

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: P517503

Luminaire Tested: HVL12-4-LD4-2LO-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: P517503
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-2LO-35-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5657.0 lumens
Efficiency: N/A
Efficacy: 119.3 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 4' x H: 0.17')
CIE Type: Direct

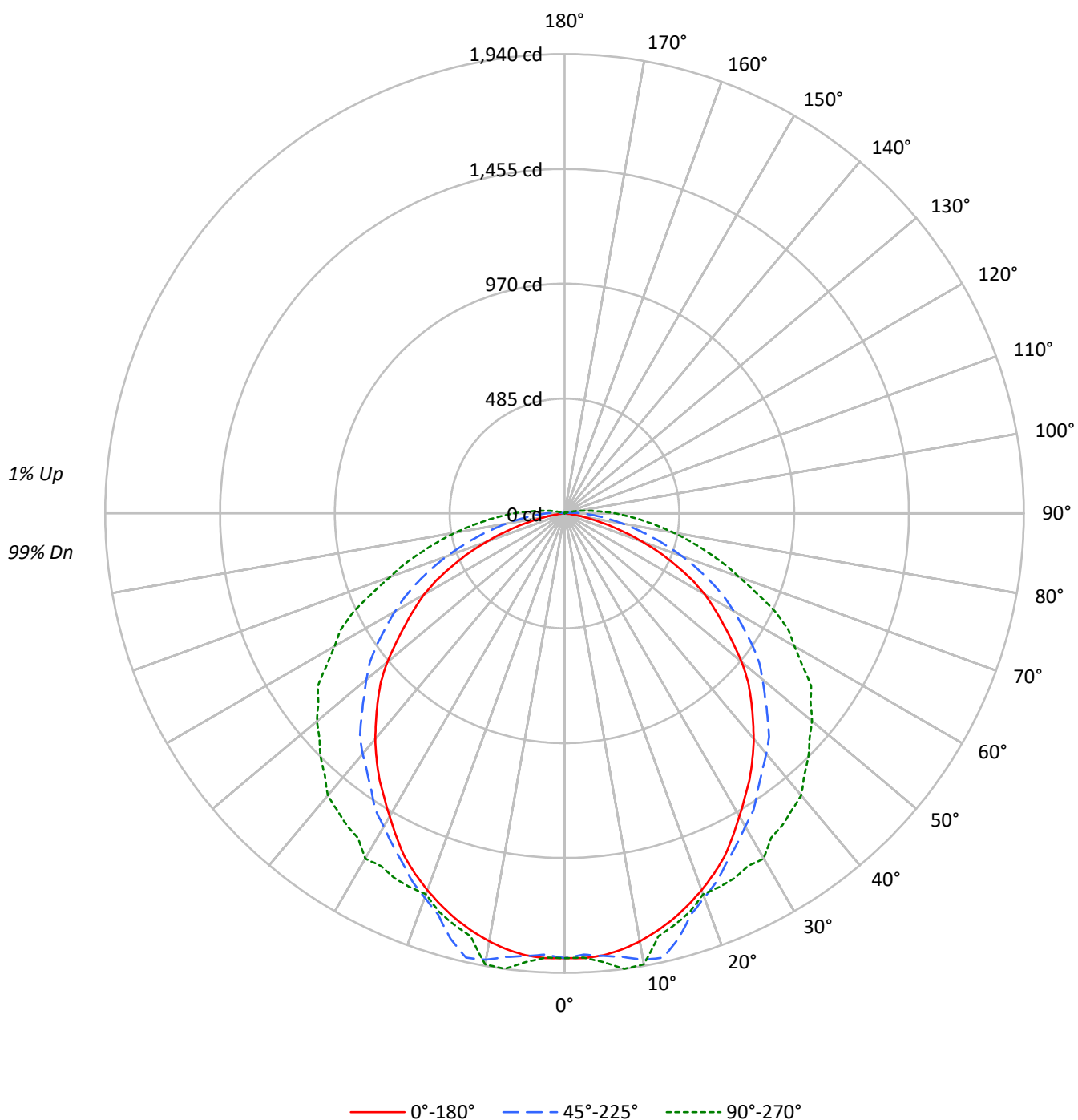
Input Watts (W): 47.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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: P517503

CATALOG NUMBER: HVL12-4-LD4-2LO-35-UNV-C-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517503

CATALOG NUMBER: HVL12-4-LD4-2LO-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°	5053	5053	5053
5°	5042	5003	5065
10°	4975	5096	5132
15°	4885	4983	4796
20°	4775	4691	4619
25°	4658	4511	4682
30°	4481	4371	4770
35°	4355	4239	4723
40°	4220	4146	4793
45°	4074	4021	4752
50°	3897	3889	4766
55°	3637	3748	4821
60°	3437	3544	4682
65°	3039	3296	4613
70°	2479	2963	4230
75°	1769	2548	3977
80°	993	2132	3723
85°	368	1702	3504

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 4821 cd/sqm

TEST NUMBER: P517503

CATALOG NUMBER: HVL12-4-LD4-2LO-35-UNV-C-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	180.5	3.2
10°-20°	514.0	9.1
20°-30°	764.7	13.5
30°-40°	919.2	16.2
40°-50°	967.5	17.1
50°-60°	897.7	15.9
60°-70°	709.8	12.5
70°-80°	433.6	7.7
80°-90°	188.9	3.3
90°-100°	58.8	1.0
100°-110°	13.2	0.2
110°-120°	5.3	0.1
120°-130°	3.0	0.1
130°-140°	0.8	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°	1459.2	25.8
0°-40°	2378.3	42.0
0°-60°	4243.6	75.0
0°-90°	5575.9	98.6
90°-120°	77.3	1.4
90°-150°	81.1	1.4
90°-180°	81.0	1.4
0°-180°	5657.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1878	1878	1878	1878	1878	
5°	1873	1869	1876	1897	1902	178
15°	1773	1841	1859	1798	1799	499
25°	1599	1702	1624	1672	1700	734
35°	1364	1402	1423	1553	1606	853
45°	1115	1120	1212	1404	1457	860
55°	821	835	967	1179	1272	738
65°	520	536	681	902	984	515
75°	197	260	380	584	620	215
85°	18	61	148	287	330	27
90°	0	18	78	182	215	1
95°	0	5	34	100	122	0
105°	0	3	7	20	28	1
115°	0	2	5	9	9	1
125°	0	1	2	6	8	1
135°	1	1	1	2	3	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: P517503

CATALOG NUMBER: HVL12-4-LD4-2LO-35-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1877.8	1877.8	1877.8	1877.8	1877.8
2.5°	1880.1	1875.1	1864.8	1874.8	1877.4
5°	1873.2	1869.4	1875.9	1896.9	1902.3
7.5°	1857.5	1872.1	1889.3	1927.5	1939.8
10°	1834.2	1861.8	1913.4	1945.9	1933.3
12.5°	1805.9	1852.6	1921.8	1858.3	1828.9
15°	1773.0	1841.1	1859.1	1797.5	1798.6
17.5°	1734.4	1831.5	1776.1	1774.5	1763.4
20°	1692.7	1799.4	1726.0	1722.9	1711.0
22.5°	1647.9	1756.9	1681.6	1675.5	1707.6
25°	1599.3	1701.5	1623.8	1672.4	1699.6
27.5°	1538.5	1628.8	1575.6	1644.5	1678.5
30°	1476.9	1553.8	1526.3	1622.3	1682.7
32.5°	1419.2	1475.4	1485.7	1613.9	1623.8
35°	1364.5	1402.3	1423.4	1552.7	1605.5
37.5°	1304.4	1314.7	1370.6	1527.0	1577.9
40°	1243.2	1236.7	1326.2	1485.0	1555.3
42.5°	1177.4	1175.1	1279.2	1463.9	1499.1
45°	1115.1	1120.0	1212.2	1404.3	1456.7
47.5°	1051.2	1057.7	1148.7	1338.8	1403.9
50°	977.0	985.4	1092.1	1280.7	1364.5
52.5°	896.6	912.7	1037.0	1225.6	1310.1
55°	821.3	834.7	967.0	1178.6	1272.3
57.5°	752.4	760.5	894.7	1119.3	1190.0
60°	684.7	686.6	826.6	1053.5	1121.2
62.5°	607.1	610.5	756.6	975.8	1066.5
65°	519.9	536.3	681.3	901.6	983.5
67.5°	438.4	467.1	604.4	833.5	876.4
70°	351.2	399.7	529.0	753.6	783.8
72.5°	271.2	328.2	451.8	664.1	706.5
75°	196.6	260.5	379.8	583.7	620.5
77.5°	132.4	197.4	312.5	495.0	543.6
80°	79.2	144.2	252.5	412.7	467.4
82.5°	40.5	96.8	195.9	346.2	395.1
85°	17.6	61.2	148.0	287.3	329.7
87.5°	5.0	34.8	109.0	232.2	268.2
90°	0.4	18.4	77.7	182.1	214.6
92.5°	0.4	8.8	54.7	137.7	162.6
95°	0.4	4.6	34.0	99.8	122.0
97.5°	0.4	2.7	20.7	70.8	89.5
100°	0.4	2.3	12.2	47.1	63.9
102.5°	0.4	2.7	8.4	29.8	41.7
105°	0.4	2.7	6.9	19.5	27.5
107.5°	0.8	2.7	6.1	14.5	19.1
110°	0.4	2.3	6.5	11.1	14.9

TEST NUMBER: P517503

CATALOG NUMBER: HVL12-4-LD4-2LO-35-UNV-C-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.8	1.9	6.1	9.2	11.1
115°	0.4	1.5	5.4	8.8	9.2
117.5°	0.8	1.1	4.2	8.8	9.2
120°	0.8	0.8	3.4	8.4	9.6
122.5°	0.8	0.8	2.7	7.7	9.2
125°	0.4	0.8	2.3	5.7	8.0
127.5°	0.8	0.8	1.9	4.6	6.1
130°	0.8	0.8	1.5	3.4	4.6
132.5°	0.8	0.8	1.1	2.7	3.4
135°	0.8	0.8	0.8	1.9	2.7
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)