

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: P518119

Luminaire Tested: HVL8-4-LD4-3HI-50-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: P518119
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3HI-50-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14549.0 lumens
Efficiency: N/A
Efficacy: 115.6 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

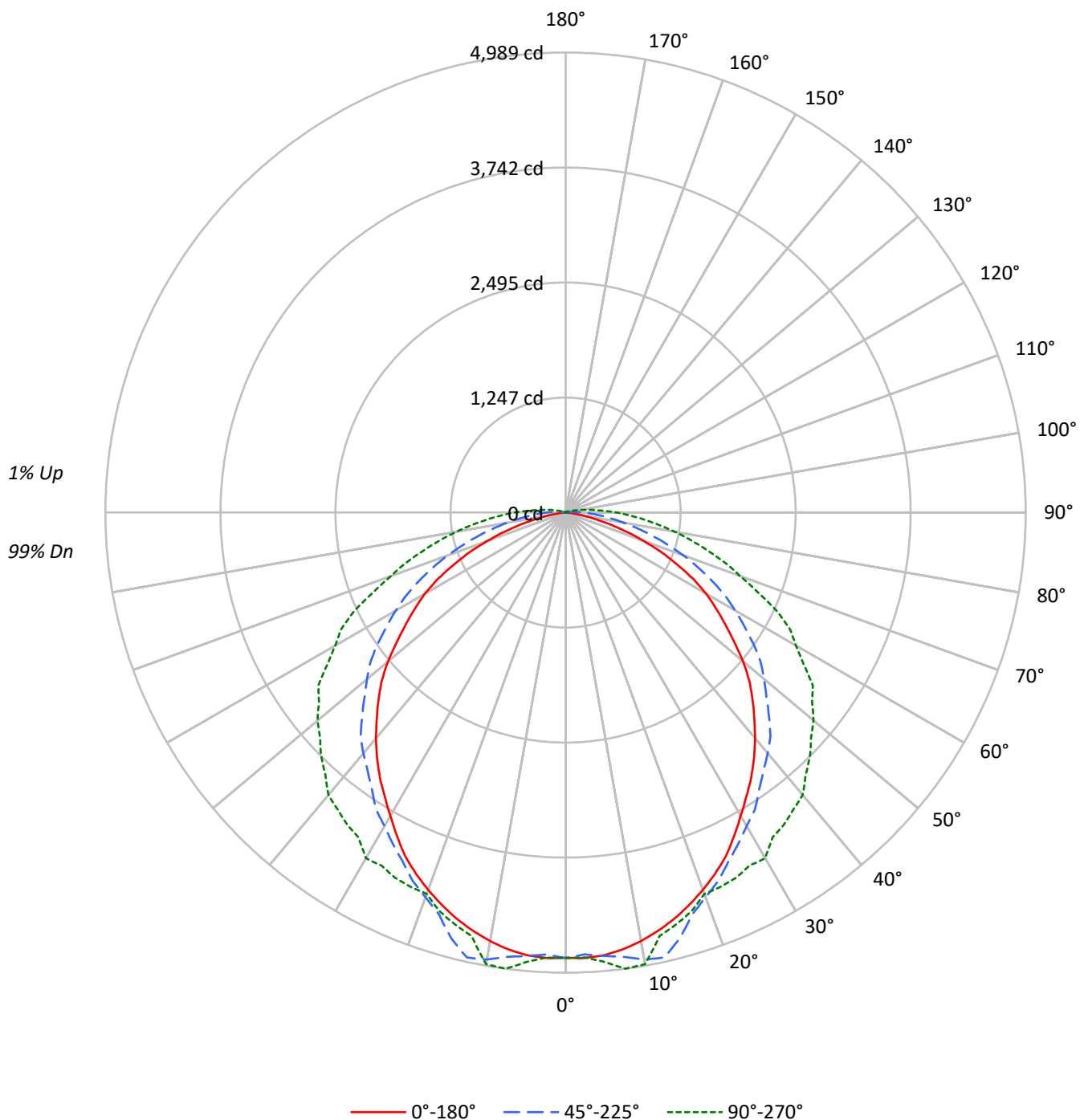
Input Watts (W): 125.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	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°	19494	19494	19494
5°	19450	19202	19399
10°	19194	19462	19519
15°	18845	18934	18117
20°	18420	17736	17326
25°	17970	16968	17434
30°	17288	16349	17626
35°	16802	15762	17315
40°	16279	15320	17422
45°	15716	14754	17108
50°	15032	14158	16977
55°	14029	13519	16968
60°	13259	12645	16243
65°	11722	11602	15726
70°	9563	10249	14102
75°	6825	8608	12873
80°	3828	6956	11557
85°	1421	5251	10180

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 17108 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	464.2	3.2
10°-20°	1321.8	9.1
20°-30°	1966.7	13.5
30°-40°	2364.0	16.2
40°-50°	2488.3	17.1
50°-60°	2308.8	15.9
60°-70°	1825.5	12.5
70°-80°	1115.1	7.7
80°-90°	485.8	3.3
90°-100°	151.3	1.0
100°-110°	34.0	0.2
110°-120°	13.7	0.1
120°-130°	7.7	0.1
130°-140°	2.1	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°	3752.7	25.8
0°-40°	6116.8	42.0
0°-60°	10913.9	75.0
0°-90°	14340.3	98.6
90°-120°	198.9	1.4
90°-150°	208.7	1.4
90°-180°	209.0	1.4
0°-180°	14549.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4830	4830	4830	4830	4830	
5°	4818	4808	4825	4879	4892	457
15°	4560	4735	4781	4623	4626	1285
25°	4113	4376	4176	4301	4371	1888
35°	3509	3607	3661	3993	4129	2193
45°	2868	2881	3118	3612	3746	2211
55°	2112	2147	2487	3031	3272	1898
65°	1337	1379	1752	2319	2529	1324
75°	506	670	977	1501	1596	552
85°	45	157	381	739	848	70
90°	1	47	200	468	552	2
95°	1	12	88	257	314	1
105°	1	7	18	50	71	1
115°	1	4	14	23	24	2
125°	1	2	6	15	21	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°	4829.5	4829.5	4829.5	4829.5	4829.5
2.5°	4835.4	4822.6	4796.0	4821.6	4828.5
5°	4817.7	4807.8	4824.6	4878.7	4892.4
7.5°	4777.3	4814.7	4859.0	4957.4	4988.9
10°	4717.3	4788.2	4921.0	5004.6	4972.1
12.5°	4644.5	4764.5	4942.6	4779.3	4703.6
15°	4559.9	4735.0	4781.3	4622.9	4625.8
17.5°	4460.6	4710.4	4567.8	4563.9	4535.3
20°	4353.3	4627.8	4438.9	4431.0	4400.5
22.5°	4238.2	4518.6	4324.8	4309.0	4391.7
25°	4113.3	4375.9	4176.2	4301.2	4371.0
27.5°	3956.8	4189.0	4052.3	4229.4	4316.9
30°	3798.5	3996.2	3925.4	4172.3	4327.7
32.5°	3649.9	3794.5	3821.1	4150.7	4176.2
35°	3509.2	3606.6	3660.7	3993.2	4129.0
37.5°	3354.8	3381.3	3525.0	3927.3	4058.2
40°	3197.4	3180.6	3410.8	3819.1	4000.1
42.5°	3028.1	3022.2	3289.8	3765.0	3855.5
45°	2867.8	2880.6	3117.7	3611.5	3746.3
47.5°	2703.5	2720.2	2954.4	3443.3	3610.5
50°	2512.6	2534.3	2808.8	3293.8	3509.2
52.5°	2306.0	2347.3	2667.1	3152.1	3369.5
55°	2112.2	2146.7	2487.0	3031.1	3272.1
57.5°	1935.1	1955.8	2301.1	2878.6	3060.6
60°	1761.0	1765.9	2126.0	2709.4	2883.5
62.5°	1561.3	1570.1	1946.0	2509.7	2742.8
65°	1337.0	1379.3	1752.1	2318.8	2529.4
67.5°	1127.4	1201.2	1554.4	2143.7	2253.9
70°	903.1	1028.1	1360.6	1938.1	2015.8
72.5°	697.5	844.1	1161.9	1707.9	1817.1
75°	505.7	670.0	976.9	1501.3	1595.7
77.5°	340.4	507.6	803.8	1273.0	1398.0
80°	203.6	370.9	649.3	1061.5	1202.2
82.5°	104.3	248.9	503.7	890.3	1016.3
85°	45.3	157.4	380.7	738.8	848.0
87.5°	12.8	89.5	280.4	597.2	689.6
90°	1.0	47.2	199.7	468.3	551.9
92.5°	1.0	22.6	140.7	354.2	418.1
95°	1.0	11.8	87.6	256.8	313.8
97.5°	1.0	6.9	53.1	182.0	230.2
100°	1.0	5.9	31.5	121.0	164.3
102.5°	1.0	6.9	21.6	76.7	107.2
105°	1.0	6.9	17.7	50.2	70.8
107.5°	2.0	6.9	15.7	37.4	49.2
110°	1.0	5.9	16.7	28.5	38.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	2.0	4.9	15.7	23.6	28.5
115°	1.0	3.9	13.8	22.6	23.6
117.5°	2.0	3.0	10.8	22.6	23.6
120°	2.0	2.0	8.9	21.6	24.6
122.5°	2.0	2.0	6.9	19.7	23.6
125°	1.0	2.0	5.9	14.8	20.7
127.5°	2.0	2.0	4.9	11.8	15.7
130°	2.0	2.0	3.9	8.9	11.8
132.5°	2.0	2.0	3.0	6.9	8.9
135°	2.0	2.0	2.0	4.9	6.9
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)