

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: P517151

Luminaire Tested: HVL12-1-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: P517151
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-1HI-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: 1033.0 lumens
Efficiency: N/A
Efficacy: 93.9 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

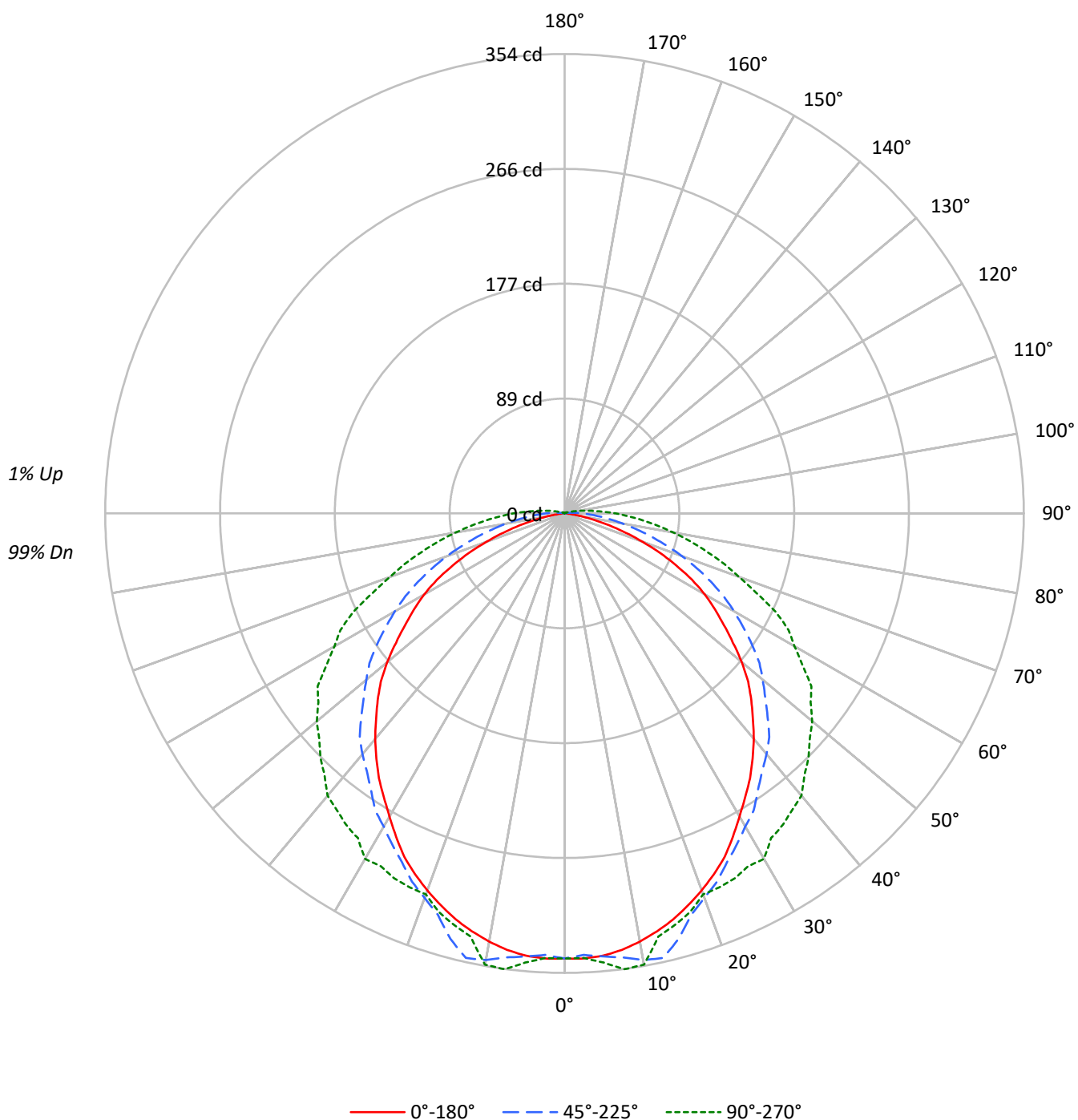
Input Watts (W): 11
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	3691	3691	3691
5°	3643	3627	3700
10°	3556	3667	3748
15°	3454	3558	3503
20°	3338	3325	3374
25°	3218	3173	3420
30°	3058	3049	3484
35°	2932	2931	3450
40°	2798	2841	3501
45°	2656	2727	3471
50°	2492	2607	3481
55°	2274	2479	3521
60°	2088	2307	3419
65°	1781	2104	3370
70°	1384	1845	3089
75°	920	1535	2905
80°	462	1223	2721
85°	136	903	2559

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 3521 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.0	3.2
10°-20°	93.8	9.1
20°-30°	139.6	13.5
30°-40°	167.8	16.2
40°-50°	176.7	17.1
50°-60°	163.9	15.9
60°-70°	129.6	12.5
70°-80°	79.2	7.7
80°-90°	34.5	3.3
90°-100°	10.7	1.0
100°-110°	2.4	0.2
110°-120°	1.0	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°	266.4	25.8
0°-40°	434.3	42.0
0°-60°	774.9	75.0
0°-90°	1018.2	98.6
90°-120°	14.1	1.4
90°-150°	14.8	1.4
90°-180°	15.0	1.5
0°-180°	1033.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	343	343	343	343	343	
5°	342	341	343	346	347	32
15°	324	336	340	328	328	91
25°	292	311	296	305	310	134
35°	249	256	260	284	293	156
45°	204	204	221	256	266	157
55°	150	152	177	215	232	135
65°	95	98	124	165	180	94
75°	36	48	69	107	113	39
85°	3	11	27	52	60	5
90°	0	3	14	33	39	0
95°	0	1	6	18	22	0
105°	0	0	1	4	5	0
115°	0	0	1	2	2	0
125°	0	0	0	1	2	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°	342.9	342.9	342.9	342.9	342.9
2.5°	343.3	342.4	340.5	342.3	342.8
5°	342.1	341.4	342.6	346.4	347.4
7.5°	339.2	341.9	345.0	352.0	354.2
10°	334.9	340.0	349.4	355.3	353.0
12.5°	329.8	338.3	350.9	339.3	334.0
15°	323.8	336.2	339.5	328.2	328.4
17.5°	316.7	334.4	324.3	324.0	322.0
20°	309.1	328.6	315.2	314.6	312.4
22.5°	300.9	320.8	307.1	305.9	311.8
25°	292.0	310.7	296.5	305.4	310.3
27.5°	280.9	297.4	287.7	300.3	306.5
30°	269.7	283.7	278.7	296.2	307.3
32.5°	259.1	269.4	271.3	294.7	296.5
35°	249.2	256.1	259.9	283.5	293.2
37.5°	238.2	240.1	250.3	278.8	288.1
40°	227.0	225.8	242.2	271.2	284.0
42.5°	215.0	214.6	233.6	267.3	273.7
45°	203.6	204.5	221.4	256.4	266.0
47.5°	192.0	193.1	209.8	244.5	256.4
50°	178.4	179.9	199.4	233.9	249.2
52.5°	163.7	166.7	189.4	223.8	239.2
55°	150.0	152.4	176.6	215.2	232.3
57.5°	137.4	138.9	163.4	204.4	217.3
60°	125.0	125.4	150.9	192.4	204.7
62.5°	110.9	111.5	138.2	178.2	194.7
65°	94.9	97.9	124.4	164.6	179.6
67.5°	80.0	85.3	110.4	152.2	160.0
70°	64.1	73.0	96.6	137.6	143.1
72.5°	49.5	59.9	82.5	121.3	129.0
75°	35.9	47.6	69.4	106.6	113.3
77.5°	24.2	36.0	57.1	90.4	99.3
80°	14.5	26.3	46.1	75.4	85.4
82.5°	7.4	17.7	35.8	63.2	72.2
85°	3.2	11.2	27.0	52.5	60.2
87.5°	0.9	6.4	19.9	42.4	49.0
90°	0.1	3.4	14.2	33.2	39.2
92.5°	0.1	1.6	10.0	25.1	29.7
95°	0.1	0.8	6.2	18.2	22.3
97.5°	0.1	0.5	3.8	12.9	16.3
100°	0.1	0.4	2.2	8.6	11.7
102.5°	0.1	0.5	1.5	5.4	7.6
105°	0.1	0.5	1.3	3.6	5.0
107.5°	0.1	0.5	1.1	2.7	3.5
110°	0.1	0.4	1.2	2.0	2.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.1	0.3	1.1	1.7	2.0
115°	0.1	0.3	1.0	1.6	1.7
117.5°	0.1	0.2	0.8	1.6	1.7
120°	0.1	0.1	0.6	1.5	1.7
122.5°	0.1	0.1	0.5	1.4	1.7
125°	0.1	0.1	0.4	1.0	1.5
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)