

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: P517539

Luminaire Tested: HVL12-4-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: P517539
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-3HI-40-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14937.0 lumens
Efficiency: N/A
Efficacy: 115.5 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

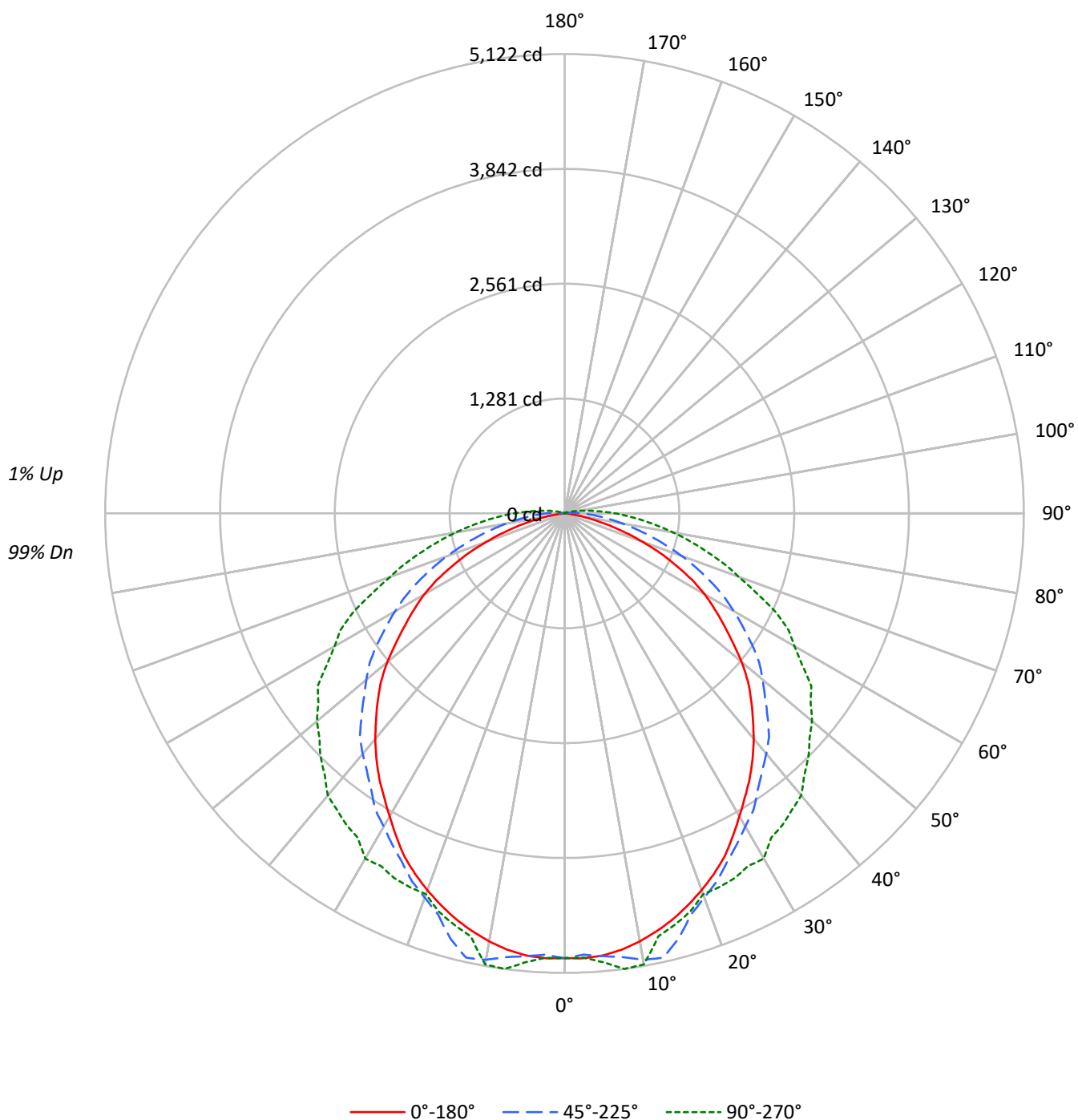
Input Watts (W): 129.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	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°	13343	13343	13343
5°	13312	13210	13373
10°	13137	13456	13550
15°	12898	13156	12665
20°	12608	12386	12198
25°	12300	11912	12363
30°	11833	11541	12594
35°	11500	11192	12470
40°	11142	10948	12656
45°	10757	10617	12546
50°	10288	10269	12583
55°	9602	9897	12730
60°	9075	9359	12363
65°	8023	8704	12180
70°	6546	7824	11168
75°	4672	6728	10501
80°	2621	5628	9832
85°	972	4496	9253

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 12730 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	476.5	3.2
10°-20°	1357.1	9.1
20°-30°	2019.2	13.5
30°-40°	2427.1	16.2
40°-50°	2554.6	17.1
50°-60°	2370.4	15.9
60°-70°	1874.2	12.5
70°-80°	1144.8	7.7
80°-90°	498.8	3.3
90°-100°	155.3	1.0
100°-110°	34.9	0.2
110°-120°	14.0	0.1
120°-130°	7.9	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°	3852.8	25.8
0°-40°	6279.9	42.0
0°-60°	11204.9	75.0
0°-90°	14722.8	98.6
90°-120°	204.2	1.4
90°-150°	214.2	1.4
90°-180°	214.0	1.4
0°-180°	14937.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4958	4958	4958	4958	4958	
5°	4946	4936	4953	5009	5023	469
15°	4682	4861	4909	4746	4749	1319
25°	4223	4493	4288	4416	4488	1939
35°	3603	3703	3758	4100	4239	2252
45°	2944	2957	3201	3708	3846	2270
55°	2168	2204	2553	3112	3359	1948
65°	1373	1416	1799	2381	2597	1359
75°	519	688	1003	1541	1638	567
85°	46	162	391	758	871	72
90°	1	48	205	481	567	2
95°	1	12	90	264	322	1
105°	1	7	18	52	73	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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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4958.3	4958.3	4958.3	4958.3	4958.3
2.5°	4964.3	4951.2	4923.9	4950.2	4957.3
5°	4946.2	4936.1	4953.2	5008.8	5022.9
7.5°	4904.7	4943.1	4988.6	5089.6	5121.9
10°	4843.1	4915.8	5052.2	5138.1	5104.7
12.5°	4768.4	4891.6	5074.4	4906.8	4829.0
15°	4681.5	4861.3	4908.8	4746.2	4749.2
17.5°	4579.5	4836.1	4689.6	4685.6	4656.3
20°	4469.4	4751.2	4557.3	4549.2	4517.9
22.5°	4351.2	4639.1	4440.1	4424.0	4508.8
25°	4223.0	4492.6	4287.6	4415.9	4487.6
27.5°	4062.4	4300.7	4160.3	4342.1	4432.0
30°	3899.8	4102.8	4030.0	4283.6	4443.2
32.5°	3747.2	3895.7	3923.0	4261.3	4287.6
35°	3602.8	3702.8	3758.3	4099.7	4239.1
37.5°	3444.2	3471.5	3619.0	4032.1	4166.4
40°	3282.6	3265.4	3501.8	3921.0	4106.8
42.5°	3108.9	3102.8	3377.6	3865.4	3958.3
45°	2944.3	2957.4	3200.8	3707.8	3846.2
47.5°	2775.6	2792.8	3033.1	3535.1	3706.8
50°	2579.6	2601.9	2883.7	3381.6	3602.8
52.5°	2367.5	2409.9	2738.2	3236.2	3459.4
55°	2168.5	2203.9	2553.4	3111.9	3359.4
57.5°	1986.7	2008.0	2362.5	2955.4	3142.2
60°	1808.0	1813.0	2182.7	2781.6	2960.4
62.5°	1602.9	1612.0	1997.9	2576.6	2816.0
65°	1372.6	1416.1	1798.9	2380.7	2596.8
67.5°	1157.5	1233.3	1595.9	2200.9	2314.0
70°	927.2	1055.5	1396.9	1989.8	2069.6
72.5°	716.1	866.6	1192.9	1753.4	1865.5
75°	519.2	687.8	1003.0	1541.3	1638.3
77.5°	349.5	521.2	825.2	1307.0	1435.3
80°	209.1	380.8	666.6	1089.8	1234.3
82.5°	107.1	255.5	517.1	914.1	1043.4
85°	46.5	161.6	390.9	758.5	870.7
87.5°	13.1	91.9	287.9	613.1	708.0
90°	1.0	48.5	205.0	480.8	566.6
92.5°	1.0	23.2	144.4	363.6	429.3
95°	1.0	12.1	89.9	263.6	322.2
97.5°	1.0	7.1	54.5	186.9	236.3
100°	1.0	6.1	32.3	124.2	168.7
102.5°	1.0	7.1	22.2	78.8	110.1
105°	1.0	7.1	18.2	51.5	72.7
107.5°	2.0	7.1	16.2	38.4	50.5
110°	1.0	6.1	17.2	29.3	39.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2.0	5.1	16.2	24.2	29.3
115°	1.0	4.0	14.1	23.2	24.2
117.5°	2.0	3.0	11.1	23.2	24.2
120°	2.0	2.0	9.1	22.2	25.3
122.5°	2.0	2.0	7.1	20.2	24.2
125°	1.0	2.0	6.1	15.2	21.2
127.5°	2.0	2.0	5.1	12.1	16.2
130°	2.0	2.0	4.0	9.1	12.1
132.5°	2.0	2.0	3.0	7.1	9.1
135°	2.0	2.0	2.0	5.1	7.1
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)