

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: P517407

Luminaire Tested: HVL12-2-LD4-3LO-35-UNV-C-EDD-90

Issue Date: 4/27/2021

Tested By:

Approved By:



NVLAP Lab Code: 200050-0

Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

Test Information

Test Method: LM-79-2019
Report Number: P517407
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-3LO-35-UNV-C-EDD-90
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3732.0 lumens
Efficiency: N/A
Efficacy: 107.9 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

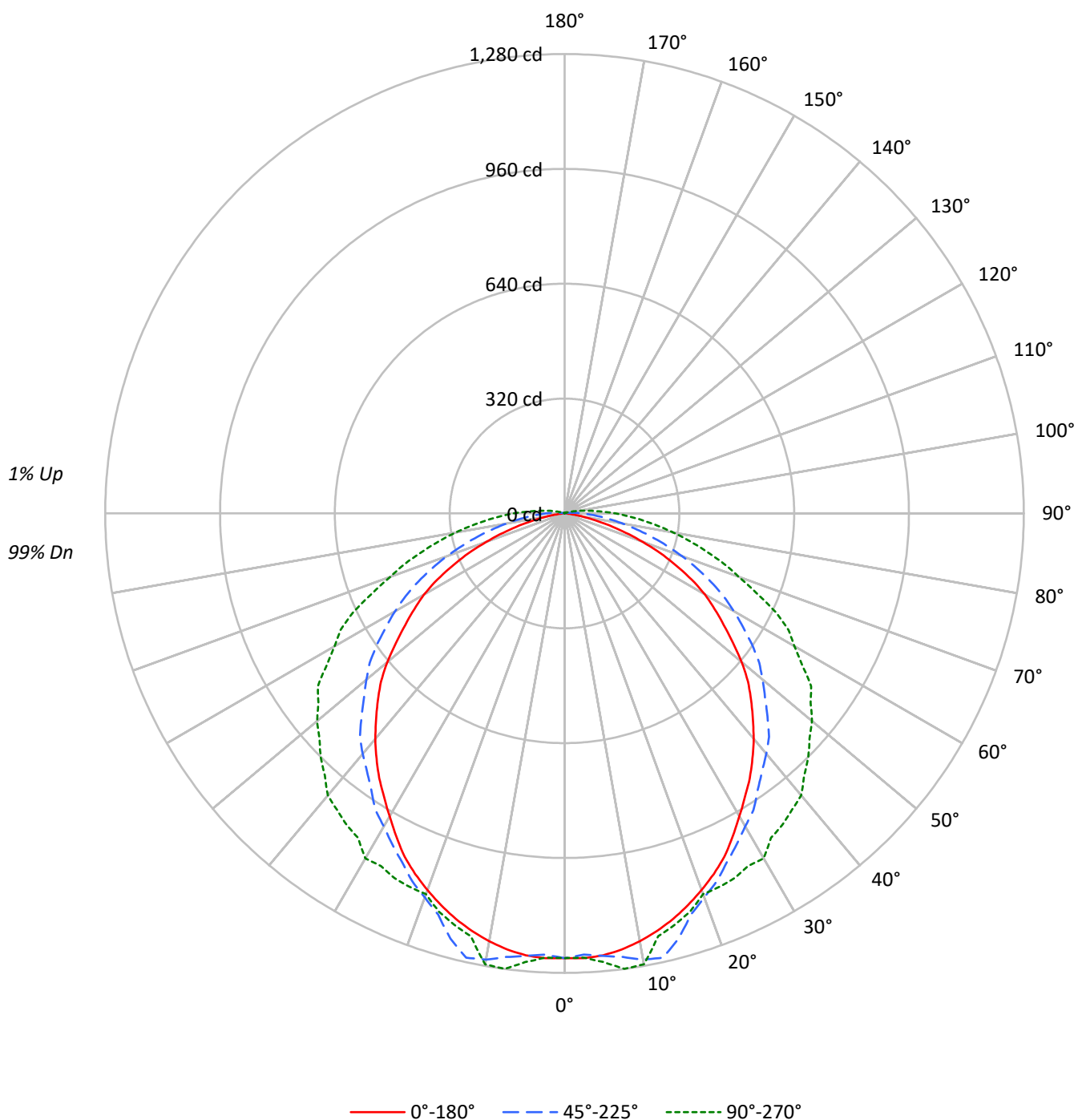
Input Watts (W): 34.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

TEST NUMBER: P517407

CATALOG NUMBER: HVL12-2-LD4-3LO-35-UNV-C-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517407

CATALOG NUMBER: HVL12-2-LD4-3LO-35-UNV-C-EDD-90

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°	6667	6667	6667
5°	6628	6584	6683
10°	6517	6690	6771
15°	6375	6525	6329
20°	6207	6127	6095
25°	6031	5877	6178
30°	5777	5678	6293
35°	5588	5490	6231
40°	5386	5353	6324
45°	5168	5172	6269
50°	4909	4983	6288
55°	4543	4780	6361
60°	4249	4493	6178
65°	3706	4150	6086
70°	2967	3696	5581
75°	2057	3139	5247
80°	1099	2578	4913
85°	367	1997	4623

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6361 cd/sqm

TEST NUMBER: P517407

CATALOG NUMBER: HVL12-2-LD4-3LO-35-UNV-C-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.1	3.2
10°-20°	339.1	9.1
20°-30°	504.5	13.5
30°-40°	606.4	16.2
40°-50°	638.3	17.1
50°-60°	592.2	15.9
60°-70°	468.3	12.5
70°-80°	286.0	7.7
80°-90°	124.6	3.3
90°-100°	38.8	1.0
100°-110°	8.7	0.2
110°-120°	3.5	0.1
120°-130°	2.0	0.1
130°-140°	0.5	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°	962.6	25.8
0°-40°	1569.0	42.0
0°-60°	2799.6	75.0
0°-90°	3678.5	98.6
90°-120°	51.0	1.4
90°-150°	53.6	1.4
90°-180°	54.0	1.4
0°-180°	3732.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1239	1239	1239	1239	1239	
5°	1236	1233	1238	1251	1255	117
15°	1170	1215	1226	1186	1187	330
25°	1055	1122	1071	1103	1121	484
35°	900	925	939	1024	1059	563
45°	736	739	800	926	961	567
55°	542	551	638	778	839	487
65°	343	354	449	595	649	340
75°	130	172	251	385	409	142
85°	12	40	98	190	218	18
90°	0	12	51	120	142	1
95°	0	3	22	66	80	0
105°	0	2	4	13	18	0
115°	0	1	4	6	6	0
125°	0	0	2	4	5	0
135°	0	0	0	1	2	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

TEST NUMBER: P517407

CATALOG NUMBER: HVL12-2-LD4-3LO-35-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1238.8	1238.8	1238.8	1238.8	1238.8
2.5°	1240.3	1237.1	1230.2	1236.8	1238.6
5°	1235.8	1233.3	1237.6	1251.4	1255.0
7.5°	1225.4	1235.0	1246.4	1271.6	1279.7
10°	1210.1	1228.2	1262.3	1283.7	1275.4
12.5°	1191.4	1222.2	1267.8	1226.0	1206.5
15°	1169.7	1214.6	1226.5	1185.8	1186.6
17.5°	1144.2	1208.3	1171.7	1170.7	1163.4
20°	1116.7	1187.1	1138.6	1136.6	1128.8
22.5°	1087.2	1159.1	1109.4	1105.3	1126.5
25°	1055.1	1122.5	1071.3	1103.3	1121.2
27.5°	1015.0	1074.5	1039.5	1084.9	1107.3
30°	974.4	1025.1	1006.9	1070.2	1110.1
32.5°	936.2	973.3	980.2	1064.7	1071.3
35°	900.2	925.1	939.0	1024.3	1059.1
37.5°	860.5	867.4	904.2	1007.4	1041.0
40°	820.2	815.9	874.9	979.7	1026.1
42.5°	776.8	775.2	843.9	965.8	989.0
45°	735.6	738.9	799.7	926.4	961.0
47.5°	693.5	697.8	757.8	883.2	926.2
50°	644.5	650.1	720.5	844.9	900.2
52.5°	591.5	602.1	684.1	808.6	864.3
55°	541.8	550.6	638.0	777.5	839.3
57.5°	496.4	501.7	590.3	738.4	785.1
60°	451.7	453.0	545.3	695.0	739.7
62.5°	400.5	402.8	499.2	643.8	703.6
65°	343.0	353.8	449.4	594.8	648.8
67.5°	289.2	308.1	398.7	549.9	578.2
70°	231.7	263.7	349.0	497.1	517.1
72.5°	178.9	216.5	298.0	438.1	466.1
75°	129.7	171.9	250.6	385.1	409.3
77.5°	87.3	130.2	206.2	326.6	358.6
80°	52.2	95.1	166.6	272.3	308.4
82.5°	26.7	63.8	129.2	228.4	260.7
85°	11.6	40.4	97.7	189.5	217.5
87.5°	3.3	23.0	71.9	153.2	176.9
90°	0.3	12.1	51.2	120.1	141.6
92.5°	0.3	5.8	36.1	90.8	107.3
95°	0.3	3.0	22.5	65.9	80.5
97.5°	0.3	1.8	13.6	46.7	59.1
100°	0.3	1.5	8.1	31.0	42.1
102.5°	0.3	1.8	5.6	19.7	27.5
105°	0.3	1.8	4.5	12.9	18.2
107.5°	0.5	1.8	4.0	9.6	12.6
110°	0.3	1.5	4.3	7.3	9.8

TEST NUMBER: P517407

CATALOG NUMBER: HVL12-2-LD4-3LO-35-UNV-C-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.3	4.0	6.1	7.3
115°	0.3	1.0	3.5	5.8	6.1
117.5°	0.5	0.8	2.8	5.8	6.1
120°	0.5	0.5	2.3	5.6	6.3
122.5°	0.5	0.5	1.8	5.0	6.1
125°	0.3	0.5	1.5	3.8	5.3
127.5°	0.5	0.5	1.3	3.0	4.0
130°	0.5	0.5	1.0	2.3	3.0
132.5°	0.5	0.5	0.8	1.8	2.3
135°	0.5	0.5	0.5	1.3	1.8
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)