

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: P517231

Luminaire Tested: HVL12-1-LD4-2STD-35-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: P517231
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-2STD-35-UNV-C-EDD-90
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1524.0 lumens
Efficiency: N/A
Efficacy: 90.7 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

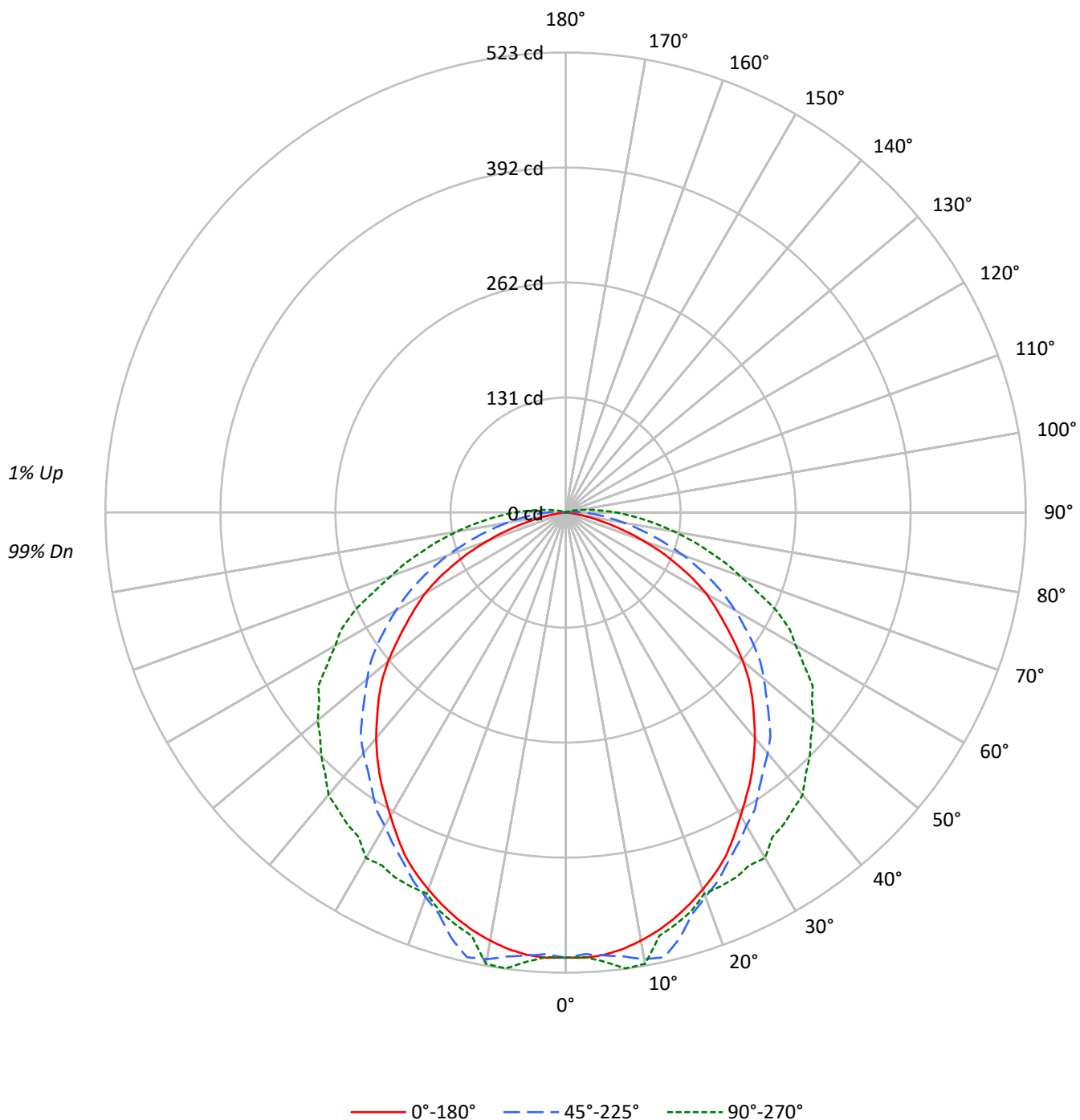
Input Watts (W): 16.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5445	5445	5445
5°	5374	5351	5458
10°	5246	5410	5530
15°	5095	5249	5169
20°	4925	4906	4979
25°	4749	4681	5046
30°	4511	4499	5139
35°	4325	4325	5089
40°	4128	4191	5165
45°	3919	4023	5120
50°	3677	3846	5135
55°	3354	3657	5196
60°	3082	3404	5045
65°	2627	3104	4970
70°	2042	2722	4559
75°	1359	2263	4287
80°	679	1804	4012
85°	200	1334	3775

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 5196 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.6	3.2
10°-20°	138.5	9.1
20°-30°	206.0	13.5
30°-40°	247.6	16.2
40°-50°	260.6	17.1
50°-60°	241.9	15.9
60°-70°	191.2	12.5
70°-80°	116.8	7.7
80°-90°	50.9	3.3
90°-100°	15.8	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°	393.1	25.8
0°-40°	640.7	42.0
0°-60°	1143.2	75.0
0°-90°	1502.2	98.6
90°-120°	20.8	1.4
90°-150°	21.8	1.4
90°-180°	22.0	1.4
0°-180°	1524.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	506	506	506	506	506	
5°	505	504	505	511	512	48
15°	478	496	501	484	485	135
25°	431	458	438	450	458	198
35°	368	378	384	418	432	230
45°	300	302	327	378	392	232
55°	221	225	260	318	343	199
65°	140	144	184	243	265	139
75°	53	70	102	157	167	58
85°	5	16	40	77	89	7
90°	0	5	21	49	58	0
95°	0	1	9	27	33	0
105°	0	1	2	5	7	0
115°	0	0	1	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°	505.9	505.9	505.9	505.9	505.9
2.5°	506.5	505.2	502.4	505.1	505.8
5°	504.6	503.6	505.4	511.0	512.5
7.5°	500.4	504.3	509.0	519.3	522.6
10°	494.1	501.6	515.5	524.2	520.8
12.5°	486.5	499.1	517.7	500.6	492.7
15°	477.6	496.0	500.8	484.2	484.6
17.5°	467.2	493.4	478.5	478.1	475.1
20°	456.0	484.8	465.0	464.1	461.0
22.5°	444.0	473.3	453.0	451.4	460.0
25°	430.9	458.4	437.5	450.5	457.9
27.5°	414.5	438.8	424.5	443.0	452.2
30°	397.9	418.6	411.2	437.0	453.3
32.5°	382.3	397.5	400.3	434.8	437.5
35°	367.6	377.8	383.5	418.3	432.5
37.5°	351.4	354.2	369.2	411.4	425.1
40°	334.9	333.2	357.3	400.1	419.0
42.5°	317.2	316.6	344.6	394.4	403.9
45°	300.4	301.7	326.6	378.3	392.4
47.5°	283.2	284.9	309.5	360.7	378.2
50°	263.2	265.5	294.2	345.0	367.6
52.5°	241.6	245.9	279.4	330.2	353.0
55°	221.3	224.9	260.5	317.5	342.8
57.5°	202.7	204.9	241.0	301.5	320.6
60°	184.5	185.0	222.7	283.8	302.0
62.5°	163.5	164.5	203.8	262.9	287.3
65°	140.0	144.5	183.5	242.9	264.9
67.5°	118.1	125.8	162.8	224.6	236.1
70°	94.6	107.7	142.5	203.0	211.2
72.5°	73.1	88.4	121.7	178.9	190.3
75°	53.0	70.2	102.3	157.3	167.2
77.5°	35.7	53.2	84.2	133.4	146.4
80°	21.3	38.9	68.0	111.2	125.9
82.5°	10.9	26.1	52.8	93.3	106.5
85°	4.7	16.5	39.9	77.4	88.8
87.5°	1.3	9.4	29.4	62.6	72.2
90°	0.1	4.9	20.9	49.1	57.8
92.5°	0.1	2.4	14.7	37.1	43.8
95°	0.1	1.2	9.2	26.9	32.9
97.5°	0.1	0.7	5.6	19.1	24.1
100°	0.1	0.6	3.3	12.7	17.2
102.5°	0.1	0.7	2.3	8.0	11.2
105°	0.1	0.7	1.9	5.3	7.4
107.5°	0.2	0.7	1.6	3.9	5.2
110°	0.1	0.6	1.8	3.0	4.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.5	1.6	2.5	3.0
115°	0.1	0.4	1.4	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	1.5	2.2
127.5°	0.2	0.2	0.5	1.2	1.6
130°	0.2	0.2	0.4	0.9	1.2
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)