

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: P517235

Luminaire Tested: HVL12-1-LD4-2STD-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: P517235
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-2STD-40-UNV-C-EDD-90
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1546.0 lumens
Efficiency: N/A
Efficacy: 92.0 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 1' x H: 0.17')
CIE Type: Direct

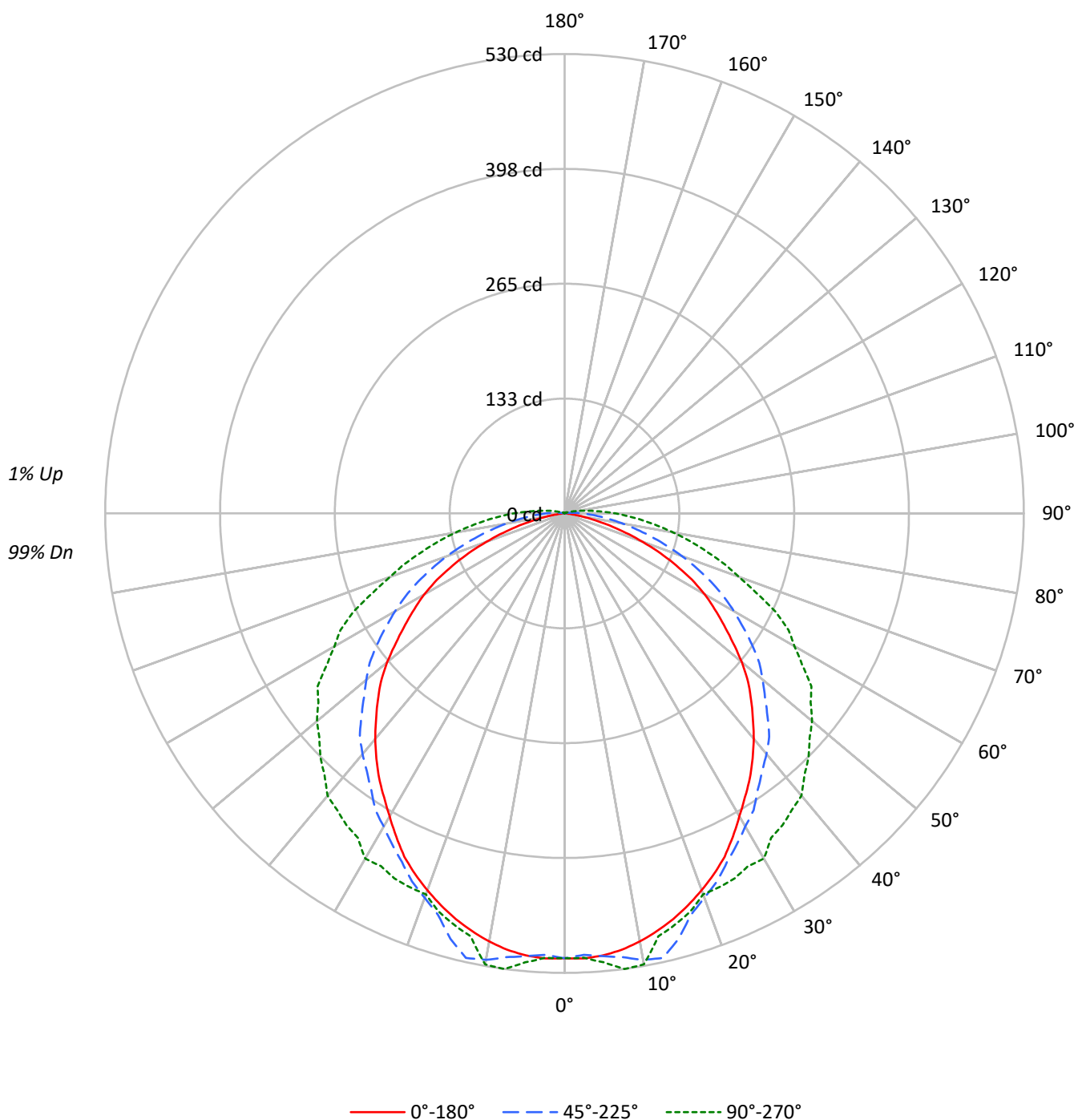
Input Watts (W): 16.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	40	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°	5524	5524	5524
5°	5452	5428	5537
10°	5323	5487	5609
15°	5168	5326	5243
20°	4996	4976	5050
25°	4817	4749	5119
30°	4576	4563	5214
35°	4388	4387	5163
40°	4189	4251	5240
45°	3976	4081	5194
50°	3730	3902	5210
55°	3401	3711	5270
60°	3125	3453	5118
65°	2666	3150	5043
70°	2072	2762	4624
75°	1377	2296	4348
80°	688	1830	4069
85°	204	1354	3830

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 5270 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.3	3.2
10°-20°	140.5	9.1
20°-30°	209.0	13.5
30°-40°	251.2	16.2
40°-50°	264.4	17.1
50°-60°	245.3	15.9
60°-70°	194.0	12.5
70°-80°	118.5	7.7
80°-90°	51.6	3.3
90°-100°	16.1	1.0
100°-110°	3.6	0.2
110°-120°	1.4	0.1
120°-130°	0.8	0.1
130°-140°	0.2	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°	398.8	25.8
0°-40°	650.0	42.0
0°-60°	1159.7	75.0
0°-90°	1523.8	98.6
90°-120°	21.1	1.4
90°-150°	22.1	1.4
90°-180°	22.0	1.4
0°-180°	1546.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	513	513	513	513	513	
5°	512	511	513	518	520	49
15°	484	503	508	491	492	136
25°	437	465	444	457	464	201
35°	373	383	389	424	439	233
45°	305	306	331	384	398	235
55°	224	228	264	322	348	202
65°	142	147	186	246	269	141
75°	54	71	104	160	170	59
85°	5	17	40	78	90	7
90°	0	5	21	50	59	0
95°	0	1	9	27	33	0
105°	0	1	2	5	8	0
115°	0	0	2	2	2	0
125°	0	0	1	2	2	0
135°	0	0	0	0	1	0
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°	513.2	513.2	513.2	513.2	513.2
2.5°	513.8	512.5	509.6	512.4	513.1
5°	511.9	510.9	512.7	518.4	519.9
7.5°	507.6	511.6	516.3	526.8	530.1
10°	501.3	508.8	522.9	531.8	528.3
12.5°	493.5	506.3	525.2	507.9	499.8
15°	484.5	503.2	508.1	491.2	491.5
17.5°	474.0	500.5	485.4	485.0	481.9
20°	462.6	491.8	471.7	470.8	467.6
22.5°	450.4	480.2	459.6	457.9	466.7
25°	437.1	465.0	443.8	457.0	464.5
27.5°	420.5	445.1	430.6	449.4	458.7
30°	403.6	424.6	417.1	443.4	459.9
32.5°	387.8	403.2	406.0	441.1	443.8
35°	372.9	383.2	389.0	424.3	438.8
37.5°	356.5	359.3	374.6	417.3	431.2
40°	339.8	338.0	362.4	405.8	425.1
42.5°	321.8	321.1	349.6	400.1	409.7
45°	304.7	306.1	331.3	383.8	398.1
47.5°	287.3	289.1	313.9	365.9	383.7
50°	267.0	269.3	298.5	350.0	372.9
52.5°	245.0	249.4	283.4	334.9	358.1
55°	224.4	228.1	264.3	322.1	347.7
57.5°	205.6	207.8	244.5	305.9	325.2
60°	187.1	187.6	225.9	287.9	306.4
62.5°	165.9	166.8	206.8	266.7	291.5
65°	142.1	146.6	186.2	246.4	268.8
67.5°	119.8	127.6	165.2	227.8	239.5
70°	96.0	109.2	144.6	205.9	214.2
72.5°	74.1	89.7	123.5	181.5	193.1
75°	53.7	71.2	103.8	159.5	169.6
77.5°	36.2	53.9	85.4	135.3	148.6
80°	21.6	39.4	69.0	112.8	127.7
82.5°	11.1	26.4	53.5	94.6	108.0
85°	4.8	16.7	40.5	78.5	90.1
87.5°	1.4	9.5	29.8	63.5	73.3
90°	0.1	5.0	21.2	49.8	58.6
92.5°	0.1	2.4	14.9	37.6	44.4
95°	0.1	1.3	9.3	27.3	33.3
97.5°	0.1	0.7	5.6	19.3	24.5
100°	0.1	0.6	3.3	12.9	17.5
102.5°	0.1	0.7	2.3	8.2	11.4
105°	0.1	0.7	1.9	5.3	7.5
107.5°	0.2	0.7	1.7	4.0	5.2
110°	0.1	0.6	1.8	3.0	4.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.5	1.7	2.5	3.0
115°	0.1	0.4	1.5	2.4	2.5
117.5°	0.2	0.3	1.1	2.4	2.5
120°	0.2	0.2	0.9	2.3	2.6
122.5°	0.2	0.2	0.7	2.1	2.5
125°	0.1	0.2	0.6	1.6	2.2
127.5°	0.2	0.2	0.5	1.3	1.7
130°	0.2	0.2	0.4	0.9	1.3
132.5°	0.2	0.2	0.3	0.7	0.9
135°	0.2	0.2	0.2	0.5	0.7
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)