

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: P517559

Luminaire Tested: HVL12-4-LD4-3LO-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: P517559
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-3LO-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: 9163.0 lumens
Efficiency: N/A
Efficacy: 132.4 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

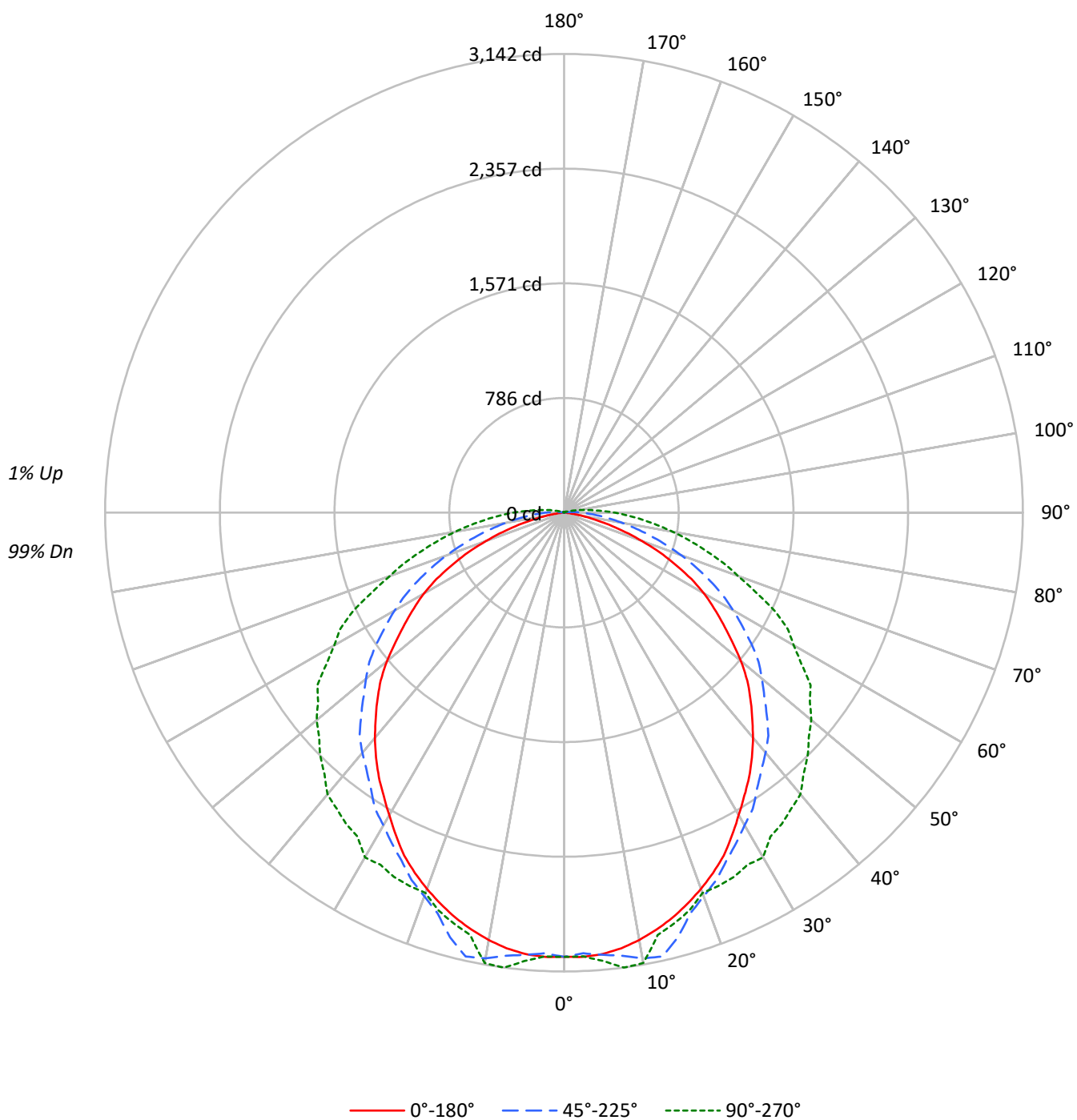
Input Watts (W): 69.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110	105	105	105	101	101	101
1	108	103	98	94	105	100	96	92	96	92	89	91	89	86	87	85	83
2	98	89	82	76	95	87	80	75	83	78	73	80	75	71	76	72	69
3	89	78	69	63	86	76	68	62	73	66	61	70	64	59	67	62	58
4	81	69	60	53	79	67	59	52	65	57	51	62	56	51	60	54	50
5	75	61	52	45	72	60	51	45	58	50	44	56	49	44	54	48	43
6	69	55	46	39	67	54	46	39	52	45	39	50	44	38	49	43	38
7	64	50	41	35	62	49	41	35	47	40	34	46	39	34	44	38	34
8	59	46	37	31	58	45	37	31	43	36	31	42	35	30	41	35	30
9	55	42	34	28	54	41	33	28	40	33	28	39	32	27	38	32	27
10	52	39	31	25	51	38	30	25	37	30	25	36	29	25	35	29	25

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	8185	8185	8185
5°	8166	8103	8204
10°	8059	8254	8312
15°	7912	8071	7769
20°	7734	7598	7483
25°	7545	7307	7584
30°	7259	7080	7726
35°	7054	6865	7650
40°	6835	6716	7764
45°	6598	6513	7696
50°	6312	6300	7719
55°	5891	6071	7809
60°	5567	5741	7584
65°	4922	5339	7472
70°	4015	4799	6851
75°	2866	4128	6442
80°	1608	3452	6032
85°	596	2758	5676

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 7809 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	292.3	3.2
10°-20°	832.5	9.1
20°-30°	1238.7	13.5
30°-40°	1488.9	16.2
40°-50°	1567.1	17.1
50°-60°	1454.1	15.9
60°-70°	1149.7	12.5
70°-80°	702.3	7.7
80°-90°	306.0	3.3
90°-100°	95.3	1.0
100°-110°	21.4	0.2
110°-120°	8.6	0.1
120°-130°	4.8	0.1
130°-140°	1.3	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°	2363.5	25.8
0°-40°	3852.4	42.0
0°-60°	6873.6	75.0
0°-90°	9031.6	98.6
90°-120°	125.2	1.4
90°-150°	131.4	1.4
90°-180°	131.0	1.4
0°-180°	9163.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3042	3042	3042	3042	3042	
5°	3034	3028	3038	3073	3081	288
15°	2872	2982	3011	2912	2913	809
25°	2590	2756	2630	2709	2753	1189
35°	2210	2272	2306	2515	2600	1381
45°	1806	1814	1964	2275	2359	1392
55°	1330	1352	1566	1909	2061	1195
65°	842	869	1104	1460	1593	834
75°	318	422	615	946	1005	348
85°	28	99	240	465	534	44
90°	1	30	126	295	348	1
95°	1	7	55	162	198	0
105°	1	4	11	32	45	1
115°	1	2	9	14	15	1
125°	1	1	4	9	13	1
135°	1	1	1	3	4	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°	3041.6	3041.6	3041.6	3041.6	3041.6
2.5°	3045.3	3037.3	3020.6	3036.7	3041.0
5°	3034.2	3028.0	3038.5	3072.6	3081.3
7.5°	3008.8	3032.3	3060.2	3122.2	3142.0
10°	2971.0	3015.6	3099.2	3151.9	3131.5
12.5°	2925.1	3000.7	3112.9	3010.0	2962.3
15°	2871.8	2982.1	3011.3	2911.5	2913.4
17.5°	2809.3	2966.6	2876.8	2874.3	2856.4
20°	2741.7	2914.6	2795.6	2790.7	2771.5
22.5°	2669.2	2845.8	2723.8	2713.8	2765.9
25°	2590.5	2756.0	2630.2	2708.9	2752.9
27.5°	2492.0	2638.3	2552.1	2663.7	2718.8
30°	2392.3	2516.8	2472.2	2627.7	2725.6
32.5°	2298.7	2389.8	2406.5	2614.1	2630.2
35°	2210.1	2271.5	2305.5	2515.0	2600.5
37.5°	2112.8	2129.6	2220.0	2473.4	2555.9
40°	2013.7	2003.2	2148.2	2405.3	2519.3
42.5°	1907.1	1903.4	2071.9	2371.2	2428.2
45°	1806.1	1814.2	1963.5	2274.6	2359.4
47.5°	1702.7	1713.2	1860.7	2168.6	2273.9
50°	1582.5	1596.1	1769.0	2074.4	2210.1
52.5°	1452.3	1478.4	1679.7	1985.2	2122.1
55°	1330.3	1352.0	1566.3	1909.0	2060.8
57.5°	1218.8	1231.8	1449.2	1813.0	1927.6
60°	1109.1	1112.2	1339.0	1706.4	1816.0
62.5°	983.3	988.9	1225.6	1580.6	1727.4
65°	842.0	868.7	1103.5	1460.4	1593.0
67.5°	710.1	756.5	979.0	1350.1	1419.5
70°	568.8	647.5	856.9	1220.6	1269.6
72.5°	439.3	531.6	731.7	1075.6	1144.4
75°	318.5	421.9	615.3	945.5	1005.0
77.5°	214.4	319.7	506.2	801.8	880.5
80°	128.3	233.6	408.9	668.5	757.2
82.5°	65.7	156.8	317.2	560.7	640.0
85°	28.5	99.1	239.8	465.3	534.1
87.5°	8.1	56.4	176.6	376.1	434.3
90°	0.6	29.7	125.8	294.9	347.6
92.5°	0.6	14.3	88.6	223.1	263.3
95°	0.6	7.4	55.1	161.7	197.7
97.5°	0.6	4.3	33.5	114.6	145.0
100°	0.6	3.7	19.8	76.2	103.5
102.5°	0.6	4.3	13.6	48.3	67.5
105°	0.6	4.3	11.2	31.6	44.6
107.5°	1.2	4.3	9.9	23.5	31.0
110°	0.6	3.7	10.5	18.0	24.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.2	3.1	9.9	14.9	18.0
115°	0.6	2.5	8.7	14.3	14.9
117.5°	1.2	1.9	6.8	14.3	14.9
120°	1.2	1.2	5.6	13.6	15.5
122.5°	1.2	1.2	4.3	12.4	14.9
125°	0.6	1.2	3.7	9.3	13.0
127.5°	1.2	1.2	3.1	7.4	9.9
130°	1.2	1.2	2.5	5.6	7.4
132.5°	1.2	1.2	1.9	4.3	5.6
135°	1.2	1.2	1.2	3.1	4.3
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)