

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: P517811

Luminaire Tested: HVL8-1-LD4-2STD-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: P517811
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-2STD-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: 1481.0 lumens
Efficiency: N/A
Efficacy: 90.9 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

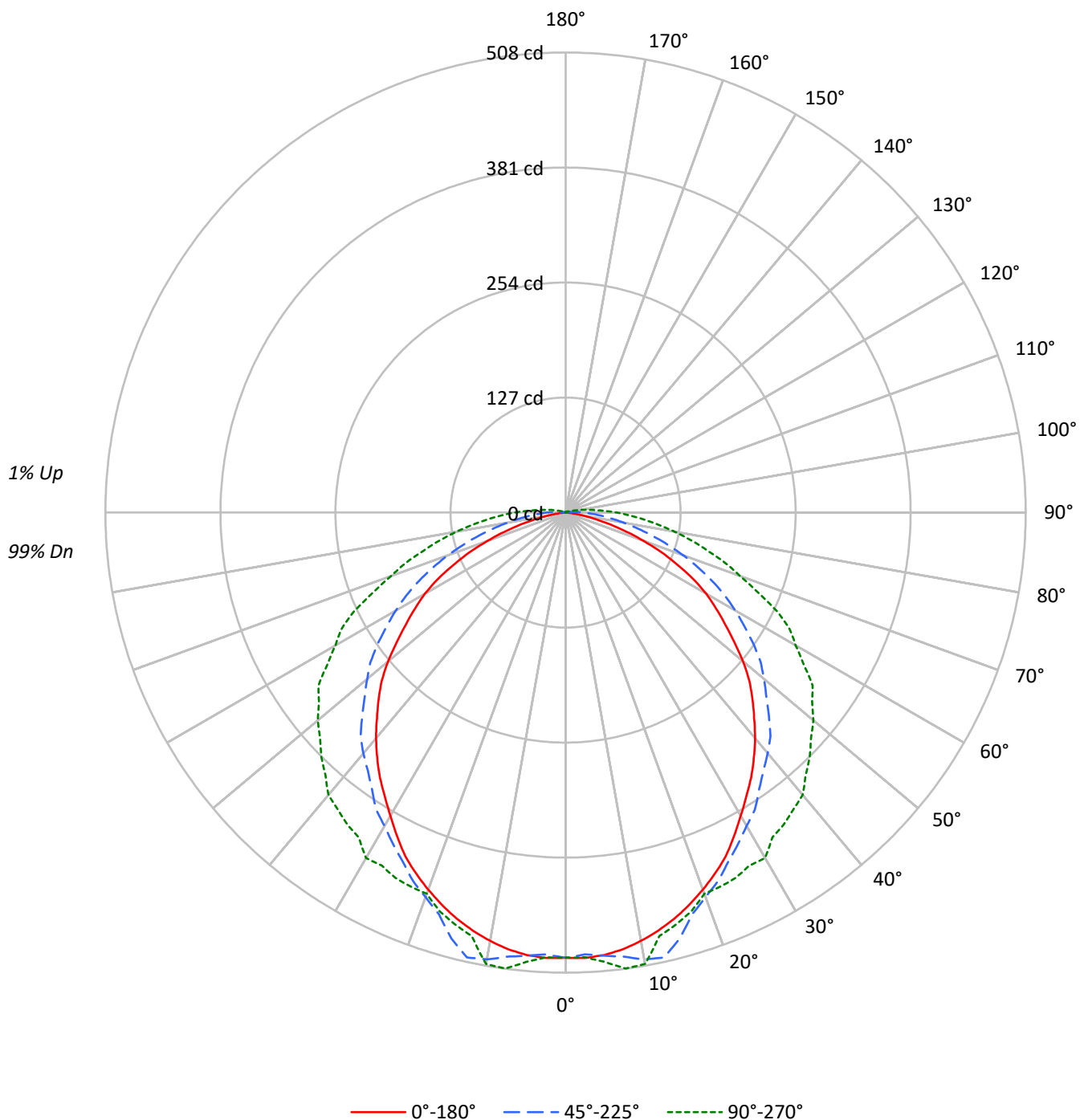
Input Watts (W): 16.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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
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°	7937	7937	7937
5°	7834	7759	7899
10°	7648	7807	7947
15°	7428	7540	7377
20°	7178	7012	7054
25°	6921	6658	7098
30°	6577	6367	7176
35°	6305	6088	7050
40°	6019	5867	7094
45°	5713	5598	6967
50°	5360	5315	6912
55°	4888	5016	6909
60°	4493	4627	6613
65°	3830	4176	6404
70°	2976	3613	5742
75°	1981	2953	5241
80°	989	2301	4706
85°	293	1645	4144

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 6967 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	47.2	3.2
10°-20°	134.6	9.1
20°-30°	200.2	13.5
30°-40°	240.6	16.2
40°-50°	253.3	17.1
50°-60°	235.0	15.9
60°-70°	185.8	12.5
70°-80°	113.5	7.7
80°-90°	49.5	3.3
90°-100°	15.4	1.0
100°-110°	3.5	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°	382.0	25.8
0°-40°	622.6	42.0
0°-60°	1111.0	75.0
0°-90°	1459.8	98.6
90°-120°	20.2	1.4
90°-150°	21.2	1.4
90°-180°	21.0	1.4
0°-180°	1481.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	492	492	492	492	492	
5°	490	489	491	497	498	46
15°	464	482	487	471	471	131
25°	419	445	425	438	445	192
35°	357	367	373	406	420	223
45°	292	293	317	368	381	225
55°	215	218	253	308	333	193
65°	136	140	178	236	258	135
75°	52	68	99	153	162	56
85°	5	16	39	75	86	7
90°	0	5	20	48	56	0
95°	0	1	9	26	32	0
105°	0	1	2	5	7	0
115°	0	0	1	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°	491.6	491.6	491.6	491.6	491.6
2.5°	492.2	490.9	488.2	490.8	491.5
5°	490.4	489.4	491.1	496.6	498.0
7.5°	486.3	490.1	494.6	504.6	507.8
10°	480.2	487.4	500.9	509.4	506.1
12.5°	472.8	485.0	503.1	486.5	478.8
15°	464.2	482.0	486.7	470.6	470.9
17.5°	454.1	479.5	465.0	464.6	461.7
20°	443.1	471.1	451.9	451.1	447.9
22.5°	431.4	460.0	440.2	438.6	447.0
25°	418.7	445.4	425.1	437.8	444.9
27.5°	402.8	426.4	412.5	430.5	439.4
30°	386.7	406.8	399.6	424.7	440.5
32.5°	371.5	386.3	389.0	422.5	425.1
35°	357.2	367.1	372.6	406.5	420.3
37.5°	341.5	344.2	358.8	399.8	413.1
40°	325.5	323.8	347.2	388.8	407.2
42.5°	308.2	307.6	334.9	383.3	392.5
45°	291.9	293.2	317.4	367.6	381.4
47.5°	275.2	276.9	300.7	350.5	367.5
50°	255.8	258.0	285.9	335.3	357.2
52.5°	234.7	238.9	271.5	320.9	343.0
55°	215.0	218.5	253.2	308.5	333.1
57.5°	197.0	199.1	234.2	293.0	311.6
60°	179.3	179.8	216.4	275.8	293.5
62.5°	158.9	159.8	198.1	255.5	279.2
65°	136.1	140.4	178.4	236.0	257.5
67.5°	114.8	122.3	158.2	218.2	229.4
70°	91.9	104.7	138.5	197.3	205.2
72.5°	71.0	85.9	118.3	173.9	185.0
75°	51.5	68.2	99.4	152.8	162.4
77.5°	34.7	51.7	81.8	129.6	142.3
80°	20.7	37.8	66.1	108.1	122.4
82.5°	10.6	25.3	51.3	90.6	103.4
85°	4.6	16.0	38.8	75.2	86.3
87.5°	1.3	9.1	28.5	60.8	70.2
90°	0.1	4.8	20.3	47.7	56.2
92.5°	0.1	2.3	14.3	36.1	42.6
95°	0.1	1.2	8.9	26.1	31.9
97.5°	0.1	0.7	5.4	18.5	23.4
100°	0.1	0.6	3.2	12.3	16.7
102.5°	0.1	0.7	2.2	7.8	10.9
105°	0.1	0.7	1.8	5.1	7.2
107.5°	0.2	0.7	1.6	3.8	5.0
110°	0.1	0.6	1.7	2.9	3.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.5	1.6	2.4	2.9
115°	0.1	0.4	1.4	2.3	2.4
117.5°	0.2	0.3	1.1	2.3	2.4
120°	0.2	0.2	0.9	2.2	2.5
122.5°	0.2	0.2	0.7	2.0	2.4
125°	0.1	0.2	0.6	1.5	2.1
127.5°	0.2	0.2	0.5	1.2	1.6
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)