

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: P518115

Luminaire Tested: HVL8-4-LD4-3HI-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: P518115
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3HI-40-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14307.0 lumens
Efficiency: N/A
Efficacy: 113.6 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

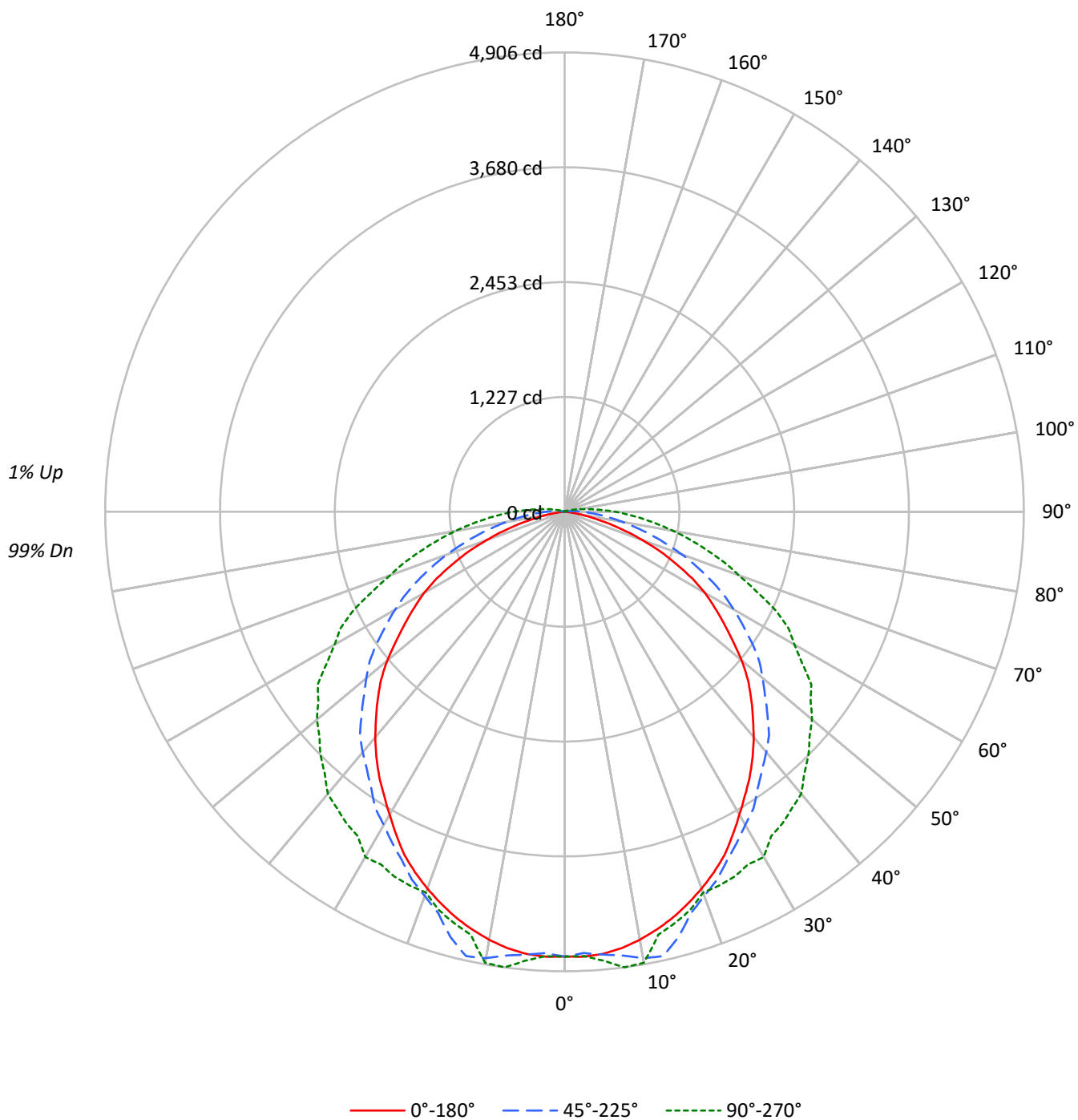
Input Watts (W): 125.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

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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°	19170	19170	19170
5°	19126	18883	19077
10°	18875	19138	19194
15°	18531	18619	17816
20°	18114	17441	17037
25°	17672	16686	17145
30°	17001	16077	17334
35°	16522	15500	17026
40°	16008	15066	17132
45°	15454	14508	16823
50°	14782	13922	16695
55°	13796	13295	16686
60°	13039	12435	15974
65°	11527	11409	15464
70°	9404	10079	13868
75°	6712	8466	12659
80°	3766	6840	11364
85°	1396	5164	10010

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 16823 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	456.4	3.2
10°-20°	1299.8	9.1
20°-30°	1934.0	13.5
30°-40°	2324.7	16.2
40°-50°	2446.9	17.1
50°-60°	2270.4	15.9
60°-70°	1795.2	12.5
70°-80°	1096.6	7.7
80°-90°	477.7	3.3
90°-100°	148.7	1.0
100°-110°	33.4	0.2
110°-120°	13.4	0.1
120°-130°	7.5	0.1
130°-140°	2.0	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°	3690.3	25.8
0°-40°	6015.0	42.0
0°-60°	10732.3	75.0
0°-90°	14101.8	98.6
90°-120°	195.6	1.4
90°-150°	205.2	1.4
90°-180°	205.0	1.4
0°-180°	14307.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4749	4749	4749	4749	4749	
5°	4738	4728	4744	4798	4811	449
15°	4484	4656	4702	4546	4549	1263
25°	4045	4303	4107	4230	4298	1857
35°	3451	3547	3600	3927	4060	2157
45°	2820	2833	3066	3552	3684	2174
55°	2077	2111	2446	2981	3218	1866
65°	1315	1356	1723	2280	2487	1302
75°	497	659	961	1476	1569	543
85°	44	155	374	726	834	69
90°	1	46	196	460	543	2
95°	1	12	86	252	309	1
105°	1	7	17	49	70	1
115°	1	4	14	22	23	2
125°	1	2	6	14	20	2
135°	2	2	2	5	7	1
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°	4749.1	4749.1	4749.1	4749.1	4749.1
2.5°	4755.0	4742.4	4716.3	4741.4	4748.2
5°	4737.5	4727.9	4744.3	4797.5	4811.1
7.5°	4697.9	4734.6	4778.2	4874.9	4905.9
10°	4638.9	4708.5	4839.1	4921.3	4889.4
12.5°	4567.3	4685.3	4860.4	4699.8	4625.3
15°	4484.1	4656.3	4701.7	4546.0	4548.9
17.5°	4386.4	4632.1	4491.8	4487.9	4459.9
20°	4280.9	4550.8	4365.1	4357.3	4327.3
22.5°	4167.7	4443.4	4252.9	4237.4	4318.6
25°	4044.9	4303.2	4106.8	4229.6	4298.3
27.5°	3891.0	4119.3	3984.9	4159.0	4245.1
30°	3735.3	3929.7	3860.1	4102.9	4255.8
32.5°	3589.2	3731.4	3757.5	4081.6	4106.8
35°	3450.8	3546.6	3599.8	3926.8	4060.3
37.5°	3299.0	3325.1	3466.3	3862.0	3990.7
40°	3144.2	3127.7	3354.1	3755.6	3933.6
42.5°	2977.8	2972.0	3235.1	3702.4	3791.4
45°	2820.1	2832.7	3065.8	3551.5	3684.0
47.5°	2658.5	2675.0	2905.2	3386.0	3550.5
50°	2470.8	2492.1	2762.0	3239.0	3450.8
52.5°	2267.7	2308.3	2622.7	3099.7	3313.5
55°	2077.1	2110.9	2445.7	2980.7	3217.7
57.5°	1902.9	1923.3	2262.8	2830.7	3009.7
60°	1731.7	1736.5	2090.6	2664.3	2835.6
62.5°	1535.3	1544.0	1913.6	2467.9	2697.2
65°	1314.7	1356.3	1723.0	2280.2	2487.3
67.5°	1108.7	1181.2	1528.5	2108.0	2216.4
70°	888.1	1011.0	1338.0	1905.8	1982.3
72.5°	685.9	830.1	1142.5	1679.5	1786.9
75°	497.3	658.8	960.7	1476.3	1569.2
77.5°	334.7	499.2	790.4	1251.9	1374.7
80°	200.3	364.7	638.5	1043.9	1182.2
82.5°	102.5	244.8	495.3	875.5	999.4
85°	44.5	154.8	374.4	726.5	833.9
87.5°	12.6	88.0	275.7	587.2	678.2
90°	1.0	46.4	196.4	460.5	542.7
92.5°	1.0	22.3	138.3	348.3	411.2
95°	1.0	11.6	86.1	252.5	308.6
97.5°	1.0	6.8	52.2	179.0	226.4
100°	1.0	5.8	31.0	119.0	161.6
102.5°	1.0	6.8	21.3	75.5	105.5
105°	1.0	6.8	17.4	49.3	69.7
107.5°	1.9	6.8	15.5	36.8	48.4
110°	1.0	5.8	16.4	28.1	37.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.9	4.8	15.5	23.2	28.1
115°	1.0	3.9	13.5	22.3	23.2
117.5°	1.9	2.9	10.6	22.3	23.2
120°	1.9	1.9	8.7	21.3	24.2
122.5°	1.9	1.9	6.8	19.3	23.2
125°	1.0	1.9	5.8	14.5	20.3
127.5°	1.9	1.9	4.8	11.6	15.5
130°	1.9	1.9	3.9	8.7	11.6
132.5°	1.9	1.9	2.9	6.8	8.7
135°	1.9	1.9	1.9	4.8	6.8
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)