

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: P517283

Luminaire Tested: HVL12-1-LD4-3STD-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: P517283
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-3STD-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: 2438.0 lumens
Efficiency: N/A
Efficacy: 99.5 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

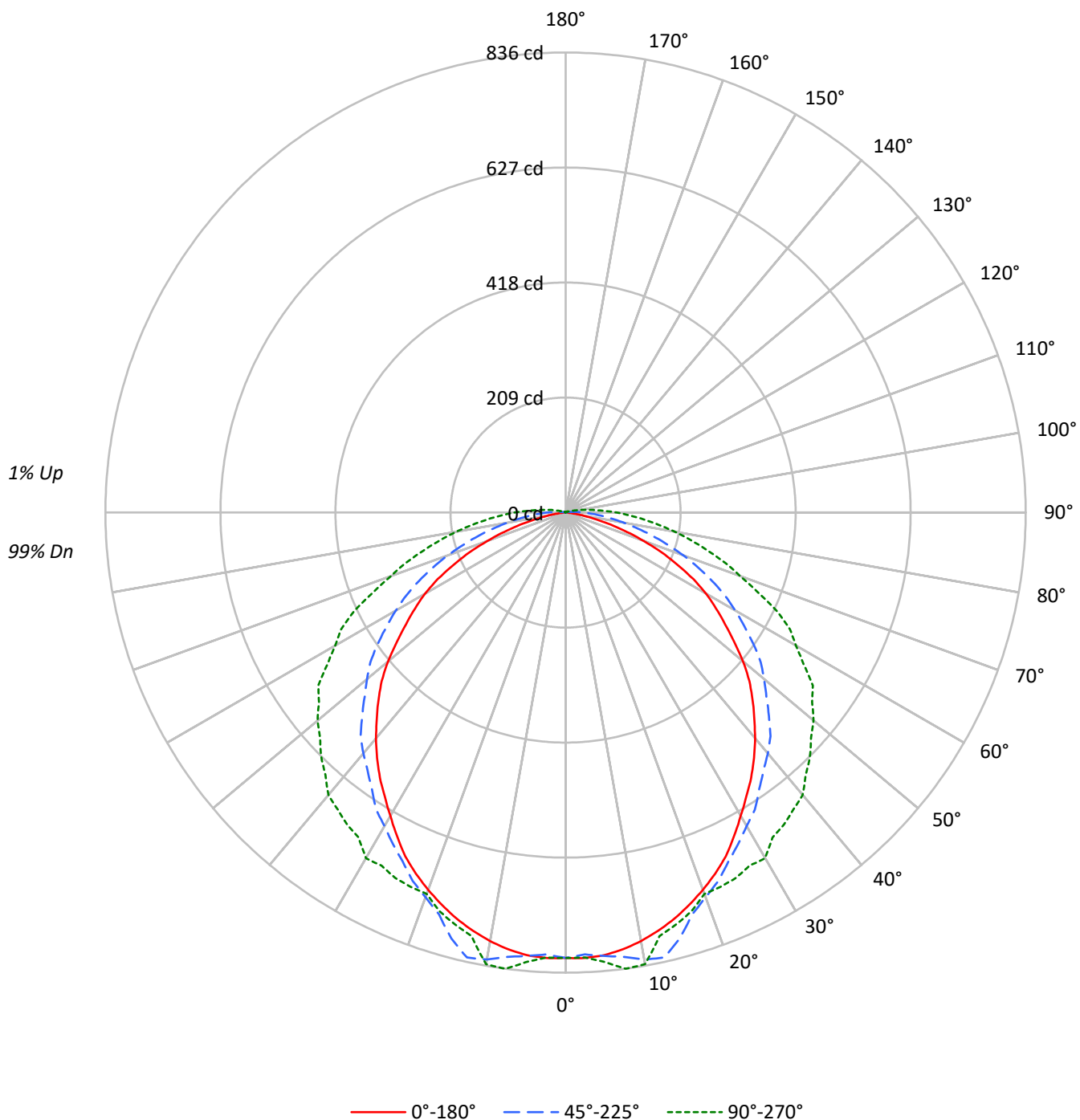
Input Watts (W): 24.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	8711	8711	8711
5°	8598	8559	8731
10°	8393	8653	8847
15°	8151	8398	8269
20°	7878	7847	7964
25°	7596	7488	8072
30°	7217	7196	8222
35°	6919	6918	8141
40°	6605	6705	8263
45°	6271	6435	8191
50°	5881	6153	8215
55°	5364	5852	8311
60°	4930	5446	8072
65°	4203	4967	7951
70°	3266	4355	7292
75°	2172	3622	6856
80°	1087	2886	6420
85°	323	2133	6040

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 8311 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	77.8	3.2
10°-20°	221.5	9.1
20°-30°	329.6	13.5
30°-40°	396.1	16.2
40°-50°	417.0	17.1
50°-60°	386.9	15.9
60°-70°	305.9	12.5
70°-80°	186.9	7.7
80°-90°	81.4	3.3
90°-100°	25.4	1.0
100°-110°	5.7	0.2
110°-120°	2.3	0.1
120°-130°	1.3	0.1
130°-140°	0.3	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°	628.9	25.8
0°-40°	1025.0	42.0
0°-60°	1828.9	75.0
0°-90°	2403.1	98.6
90°-120°	33.4	1.4
90°-150°	35.0	1.4
90°-180°	35.0	1.4
0°-180°	2438.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	809	809	809	809	809	
5°	807	806	808	818	820	77
15°	764	794	801	775	775	215
25°	689	733	700	721	732	316
35°	588	604	613	669	692	368
45°	481	483	522	605	628	370
55°	354	360	417	508	548	318
65°	224	231	294	389	424	222
75°	85	112	164	252	267	92
85°	8	26	64	124	142	12
90°	0	8	34	78	92	0
95°	0	2	15	43	53	0
105°	0	1	3	8	12	0
115°	0	1	2	4	4	0
125°	0	0	1	2	4	0
135°	0	0	0	1	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°	809.3	809.3	809.3	809.3	809.3
2.5°	810.3	808.1	803.7	808.0	809.1
5°	807.3	805.7	808.5	817.5	819.8
7.5°	800.5	806.8	814.2	830.7	836.0
10°	790.5	802.4	824.6	838.6	833.2
12.5°	778.3	798.4	828.2	800.9	788.2
15°	764.1	793.5	801.2	774.7	775.2
17.5°	747.5	789.3	765.4	764.8	760.0
20°	729.5	775.5	743.8	742.5	737.4
22.5°	710.2	757.2	724.7	722.1	735.9
25°	689.3	733.3	699.8	720.8	732.5
27.5°	663.1	702.0	679.0	708.7	723.4
30°	636.5	669.6	657.8	699.2	725.2
32.5°	611.6	635.9	640.3	695.5	699.8
35°	588.0	604.4	613.4	669.2	691.9
37.5°	562.2	566.6	590.7	658.1	680.0
40°	535.8	533.0	571.6	640.0	670.3
42.5°	507.4	506.4	551.3	630.9	646.1
45°	480.6	482.7	522.4	605.2	627.8
47.5°	453.0	455.8	495.1	577.0	605.0
50°	421.0	424.7	470.7	551.9	588.0
52.5°	386.4	393.3	446.9	528.2	564.6
55°	353.9	359.7	416.8	507.9	548.3
57.5°	324.3	327.7	385.6	482.4	512.9
60°	295.1	295.9	356.3	454.0	483.2
62.5°	261.6	263.1	326.1	420.6	459.6
65°	224.0	231.1	293.6	388.6	423.8
67.5°	188.9	201.3	260.5	359.2	377.7
70°	151.3	172.3	228.0	324.8	337.8
72.5°	116.9	141.4	194.7	286.2	304.5
75°	84.7	112.3	163.7	251.6	267.4
77.5°	57.0	85.1	134.7	213.3	234.3
80°	34.1	62.2	108.8	177.9	201.5
82.5°	17.5	41.7	84.4	149.2	170.3
85°	7.6	26.4	63.8	123.8	142.1
87.5°	2.1	15.0	47.0	100.1	115.6
90°	0.2	7.9	33.5	78.5	92.5
92.5°	0.2	3.8	23.6	59.3	70.1
95°	0.2	2.0	14.7	43.0	52.6
97.5°	0.2	1.2	8.9	30.5	38.6
100°	0.2	1.0	5.3	20.3	27.5
102.5°	0.2	1.2	3.6	12.9	18.0
105°	0.2	1.2	3.0	8.4	11.9
107.5°	0.3	1.2	2.6	6.3	8.2
110°	0.2	1.0	2.8	4.8	6.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.8	2.6	4.0	4.8
115°	0.2	0.7	2.3	3.8	4.0
117.5°	0.3	0.5	1.8	3.8	4.0
120°	0.3	0.3	1.5	3.6	4.1
122.5°	0.3	0.3	1.2	3.3	4.0
125°	0.2	0.3	1.0	2.5	3.5
127.5°	0.3	0.3	0.8	2.0	2.6
130°	0.3	0.3	0.7	1.5	2.0
132.5°	0.3	0.3	0.5	1.2	1.5
135°	0.3	0.3	0.3	0.8	1.2
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)