

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: P517791

Luminaire Tested: HVL8-1-LD4-2LO-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: P517791
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-2LO-35-UNV-C-EDD-90
Description: 1 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1133.0 lumens
Efficiency: N/A
Efficacy: 98.5 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 1' x H: 0.17')
CIE Type: Direct

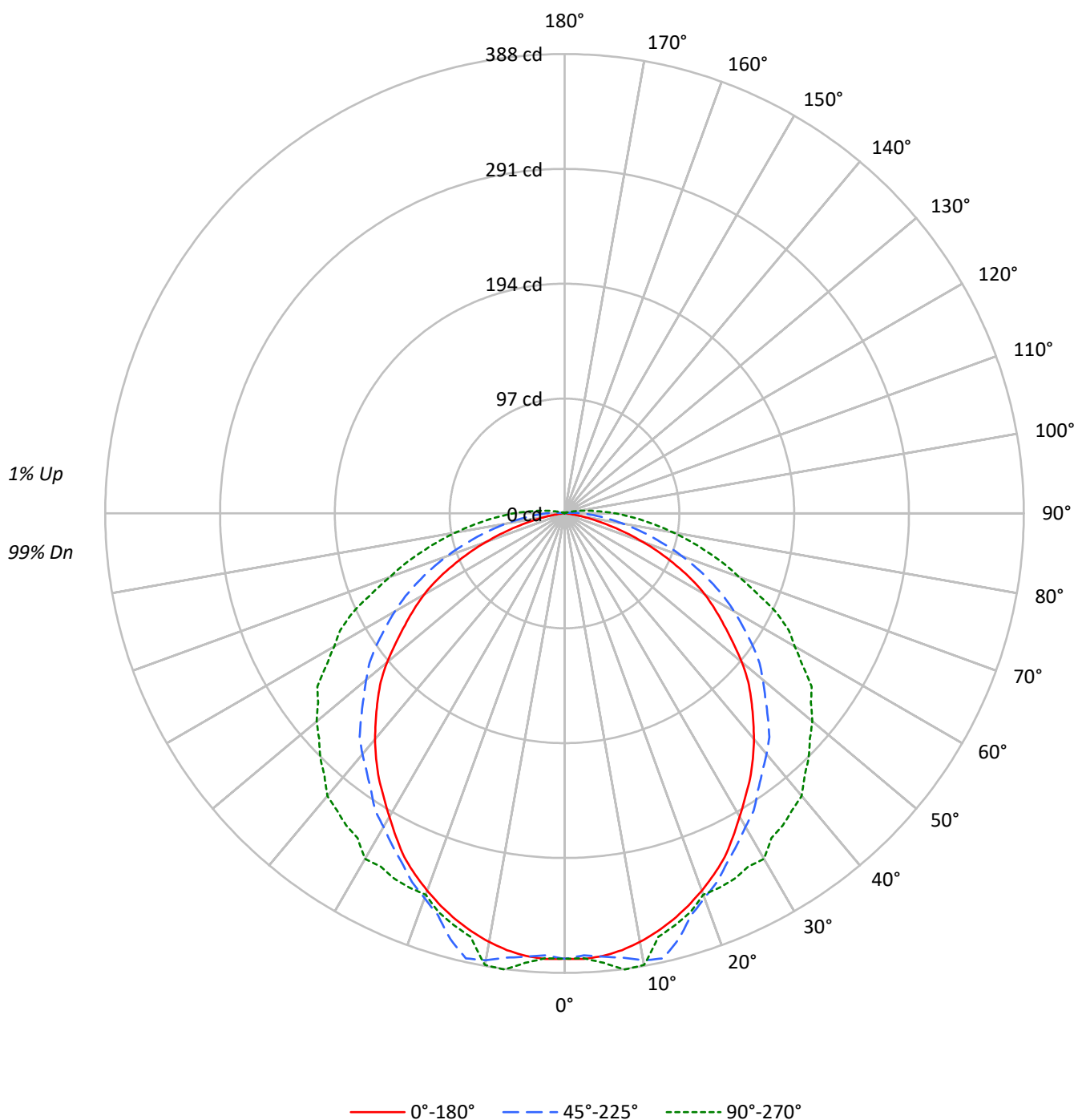
Input Watts (W): 11.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	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°	6072	6072	6072
5°	5994	5936	6043
10°	5852	5972	6080
15°	5682	5768	5643
20°	5492	5364	5397
25°	5295	5094	5431
30°	5031	4871	5490
35°	4824	4658	5393
40°	4604	4488	5427
45°	4370	4282	5328
50°	4101	4066	5289
55°	3740	3838	5285
60°	3435	3540	5061
65°	2930	3193	4899
70°	2276	2765	4393
75°	1515	2261	4011
80°	760	1761	3599
85°	223	1255	3169

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 5328 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.1	3.2
10°-20°	102.9	9.1
20°-30°	153.2	13.5
30°-40°	184.1	16.2
40°-50°	193.8	17.1
50°-60°	179.8	15.9
60°-70°	142.2	12.5
70°-80°	86.8	7.7
80°-90°	37.8	3.3
90°-100°	11.8	1.0
100°-110°	2.6	0.2
110°-120°	1.1	0.1
120°-130°	0.6	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°	292.2	25.8
0°-40°	476.3	42.0
0°-60°	849.9	75.0
0°-90°	1116.7	98.6
90°-120°	15.5	1.4
90°-150°	16.3	1.4
90°-180°	16.0	1.4
0°-180°	1133.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	376	376	376	376	376	
5°	375	374	376	380	381	36
15°	355	369	372	360	360	100
25°	320	341	325	335	340	147
35°	273	281	285	311	322	171
45°	223	224	243	281	292	172
55°	164	167	194	236	255	148
65°	104	107	136	181	197	103
75°	39	52	76	117	124	43
85°	4	12	30	58	66	5
90°	0	4	16	36	43	0
95°	0	1	7	20	24	0
105°	0	0	1	4	6	0
115°	0	0	1	2	2	0
125°	0	0	0	1	2	0
135°	0	0	0	0	0	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°	376.1	376.1	376.1	376.1	376.1
2.5°	376.6	375.6	373.5	375.5	376.0
5°	375.2	374.4	375.7	379.9	381.0
7.5°	372.0	374.9	378.4	386.1	388.5
10°	367.4	372.9	383.2	389.7	387.2
12.5°	361.7	371.0	384.9	372.2	366.3
15°	355.1	368.7	372.3	360.0	360.2
17.5°	347.4	366.8	355.7	355.4	353.2
20°	339.0	360.4	345.7	345.1	342.7
22.5°	330.0	351.9	336.8	335.6	342.0
25°	320.3	340.8	325.2	335.0	340.4
27.5°	308.1	326.2	315.6	329.4	336.2
30°	295.8	311.2	305.7	324.9	337.0
32.5°	284.2	295.5	297.6	323.2	325.2
35°	273.3	280.9	285.1	311.0	321.5
37.5°	261.3	263.3	274.5	305.8	316.0
40°	249.0	247.7	265.6	297.4	311.5
42.5°	235.8	235.4	256.2	293.2	300.2
45°	223.3	224.3	242.8	281.2	291.7
47.5°	210.5	211.8	230.1	268.1	281.2
50°	195.7	197.4	218.7	256.5	273.3
52.5°	179.6	182.8	207.7	245.5	262.4
55°	164.5	167.2	193.7	236.0	254.8
57.5°	150.7	152.3	179.2	224.2	238.3
60°	137.1	137.5	165.6	211.0	224.6
62.5°	121.6	122.3	151.5	195.4	213.6
65°	104.1	107.4	136.4	180.6	197.0
67.5°	87.8	93.5	121.0	166.9	175.5
70°	70.3	80.1	106.0	150.9	157.0
72.5°	54.3	65.7	90.5	133.0	141.5
75°	39.4	52.2	76.1	116.9	124.3
77.5°	26.5	39.5	62.6	99.1	108.9
80°	15.9	28.9	50.6	82.7	93.6
82.5°	8.1	19.4	39.2	69.3	79.1
85°	3.5	12.3	29.6	57.5	66.0
87.5°	1.0	7.0	21.8	46.5	53.7
90°	0.1	3.7	15.6	36.5	43.0
92.5°	0.1	1.8	11.0	27.6	32.6
95°	0.1	0.9	6.8	20.0	24.4
97.5°	0.1	0.5	4.1	14.2	17.9
100°	0.1	0.5	2.5	9.4	12.8
102.5°	0.1	0.5	1.7	6.0	8.4
105°	0.1	0.5	1.4	3.9	5.5
107.5°	0.2	0.5	1.2	2.9	3.8
110°	0.1	0.5	1.3	2.2	3.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.4	1.2	1.8	2.2
115°	0.1	0.3	1.1	1.8	1.8
117.5°	0.2	0.2	0.8	1.8	1.8
120°	0.2	0.2	0.7	1.7	1.9
122.5°	0.2	0.2	0.5	1.5	1.8
125°	0.1	0.2	0.5	1.1	1.6
127.5°	0.2	0.2	0.4	0.9	1.2
130°	0.2	0.2	0.3	0.7	0.9
132.5°	0.2	0.2	0.2	0.5	0.7
135°	0.2	0.2	0.2	0.4	0.5
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)