

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: P517363

Luminaire Tested: HVL12-2-LD4-2LO-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: P517363
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-2LO-40-UNV-C-EDD-90
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2400.0 lumens
Efficiency: N/A
Efficacy: 101.3 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 2' x H: 0.17')
CIE Type: Direct

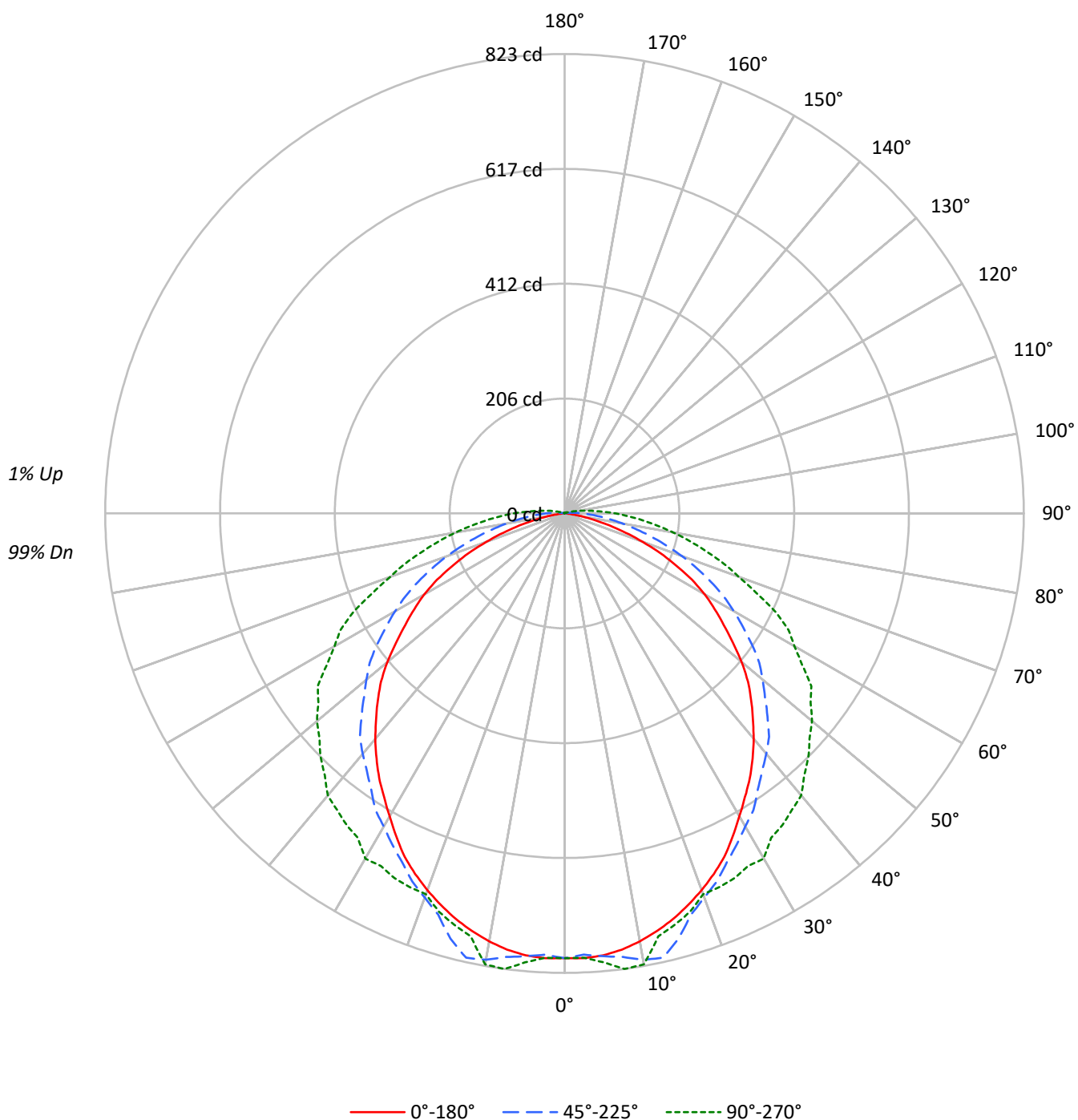
Input Watts (W): 23.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	4288	4288	4288
5°	4262	4234	4298
10°	4191	4302	4354
15°	4100	4196	4070
20°	3992	3940	3920
25°	3878	3779	3973
30°	3715	3651	4047
35°	3594	3531	4007
40°	3463	3443	4067
45°	3324	3326	4032
50°	3157	3204	4044
55°	2921	3074	4091
60°	2732	2890	3973
65°	2382	2669	3914
70°	1908	2377	3589
75°	1323	2019	3374
80°	707	1657	3159
85°	237	1284	2973

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 4091 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	76.6	3.2
10°-20°	218.1	9.1
20°-30°	324.4	13.5
30°-40°	390.0	16.2
40°-50°	410.5	17.1
50°-60°	380.9	15.9
60°-70°	301.1	12.5
70°-80°	183.9	7.7
80°-90°	80.2	3.3
90°-100°	24.9	1.0
100°-110°	5.6	0.2
110°-120°	2.3	0.1
120°-130°	1.3	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°	619.1	25.8
0°-40°	1009.0	42.0
0°-60°	1800.4	75.0
0°-90°	2365.6	98.6
90°-120°	32.8	1.4
90°-150°	34.4	1.4
90°-180°	34.0	1.4
0°-180°	2400.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	797	797	797	797	797	
5°	795	793	796	805	807	75
15°	752	781	789	763	763	212
25°	678	722	689	710	721	311
35°	579	595	604	659	681	362
45°	473	475	514	596	618	365
55°	348	354	410	500	540	313
65°	220	228	289	382	417	218
75°	83	110	161	248	263	91
85°	8	26	63	122	140	12
90°	0	8	33	77	91	0
95°	0	2	14	42	52	0
105°	0	1	3	8	12	0
115°	0	1	2	4	4	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°	796.7	796.7	796.7	796.7	796.7
2.5°	797.6	795.5	791.2	795.4	796.5
5°	794.7	793.1	795.9	804.8	807.1
7.5°	788.1	794.2	801.5	817.8	823.0
10°	778.2	789.9	811.8	825.6	820.2
12.5°	766.2	786.0	815.3	788.4	775.9
15°	752.2	781.1	788.7	762.6	763.1
17.5°	735.8	777.0	753.5	752.9	748.1
20°	718.1	763.4	732.2	730.9	725.9
22.5°	699.1	745.4	713.4	710.8	724.5
25°	678.5	721.9	688.9	709.5	721.0
27.5°	652.7	691.0	668.5	697.7	712.1
30°	626.6	659.2	647.5	688.3	713.9
32.5°	602.1	625.9	630.3	684.7	688.9
35°	578.9	594.9	603.9	658.7	681.1
37.5°	553.4	557.8	581.5	647.9	669.4
40°	527.4	524.7	562.7	630.0	659.9
42.5°	499.5	498.5	542.7	621.1	636.0
45°	473.1	475.2	514.3	595.8	618.0
47.5°	446.0	448.7	487.3	568.0	595.6
50°	414.5	418.1	463.3	543.3	578.9
52.5°	380.4	387.2	440.0	520.0	555.8
55°	348.4	354.1	410.3	500.0	539.8
57.5°	319.2	322.6	379.6	474.9	504.9
60°	290.5	291.3	350.7	446.9	475.7
62.5°	257.6	259.0	321.0	414.0	452.5
65°	220.5	227.5	289.0	382.5	417.2
67.5°	186.0	198.2	256.4	353.6	371.8
70°	149.0	169.6	224.4	319.7	332.5
72.5°	115.1	139.2	191.7	281.7	299.7
75°	83.4	110.5	161.2	247.7	263.2
77.5°	56.2	83.7	132.6	210.0	230.6
80°	33.6	61.2	107.1	175.1	198.3
82.5°	17.2	41.1	83.1	146.9	167.6
85°	7.5	26.0	62.8	121.9	139.9
87.5°	2.1	14.8	46.3	98.5	113.8
90°	0.2	7.8	32.9	77.2	91.0
92.5°	0.2	3.7	23.2	58.4	69.0
95°	0.2	1.9	14.4	42.4	51.8
97.5°	0.2	1.1	8.8	30.0	38.0
100°	0.2	1.0	5.2	20.0	27.1
102.5°	0.2	1.1	3.6	12.7	17.7
105°	0.2	1.1	2.9	8.3	11.7
107.5°	0.3	1.1	2.6	6.2	8.1
110°	0.2	1.0	2.8	4.7	6.3

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CATALOG NUMBER: HVL12-2-LD4-2LO-40-UNV-C-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.8	2.6	3.9	4.7
115°	0.2	0.6	2.3	3.7	3.9
117.5°	0.3	0.5	1.8	3.7	3.9
120°	0.3	0.3	1.5	3.6	4.1
122.5°	0.3	0.3	1.1	3.2	3.9
125°	0.2	0.3	1.0	2.4	3.4
127.5°	0.3	0.3	0.8	1.9	2.6
130°	0.3	0.3	0.6	1.5	1.9
132.5°	0.3	0.3	0.5	1.1	1.5
135°	0.3	0.3	0.3	0.8	1.1
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)