

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: P517531

Luminaire Tested: HVL12-4-LD4-3HI-30-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: P517531
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-3HI-30-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14090.0 lumens
Efficiency: N/A
Efficacy: 109.0 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

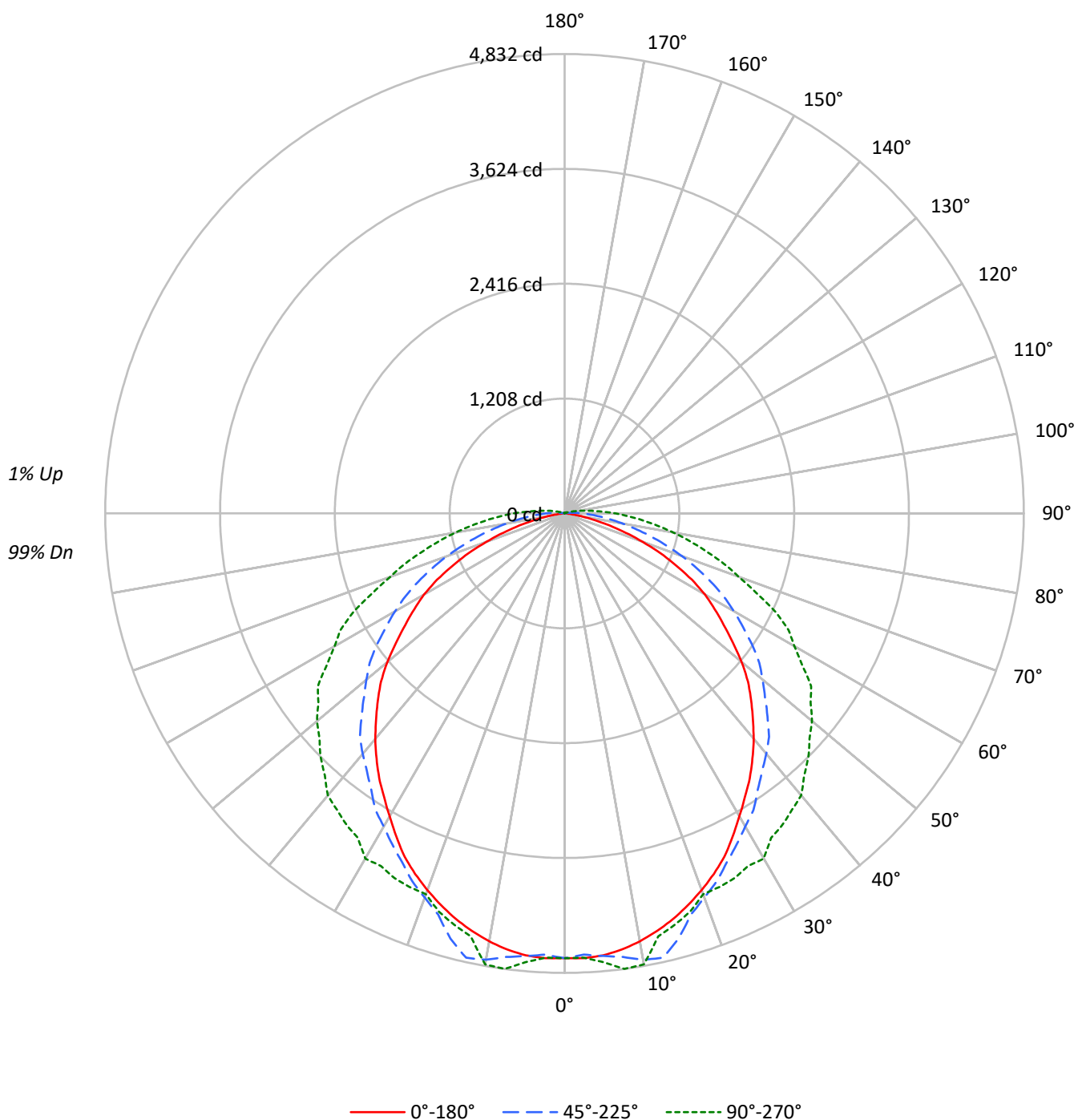
Input Watts (W): 129.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	12586	12586	12586
5°	12557	12460	12615
10°	12392	12692	12782
15°	12167	12410	11947
20°	11893	11684	11506
25°	11602	11237	11662
30°	11162	10886	11880
35°	10848	10557	11763
40°	10510	10327	11938
45°	10146	10015	11834
50°	9705	9687	11869
55°	9058	9336	12008
60°	8560	8828	11662
65°	7568	8210	11490
70°	6174	7380	10535
75°	4406	6347	9905
80°	2472	5308	9275
85°	916	4241	8728

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 12008 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	449.5	3.2
10°-20°	1280.1	9.1
20°-30°	1904.7	13.5
30°-40°	2289.4	16.2
40°-50°	2409.8	17.1
50°-60°	2236.0	15.9
60°-70°	1768.0	12.5
70°-80°	1079.9	7.7
80°-90°	470.5	3.3
90°-100°	146.5	1.0
100°-110°	32.9	0.2
110°-120°	13.2	0.1
120°-130°	7.4	0.1
130°-140°	2.0	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°	3634.3	25.8
0°-40°	5923.8	42.0
0°-60°	10569.5	75.0
0°-90°	13887.9	98.6
90°-120°	192.6	1.4
90°-150°	202.1	1.4
90°-180°	202.0	1.4
0°-180°	14090.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4677	4677	4677	4677	4677	
5°	4666	4656	4672	4725	4738	442
15°	4416	4586	4630	4477	4480	1244
25°	3984	4238	4044	4166	4233	1829
35°	3398	3493	3545	3867	3999	2124
45°	2777	2790	3019	3498	3628	2141
55°	2046	2079	2409	2936	3169	1838
65°	1295	1336	1697	2246	2450	1282
75°	490	649	946	1454	1545	534
85°	44	152	369	716	821	68
90°	1	46	193	454	534	2
95°	1	11	85	249	304	1
105°	1	7	17	49	69	1
115°	1	4	13	22	23	2
125°	1	2	6	14	20	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°	4677.1	4677.1	4677.1	4677.1	4677.1
2.5°	4682.8	4670.4	4644.7	4669.5	4676.2
5°	4665.7	4656.2	4672.3	4724.8	4738.1
7.5°	4626.6	4662.8	4705.7	4801.0	4831.5
10°	4568.5	4637.1	4765.7	4846.7	4815.3
12.5°	4498.0	4614.2	4786.7	4628.5	4555.2
15°	4416.1	4585.6	4630.4	4477.0	4479.9
17.5°	4319.8	4561.8	4423.7	4419.9	4392.2
20°	4216.0	4481.8	4298.9	4291.2	4261.7
22.5°	4104.5	4376.0	4188.3	4173.1	4253.1
25°	3983.5	4237.9	4044.5	4165.5	4233.1
27.5°	3832.0	4056.9	3924.4	4095.9	4180.7
30°	3678.6	3870.1	3801.5	4040.7	4191.2
32.5°	3534.8	3674.8	3700.5	4019.7	4044.5
35°	3398.5	3492.8	3545.2	3867.3	3998.7
37.5°	3248.9	3274.6	3413.7	3803.4	3930.1
40°	3096.5	3080.3	3303.2	3698.6	3873.9
42.5°	2932.6	2926.9	3186.0	3646.2	3733.9
45°	2777.3	2789.7	3019.3	3497.6	3628.1
47.5°	2618.2	2634.4	2861.1	3334.7	3496.6
50°	2433.4	2454.3	2720.1	3189.9	3398.5
52.5°	2233.3	2273.3	2582.9	3052.7	3263.2
55°	2045.6	2078.9	2408.6	2935.5	3168.9
57.5°	1874.1	1894.1	2228.5	2787.8	2964.0
60°	1705.4	1710.2	2058.9	2623.9	2792.5
62.5°	1512.0	1520.6	1884.6	2430.5	2656.3
65°	1294.8	1335.8	1696.9	2245.7	2449.6
67.5°	1091.9	1163.3	1505.4	2076.1	2182.8
70°	874.6	995.6	1317.7	1876.9	1952.2
72.5°	675.5	817.5	1125.2	1654.0	1759.8
75°	489.7	648.8	946.1	1453.9	1545.4
77.5°	329.7	491.6	778.4	1232.9	1353.9
80°	197.2	359.2	628.8	1028.0	1164.3
82.5°	101.0	241.0	487.8	862.3	984.2
85°	43.8	152.4	368.7	715.5	821.3
87.5°	12.4	86.7	271.5	578.3	667.9
90°	1.0	45.7	193.4	453.5	534.5
92.5°	1.0	21.9	136.2	343.0	404.9
95°	1.0	11.4	84.8	248.7	303.9
97.5°	1.0	6.7	51.4	176.3	222.9
100°	1.0	5.7	30.5	117.2	159.1
102.5°	1.0	6.7	21.0	74.3	103.9
105°	1.0	6.7	17.1	48.6	68.6
107.5°	1.9	6.7	15.2	36.2	47.6
110°	1.0	5.7	16.2	27.6	37.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.9	4.8	15.2	22.9	27.6
115°	1.0	3.8	13.3	21.9	22.9
117.5°	1.9	2.9	10.5	21.9	22.9
120°	1.9	1.9	8.6	21.0	23.8
122.5°	1.9	1.9	6.7	19.1	22.9
125°	1.0	1.9	5.7	14.3	20.0
127.5°	1.9	1.9	4.8	11.4	15.2
130°	1.9	1.9	3.8	8.6	11.4
132.5°	1.9	1.9	2.9	6.7	8.6
135°	1.9	1.9	1.9	4.8	6.7
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)