

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: P517543

Luminaire Tested: HVL12-4-LD4-3HI-50-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: P517543
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-3HI-50-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15190.0 lumens
Efficiency: N/A
Efficacy: 117.5 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

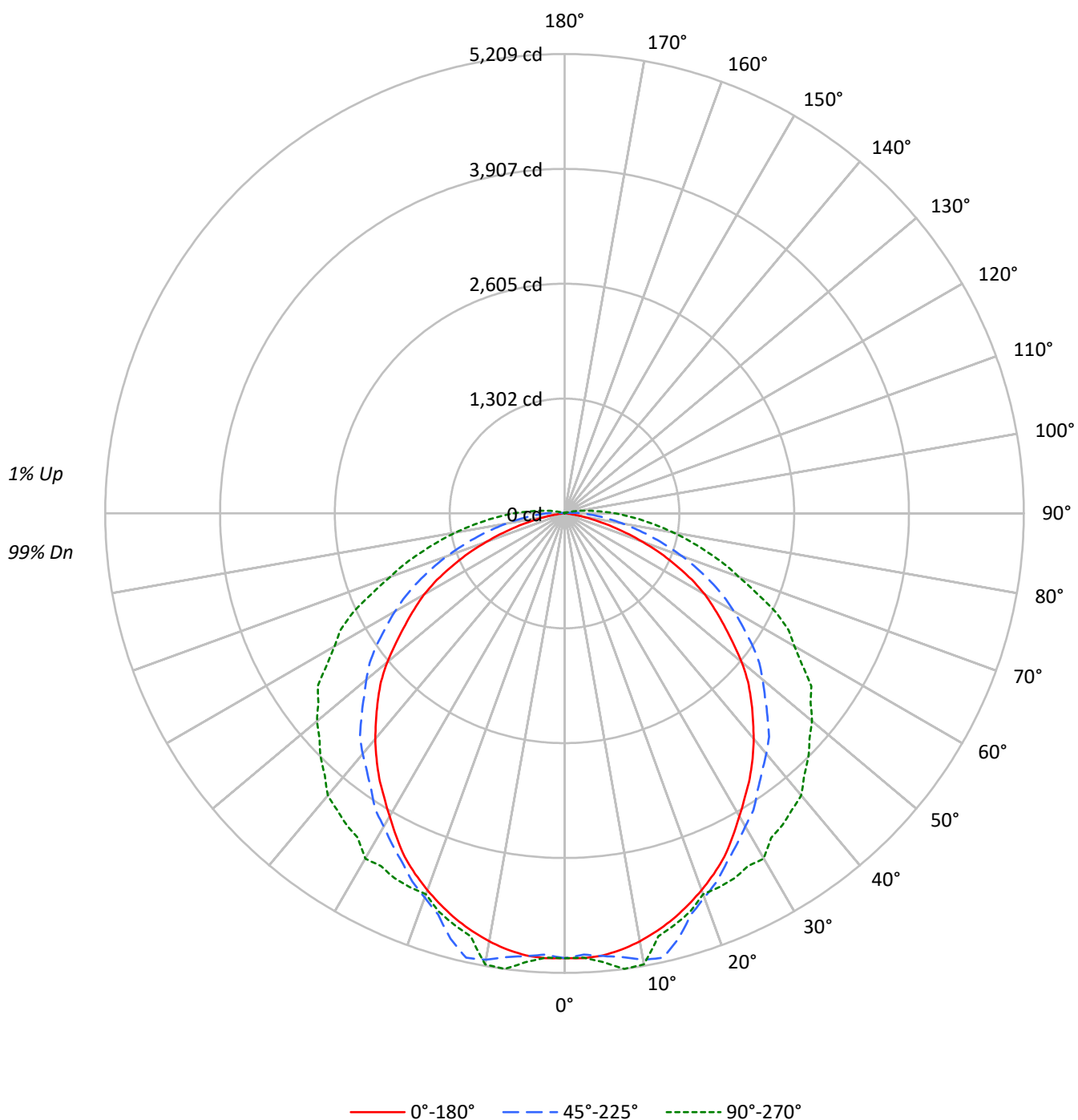
Input Watts (W): 129.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	13569	13569	13569
5°	13538	13433	13600
10°	13360	13683	13780
15°	13117	13379	12880
20°	12821	12596	12404
25°	12508	12114	12573
30°	12033	11736	12807
35°	11695	11381	12681
40°	11330	11133	12871
45°	10939	10796	12758
50°	10463	10443	12796
55°	9765	10064	12946
60°	9229	9517	12573
65°	8159	8851	12387
70°	6656	7956	11357
75°	4751	6842	10678
80°	2665	5723	9999
85°	987	4572	9409

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 12946 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	484.6	3.2
10°-20°	1380.1	9.1
20°-30°	2053.4	13.5
30°-40°	2468.2	16.2
40°-50°	2597.9	17.1
50°-60°	2410.6	15.9
60°-70°	1906.0	12.5
70°-80°	1164.2	7.7
80°-90°	507.2	3.3
90°-100°	157.9	1.0
100°-110°	35.5	0.2
110°-120°	14.3	0.1
120°-130°	8.0	0.1
130°-140°	2.2	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°	3918.1	25.8
0°-40°	6386.3	42.0
0°-60°	11394.7	75.0
0°-90°	14972.2	98.6
90°-120°	207.7	1.4
90°-150°	217.9	1.4
90°-180°	218.0	1.4
0°-180°	15190.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5042	5042	5042	5042	5042	
5°	5030	5020	5037	5094	5108	477
15°	4761	4944	4992	4827	4830	1341
25°	4294	4569	4360	4491	4564	1972
35°	3664	3766	3822	4169	4311	2290
45°	2994	3008	3255	3771	3911	2308
55°	2205	2241	2597	3165	3416	1981
65°	1396	1440	1829	2421	2641	1382
75°	528	700	1020	1567	1666	576
85°	47	164	398	771	885	73
90°	1	49	208	489	576	2
95°	1	12	91	268	328	1
105°	1	7	18	52	74	1
115°	1	4	14	24	25	2
125°	1	2	6	15	22	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°	5042.3	5042.3	5042.3	5042.3	5042.3
2.5°	5048.4	5035.1	5007.3	5034.0	5041.2
5°	5029.9	5019.7	5037.1	5093.6	5108.0
7.5°	4987.8	5026.8	5073.1	5175.8	5208.7
10°	4925.2	4999.1	5137.8	5225.1	5191.2
12.5°	4849.2	4974.5	5160.4	4989.9	4910.8
15°	4760.8	4943.6	4991.9	4826.6	4829.6
17.5°	4657.1	4918.0	4769.0	4764.9	4735.1
20°	4545.1	4831.7	4634.5	4626.3	4594.4
22.5°	4424.9	4717.7	4515.3	4498.9	4585.2
25°	4294.5	4568.7	4360.2	4490.7	4563.6
27.5°	4131.2	4373.6	4230.8	4415.7	4507.1
30°	3965.8	4172.3	4098.3	4356.1	4518.4
32.5°	3810.7	3961.7	3989.4	4333.5	4360.2
35°	3663.8	3765.5	3822.0	4169.2	4310.9
37.5°	3502.6	3530.3	3680.3	4100.4	4237.0
40°	3338.2	3320.8	3561.1	3987.4	4176.4
42.5°	3161.6	3155.4	3434.8	3930.9	4025.4
45°	2994.1	3007.5	3255.0	3770.6	3911.4
47.5°	2822.6	2840.1	3084.5	3595.0	3769.6
50°	2623.3	2645.9	2932.5	3438.9	3663.8
52.5°	2407.6	2450.8	2784.6	3291.0	3518.0
55°	2205.3	2241.2	2596.6	3164.6	3416.3
57.5°	2020.4	2042.0	2402.5	3005.4	3195.4
60°	1838.6	1843.7	2219.7	2828.8	3010.6
62.5°	1630.1	1639.3	2031.7	2620.2	2863.7
65°	1395.9	1440.1	1829.3	2421.0	2640.8
67.5°	1177.1	1254.1	1622.9	2238.1	2353.2
70°	942.9	1073.4	1420.5	2023.5	2104.6
72.5°	728.2	881.3	1213.1	1783.1	1897.1
75°	528.0	699.5	1020.0	1567.4	1666.0
77.5°	355.4	530.0	839.2	1329.1	1459.6
80°	212.6	387.2	677.9	1108.3	1255.2
82.5°	108.9	259.9	525.9	929.6	1061.0
85°	47.2	164.3	397.5	771.4	885.4
87.5°	13.4	93.5	292.7	623.5	720.0
90°	1.0	49.3	208.5	488.9	576.2
92.5°	1.0	23.6	146.9	369.8	436.5
95°	1.0	12.3	91.4	268.1	327.7
97.5°	1.0	7.2	55.5	190.0	240.4
100°	1.0	6.2	32.9	126.3	171.5
102.5°	1.0	7.2	22.6	80.1	112.0
105°	1.0	7.2	18.5	52.4	74.0
107.5°	2.1	7.2	16.4	39.0	51.4
110°	1.0	6.2	17.5	29.8	40.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2.1	5.1	16.4	24.7	29.8
115°	1.0	4.1	14.4	23.6	24.7
117.5°	2.1	3.1	11.3	23.6	24.7
120°	2.1	2.1	9.2	22.6	25.7
122.5°	2.1	2.1	7.2	20.5	24.7
125°	1.0	2.1	6.2	15.4	21.6
127.5°	2.1	2.1	5.1	12.3	16.4
130°	2.1	2.1	4.1	9.2	12.3
132.5°	2.1	2.1	3.1	7.2	9.2
135°	2.1	2.1	2.1	5.1	7.2
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)