

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: P517427

Luminaire Tested: HVL12-2-LD4-3STD-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: P517427
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-3STD-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: 4876.0 lumens
Efficiency: N/A
Efficacy: 99.3 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

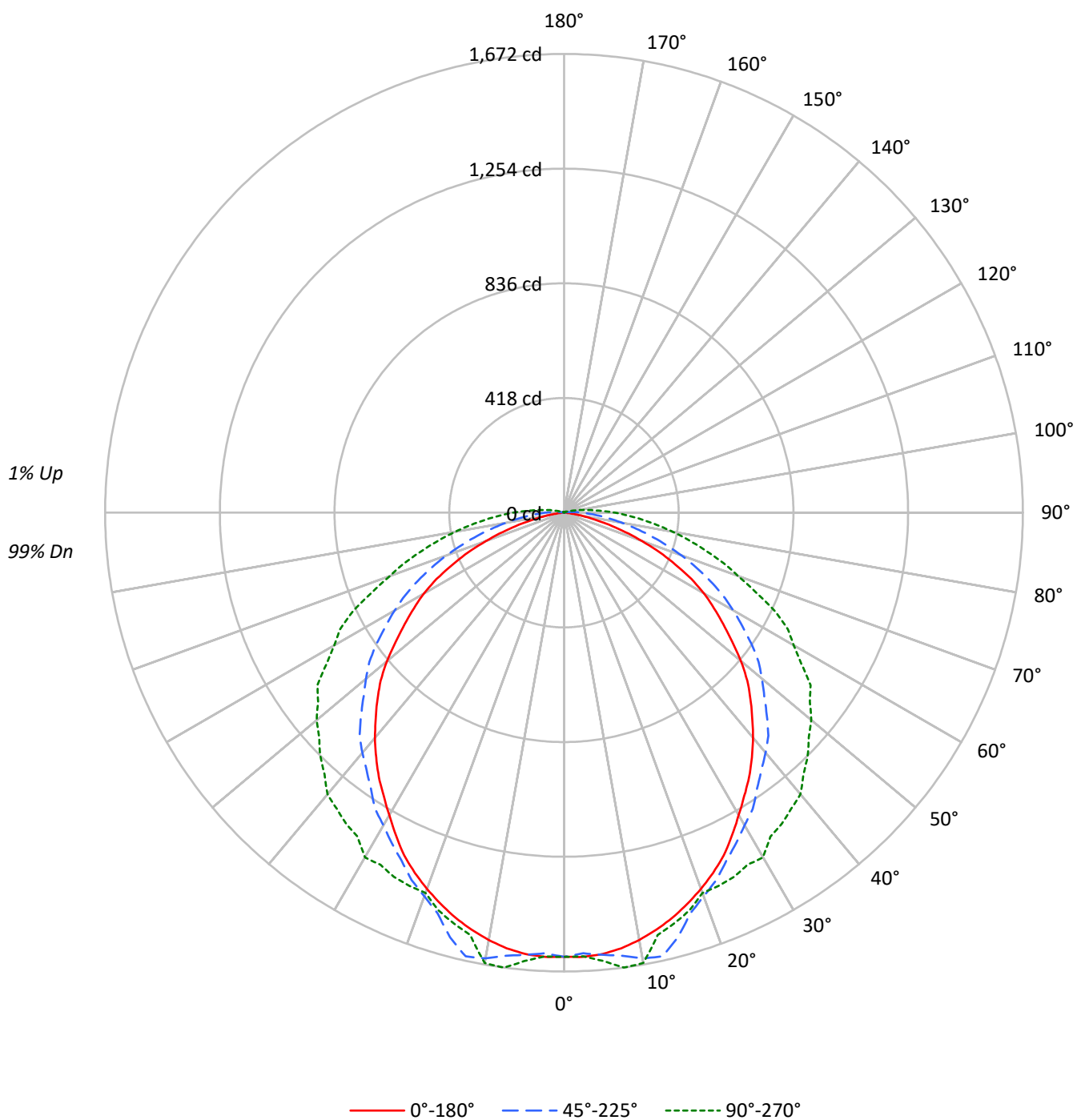
Input Watts (W): 49.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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: P517427

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

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
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		101
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		87
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		76
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		67
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		60
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		54
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		49
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		44
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		41
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		38
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		35

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	8711	8711	8711
5°	8660	8602	8731
10°	8515	8740	8847
15°	8329	8524	8269
20°	8110	8005	7964
25°	7880	7678	8072
30°	7548	7419	8222
35°	7301	7173	8141
40°	7037	6993	8263
45°	6752	6758	8191
50°	6414	6510	8215
55°	5936	6244	8311
60°	5551	5871	8072
65°	4841	5422	7952
70°	3876	4829	7292
75°	2688	4102	6856
80°	1437	3367	6419
85°	481	2608	6040

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 8311 cd/sqm

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

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	155.6	3.2
10°-20°	443.0	9.1
20°-30°	659.1	13.5
30°-40°	792.3	16.2
40°-50°	833.9	17.1
50°-60°	773.8	15.9
60°-70°	611.8	12.5
70°-80°	373.7	7.7
80°-90°	162.8	3.3
90°-100°	50.7	1.0
100°-110°	11.4	0.2
110°-120°	4.6	0.1
120°-130°	2.6	0.1
130°-140°	0.7	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°	1257.7	25.8
0°-40°	2050.0	42.0
0°-60°	3657.7	75.0
0°-90°	4806.1	98.6
90°-120°	66.7	1.4
90°-150°	69.9	1.4
90°-180°	70.0	1.4
0°-180°	4876.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1619	1619	1619	1619	1619	
5°	1615	1611	1617	1635	1640	153
15°	1528	1587	1602	1549	1550	430
25°	1378	1467	1400	1442	1465	633
35°	1176	1209	1227	1338	1384	735
45°	961	965	1045	1210	1256	741
55°	708	719	834	1016	1097	636
65°	448	462	587	777	848	444
75°	170	224	327	503	535	185
85°	15	53	128	248	284	23
90°	0	16	67	157	185	1
95°	0	4	29	86	105	0
105°	0	2	6	17	24	0
115°	0	1	5	8	8	1
125°	0	1	2	5	7	1
135°	1	1	1	2	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: P517427

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

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1618.6	1618.6	1618.6	1618.6	1618.6
2.5°	1620.5	1616.3	1607.4	1615.9	1618.2
5°	1614.6	1611.3	1616.9	1635.1	1639.7
7.5°	1601.1	1613.6	1628.5	1661.4	1672.0
10°	1581.0	1604.7	1649.2	1677.3	1666.4
12.5°	1556.6	1596.8	1656.5	1601.8	1576.4
15°	1528.2	1586.9	1602.4	1549.3	1550.3
17.5°	1494.9	1578.7	1530.9	1529.5	1520.0
20°	1459.0	1551.0	1487.7	1485.0	1474.8
22.5°	1420.4	1514.4	1449.4	1444.1	1471.8
25°	1378.5	1466.6	1399.6	1441.5	1464.9
27.5°	1326.1	1403.9	1358.1	1417.4	1446.8
30°	1273.0	1339.3	1315.6	1398.3	1450.4
32.5°	1223.2	1271.7	1280.6	1391.1	1399.6
35°	1176.1	1208.7	1226.9	1338.3	1383.8
37.5°	1124.3	1133.2	1181.4	1316.2	1360.1
40°	1071.6	1066.0	1143.1	1280.0	1340.6
42.5°	1014.9	1012.9	1102.6	1261.8	1292.1
45°	961.1	965.4	1044.9	1210.4	1255.6
47.5°	906.1	911.7	990.1	1154.0	1210.1
50°	842.1	849.3	941.3	1103.9	1176.1
52.5°	772.8	786.7	893.9	1056.4	1129.3
55°	707.9	719.4	833.5	1015.8	1096.6
57.5°	648.5	655.5	771.2	964.7	1025.7
60°	590.2	591.8	712.5	908.0	966.4
62.5°	523.3	526.2	652.2	841.1	919.2
65°	448.1	462.3	587.2	777.1	847.7
67.5°	377.9	402.6	520.9	718.4	755.4
70°	302.7	344.6	456.0	649.5	675.6
72.5°	233.8	282.9	389.4	572.4	609.0
75°	169.5	224.5	327.4	503.1	534.8
77.5°	114.1	170.1	269.4	426.7	468.5
80°	68.3	124.3	217.6	355.8	402.9
82.5°	34.9	83.4	168.8	298.4	340.6
85°	15.2	52.8	127.6	247.6	284.2
87.5°	4.3	30.0	94.0	200.1	231.1
90°	0.3	15.8	66.9	156.9	185.0
92.5°	0.3	7.6	47.1	118.7	140.1
95°	0.3	4.0	29.3	86.1	105.2
97.5°	0.3	2.3	17.8	61.0	77.2
100°	0.3	2.0	10.6	40.6	55.1
102.5°	0.3	2.3	7.3	25.7	35.9
105°	0.3	2.3	5.9	16.8	23.7
107.5°	0.7	2.3	5.3	12.5	16.5
110°	0.3	2.0	5.6	9.6	12.9

TEST NUMBER: P517427

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

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.7	1.6	5.3	7.9	9.6
115°	0.3	1.3	4.6	7.6	7.9
117.5°	0.7	1.0	3.6	7.6	7.9
120°	0.7	0.7	3.0	7.3	8.2
122.5°	0.7	0.7	2.3	6.6	7.9
125°	0.3	0.7	2.0	4.9	6.9
127.5°	0.7	0.7	1.6	4.0	5.3
130°	0.7	0.7	1.3	3.0	4.0
132.5°	0.7	0.7	1.0	2.3	3.0
135°	0.7	0.7	0.7	1.6	2.3
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)