

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: P517903

Luminaire Tested: HVL8-2-LD4-1STD-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: P517903
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-1STD-35-UNV-C-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1537.9 lumens
Efficiency: N/A
Efficacy: 94.4 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 2' x H: 0.17')
CIE Type: Direct

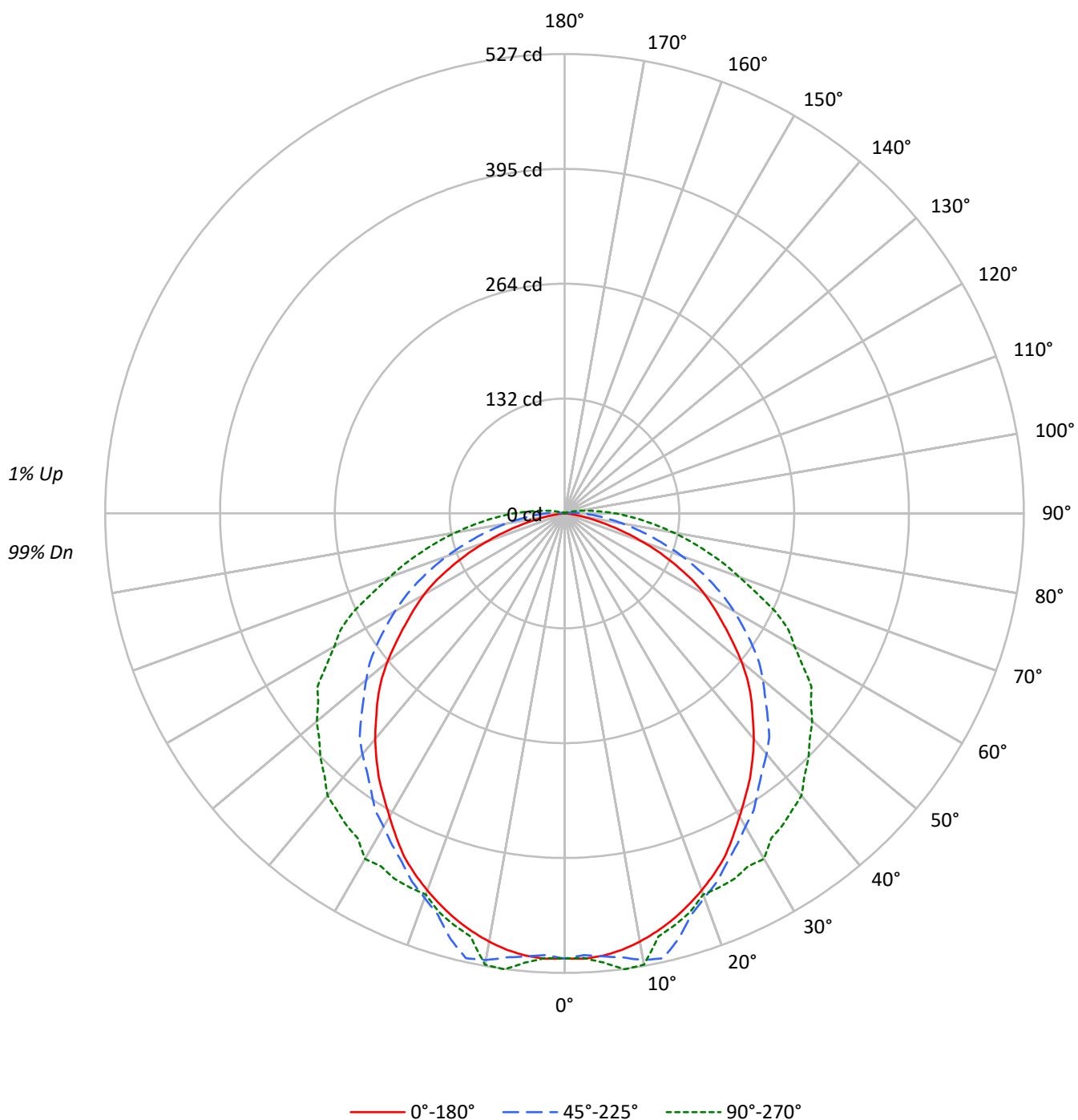
Input Watts (W): 16.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	40	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°	4121	4121	4121
5°	4097	4049	4102
10°	4029	4094	4127
15°	3940	3973	3830
20°	3837	3712	3663
25°	3728	3543	3686
30°	3571	3405	3727
35°	3455	3274	3661
40°	3329	3173	3684
45°	3195	3045	3617
50°	3034	2911	3590
55°	2809	2768	3587
60°	2627	2576	3434
65°	2290	2350	3325
70°	1834	2060	2982
75°	1273	1714	2722
80°	679	1365	2444
85°	228	1008	2151

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 3617 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.1	3.2
10°-20°	139.7	9.1
20°-30°	207.9	13.5
30°-40°	249.9	16.2
40°-50°	263.0	17.1
50°-60°	244.1	15.9
60°-70°	193.0	12.5
70°-80°	117.9	7.7
80°-90°	51.3	3.3
90°-100°	16.0	1.0
100°-110°	3.6	0.2
110°-120°	1.4	0.1
120°-130°	0.8	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°	396.7	25.8
0°-40°	646.6	42.0
0°-60°	1153.7	75.0
0°-90°	1515.9	98.6
90°-120°	21.0	1.4
90°-150°	22.0	1.4
90°-180°	22.0	1.4
0°-180°	1537.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	510	510	510	510	510	
5°	509	508	510	516	517	48
15°	482	500	505	489	489	136
25°	435	463	442	455	462	200
35°	371	381	387	422	436	232
45°	303	304	330	382	396	234
55°	223	227	263	320	346	201
65°	141	146	185	245	267	140
75°	54	71	103	159	169	58
85°	5	17	40	78	90	7
90°	0	5	21	50	58	0
95°	0	1	9	27	33	0
105°	0	1	2	5	8	0
115°	0	0	2	2	2	0
125°	0	0	1	2	2	0
135°	0	0	0	0	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

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	510.5	510.5	510.5	510.5	510.5
2.5°	511.2	509.8	507.0	509.7	510.4
5°	509.3	508.2	510.0	515.7	517.2
7.5°	505.0	509.0	513.7	524.1	527.4
10°	498.7	506.2	520.2	529.0	525.6
12.5°	491.0	503.7	522.5	505.2	497.2
15°	482.0	500.5	505.4	488.7	489.0
17.5°	471.5	497.9	482.9	482.5	479.4
20°	460.2	489.2	469.2	468.4	465.2
22.5°	448.0	477.7	457.2	455.5	464.3
25°	434.8	462.6	441.5	454.7	462.1
27.5°	418.3	442.8	428.4	447.1	456.3
30°	401.5	422.4	415.0	441.1	457.5
32.5°	385.8	401.1	403.9	438.8	441.5
35°	371.0	381.3	387.0	422.1	436.5
37.5°	354.6	357.4	372.6	415.2	429.0
40°	338.0	336.2	360.6	403.7	422.9
42.5°	320.1	319.5	347.8	398.0	407.6
45°	303.2	304.5	329.6	381.8	396.0
47.5°	285.8	287.6	312.3	364.0	381.7
50°	265.6	267.9	296.9	348.2	371.0
52.5°	243.8	248.1	281.9	333.2	356.2
55°	223.3	226.9	262.9	320.4	345.9
57.5°	204.6	206.8	243.3	304.3	323.5
60°	186.2	186.7	224.7	286.4	304.8
62.5°	165.0	166.0	205.7	265.3	289.9
65°	141.3	145.8	185.2	245.1	267.4
67.5°	119.2	127.0	164.3	226.6	238.3
70°	95.5	108.7	143.8	204.9	213.1
72.5°	73.7	89.2	122.8	180.5	192.1
75°	53.5	70.8	103.3	158.7	168.7
77.5°	36.0	53.7	85.0	134.6	147.8
80°	21.5	39.2	68.6	112.2	127.1
82.5°	11.0	26.3	53.2	94.1	107.4
85°	4.8	16.6	40.2	78.1	89.6
87.5°	1.4	9.5	29.6	63.1	72.9
90°	0.1	5.0	21.1	49.5	58.3
92.5°	0.1	2.4	14.9	37.4	44.2
95°	0.1	1.2	9.3	27.1	33.2
97.5°	0.1	0.7	5.6	19.2	24.3
100°	0.1	0.6	3.3	12.8	17.4
102.5°	0.1	0.7	2.3	8.1	11.3
105°	0.1	0.7	1.9	5.3	7.5
107.5°	0.2	0.7	1.7	4.0	5.2
110°	0.1	0.6	1.8	3.0	4.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.5	1.7	2.5	3.0
115°	0.1	0.4	1.5	2.4	2.5
117.5°	0.2	0.3	1.1	2.4	2.5
120°	0.2	0.2	0.9	2.3	2.6
122.5°	0.2	0.2	0.7	2.1	2.5
125°	0.1	0.2	0.6	1.6	2.2
127.5°	0.2	0.2	0.5	1.2	1.7
130°	0.2	0.2	0.4	0.9	1.2
132.5°	0.2	0.2	0.3	0.7	0.9
135°	0.2	0.2	0.2	0.5	0.7
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)