

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: P517171

Luminaire Tested: HVL12-1-LD4-1LO-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: P517171
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-1LO-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: 632.0 lumens
Efficiency: N/A
Efficacy: 107.1 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

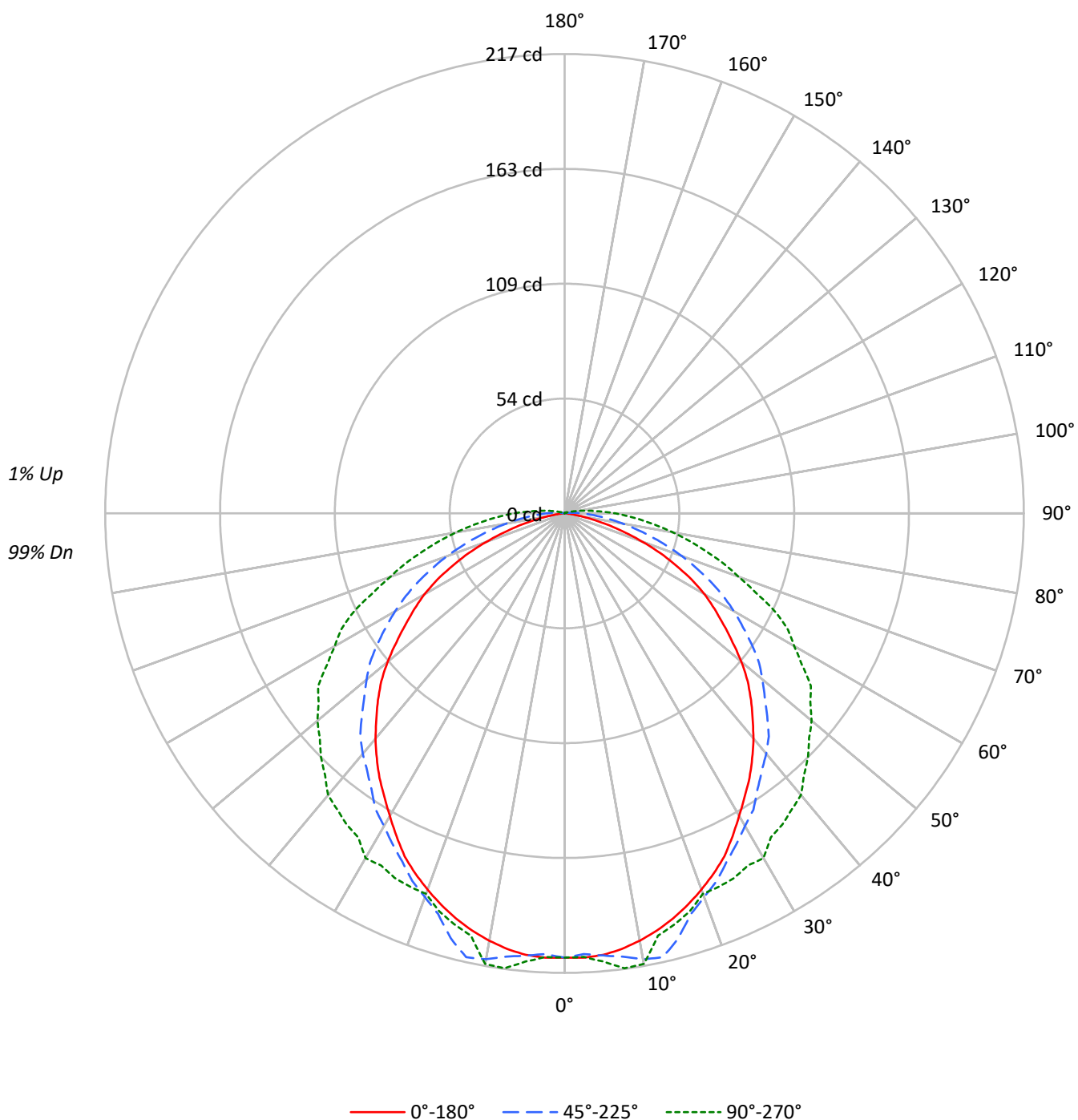
Input Watts (W): 5.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	2258	2258	2258
5°	2229	2219	2263
10°	2176	2244	2293
15°	2113	2177	2143
20°	2042	2034	2065
25°	1969	1941	2093
30°	1871	1865	2132
35°	1793	1793	2111
40°	1712	1738	2142
45°	1626	1668	2123
50°	1524	1595	2129
55°	1391	1516	2154
60°	1278	1412	2093
65°	1090	1287	2062
70°	846	1129	1891
75°	564	938	1777
80°	280	748	1663
85°	85	552	1564

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 2154 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	20.2	3.2
10°-20°	57.4	9.1
20°-30°	85.4	13.5
30°-40°	102.7	16.2
40°-50°	108.1	17.1
50°-60°	100.3	15.9
60°-70°	79.3	12.5
70°-80°	48.4	7.7
80°-90°	21.1	3.3
90°-100°	6.6	1.0
100°-110°	1.5	0.2
110°-120°	0.6	0.1
120°-130°	0.3	0.1
130°-140°	0.1	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°	163.0	25.8
0°-40°	265.7	42.0
0°-60°	474.1	75.0
0°-90°	622.9	98.6
90°-120°	8.6	1.4
90°-150°	9.1	1.4
90°-180°	9.0	1.4
0°-180°	632.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	210	210	210	210	210	
5°	209	209	210	212	212	20
15°	198	206	208	201	201	56
25°	179	190	181	187	190	82
35°	152	157	159	174	179	95
45°	125	125	135	157	163	96
55°	92	93	108	132	142	82
65°	58	60	76	101	110	58
75°	22	29	42	65	69	24
85°	2	7	16	32	37	3
90°	0	2	9	20	24	0
95°	0	0	4	11	14	0
105°	0	0	1	2	3	0
115°	0	0	1	1	1	0
125°	0	0	0	1	1	0
135°	0	0	0	0	0	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°	209.8	209.8	209.8	209.8	209.8
2.5°	210.0	209.5	208.3	209.4	209.7
5°	209.3	208.8	209.6	211.9	212.5
7.5°	207.5	209.1	211.1	215.3	216.7
10°	204.9	208.0	213.8	217.4	216.0
12.5°	201.8	207.0	214.7	207.6	204.3
15°	198.1	205.7	207.7	200.8	200.9
17.5°	193.8	204.6	198.4	198.3	197.0
20°	189.1	201.0	192.8	192.5	191.2
22.5°	184.1	196.3	187.9	187.2	190.8
25°	178.7	190.1	181.4	186.8	189.9
27.5°	171.9	182.0	176.0	183.7	187.5
30°	165.0	173.6	170.5	181.2	188.0
32.5°	158.5	164.8	166.0	180.3	181.4
35°	152.4	156.7	159.0	173.5	179.4
37.5°	145.7	146.9	153.1	170.6	176.3
40°	138.9	138.2	148.2	165.9	173.8
42.5°	131.5	131.3	142.9	163.5	167.5
45°	124.6	125.1	135.4	156.9	162.7
47.5°	117.4	118.2	128.3	149.6	156.8
50°	109.1	110.1	122.0	143.1	152.4
52.5°	100.2	102.0	115.9	136.9	146.4
55°	91.8	93.2	108.0	131.7	142.1
57.5°	84.1	85.0	100.0	125.0	133.0
60°	76.5	76.7	92.4	117.7	125.3
62.5°	67.8	68.2	84.5	109.0	119.1
65°	58.1	59.9	76.1	100.7	109.9
67.5°	49.0	52.2	67.5	93.1	97.9
70°	39.2	44.7	59.1	84.2	87.6
72.5°	30.3	36.7	50.5	74.2	78.9
75°	22.0	29.1	42.4	65.2	69.3
77.5°	14.8	22.1	34.9	55.3	60.7
80°	8.8	16.1	28.2	46.1	52.2
82.5°	4.5	10.8	21.9	38.7	44.1
85°	2.0	6.8	16.5	32.1	36.8
87.5°	0.6	3.9	12.2	25.9	30.0
90°	0.0	2.1	8.7	20.3	24.0
92.5°	0.0	1.0	6.1	15.4	18.2
95°	0.0	0.5	3.8	11.2	13.6
97.5°	0.0	0.3	2.3	7.9	10.0
100°	0.0	0.3	1.4	5.3	7.1
102.5°	0.0	0.3	0.9	3.3	4.7
105°	0.0	0.3	0.8	2.2	3.1
107.5°	0.1	0.3	0.7	1.6	2.1
110°	0.0	0.3	0.7	1.2	1.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.1	0.2	0.7	1.0	1.2
115°	0.0	0.2	0.6	1.0	1.0
117.5°	0.1	0.1	0.5	1.0	1.0
120°	0.1	0.1	0.4	0.9	1.1
122.5°	0.1	0.1	0.3	0.9	1.0
125°	0.0	0.1	0.3	0.6	0.9
127.5°	0.1	0.1	0.2	0.5	0.7
130°	0.1	0.1	0.2	0.4	0.5
132.5°	0.1	0.1	0.1	0.3	0.4
135°	0.1	0.1	0.1	0.2	0.3
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)