

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: P517499

Luminaire Tested: HVL12-4-LD4-2LO-30-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: P517499
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-2LO-30-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5390.0 lumens
Efficiency: N/A
Efficacy: 113.7 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

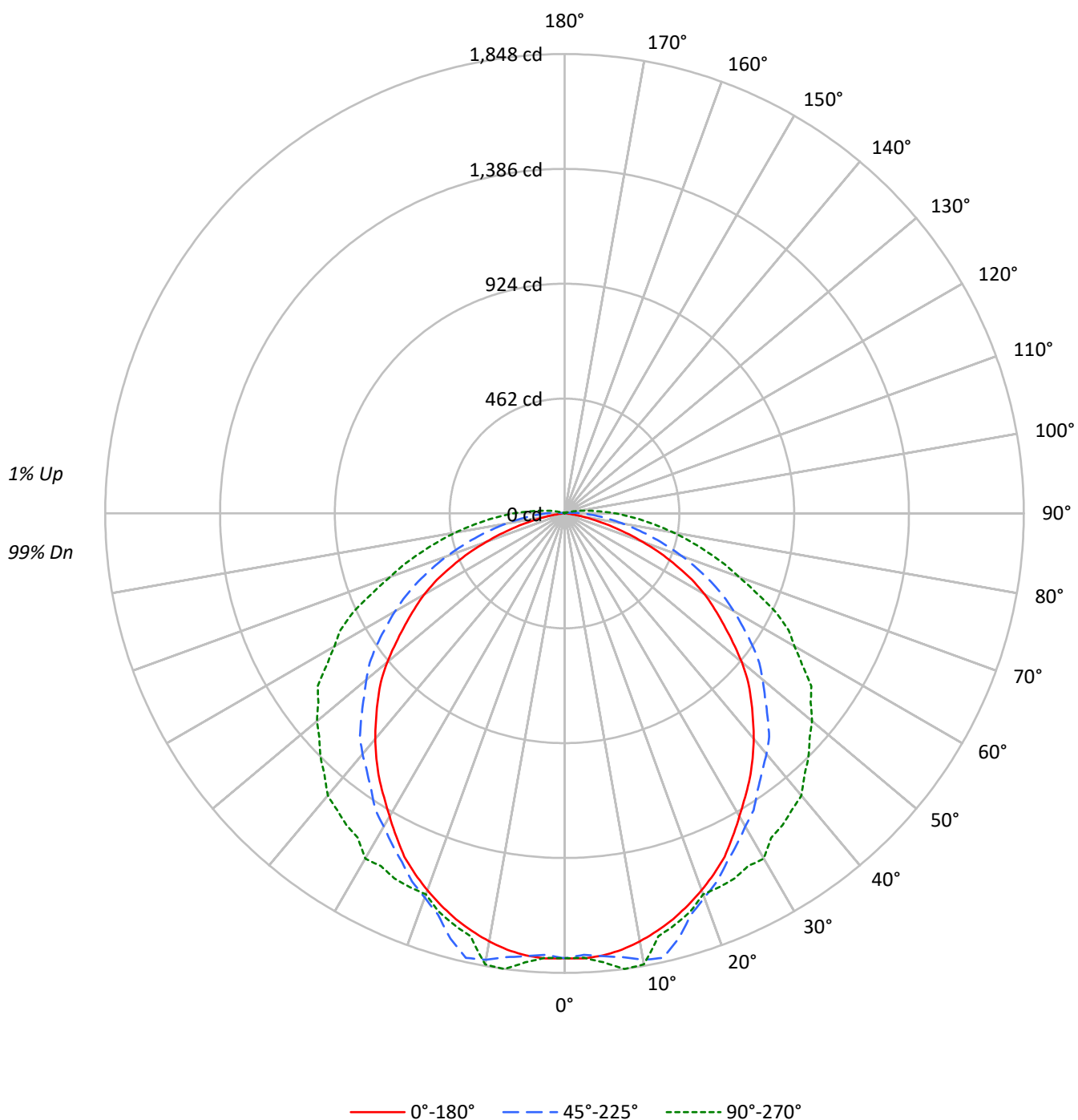
Input Watts (W): 47.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	4815	4815	4815
5°	4804	4767	4826
10°	4740	4855	4890
15°	4654	4747	4570
20°	4550	4470	4402
25°	4438	4299	4461
30°	4270	4164	4545
35°	4150	4039	4500
40°	4020	3950	4567
45°	3881	3831	4527
50°	3713	3706	4541
55°	3465	3571	4594
60°	3275	3377	4461
65°	2895	3141	4396
70°	2362	2823	4030
75°	1685	2428	3789
80°	945	2031	3548
85°	351	1623	3339

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 4594 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.0	3.2
10°-20°	489.7	9.1
20°-30°	728.6	13.5
30°-40°	875.8	16.2
40°-50°	921.8	17.1
50°-60°	855.4	15.9
60°-70°	676.3	12.5
70°-80°	413.1	7.7
80°-90°	180.0	3.3
90°-100°	56.0	1.0
100°-110°	12.6	0.2
110°-120°	5.1	0.1
120°-130°	2.8	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°	1390.3	25.8
0°-40°	2266.1	42.0
0°-60°	4043.3	75.0
0°-90°	5312.7	98.6
90°-120°	73.7	1.4
90°-150°	77.3	1.4
90°-180°	77.0	1.4
0°-180°	5390.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1789	1789	1789	1789	1789	
5°	1785	1781	1787	1807	1812	169
15°	1689	1754	1771	1713	1714	476
25°	1524	1621	1547	1594	1619	700
35°	1300	1336	1356	1479	1530	813
45°	1062	1067	1155	1338	1388	819
55°	782	795	921	1123	1212	703
65°	495	511	649	859	937	491
75°	187	248	362	556	591	204
85°	17	58	141	274	314	26
90°	0	18	74	174	204	1
95°	0	4	32	95	116	0
105°	0	3	7	19	26	1
115°	0	2	5	8	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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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1789.2	1789.2	1789.2	1789.2	1789.2
2.5°	1791.4	1786.6	1776.8	1786.3	1788.8
5°	1784.8	1781.2	1787.4	1807.4	1812.5
7.5°	1769.9	1783.7	1800.1	1836.6	1848.2
10°	1747.6	1773.9	1823.1	1854.1	1842.0
12.5°	1720.7	1765.1	1831.1	1770.6	1742.5
15°	1689.3	1754.2	1771.3	1712.6	1713.7
17.5°	1652.5	1745.1	1692.2	1690.8	1680.2
20°	1612.8	1714.5	1644.5	1641.6	1630.3
22.5°	1570.1	1674.0	1602.2	1596.4	1627.0
25°	1523.9	1621.2	1547.2	1593.5	1619.3
27.5°	1465.9	1551.9	1501.3	1566.9	1599.3
30°	1407.2	1480.5	1454.2	1545.7	1603.3
32.5°	1352.2	1405.8	1415.6	1537.7	1547.2
35°	1300.1	1336.1	1356.2	1479.4	1529.7
37.5°	1242.8	1252.7	1305.9	1455.0	1503.4
40°	1184.5	1178.3	1263.6	1414.9	1481.9
42.5°	1121.8	1119.7	1218.8	1394.8	1428.4
45°	1062.4	1067.2	1155.0	1338.0	1387.9
47.5°	1001.6	1007.8	1094.5	1275.6	1337.6
50°	930.9	938.9	1040.6	1220.2	1300.1
52.5°	854.3	869.6	988.1	1167.8	1248.3
55°	782.5	795.3	921.4	1122.9	1212.2
57.5°	716.9	724.6	852.5	1066.4	1133.9
60°	652.4	654.2	787.6	1003.8	1068.3
62.5°	578.4	581.7	720.9	929.8	1016.1
65°	495.3	511.0	649.1	859.1	937.1
67.5°	417.7	445.0	575.9	794.2	835.0
70°	334.6	380.9	504.1	718.0	746.8
72.5°	258.4	312.7	430.4	632.7	673.2
75°	187.3	248.2	361.9	556.2	591.2
77.5°	126.1	188.1	297.8	471.6	517.9
80°	75.4	137.4	240.6	393.3	445.4
82.5°	38.6	92.2	186.6	329.8	376.5
85°	16.8	58.3	141.1	273.7	314.2
87.5°	4.7	33.2	103.9	221.2	255.5
90°	0.4	17.5	74.0	173.5	204.5
92.5°	0.4	8.4	52.1	131.2	154.9
95°	0.4	4.4	32.4	95.1	116.3
97.5°	0.4	2.6	19.7	67.4	85.3
100°	0.4	2.2	11.7	44.8	60.9
102.5°	0.4	2.6	8.0	28.4	39.7
105°	0.4	2.6	6.6	18.6	26.2
107.5°	0.7	2.6	5.8	13.8	18.2
110°	0.4	2.2	6.2	10.6	14.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.7	1.8	5.8	8.7	10.6
115°	0.4	1.5	5.1	8.4	8.7
117.5°	0.7	1.1	4.0	8.4	8.7
120°	0.7	0.7	3.3	8.0	9.1
122.5°	0.7	0.7	2.6	7.3	8.7
125°	0.4	0.7	2.2	5.5	7.7
127.5°	0.7	0.7	1.8	4.4	5.8
130°	0.7	0.7	1.5	3.3	4.4
132.5°	0.7	0.7	1.1	2.6	3.3
135°	0.7	0.7	0.7	1.8	2.6
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)