

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: P517364

Luminaire Tested: HVL12-2-LD4-2LO-40-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: P517364
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-2LO-40-UNV-C-EDD
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2857.1 lumens
Efficiency: N/A
Efficacy: 120.6 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

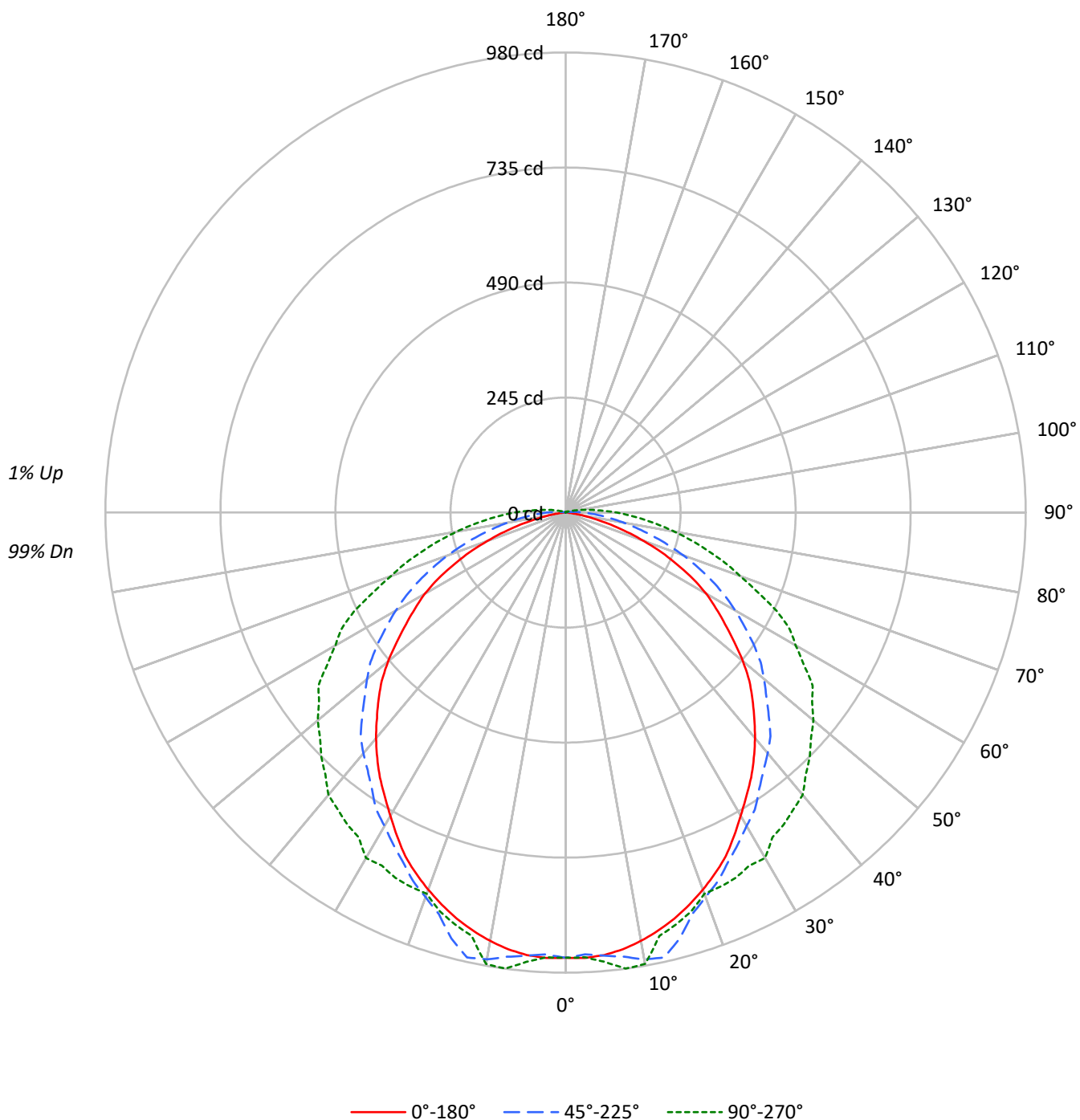
Input Watts (W): 23.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		101
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		87
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		76
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		67
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		60
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		54
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		49
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		44
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		41
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		38
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		35

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5104	5104	5104
5°	5074	5040	5116
10°	4989	5121	5184
15°	4880	4995	4845
20°	4752	4691	4666
25°	4617	4499	4729
30°	4423	4346	4817
35°	4278	4203	4770
40°	4123	4098	4841
45°	3956	3960	4800
50°	3758	3815	4813
55°	3478	3659	4869
60°	3253	3440	4729
65°	2836	3177	4660
70°	2270	2830	4272
75°	1575	2403	4018
80°	842	1973	3761
85°	281	1529	3539

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 4869 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	91.1	3.2
10°-20°	259.6	9.1
20°-30°	386.2	13.5
30°-40°	464.2	16.2
40°-50°	488.6	17.1
50°-60°	453.4	15.9
60°-70°	358.5	12.5
70°-80°	219.0	7.7
80°-90°	95.4	3.3
90°-100°	29.7	1.0
100°-110°	6.7	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°	736.9	25.8
0°-40°	1201.1	42.0
0°-60°	2143.2	75.0
0°-90°	2816.0	98.6
90°-120°	39.1	1.4
90°-150°	41.0	1.4
90°-180°	41.0	1.4
0°-180°	2857.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	948	948	948	948	948	
5°	946	944	947	958	961	90
15°	895	930	939	908	908	252
25°	808	859	820	845	858	371
35°	689	708	719	784	811	431
45°	563	566	612	709	736	434
55°	415	422	488	595	642	373
65°	262	271	344	455	497	260
75°	99	132	192	295	313	108
85°	9	31	75	145	166	14
90°	0	9	39	92	108	0
95°	0	2	17	50	62	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

TEST NUMBER: P517364

CATALOG NUMBER: HVL12-2-LD4-2LO-40-UNV-C-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	948.4	948.4	948.4	948.4	948.4
2.5°	949.5	947.0	941.8	946.8	948.2
5°	946.1	944.1	947.4	958.0	960.7
7.5°	938.1	945.5	954.2	973.5	979.7
10°	926.3	940.3	966.3	982.8	976.4
12.5°	912.0	935.6	970.6	938.5	923.6
15°	895.4	929.8	938.9	907.8	908.4
17.5°	875.9	925.0	897.0	896.2	890.6
20°	854.9	908.8	871.7	870.1	864.1
22.5°	832.3	887.3	849.3	846.2	862.4
25°	807.7	859.3	820.1	844.6	858.3
27.5°	777.0	822.6	795.7	830.5	847.7
30°	745.9	784.7	770.8	819.3	849.8
32.5°	716.7	745.1	750.3	815.1	820.1
35°	689.1	708.2	718.9	784.2	810.8
37.5°	658.8	664.0	692.2	771.2	796.9
40°	627.9	624.6	669.8	750.0	785.5
42.5°	594.6	593.5	646.0	739.3	757.1
45°	563.1	565.7	612.2	709.2	735.7
47.5°	530.9	534.2	580.1	676.2	709.0
50°	493.4	497.7	551.6	646.8	689.1
52.5°	452.8	461.0	523.7	619.0	661.7
55°	414.8	421.5	488.4	595.2	642.5
57.5°	380.0	384.1	451.9	565.3	601.0
60°	345.8	346.8	417.5	532.0	566.2
62.5°	306.6	308.3	382.1	492.8	538.6
65°	262.5	270.9	344.1	455.3	496.7
67.5°	221.4	235.9	305.2	421.0	442.6
70°	177.3	201.9	267.2	380.6	395.8
72.5°	137.0	165.8	228.2	335.4	356.8
75°	99.3	131.6	191.8	294.8	313.4
77.5°	66.8	99.7	157.8	250.0	274.5
80°	40.0	72.8	127.5	208.5	236.1
82.5°	20.5	48.9	98.9	174.8	199.6
85°	8.9	30.9	74.8	145.1	166.5
87.5°	2.5	17.6	55.1	117.3	135.4
90°	0.2	9.3	39.2	92.0	108.4
92.5°	0.2	4.4	27.6	69.5	82.1
95°	0.2	2.3	17.2	50.4	61.6
97.5°	0.2	1.4	10.4	35.7	45.2
100°	0.2	1.2	6.2	23.8	32.3
102.5°	0.2	1.4	4.3	15.1	21.1
105°	0.2	1.4	3.5	9.9	13.9
107.5°	0.4	1.4	3.1	7.3	9.7
110°	0.2	1.2	3.3	5.6	7.5

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CATALOG NUMBER: HVL12-2-LD4-2LO-40-UNV-C-EDD

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	4.3	4.8
122.5°	0.4	0.4	1.4	3.9	4.6
125°	0.2	0.4	1.2	2.9	4.1
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	1.4	1.7
135°	0.4	0.4	0.4	1.0	1.4
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)