

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: P517971

Luminaire Tested: HVL8-2-LD4-3HI-40-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: P517971
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-3HI-40-UNV-C-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6010.0 lumens
Efficiency: N/A
Efficacy: 95.4 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 2' x H: 0.17')
CIE Type: Direct

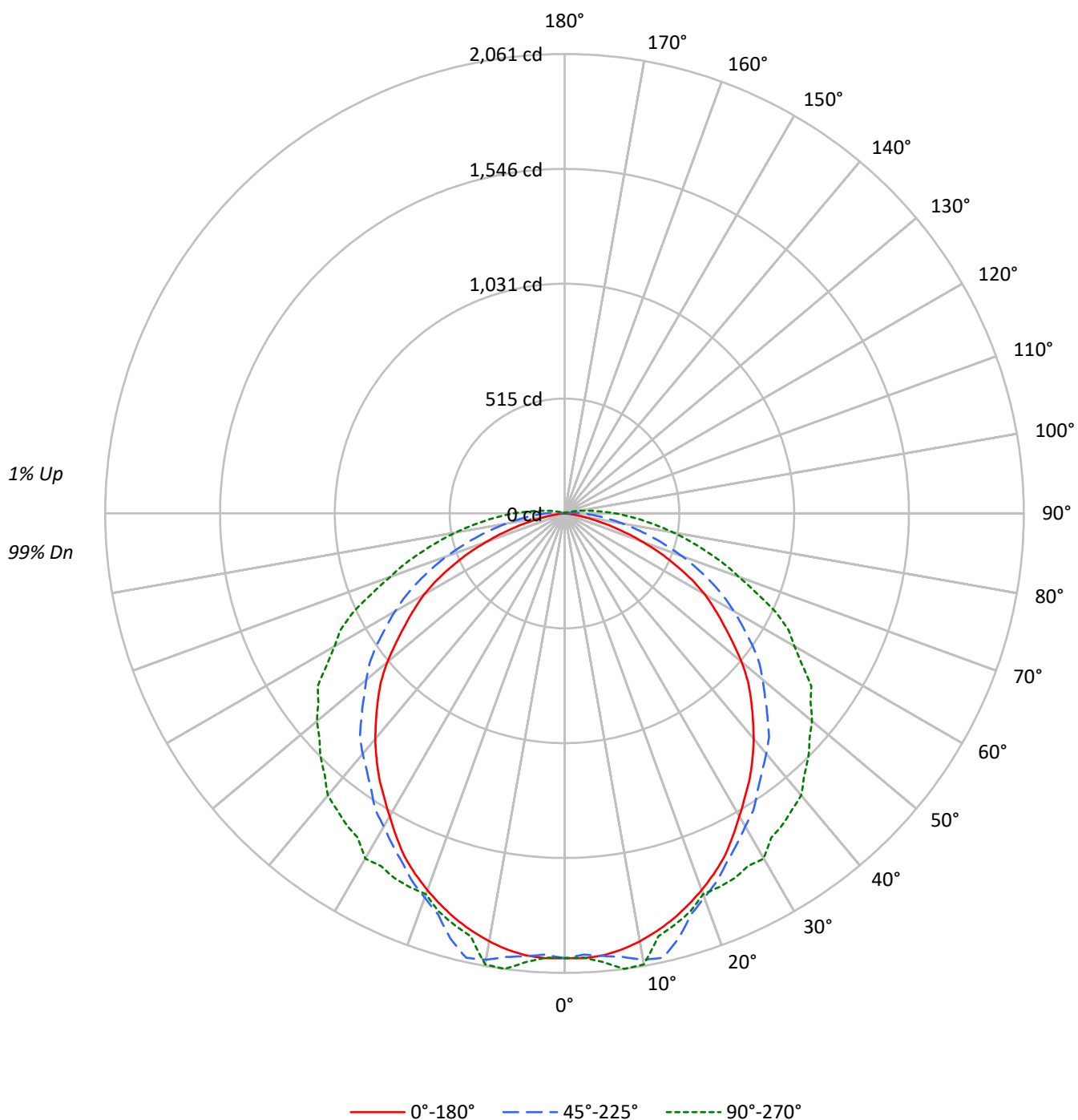
Input Watts (W): 63
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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: P517971

CATALOG NUMBER: HVL8-2-LD4-3HI-40-UNV-C-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517971

CATALOG NUMBER: HVL8-2-LD4-3HI-40-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°	16106	16106	16106
5°	16011	15824	16027
10°	15743	15999	16126
15°	15399	15527	14968
20°	14994	14508	14314
25°	14569	13844	14404
30°	13955	13304	14562
35°	13498	12792	14305
40°	13009	12396	14394
45°	12484	11899	14134
50°	11857	11376	14026
55°	10974	10818	14019
60°	10263	10068	13419
65°	8950	9183	12991
70°	7166	8051	11651
75°	4970	6697	10636
80°	2655	5335	9548
85°	887	3944	8410

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 14134 cd/sqm

TEST NUMBER: P517971

CATALOG NUMBER: HVL8-2-LD4-3HI-40-UNV-C-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	191.7	3.2
10°-20°	546.0	9.1
20°-30°	812.4	13.5
30°-40°	976.5	16.2
40°-50°	1027.9	17.1
50°-60°	953.8	15.9
60°-70°	754.1	12.5
70°-80°	460.6	7.7
80°-90°	200.7	3.3
90°-100°	62.5	1.0
100°-110°	14.0	0.2
110°-120°	5.6	0.1
120°-130°	3.2	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°	1550.2	25.8
0°-40°	2526.8	42.0
0°-60°	4508.4	75.0
0°-90°	5923.8	98.6
90°-120°	82.1	1.4
90°-150°	86.1	1.4
90°-180°	86.0	1.4
0°-180°	6010.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1995	1995	1995	1995	1995	
5°	1990	1986	1993	2015	2021	189
15°	1884	1956	1975	1910	1911	531
25°	1699	1808	1725	1777	1806	780
35°	1450	1490	1512	1650	1706	906
45°	1185	1190	1288	1492	1548	913
55°	872	887	1027	1252	1352	784
65°	552	570	724	958	1045	547
75°	209	277	404	620	659	228
85°	19	65	157	305	350	29
90°	0	20	82	193	228	1
95°	0	5	36	106	130	0
105°	0	3	7	21	29	1
115°	0	2	6	9	10	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: P517971

CATALOG NUMBER: HVL8-2-LD4-3HI-40-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1995.0	1995.0	1995.0	1995.0	1995.0
2.5°	1997.4	1992.1	1981.2	1991.7	1994.6
5°	1990.1	1986.1	1993.0	2015.3	2021.0
7.5°	1973.5	1988.9	2007.2	2047.8	2060.8
10°	1948.7	1977.9	2032.8	2067.3	2053.9
12.5°	1918.6	1968.2	2041.7	1974.3	1943.0
15°	1883.6	1956.0	1975.1	1909.7	1910.9
17.5°	1842.6	1945.8	1886.9	1885.3	1873.5
20°	1798.3	1911.7	1833.7	1830.4	1817.8
22.5°	1750.7	1866.6	1786.5	1780.0	1814.1
25°	1699.1	1807.6	1725.1	1776.8	1805.6
27.5°	1634.5	1730.4	1673.9	1747.1	1783.3
30°	1569.1	1650.8	1621.5	1723.5	1787.7
32.5°	1507.7	1567.5	1578.4	1714.6	1725.1
35°	1449.6	1489.8	1512.2	1649.6	1705.6
37.5°	1385.8	1396.8	1456.1	1622.3	1676.4
40°	1320.8	1313.9	1409.0	1577.6	1652.4
42.5°	1250.9	1248.4	1359.0	1555.3	1592.7
45°	1184.6	1189.9	1287.9	1491.9	1547.6
47.5°	1116.8	1123.7	1220.4	1422.4	1491.5
50°	1037.9	1046.9	1160.3	1360.6	1449.6
52.5°	952.6	969.7	1101.7	1302.1	1391.9
55°	872.5	886.8	1027.4	1252.1	1351.7
57.5°	799.4	807.9	950.6	1189.1	1264.3
60°	727.4	729.5	878.2	1119.2	1191.1
62.5°	644.9	648.6	803.8	1036.7	1133.0
65°	552.3	569.8	723.8	957.9	1044.8
67.5°	465.7	496.2	642.1	885.5	931.1
70°	373.1	424.7	562.0	800.6	832.7
72.5°	288.1	348.7	480.0	705.5	750.6
75°	208.9	276.8	403.6	620.2	659.2
77.5°	140.6	209.7	332.0	525.9	577.5
80°	84.1	153.2	268.2	438.5	496.6
82.5°	43.1	102.8	208.1	367.8	419.8
85°	18.7	65.0	157.3	305.2	350.3
87.5°	5.3	37.0	115.8	246.7	284.9
90°	0.4	19.5	82.5	193.4	228.0
92.5°	0.4	9.3	58.1	146.3	172.7
95°	0.4	4.9	36.2	106.1	129.6
97.5°	0.4	2.8	21.9	75.2	95.1
100°	0.4	2.4	13.0	50.0	67.9
102.5°	0.4	2.8	8.9	31.7	44.3
105°	0.4	2.8	7.3	20.7	29.3
107.5°	0.8	2.8	6.5	15.4	20.3
110°	0.4	2.4	6.9	11.8	15.8

TEST NUMBER: P517971

CATALOG NUMBER: HVL8-2-LD4-3HI-40-UNV-C-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.8	2.0	6.5	9.8	11.8
115°	0.4	1.6	5.7	9.3	9.8
117.5°	0.8	1.2	4.5	9.3	9.8
120°	0.8	0.8	3.7	8.9	10.2
122.5°	0.8	0.8	2.8	8.1	9.8
125°	0.4	0.8	2.4	6.1	8.5
127.5°	0.8	0.8	2.0	4.9	6.5
130°	0.8	0.8	1.6	3.7	4.9
132.5°	0.8	0.8	1.2	2.8	3.7
135°	0.8	0.8	0.8	2.0	2.8
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)