

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: P517731

Luminaire Tested: HVL8-1-LD4-1HI-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: P517731
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-1HI-40-UNV-C-EDD-90
Description: 1 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1003.0 lumens
Efficiency: N/A
Efficacy: 93.7 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

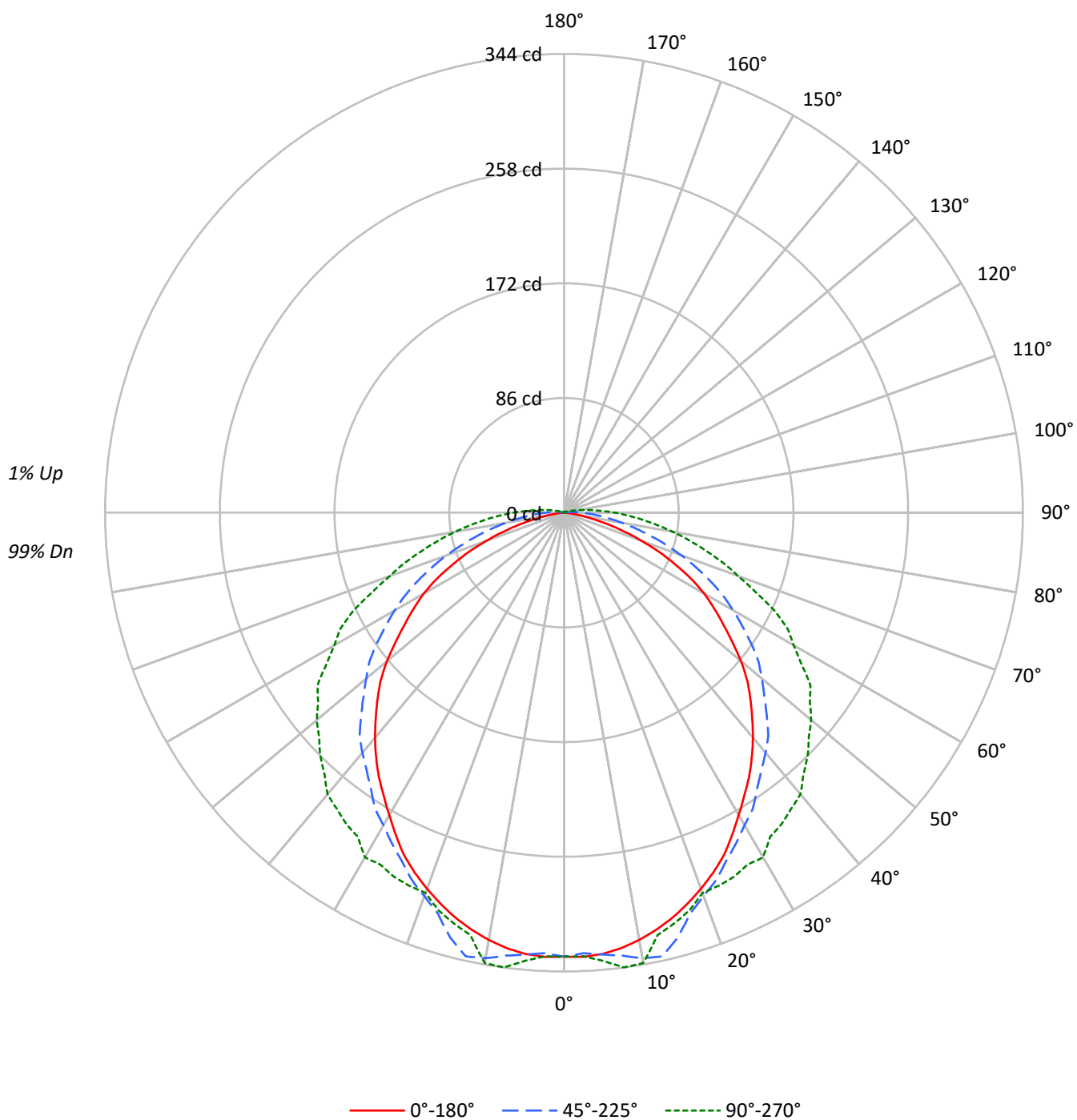
Input Watts (W): 10.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	44	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°	5375	5375	5375
5°	5305	5255	5350
10°	5179	5286	5383
15°	5031	5106	4996
20°	4861	4748	4778
25°	4688	4509	4807
30°	4454	4311	4861
35°	4270	4124	4775
40°	4075	3973	4805
45°	3869	3790	4718
50°	3629	3599	4681
55°	3310	3398	4679
60°	3042	3134	4480
65°	2595	2828	4337
70°	2017	2447	3890
75°	1342	1999	3550
80°	669	1559	3188
85°	198	1111	2809

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4718 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.0	3.2
10°-20°	91.1	9.1
20°-30°	135.6	13.5
30°-40°	163.0	16.2
40°-50°	171.5	17.1
50°-60°	159.2	15.9
60°-70°	125.9	12.5
70°-80°	76.9	7.7
80°-90°	33.5	3.3
90°-100°	10.4	1.0
100°-110°	2.4	0.2
110°-120°	0.9	0.1
120°-130°	0.5	0.1
130°-140°	0.1	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°	258.7	25.8
0°-40°	421.7	42.0
0°-60°	752.4	75.0
0°-90°	988.6	98.6
90°-120°	13.7	1.4
90°-150°	14.4	1.4
90°-180°	14.0	1.4
0°-180°	1003.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	333	333	333	333	333	
5°	332	331	333	336	337	31
15°	314	326	330	319	319	89
25°	284	302	288	296	301	130
35°	242	249	252	275	285	151
45°	198	199	215	249	258	152
55°	146	148	172	209	226	131
65°	92	95	121	160	174	91
75°	35	46	67	104	110	38
85°	3	11	26	51	58	5
90°	0	3	14	32	38	0
95°	0	1	6	18	22	0
105°	0	0	1	4	5	0
115°	0	0	1	2	2	0
125°	0	0	0	1	1	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°	332.9	332.9	332.9	332.9	332.9
2.5°	333.3	332.5	330.6	332.4	332.9
5°	332.1	331.4	332.6	336.3	337.3
7.5°	329.3	331.9	335.0	341.8	343.9
10°	325.2	330.1	339.2	345.0	342.8
12.5°	320.2	328.5	340.7	329.5	324.3
15°	314.4	326.4	329.6	318.7	318.9
17.5°	307.5	324.7	314.9	314.6	312.7
20°	300.1	319.0	306.0	305.5	303.4
22.5°	292.2	311.5	298.1	297.1	302.8
25°	283.6	301.7	287.9	296.5	301.3
27.5°	272.8	288.8	279.4	291.6	297.6
30°	261.9	275.5	270.6	287.6	298.4
32.5°	251.6	261.6	263.4	286.1	287.9
35°	241.9	248.6	252.4	275.3	284.7
37.5°	231.3	233.1	243.0	270.7	279.8
40°	220.4	219.3	235.1	263.3	275.8
42.5°	208.8	208.4	226.8	259.6	265.8
45°	197.7	198.6	214.9	249.0	258.3
47.5°	186.4	187.5	203.7	237.4	248.9
50°	173.2	174.7	193.6	227.1	241.9
52.5°	159.0	161.8	183.9	217.3	232.3
55°	145.6	148.0	171.5	209.0	225.6
57.5°	133.4	134.8	158.6	198.4	211.0
60°	121.4	121.7	146.6	186.8	198.8
62.5°	107.6	108.2	134.2	173.0	189.1
65°	92.2	95.1	120.8	159.9	174.4
67.5°	77.7	82.8	107.2	147.8	155.4
70°	62.3	70.9	93.8	133.6	139.0
72.5°	48.1	58.2	80.1	117.7	125.3
75°	34.9	46.2	67.3	103.5	110.0
77.5°	23.5	35.0	55.4	87.8	96.4
80°	14.0	25.6	44.8	73.2	82.9
82.5°	7.2	17.2	34.7	61.4	70.1
85°	3.1	10.9	26.2	50.9	58.5
87.5°	0.9	6.2	19.3	41.2	47.5
90°	0.1	3.3	13.8	32.3	38.0
92.5°	0.1	1.6	9.7	24.4	28.8
95°	0.1	0.8	6.0	17.7	21.6
97.5°	0.1	0.5	3.7	12.5	15.9
100°	0.1	0.4	2.2	8.3	11.3
102.5°	0.1	0.5	1.5	5.3	7.4
105°	0.1	0.5	1.2	3.5	4.9
107.5°	0.1	0.5	1.1	2.6	3.4
110°	0.1	0.4	1.2	2.0	2.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.1	0.3	1.1	1.6	2.0
115°	0.1	0.3	0.9	1.6	1.6
117.5°	0.1	0.2	0.7	1.6	1.6
120°	0.1	0.1	0.6	1.5	1.7
122.5°	0.1	0.1	0.5	1.4	1.6
125°	0.1	0.1	0.4	1.0	1.4
127.5°	0.1	0.1	0.3	0.8	1.1
130°	0.1	0.1	0.3	0.6	0.8
132.5°	0.1	0.1	0.2	0.5	0.6
135°	0.1	0.1	0.1	0.3	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)