

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: P517859

Luminaire Tested: HVL8-1-LD4-3STD-40-UNV-C-EDD-90

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: P517859
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-3STD-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: 2335.0 lumens
Efficiency: N/A
Efficacy: 97.7 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

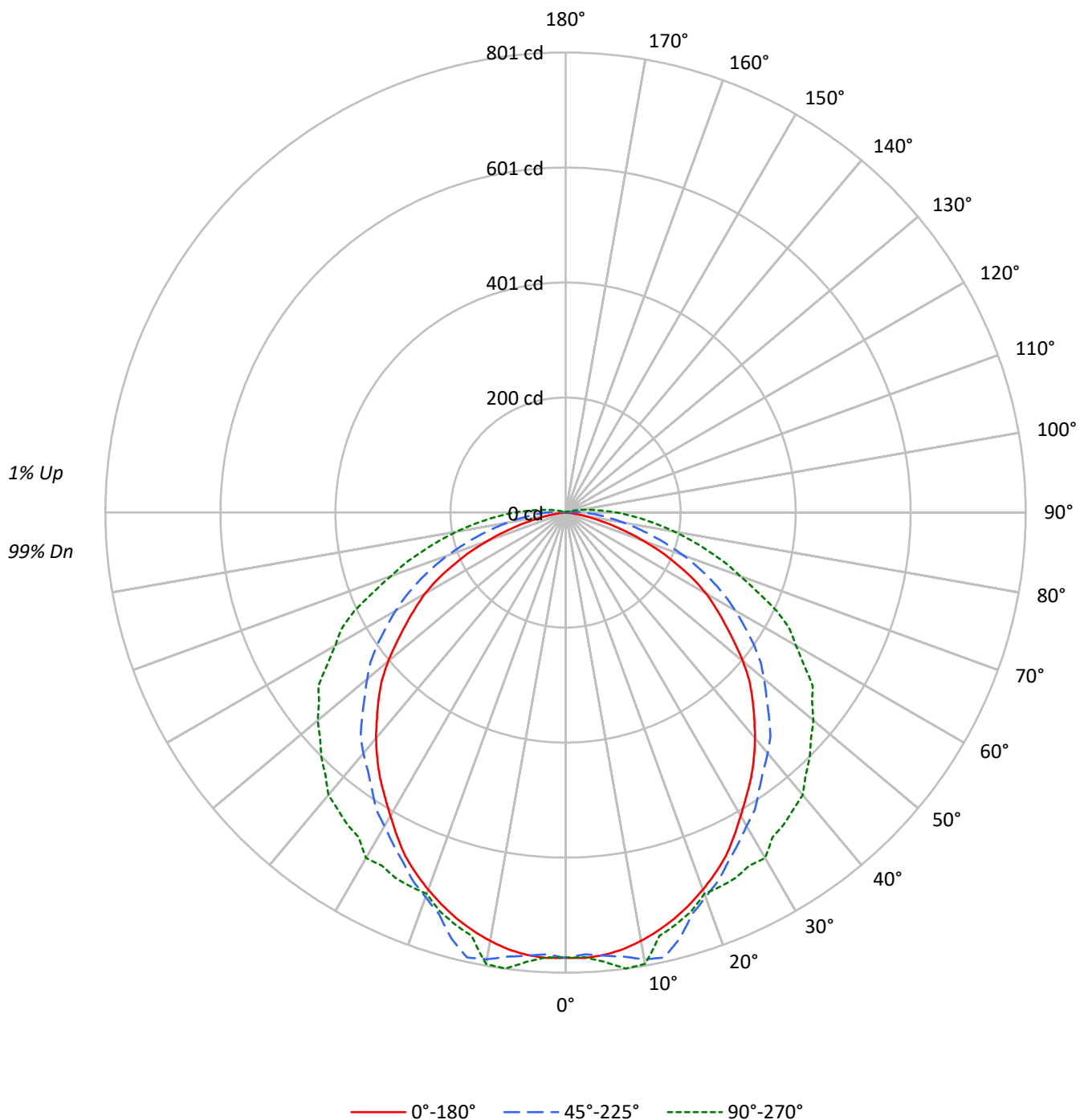
Input Watts (W): 23.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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: P517859

CATALOG NUMBER: HVL8-1-LD4-3STD-40-UNV-C-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517859

CATALOG NUMBER: HVL8-1-LD4-3STD-40-UNV-C-EDD-90

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°	12515	12515	12515
5°	12352	12234	12454
10°	12058	12309	12531
15°	11709	11889	11630
20°	11318	11055	11123
25°	10911	10499	11192
30°	10367	10038	11316
35°	9941	9599	11116
40°	9487	9250	11185
45°	9009	8825	10983
50°	8451	8380	10899
55°	7708	7909	10892
60°	7081	7295	10428
65°	6040	6583	10094
70°	4692	5697	9052
75°	3123	4658	8264
80°	1563	3627	7417
85°	465	2591	6535

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 10983 cd/sqm

TEST NUMBER: P517859

CATALOG NUMBER: HVL8-1-LD4-3STD-40-UNV-C-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	74.5	3.2
10°-20°	212.1	9.1
20°-30°	315.6	13.5
30°-40°	379.4	16.2
40°-50°	399.4	17.1
50°-60°	370.5	15.9
60°-70°	293.0	12.5
70°-80°	179.0	7.7
80°-90°	78.0	3.3
90°-100°	24.3	1.0
100°-110°	5.5	0.2
110°-120°	2.2	0.1
120°-130°	1.2	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°	602.3	25.8
0°-40°	981.7	42.0
0°-60°	1751.6	75.0
0°-90°	2301.5	98.6
90°-120°	31.9	1.4
90°-150°	33.5	1.4
90°-180°	33.0	1.4
0°-180°	2335.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	775	775	775	775	775	
5°	773	772	774	783	785	73
15°	732	760	767	742	742	206
25°	660	702	670	690	702	303
35°	563	579	588	641	663	352
45°	460	462	500	580	601	355
55°	339	344	399	486	525	305
65°	215	221	281	372	406	213
75°	81	108	157	241	256	89
85°	7	25	61	119	136	11
90°	0	8	32	75	89	0
95°	0	2	14	41	50	0
105°	0	1	3	8	11	0
115°	0	1	2	4	4	0
125°	0	0	1	2	3	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: P517859

CATALOG NUMBER: HVL8-1-LD4-3STD-40-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	775.1	775.1	775.1	775.1	775.1
2.5°	776.0	774.0	769.7	773.8	774.9
5°	773.2	771.6	774.3	783.0	785.2
7.5°	766.7	772.7	779.8	795.6	800.7
10°	757.1	768.5	789.8	803.2	798.0
12.5°	745.4	764.7	793.3	767.0	754.9
15°	731.8	759.9	767.4	741.9	742.4
17.5°	715.9	756.0	733.1	732.5	727.9
20°	698.7	742.7	712.4	711.1	706.3
22.5°	680.2	725.2	694.1	691.6	704.8
25°	660.1	702.3	670.3	690.3	701.5
27.5°	635.0	672.3	650.4	678.8	692.8
30°	609.6	641.4	630.0	669.6	694.6
32.5°	585.8	609.0	613.3	666.1	670.3
35°	563.2	578.8	587.5	640.9	662.7
37.5°	538.4	542.7	565.7	630.3	651.3
40°	513.1	510.5	547.4	612.9	642.0
42.5°	486.0	485.0	528.0	604.3	618.8
45°	460.3	462.3	500.4	579.6	601.3
47.5°	433.9	436.6	474.2	552.6	579.5
50°	403.3	406.7	450.8	528.6	563.2
52.5°	370.1	376.7	428.0	505.9	540.8
55°	339.0	344.5	399.2	486.5	525.1
57.5°	310.6	313.9	369.3	462.0	491.2
60°	282.6	283.4	341.2	434.8	462.8
62.5°	250.6	252.0	312.3	402.8	440.2
65°	214.6	221.4	281.2	372.2	405.9
67.5°	180.9	192.8	249.5	344.0	361.7
70°	144.9	165.0	218.4	311.0	323.5
72.5°	111.9	135.5	186.5	274.1	291.6
75°	81.2	107.5	156.8	240.9	256.1
77.5°	54.6	81.5	129.0	204.3	224.4
80°	32.7	59.5	104.2	170.4	192.9
82.5°	16.7	39.9	80.8	142.9	163.1
85°	7.3	25.3	61.1	118.6	136.1
87.5°	2.1	14.4	45.0	95.8	110.7
90°	0.2	7.6	32.1	75.2	88.6
92.5°	0.2	3.6	22.6	56.8	67.1
95°	0.2	1.9	14.1	41.2	50.4
97.5°	0.2	1.1	8.5	29.2	36.9
100°	0.2	0.9	5.1	19.4	26.4
102.5°	0.2	1.1	3.5	12.3	17.2
105°	0.2	1.1	2.8	8.1	11.4
107.5°	0.3	1.1	2.5	6.0	7.9
110°	0.2	0.9	2.7	4.6	6.2

TEST NUMBER: P517859

CATALOG NUMBER: HVL8-1-LD4-3STD-40-UNV-C-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.8	2.5	3.8	4.6
115°	0.2	0.6	2.2	3.6	3.8
117.5°	0.3	0.5	1.7	3.6	3.8
120°	0.3	0.3	1.4	3.5	3.9
122.5°	0.3	0.3	1.1	3.2	3.8
125°	0.2	0.3	0.9	2.4	3.3
127.5°	0.3	0.3	0.8	1.9	2.5
130°	0.3	0.3	0.6	1.4	1.9
132.5°	0.3	0.3	0.5	1.1	1.4
135°	0.3	0.3	0.3	0.8	1.1
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)