

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: P517504

Luminaire Tested: HVL12-4-LD4-2LO-35-UNV-C-EDD

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: P517504
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
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 80 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

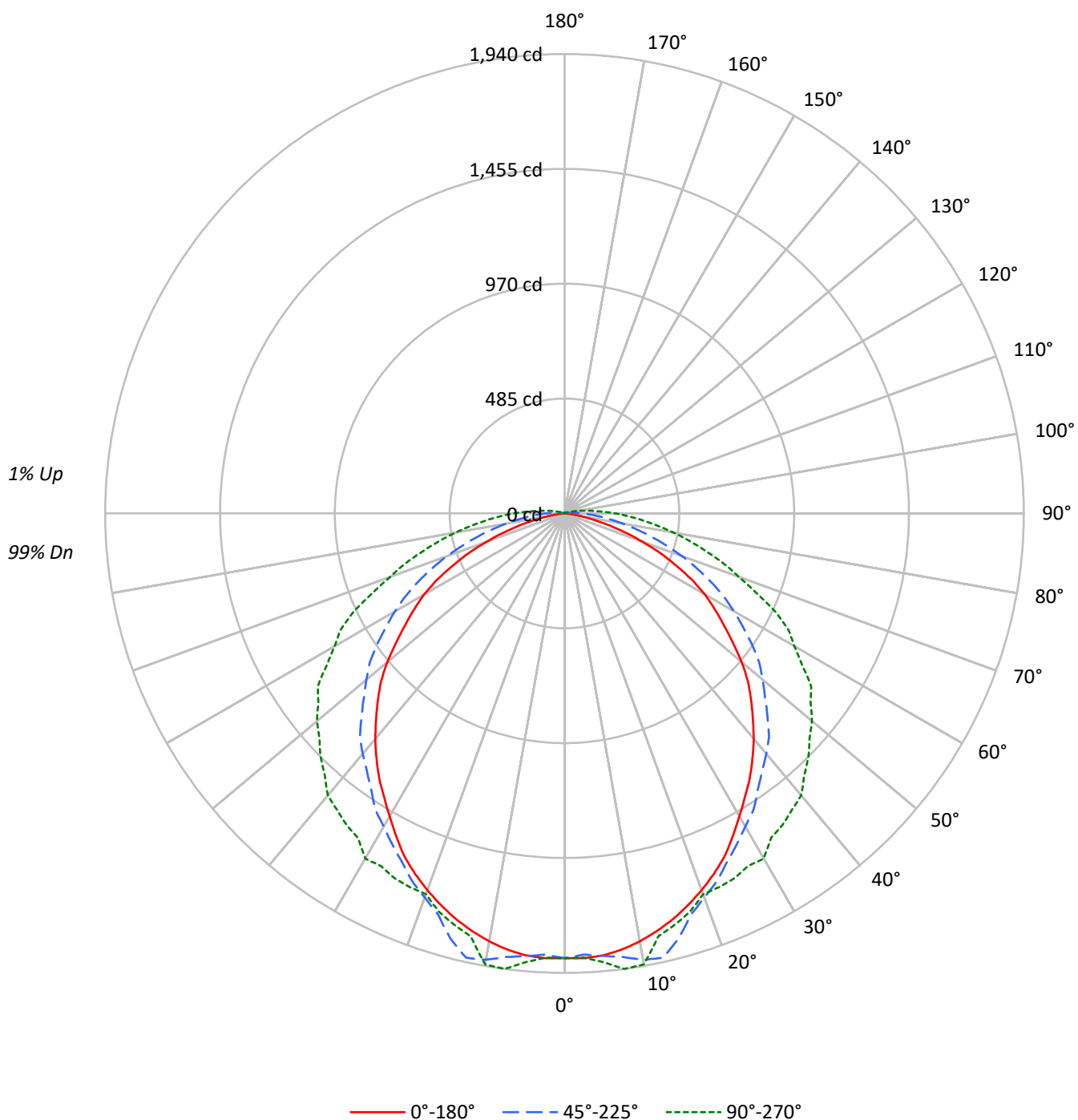
Input Watts (W): 47.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

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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°	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

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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

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

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

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

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)