

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: P517839

Luminaire Tested: HVL8-1-LD4-3LO-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: P517839
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-3LO-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: 1787.0 lumens
Efficiency: N/A
Efficacy: 106.4 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

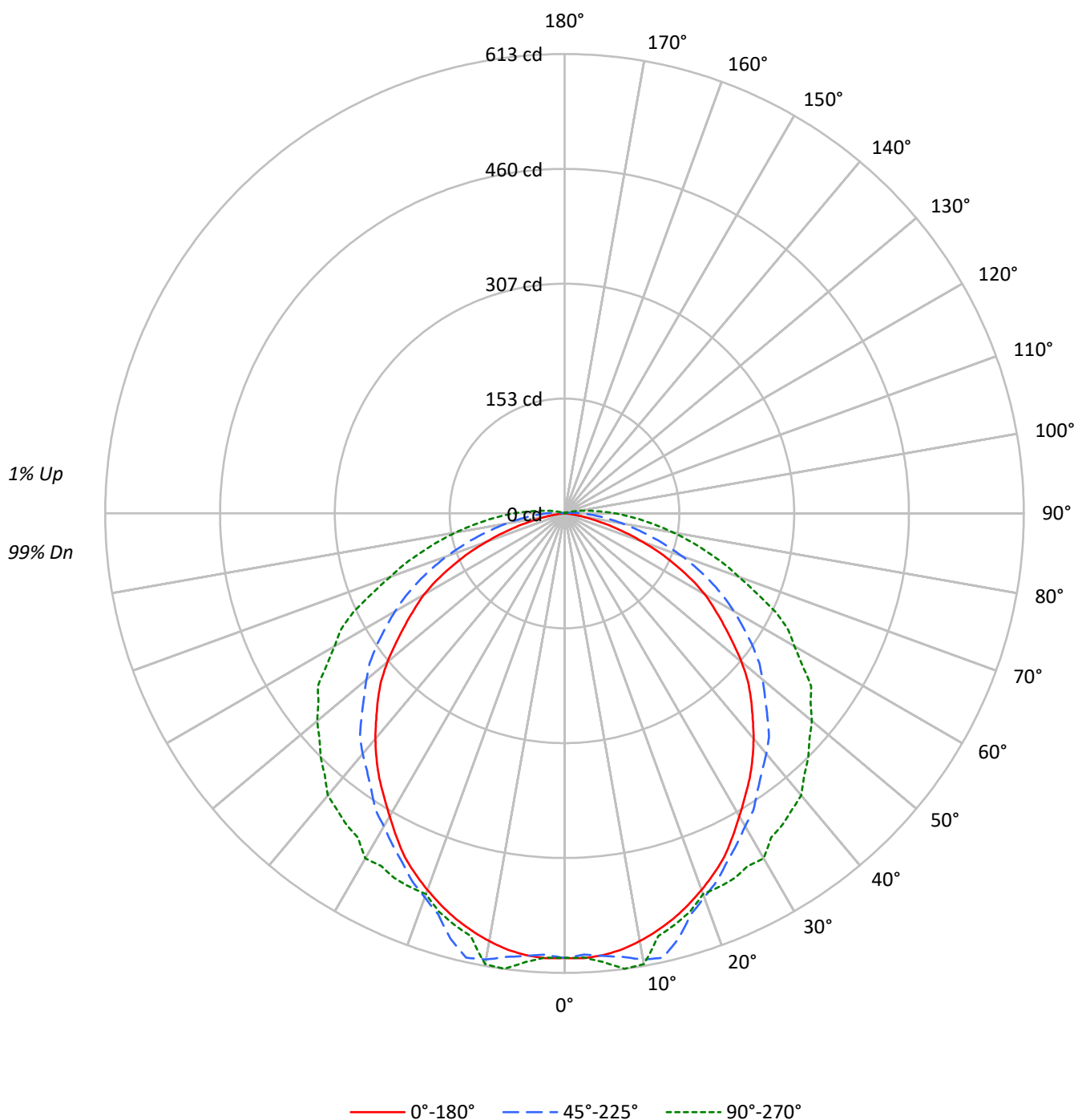
Input Watts (W): 16.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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: P517839

CATALOG NUMBER: HVL8-1-LD4-3LO-35-UNV-C-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517839

CATALOG NUMBER: HVL8-1-LD4-3LO-35-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
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°	9578	9578	9578
5°	9452	9363	9531
10°	9228	9420	9590
15°	8962	9099	8901
20°	8662	8460	8512
25°	8351	8035	8566
30°	7935	7681	8661
35°	7607	7346	8508
40°	7261	7079	8559
45°	6893	6753	8404
50°	6467	6414	8341
55°	5898	6052	8336
60°	5420	5582	7981
65°	4621	5038	7727
70°	3591	4359	6929
75°	2388	3565	6325
80°	1195	2778	5679
85°	357	1985	5003

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 8404 cd/sqm

TEST NUMBER: P517839

CATALOG NUMBER: HVL8-1-LD4-3LO-35-UNV-C-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.0	3.2
10°-20°	162.4	9.1
20°-30°	241.6	13.5
30°-40°	290.4	16.2
40°-50°	305.6	17.1
50°-60°	283.6	15.9
60°-70°	224.2	12.5
70°-80°	137.0	7.7
80°-90°	59.7	3.3
90°-100°	18.6	1.0
100°-110°	4.2	0.2
110°-120°	1.7	0.1
120°-130°	0.9	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°	460.9	25.8
0°-40°	751.3	42.0
0°-60°	1340.5	75.0
0°-90°	1761.4	98.6
90°-120°	24.4	1.4
90°-150°	25.6	1.4
90°-180°	26.0	1.5
0°-180°	1787.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	593	593	593	593	593	
5°	592	590	593	599	601	56
15°	560	582	587	568	568	158
25°	505	538	513	528	537	232
35°	431	443	450	490	507	269
45°	352	354	383	444	460	272
55°	259	264	306	372	402	233
65°	164	169	215	285	311	163
75°	62	82	120	184	196	68
85°	6	19	47	91	104	9
90°	0	6	24	58	68	0
95°	0	2	11	32	38	0
105°	0	1	2	6	9	0
115°	0	0	2	3	3	0
125°	0	0	1	2	2	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: P517839

CATALOG NUMBER: HVL8-1-LD4-3LO-35-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	593.2	593.2	593.2	593.2	593.2
2.5°	593.9	592.3	589.1	592.2	593.1
5°	591.7	590.5	592.6	599.2	600.9
7.5°	586.8	591.4	596.8	608.9	612.8
10°	579.4	588.1	604.4	614.7	610.7
12.5°	570.5	585.2	607.1	587.0	577.7
15°	560.1	581.6	587.3	567.8	568.2
17.5°	547.9	578.6	561.0	560.6	557.1
20°	534.7	568.4	545.2	544.2	540.5
22.5°	520.6	555.0	531.2	529.3	539.4
25°	505.2	537.5	513.0	528.3	536.9
27.5°	486.0	514.5	497.7	519.5	530.2
30°	466.6	490.8	482.1	512.5	531.6
32.5°	448.3	466.1	469.3	509.8	513.0
35°	431.0	443.0	449.6	490.5	507.2
37.5°	412.1	415.3	433.0	482.4	498.5
40°	392.7	390.7	418.9	469.1	491.3
42.5°	371.9	371.2	404.1	462.4	473.6
45°	352.2	353.8	382.9	443.6	460.1
47.5°	332.1	334.1	362.9	422.9	443.5
50°	308.6	311.3	345.0	404.6	431.0
52.5°	283.2	288.3	327.6	387.2	413.9
55°	259.4	263.7	305.5	372.3	401.9
57.5°	237.7	240.2	282.6	353.6	375.9
60°	216.3	216.9	261.1	332.8	354.2
62.5°	191.8	192.9	239.0	308.3	336.9
65°	164.2	169.4	215.2	284.8	310.7
67.5°	138.5	147.5	190.9	263.3	276.8
70°	110.9	126.3	167.1	238.0	247.6
72.5°	85.7	103.7	142.7	209.8	223.2
75°	62.1	82.3	120.0	184.4	196.0
77.5°	41.8	62.4	98.7	156.4	171.7
80°	25.0	45.6	79.8	130.4	147.7
82.5°	12.8	30.6	61.9	109.4	124.8
85°	5.6	19.3	46.8	90.7	104.2
87.5°	1.6	11.0	34.4	73.3	84.7
90°	0.1	5.8	24.5	57.5	67.8
92.5°	0.1	2.8	17.3	43.5	51.4
95°	0.1	1.5	10.8	31.5	38.5
97.5°	0.1	0.8	6.5	22.4	28.3
100°	0.1	0.7	3.9	14.9	20.2
102.5°	0.1	0.8	2.7	9.4	13.2
105°	0.1	0.8	2.2	6.2	8.7
107.5°	0.2	0.8	1.9	4.6	6.0
110°	0.1	0.7	2.1	3.5	4.7

TEST NUMBER: P517839

CATALOG NUMBER: HVL8-1-LD4-3LO-35-UNV-C-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.6	1.9	2.9	3.5
115°	0.1	0.5	1.7	2.8	2.9
117.5°	0.2	0.4	1.3	2.8	2.9
120°	0.2	0.2	1.1	2.7	3.0
122.5°	0.2	0.2	0.8	2.4	2.9
125°	0.1	0.2	0.7	1.8	2.5
127.5°	0.2	0.2	0.6	1.5	1.9
130°	0.2	0.2	0.5	1.1	1.5
132.5°	0.2	0.2	0.4	0.8	1.1
135°	0.2	0.2	0.2	0.6	0.8
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)