

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: P517536

Luminaire Tested: HVL12-4-LD4-3HI-35-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: P517536
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-3HI-35-UNV-C-EDD
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14789.0 lumens
Efficiency: N/A
Efficacy: 114.4 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 4' x H: 0.17')
CIE Type: Direct

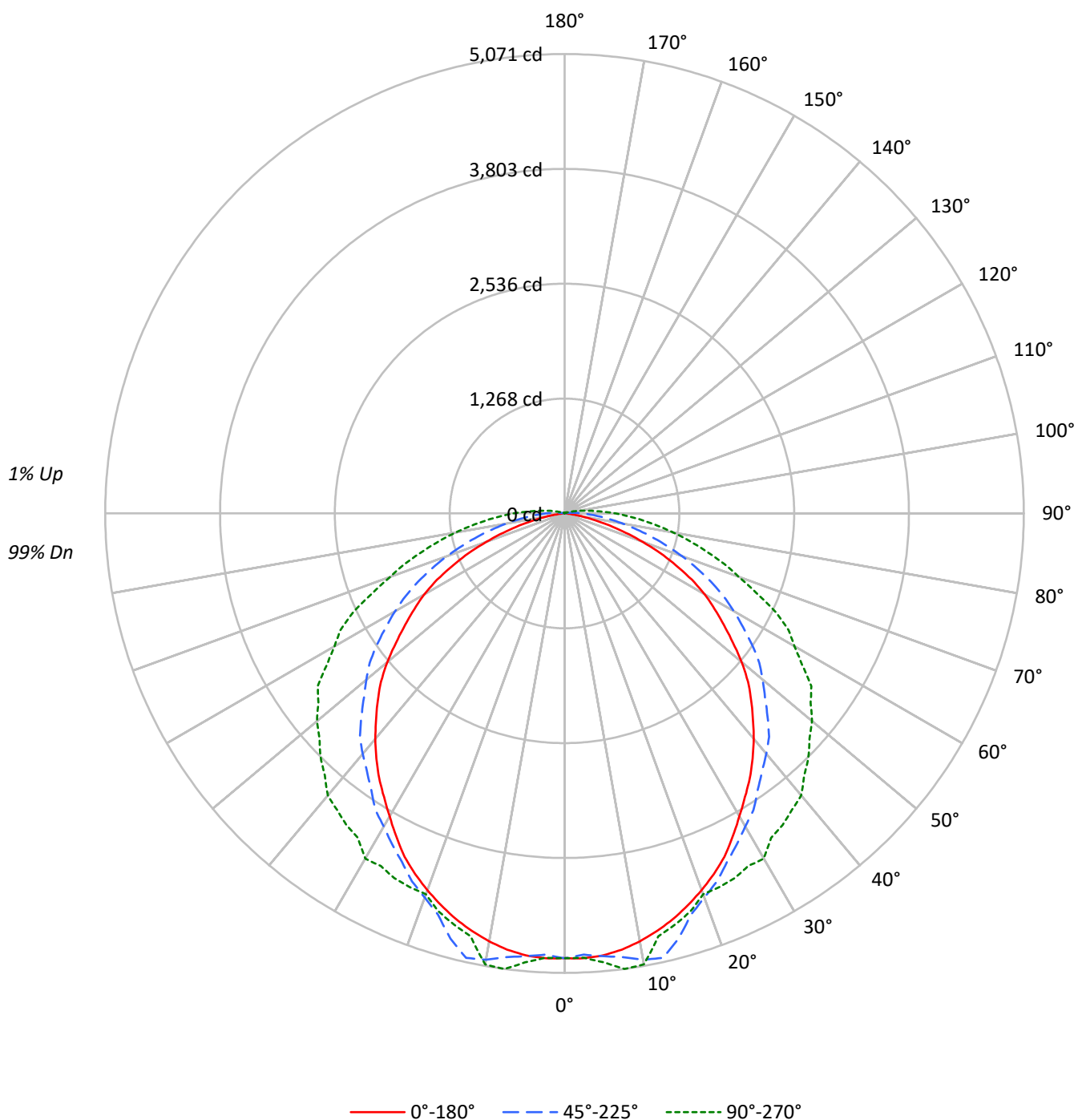
Input Watts (W): 129.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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				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°	13210	13210	13210
5°	13180	13079	13241
10°	13007	13322	13416
15°	12770	13026	12540
20°	12483	12264	12077
25°	12178	11794	12241
30°	11716	11426	12469
35°	11386	11081	12347
40°	11031	10839	12531
45°	10650	10512	12422
50°	10187	10167	12458
55°	9507	9799	12604
60°	8986	9266	12241
65°	7943	8618	12060
70°	6481	7746	11058
75°	4625	6661	10396
80°	2595	5572	9734
85°	962	4452	9160

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 12604 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	471.8	3.2
10°-20°	1343.6	9.1
20°-30°	1999.2	13.5
30°-40°	2403.0	16.2
40°-50°	2529.3	17.1
50°-60°	2347.0	15.9
60°-70°	1855.7	12.5
70°-80°	1133.5	7.7
80°-90°	493.8	3.3
90°-100°	153.7	1.0
100°-110°	34.5	0.2
110°-120°	13.9	0.1
120°-130°	7.8	0.1
130°-140°	2.1	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°	3814.6	25.8
0°-40°	6217.6	42.0
0°-60°	11093.9	75.0
0°-90°	14576.9	98.6
90°-120°	202.2	1.4
90°-150°	212.1	1.4
90°-180°	212.0	1.4
0°-180°	14789.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4909	4909	4909	4909	4909	
5°	4897	4887	4904	4959	4973	464
15°	4635	4813	4860	4699	4702	1306
25°	4181	4448	4245	4372	4443	1920
35°	3567	3666	3721	4059	4197	2229
45°	2915	2928	3169	3671	3808	2247
55°	2147	2182	2528	3081	3326	1929
65°	1359	1402	1781	2357	2571	1346
75°	514	681	993	1526	1622	561
85°	46	160	387	751	862	71
90°	1	48	203	476	561	2
95°	1	12	89	261	319	1
105°	1	7	18	51	72	1
115°	1	4	14	23	24	2
125°	1	2	6	15	21	2
135°	2	2	2	5	7	1
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-LD4-3HI-35-UNV-C-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4909.1	4909.1	4909.1	4909.1	4909.1
2.5°	4915.1	4902.1	4875.1	4901.1	4908.1
5°	4897.1	4887.1	4904.1	4959.1	4973.1
7.5°	4856.1	4894.1	4939.1	5039.1	5071.1
10°	4795.1	4867.1	5002.1	5087.1	5054.1
12.5°	4721.1	4843.1	5024.1	4858.1	4781.1
15°	4635.1	4813.1	4860.1	4699.1	4702.1
17.5°	4534.1	4788.1	4643.1	4639.1	4610.1
20°	4425.1	4704.1	4512.1	4504.1	4473.1
22.5°	4308.1	4593.1	4396.1	4380.1	4464.1
25°	4181.1	4448.1	4245.1	4372.1	4443.1
27.5°	4022.1	4258.1	4119.1	4299.1	4388.1
30°	3861.1	4062.1	3990.1	4241.1	4399.1
32.5°	3710.1	3857.1	3884.1	4219.1	4245.1
35°	3567.1	3666.1	3721.1	4059.1	4197.1
37.5°	3410.1	3437.1	3583.1	3992.1	4125.1
40°	3250.1	3233.1	3467.1	3882.1	4066.1
42.5°	3078.1	3072.1	3344.1	3827.1	3919.1
45°	2915.1	2928.1	3169.1	3671.1	3808.1
47.5°	2748.1	2765.1	3003.1	3500.1	3670.1
50°	2554.1	2576.1	2855.1	3348.1	3567.1
52.5°	2344.1	2386.1	2711.1	3204.1	3425.1
55°	2147.1	2182.1	2528.1	3081.1	3326.1
57.5°	1967.1	1988.1	2339.1	2926.1	3111.1
60°	1790.1	1795.1	2161.1	2754.1	2931.1
62.5°	1587.0	1596.0	1978.1	2551.1	2788.1
65°	1359.0	1402.0	1781.1	2357.1	2571.1
67.5°	1146.0	1221.0	1580.0	2179.1	2291.1
70°	918.0	1045.0	1383.0	1970.1	2049.1
72.5°	709.0	858.0	1181.0	1736.1	1847.1
75°	514.0	681.0	993.0	1526.0	1622.0
77.5°	346.0	516.0	817.0	1294.0	1421.0
80°	207.0	377.0	660.0	1079.0	1222.0
82.5°	106.0	253.0	512.0	905.0	1033.0
85°	46.0	160.0	387.0	751.0	862.0
87.5°	13.0	91.0	285.0	607.0	701.0
90°	1.0	48.0	203.0	476.0	561.0
92.5°	1.0	23.0	143.0	360.0	425.0
95°	1.0	12.0	89.0	261.0	319.0
97.5°	1.0	7.0	54.0	185.0	234.0
100°	1.0	6.0	32.0	123.0	167.0
102.5°	1.0	7.0	22.0	78.0	109.0
105°	1.0	7.0	18.0	51.0	72.0
107.5°	2.0	7.0	16.0	38.0	50.0
110°	1.0	6.0	17.0	29.0	39.0

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CATALOG NUMBER: HVL12-4-LD4-3HI-35-UNV-C-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2.0	5.0	16.0	24.0	29.0
115°	1.0	4.0	14.0	23.0	24.0
117.5°	2.0	3.0	11.0	23.0	24.0
120°	2.0	2.0	9.0	22.0	25.0
122.5°	2.0	2.0	7.0	20.0	24.0
125°	1.0	2.0	6.0	15.0	21.0
127.5°	2.0	2.0	5.0	12.0	16.0
130°	2.0	2.0	4.0	9.0	12.0
132.5°	2.0	2.0	3.0	7.0	9.0
135°	2.0	2.0	2.0	5.0	7.0
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)