

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: P518039

Luminaire Tested: HVL8-4-LD4-1LO-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: P518039
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1LO-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: 2931.0 lumens
Efficiency: N/A
Efficacy: 127.4 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

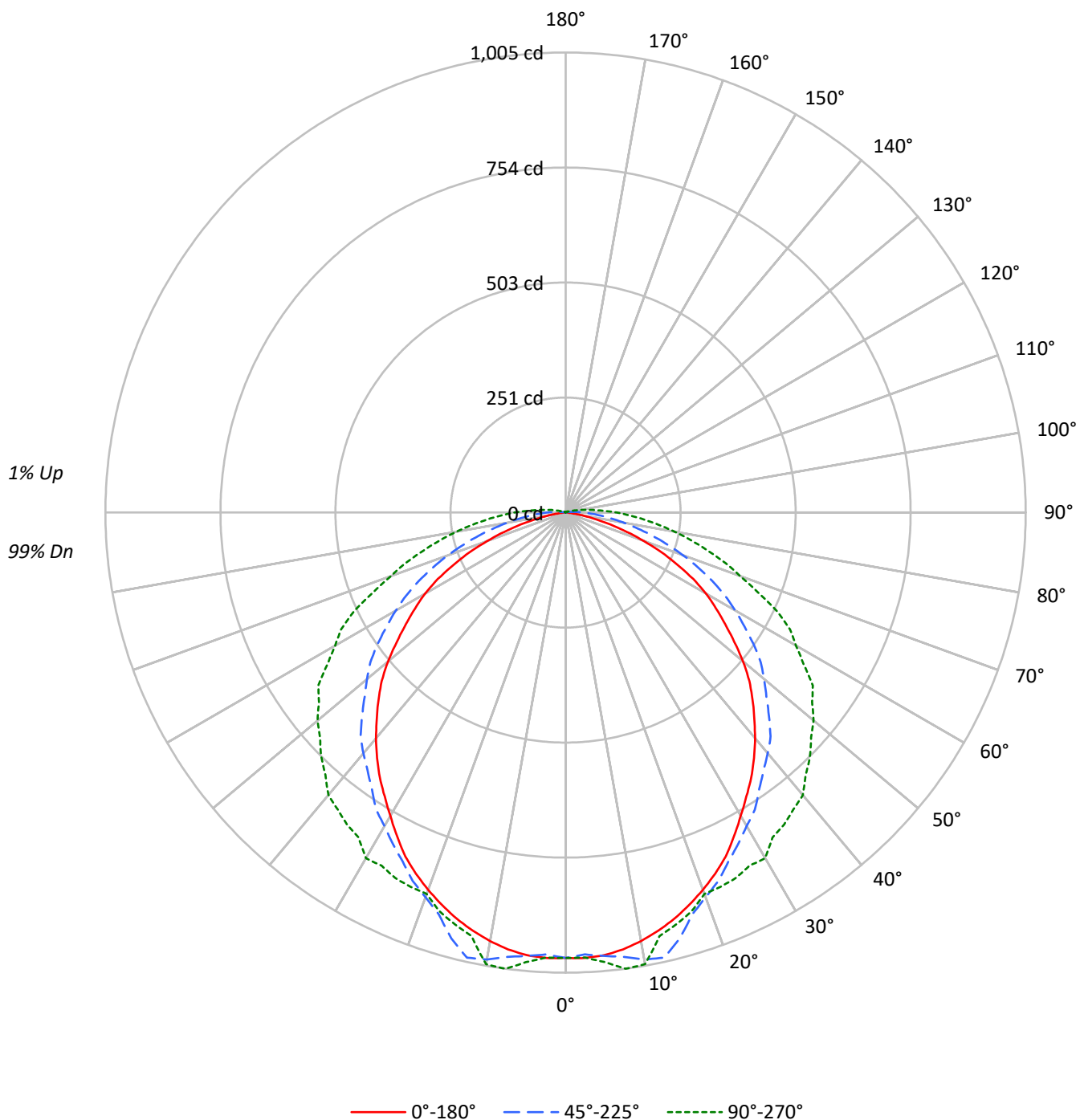
Input Watts (W): 23
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	3927	3927	3927
5°	3918	3868	3908
10°	3867	3921	3932
15°	3796	3814	3650
20°	3711	3573	3490
25°	3620	3418	3512
30°	3483	3294	3551
35°	3385	3175	3488
40°	3279	3086	3510
45°	3166	2972	3446
50°	3028	2852	3420
55°	2826	2723	3418
60°	2671	2547	3272
65°	2361	2337	3168
70°	1926	2065	2841
75°	1375	1734	2594
80°	771	1401	2328
85°	285	1058	2050

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 3446 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	93.5	3.2
10°-20°	266.3	9.1
20°-30°	396.2	13.5
30°-40°	476.3	16.2
40°-50°	501.3	17.1
50°-60°	465.1	15.9
60°-70°	367.8	12.5
70°-80°	224.7	7.7
80°-90°	97.9	3.3
90°-100°	30.5	1.0
100°-110°	6.9	0.2
110°-120°	2.8	0.1
120°-130°	1.6	0.1
130°-140°	0.4	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°	756.0	25.8
0°-40°	1232.3	42.0
0°-60°	2198.7	75.0
0°-90°	2889.0	98.6
90°-120°	40.1	1.4
90°-150°	42.1	1.4
90°-180°	42.0	1.4
0°-180°	2931.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	973	973	973	973	973	
5°	971	969	972	983	986	92
15°	919	954	963	931	932	259
25°	829	882	841	866	881	380
35°	707	727	738	804	832	442
45°	578	580	628	728	755	445
55°	426	432	501	611	659	382
65°	269	278	353	467	510	267
75°	102	135	197	302	322	111
85°	9	32	77	149	171	14
90°	0	10	40	94	111	0
95°	0	2	18	52	63	0
105°	0	1	4	10	14	0
115°	0	1	3	5	5	0
125°	0	0	1	3	4	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

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	972.9	972.9	972.9	972.9	972.9
2.5°	974.1	971.5	966.2	971.3	972.7
5°	970.6	968.6	971.9	982.8	985.6
7.5°	962.4	970.0	978.9	998.7	1005.0
10°	950.3	964.6	991.4	1008.2	1001.7
12.5°	935.7	959.9	995.7	962.8	947.6
15°	918.6	953.9	963.2	931.3	931.9
17.5°	898.6	949.0	920.2	919.4	913.7
20°	877.0	932.3	894.2	892.7	886.5
22.5°	853.8	910.3	871.3	868.1	884.7
25°	828.6	881.6	841.3	866.5	880.6
27.5°	797.1	843.9	816.4	852.0	869.7
30°	765.2	805.1	790.8	840.5	871.9
32.5°	735.3	764.4	769.8	836.2	841.3
35°	707.0	726.6	737.5	804.5	831.8
37.5°	675.8	681.2	710.1	791.2	817.5
40°	644.1	640.8	687.1	769.4	805.9
42.5°	610.0	608.9	662.8	758.5	776.7
45°	577.7	580.3	628.1	727.6	754.7
47.5°	544.6	548.0	595.2	693.7	727.4
50°	506.2	510.5	565.8	663.6	707.0
52.5°	464.6	472.9	537.3	635.0	678.8
55°	425.5	432.5	501.0	610.6	659.2
57.5°	389.8	394.0	463.6	579.9	616.6
60°	354.8	355.8	428.3	545.8	580.9
62.5°	314.5	316.3	392.0	505.6	552.6
65°	269.3	277.9	353.0	467.1	509.6
67.5°	227.1	242.0	313.1	431.9	454.1
70°	181.9	207.1	274.1	390.4	406.1
72.5°	140.5	170.1	234.1	344.1	366.1
75°	101.9	135.0	196.8	302.4	321.5
77.5°	68.6	102.3	161.9	256.5	281.6
80°	41.0	74.7	130.8	213.9	242.2
82.5°	21.0	50.1	101.5	179.4	204.7
85°	9.1	31.7	76.7	148.8	170.8
87.5°	2.6	18.0	56.5	120.3	138.9
90°	0.2	9.5	40.2	94.3	111.2
92.5°	0.2	4.6	28.3	71.3	84.2
95°	0.2	2.4	17.6	51.7	63.2
97.5°	0.2	1.4	10.7	36.7	46.4
100°	0.2	1.2	6.3	24.4	33.1
102.5°	0.2	1.4	4.4	15.5	21.6
105°	0.2	1.4	3.6	10.1	14.3
107.5°	0.4	1.4	3.2	7.5	9.9
110°	0.2	1.2	3.4	5.7	7.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.2	4.8	5.7
115°	0.2	0.8	2.8	4.6	4.8
117.5°	0.4	0.6	2.2	4.6	4.8
120°	0.4	0.4	1.8	4.4	5.0
122.5°	0.4	0.4	1.4	4.0	4.8
125°	0.2	0.4	1.2	3.0	4.2
127.5°	0.4	0.4	1.0	2.4	3.2
130°	0.4	0.4	0.8	1.8	2.4
132.5°	0.4	0.4	0.6	1.4	1.8
135°	0.4	0.4	0.4	1.0	1.4
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)