

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: P517267

Luminaire Tested: HVL12-1-LD4-3LO-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: P517267
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-3LO-40-UNV-C-EDD-90
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1893.0 lumens
Efficiency: N/A
Efficacy: 109.4 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.36
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 1' x H: 0.17')
CIE Type: Direct

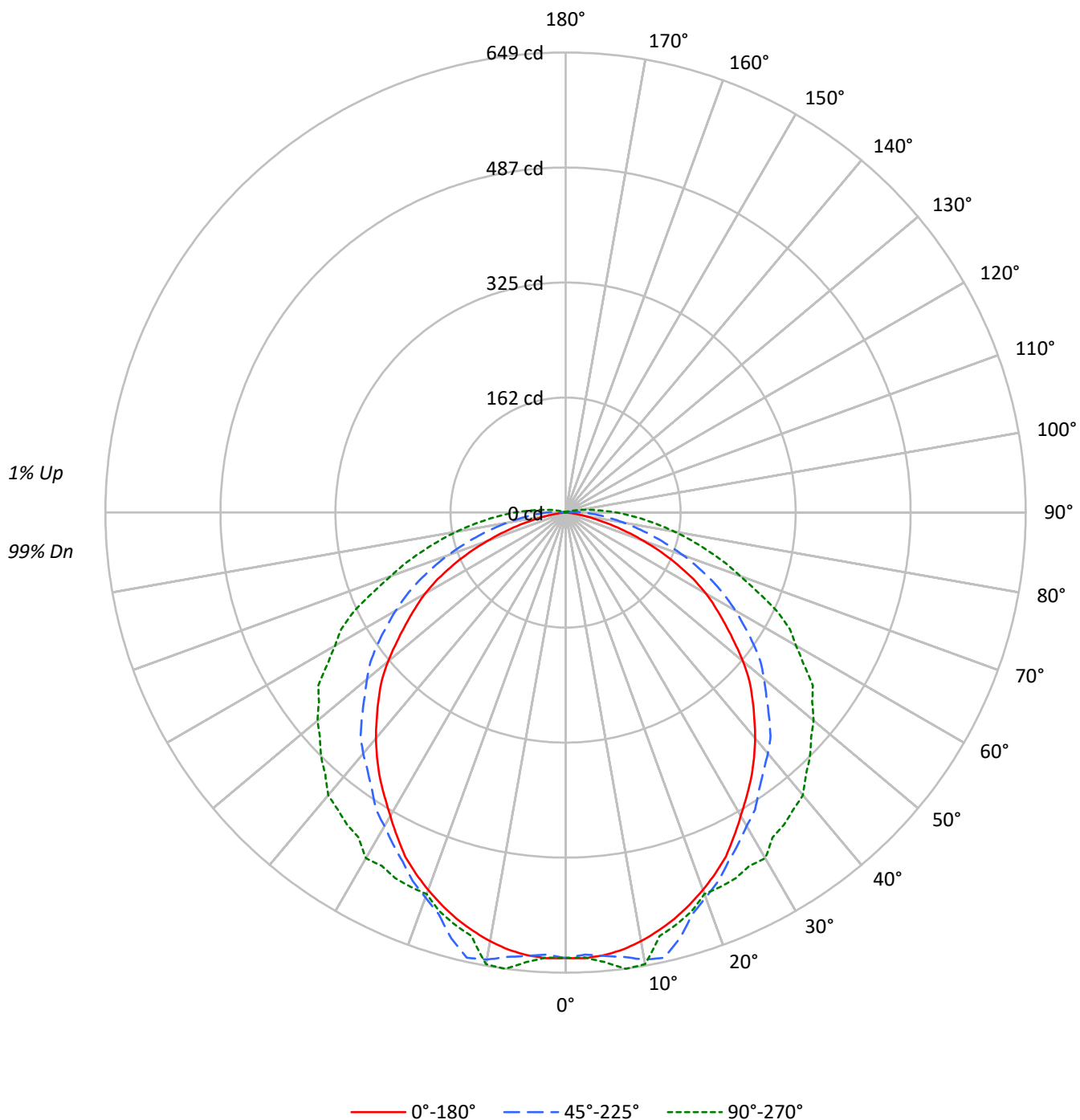
Input Watts (W): 17.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	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°	6764	6764	6764
5°	6675	6645	6780
10°	6517	6719	6869
15°	6329	6521	6421
20°	6117	6093	6184
25°	5898	5815	6267
30°	5603	5587	6384
35°	5373	5372	6321
40°	5128	5206	6416
45°	4868	4996	6359
50°	4567	4778	6379
55°	4165	4543	6453
60°	3827	4228	6268
65°	3265	3857	6175
70°	2536	3381	5662
75°	1687	2812	5322
80°	844	2241	4983
85°	251	1655	4689

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6453 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.4	3.2
10°-20°	172.0	9.1
20°-30°	255.9	13.5
30°-40°	307.6	16.2
40°-50°	323.7	17.1
50°-60°	300.4	15.9
60°-70°	237.5	12.5
70°-80°	145.1	7.7
80°-90°	63.2	3.3
90°-100°	19.7	1.0
100°-110°	4.4	0.2
110°-120°	1.8	0.1
120°-130°	1.0	0.1
130°-140°	0.3	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°	488.3	25.8
0°-40°	795.9	42.0
0°-60°	1420.0	75.0
0°-90°	1865.8	98.6
90°-120°	25.9	1.4
90°-150°	27.2	1.4
90°-180°	27.0	1.4
0°-180°	1893.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	628	628	628	628	628	
5°	627	626	628	635	637	59
15°	593	616	622	602	602	167
25°	535	569	543	560	569	246
35°	457	469	476	520	537	285
45°	373	375	406	470	487	288
55°	275	279	324	394	426	247
65°	174	180	228	302	329	172
75°	66	87	127	195	208	72
85°	6	20	50	96	110	9
90°	0	6	26	61	72	0
95°	0	2	11	33	41	0
105°	0	1	2	6	9	0
115°	0	0	2	3	3	0
125°	0	0	1	2	3	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°	628.4	628.4	628.4	628.4	628.4
2.5°	629.1	627.5	624.0	627.3	628.2
5°	626.8	625.6	627.7	634.8	636.6
7.5°	621.6	626.5	632.2	645.0	649.1
10°	613.8	623.0	640.3	651.2	646.9
12.5°	604.3	619.9	643.1	621.8	612.0
15°	593.3	616.1	622.1	601.5	601.9
17.5°	580.4	612.9	594.3	593.8	590.1
20°	566.4	602.1	577.6	576.5	572.6
22.5°	551.4	587.9	562.7	560.7	571.4
25°	535.2	569.4	543.4	559.6	568.7
27.5°	514.8	545.0	527.2	550.3	561.7
30°	494.2	520.0	510.7	542.9	563.1
32.5°	474.9	493.7	497.2	540.1	543.4
35°	456.6	469.3	476.3	519.6	537.2
37.5°	436.5	440.0	458.6	511.0	528.0
40°	416.0	413.8	443.8	496.9	520.5
42.5°	394.0	393.2	428.0	489.9	501.6
45°	373.1	374.8	405.6	469.9	487.4
47.5°	351.8	353.9	384.4	448.0	469.8
50°	326.9	329.7	365.5	428.6	456.6
52.5°	300.0	305.4	347.0	410.1	438.4
55°	274.8	279.3	323.6	394.4	425.7
57.5°	251.8	254.5	299.4	374.5	398.2
60°	229.1	229.8	276.6	352.5	375.2
62.5°	203.1	204.3	253.2	326.5	356.9
65°	174.0	179.5	228.0	301.7	329.1
67.5°	146.7	156.3	202.2	278.9	293.3
70°	117.5	133.8	177.0	252.2	262.3
72.5°	90.8	109.8	151.2	222.2	236.4
75°	65.8	87.2	127.1	195.3	207.6
77.5°	44.3	66.1	104.6	165.6	181.9
80°	26.5	48.3	84.5	138.1	156.4
82.5°	13.6	32.4	65.5	115.8	132.2
85°	5.9	20.5	49.5	96.1	110.3
87.5°	1.7	11.6	36.5	77.7	89.7
90°	0.1	6.1	26.0	60.9	71.8
92.5°	0.1	2.9	18.3	46.1	54.4
95°	0.1	1.5	11.4	33.4	40.8
97.5°	0.1	0.9	6.9	23.7	30.0
100°	0.1	0.8	4.1	15.7	21.4
102.5°	0.1	0.9	2.8	10.0	14.0
105°	0.1	0.9	2.3	6.5	9.2
107.5°	0.3	0.9	2.0	4.9	6.4
110°	0.1	0.8	2.2	3.7	5.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.6	2.0	3.1	3.7
115°	0.1	0.5	1.8	2.9	3.1
117.5°	0.3	0.4	1.4	2.9	3.1
120°	0.3	0.3	1.2	2.8	3.2
122.5°	0.3	0.3	0.9	2.6	3.1
125°	0.1	0.3	0.8	1.9	2.7
127.5°	0.3	0.3	0.6	1.5	2.0
130°	0.3	0.3	0.5	1.2	1.5
132.5°	0.3	0.3	0.4	0.9	1.2
135°	0.3	0.3	0.3	0.6	0.9
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)