

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: P517411

Luminaire Tested: HVL12-2-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: P517411
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-3LO-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: 3785.0 lumens
Efficiency: N/A
Efficacy: 109.4 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

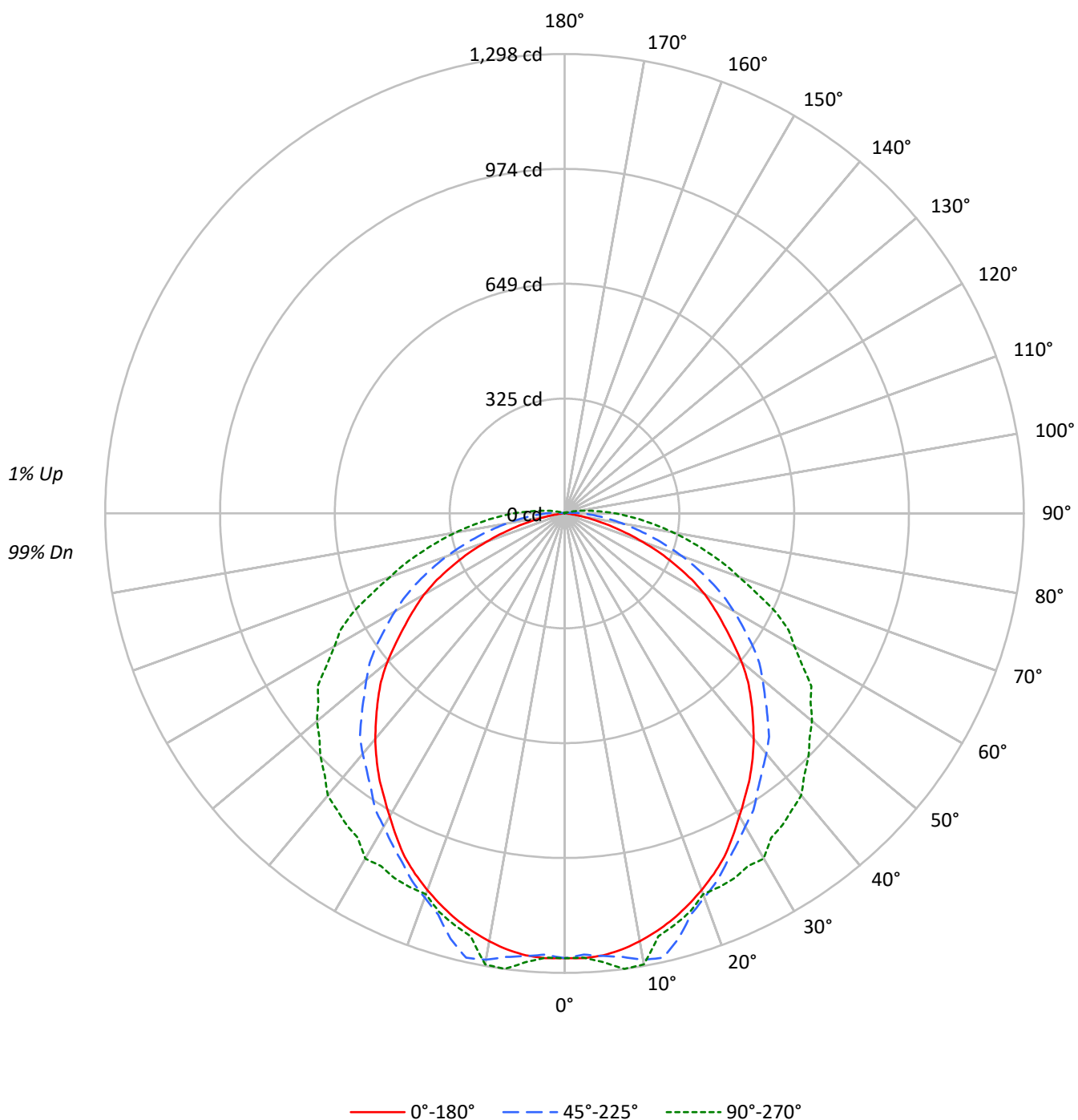
Input Watts (W): 34.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

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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°	6762	6762	6762
5°	6722	6677	6777
10°	6609	6785	6867
15°	6465	6617	6418
20°	6295	6214	6182
25°	6117	5961	6265
30°	5859	5758	6383
35°	5667	5568	6320
40°	5462	5428	6414
45°	5242	5246	6358
50°	4979	5053	6377
55°	4608	4847	6452
60°	4309	4558	6266
65°	3758	4209	6173
70°	3009	3749	5660
75°	2087	3183	5321
80°	1115	2614	4983
85°	373	2024	4689

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6452 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	120.8	3.2
10°-20°	343.9	9.1
20°-30°	511.7	13.5
30°-40°	615.0	16.2
40°-50°	647.3	17.1
50°-60°	600.7	15.9
60°-70°	474.9	12.5
70°-80°	290.1	7.7
80°-90°	126.4	3.3
90°-100°	39.4	1.0
100°-110°	8.8	0.2
110°-120°	3.6	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°	976.3	25.8
0°-40°	1591.3	42.0
0°-60°	2839.3	75.0
0°-90°	3730.8	98.6
90°-120°	51.7	1.4
90°-150°	54.3	1.4
90°-180°	54.0	1.4
0°-180°	3785.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1256	1256	1256	1256	1256	
5°	1253	1251	1255	1269	1273	119
15°	1186	1232	1244	1203	1203	334
25°	1070	1138	1086	1119	1137	491
35°	913	938	952	1039	1074	571
45°	746	749	811	940	975	575
55°	550	558	647	789	851	494
65°	348	359	456	603	658	344
75°	132	174	254	391	415	144
85°	12	41	99	192	221	18
90°	0	12	52	122	144	1
95°	0	3	23	67	82	0
105°	0	2	5	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

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CATALOG NUMBER: HVL12-2-LD4-3LO-40-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1256.4	1256.4	1256.4	1256.4	1256.4
2.5°	1257.9	1254.6	1247.7	1254.4	1256.2
5°	1253.3	1250.8	1255.1	1269.2	1272.8
7.5°	1242.8	1252.6	1264.1	1289.7	1297.9
10°	1227.2	1245.7	1280.2	1302.0	1293.5
12.5°	1208.3	1239.5	1285.8	1243.4	1223.7
15°	1186.3	1231.8	1243.9	1202.7	1203.4
17.5°	1160.4	1225.4	1188.3	1187.3	1179.9
20°	1132.5	1203.9	1154.8	1152.8	1144.8
22.5°	1102.6	1175.5	1125.1	1121.0	1142.5
25°	1070.1	1138.4	1086.5	1119.0	1137.1
27.5°	1029.4	1089.8	1054.2	1100.3	1123.1
30°	988.2	1039.6	1021.2	1085.4	1125.9
32.5°	949.5	987.2	994.1	1079.8	1086.5
35°	912.9	938.3	952.4	1038.9	1074.2
37.5°	872.8	879.7	917.0	1021.7	1055.8
40°	831.8	827.5	887.3	993.6	1040.7
42.5°	787.8	786.3	855.9	979.5	1003.0
45°	746.1	749.4	811.1	939.6	974.6
47.5°	703.3	707.7	768.6	895.8	939.3
50°	653.7	659.3	730.7	856.9	912.9
52.5°	599.9	610.7	693.9	820.0	876.6
55°	549.5	558.5	647.0	788.6	851.3
57.5°	503.4	508.8	598.6	748.9	796.2
60°	458.1	459.4	553.1	704.9	750.2
62.5°	406.2	408.5	506.3	652.9	713.6
65°	347.8	358.8	455.8	603.3	658.0
67.5°	293.3	312.5	404.4	557.7	586.4
70°	235.0	267.5	354.0	504.2	524.4
72.5°	181.5	219.6	302.3	444.3	472.7
75°	131.6	174.3	254.1	390.6	415.1
77.5°	88.6	132.1	209.1	331.2	363.7
80°	53.0	96.5	168.9	276.2	312.8
82.5°	27.1	64.8	131.0	231.6	264.4
85°	11.8	41.0	99.0	192.2	220.6
87.5°	3.3	23.3	72.9	155.4	179.4
90°	0.3	12.3	52.0	121.8	143.6
92.5°	0.3	5.9	36.6	92.1	108.8
95°	0.3	3.1	22.8	66.8	81.6
97.5°	0.3	1.8	13.8	47.3	59.9
100°	0.3	1.5	8.2	31.5	42.7
102.5°	0.3	1.8	5.6	20.0	27.9
105°	0.3	1.8	4.6	13.1	18.4
107.5°	0.5	1.8	4.1	9.7	12.8
110°	0.3	1.5	4.4	7.4	10.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.3	4.1	6.1	7.4
115°	0.3	1.0	3.6	5.9	6.1
117.5°	0.5	0.8	2.8	5.9	6.1
120°	0.5	0.5	2.3	5.6	6.4
122.5°	0.5	0.5	1.8	5.1	6.1
125°	0.3	0.5	1.5	3.8	5.4
127.5°	0.5	0.5	1.3	3.1	4.1
130°	0.5	0.5	1.0	2.3	3.1
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)