

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: P518036

Luminaire Tested: HVL8-4-LD4-1LO-40-UNV-C-EDD

Issue Date: 4/27/2021

Tested By:

Approved By:



NVLAP Lab Code: 200050-0

Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

Test Information

Test Method: LM-79-2019
Report Number: P518036
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1LO-40-UNV-C-EDD
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2882.0 lumens
Efficiency: N/A
Efficacy: 125.3 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

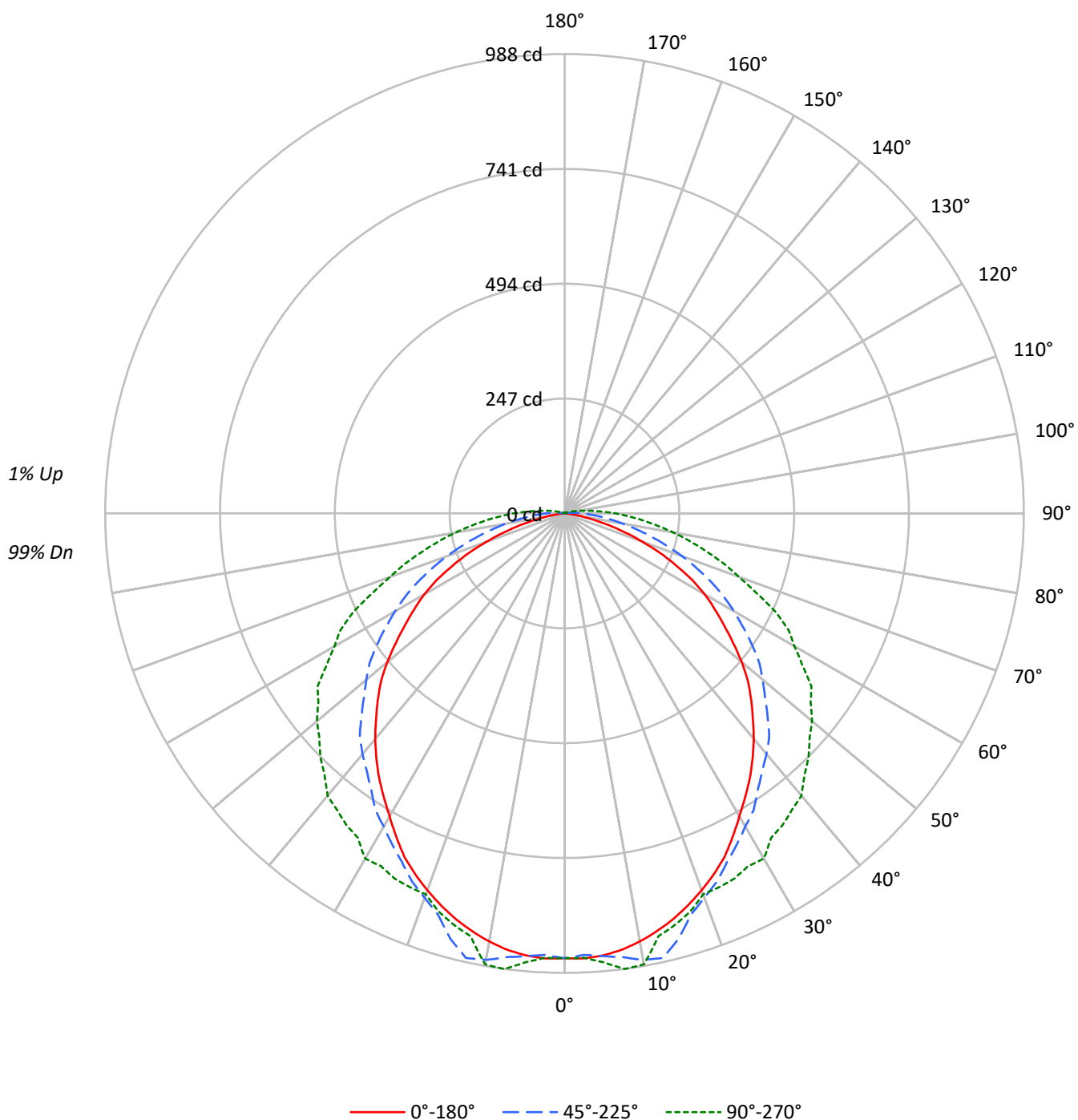
Input Watts (W): 23
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

TEST NUMBER: P518036

CATALOG NUMBER: HVL8-4-LD4-1LO-40-UNV-C-EDD

Luminous Intensity Polar Plot



TEST NUMBER: P518036

CATALOG NUMBER: HVL8-4-LD4-1LO-40-UNV-C-EDD

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°	3862	3862	3862
5°	3853	3804	3843
10°	3802	3855	3866
15°	3733	3750	3589
20°	3649	3513	3432
25°	3560	3361	3454
30°	3424	3239	3492
35°	3328	3122	3430
40°	3225	3035	3451
45°	3113	2923	3389
50°	2977	2805	3363
55°	2779	2678	3361
60°	2626	2505	3218
65°	2322	2298	3115
70°	1894	2030	2793
75°	1352	1705	2550
80°	758	1378	2289
85°	282	1040	2017

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 3389 cd/sqm

TEST NUMBER: P518036

CATALOG NUMBER: HVL8-4-LD4-1LO-40-UNV-C-EDD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	91.9	3.2
10°-20°	261.8	9.1
20°-30°	389.6	13.5
30°-40°	468.3	16.2
40°-50°	492.9	17.1
50°-60°	457.4	15.9
60°-70°	361.6	12.5
70°-80°	220.9	7.7
80°-90°	96.2	3.3
90°-100°	30.0	1.0
100°-110°	6.7	0.2
110°-120°	2.7	0.1
120°-130°	1.5	0.1
130°-140°	0.4	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°	743.4	25.8
0°-40°	1211.7	42.0
0°-60°	2161.9	75.0
0°-90°	2840.6	98.6
90°-120°	39.4	1.4
90°-150°	41.4	1.4
90°-180°	41.0	1.4
0°-180°	2882.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	957	957	957	957	957	
5°	954	952	956	966	969	90
15°	903	938	947	916	916	254
25°	815	867	827	852	866	374
35°	695	714	725	791	818	434
45°	568	571	618	715	742	438
55°	418	425	493	600	648	376
65°	265	273	347	459	501	262
75°	100	133	194	297	316	109
85°	9	31	75	146	168	14
90°	0	9	40	93	109	0
95°	0	2	17	51	62	0
105°	0	1	4	10	14	0
115°	0	1	3	4	5	0
125°	0	0	1	3	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

TEST NUMBER: P518036

CATALOG NUMBER: HVL8-4-LD4-1LO-40-UNV-C-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	956.7	956.7	956.7	956.7	956.7
2.5°	957.8	955.3	950.0	955.1	956.5
5°	954.3	952.4	955.7	966.4	969.1
7.5°	946.3	953.7	962.5	982.0	988.2
10°	934.5	948.5	974.8	991.4	984.9
12.5°	920.0	943.8	979.1	946.7	931.7
15°	903.3	938.0	947.1	915.7	916.3
17.5°	883.6	933.1	904.8	904.0	898.4
20°	862.3	916.7	879.3	877.7	871.7
22.5°	839.5	895.1	856.7	853.6	869.9
25°	814.8	866.8	827.3	852.0	865.9
27.5°	783.8	829.8	802.7	837.8	855.1
30°	752.4	791.6	777.6	826.5	857.3
32.5°	723.0	751.7	756.9	822.2	827.3
35°	695.1	714.4	725.1	791.0	817.9
37.5°	664.5	669.8	698.3	778.0	803.9
40°	633.4	630.0	675.6	756.5	792.4
42.5°	599.8	598.7	651.7	745.8	763.7
45°	568.1	570.6	617.6	715.4	742.1
47.5°	535.5	538.8	585.2	682.1	715.2
50°	497.7	502.0	556.4	652.5	695.1
52.5°	456.8	465.0	528.3	624.4	667.5
55°	418.4	425.2	492.7	600.4	648.2
57.5°	383.3	387.4	455.8	570.2	606.3
60°	348.8	349.8	421.1	536.7	571.2
62.5°	309.3	311.0	385.5	497.1	543.3
65°	264.8	273.2	347.1	459.3	501.0
67.5°	223.3	237.9	307.9	424.6	446.5
70°	178.9	203.6	269.5	383.9	399.3
72.5°	138.2	167.2	230.2	338.3	359.9
75°	100.2	132.7	193.5	297.4	316.1
77.5°	67.4	100.6	159.2	252.2	276.9
80°	40.3	73.5	128.6	210.3	238.1
82.5°	20.7	49.3	99.8	176.4	201.3
85°	9.0	31.2	75.4	146.4	168.0
87.5°	2.5	17.7	55.5	118.3	136.6
90°	0.2	9.4	39.6	92.8	109.3
92.5°	0.2	4.5	27.9	70.2	82.8
95°	0.2	2.3	17.3	50.9	62.2
97.5°	0.2	1.4	10.5	36.1	45.6
100°	0.2	1.2	6.2	24.0	32.5
102.5°	0.2	1.4	4.3	15.2	21.2
105°	0.2	1.4	3.5	9.9	14.0
107.5°	0.4	1.4	3.1	7.4	9.7
110°	0.2	1.2	3.3	5.7	7.6

TEST NUMBER: P518036

CATALOG NUMBER: HVL8-4-LD4-1LO-40-UNV-C-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.1	4.7	5.7
115°	0.2	0.8	2.7	4.5	4.7
117.5°	0.4	0.6	2.1	4.5	4.7
120°	0.4	0.4	1.8	4.3	4.9
122.5°	0.4	0.4	1.4	3.9	4.7
125°	0.2	0.4	1.2	2.9	4.1
127.5°	0.4	0.4	1.0	2.3	3.1
130°	0.4	0.4	0.8	1.8	2.3
132.5°	0.4	0.4	0.6	1.4	1.8
135°	0.4	0.4	0.4	1.0	1.4
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)