

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: P517452

Luminaire Tested: HVL12-4-LD4-1LO-30-UNV-C-EDD

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: P517452
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-1LO-30-UNV-C-EDD
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2838.0 lumens
Efficiency: N/A
Efficacy: 120.3 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.36
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 4' x H: 0.17')
CIE Type: Direct

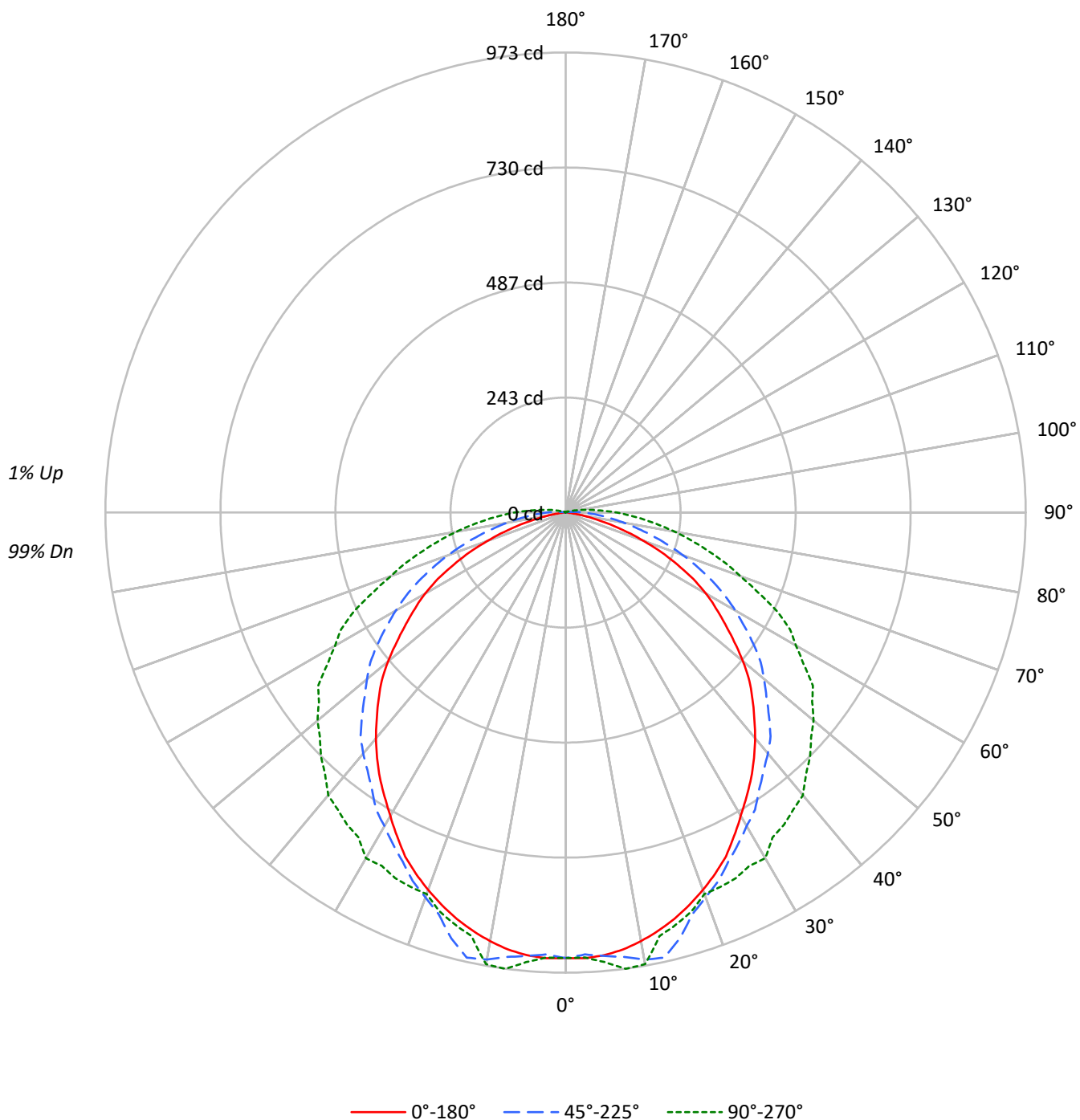
Input Watts (W): 23.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	2535	2535	2535
5°	2529	2510	2541
10°	2496	2556	2575
15°	2451	2500	2406
20°	2396	2353	2318
25°	2337	2263	2349
30°	2248	2193	2393
35°	2185	2126	2369
40°	2117	2080	2405
45°	2044	2017	2384
50°	1955	1951	2391
55°	1824	1880	2419
60°	1724	1778	2349
65°	1524	1654	2314
70°	1244	1486	2122
75°	887	1279	1995
80°	498	1070	1868
85°	184	855	1758

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 2419 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	90.5	3.2
10°-20°	257.8	9.1
20°-30°	383.6	13.5
30°-40°	461.1	16.2
40°-50°	485.4	17.1
50°-60°	450.4	15.9
60°-70°	356.1	12.5
70°-80°	217.5	7.7
80°-90°	94.8	3.3
90°-100°	29.5	1.0
100°-110°	6.6	0.2
110°-120°	2.7	0.1
120°-130°	1.5	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°	732.0	25.8
0°-40°	1193.2	42.0
0°-60°	2128.9	75.0
0°-90°	2797.3	98.6
90°-120°	38.8	1.4
90°-150°	40.7	1.4
90°-180°	41.0	1.4
0°-180°	2838.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	942	942	942	942	942	
5°	940	938	941	952	954	89
15°	890	924	933	902	902	251
25°	802	854	815	839	853	368
35°	684	704	714	779	805	428
45°	559	562	608	704	731	431
55°	412	419	485	591	638	370
65°	261	269	342	452	493	258
75°	99	131	191	293	311	108
85°	9	31	74	144	165	14
90°	0	9	39	91	108	0
95°	0	2	17	50	61	0
105°	0	1	4	10	14	0
115°	0	1	3	4	5	0
125°	0	0	1	3	4	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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CATALOG NUMBER: HVL12-4-LD4-1LO-30-UNV-C-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	942.1	942.1	942.1	942.1	942.1
2.5°	943.2	940.7	935.5	940.5	941.9
5°	939.8	937.8	941.1	951.7	954.3
7.5°	931.9	939.2	947.8	967.0	973.2
10°	920.2	934.0	959.9	976.2	969.9
12.5°	906.0	929.4	964.1	932.3	917.5
15°	889.5	923.6	932.7	901.8	902.3
17.5°	870.1	918.8	891.0	890.2	884.7
20°	849.2	902.7	865.9	864.3	858.4
22.5°	826.7	881.4	843.6	840.5	856.7
25°	802.4	853.6	814.6	839.0	852.6
27.5°	771.8	817.1	790.5	825.0	842.1
30°	740.9	779.5	765.7	813.9	844.2
32.5°	712.0	740.2	745.4	809.6	814.6
35°	684.5	703.5	714.1	778.9	805.4
37.5°	654.4	659.6	687.6	766.1	791.6
40°	623.7	620.4	665.3	745.0	780.3
42.5°	590.7	589.5	641.7	734.4	752.1
45°	559.4	561.9	608.1	704.5	730.8
47.5°	527.4	530.6	576.3	671.7	704.3
50°	490.1	494.3	547.9	642.5	684.5
52.5°	449.8	457.9	520.3	614.9	657.3
55°	412.0	418.7	485.1	591.3	638.3
57.5°	377.5	381.5	448.9	561.5	597.0
60°	343.5	344.5	414.7	528.5	562.5
62.5°	304.6	306.3	379.6	489.5	535.0
65°	260.8	269.1	341.8	452.3	493.4
67.5°	219.9	234.3	303.2	418.2	439.7
70°	176.2	200.5	265.4	378.1	393.2
72.5°	136.1	164.7	226.6	333.1	354.4
75°	98.6	130.7	190.6	292.8	311.3
77.5°	66.4	99.0	156.8	248.3	272.7
80°	39.7	72.3	126.7	207.1	234.5
82.5°	20.3	48.6	98.3	173.7	198.2
85°	8.8	30.7	74.3	144.1	165.4
87.5°	2.5	17.5	54.7	116.5	134.5
90°	0.2	9.2	39.0	91.3	107.7
92.5°	0.2	4.4	27.4	69.1	81.6
95°	0.2	2.3	17.1	50.1	61.2
97.5°	0.2	1.3	10.4	35.5	44.9
100°	0.2	1.2	6.1	23.6	32.0
102.5°	0.2	1.3	4.2	15.0	20.9
105°	0.2	1.3	3.5	9.8	13.8
107.5°	0.4	1.3	3.1	7.3	9.6
110°	0.2	1.2	3.3	5.6	7.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.1	4.6	5.6
115°	0.2	0.8	2.7	4.4	4.6
117.5°	0.4	0.6	2.1	4.4	4.6
120°	0.4	0.4	1.7	4.2	4.8
122.5°	0.4	0.4	1.3	3.8	4.6
125°	0.2	0.4	1.2	2.9	4.0
127.5°	0.4	0.4	1.0	2.3	3.1
130°	0.4	0.4	0.8	1.7	2.3
132.5°	0.4	0.4	0.6	1.3	1.7
135°	0.4	0.4	0.4	1.0	1.3
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)