5°	0.4	0.4	1.1	2.5	3.4
130°	0.4	0.4	0.8	1.9	2.5
132.5°	0.4	0.4	0.6	1.5	1.9
135°	0.4	0.4	0.4	1.1	1.5
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)