

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: P517447

Luminaire Tested: HVL12-4-LD4-1HI-50-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: P517447
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-1HI-50-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5072.0 lumens
Efficiency: N/A
Efficacy: 115.0 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

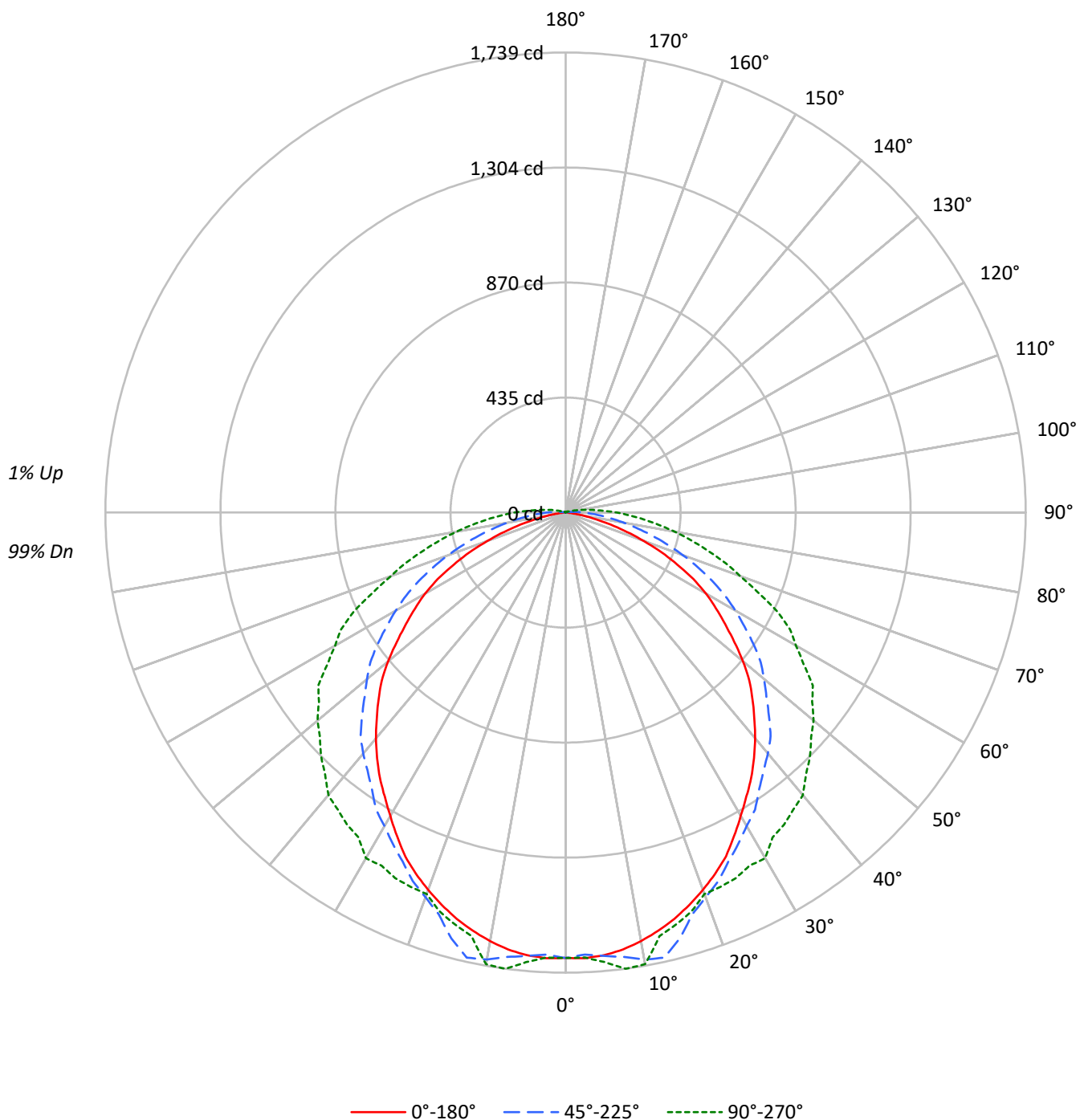
Input Watts (W): 44.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

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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
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°	4531	4531	4531
5°	4520	4485	4541
10°	4461	4569	4601
15°	4380	4467	4300
20°	4281	4206	4142
25°	4176	4045	4198
30°	4018	3919	4276
35°	3905	3800	4234
40°	3783	3717	4298
45°	3653	3605	4260
50°	3493	3487	4273
55°	3261	3360	4323
60°	3082	3178	4198
65°	2724	2955	4136
70°	2222	2656	3792
75°	1586	2285	3566
80°	890	1911	3338
85°	330	1526	3141

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 4323 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	161.8	3.2
10°-20°	460.8	9.1
20°-30°	685.6	13.5
30°-40°	824.1	16.2
40°-50°	867.5	17.1
50°-60°	804.9	15.9
60°-70°	636.4	12.5
70°-80°	388.8	7.7
80°-90°	169.4	3.3
90°-100°	52.7	1.0
100°-110°	11.8	0.2
110°-120°	4.8	0.1
120°-130°	2.7	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°	1308.3	25.8
0°-40°	2132.4	42.0
0°-60°	3804.7	75.0
0°-90°	4999.3	98.6
90°-120°	69.3	1.4
90°-150°	72.7	1.4
90°-180°	73.0	1.4
0°-180°	5072.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1684	1684	1684	1684	1684	
5°	1680	1676	1682	1701	1706	159
15°	1590	1651	1667	1612	1613	448
25°	1434	1526	1456	1500	1524	658
35°	1223	1257	1276	1392	1439	765
45°	1000	1004	1087	1259	1306	771
55°	736	748	867	1057	1141	662
65°	466	481	611	808	882	462
75°	176	234	341	523	556	192
85°	16	55	133	258	296	24
90°	0	16	70	163	192	1
95°	0	4	30	90	109	0
105°	0	2	6	18	25	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

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1683.6	1683.6	1683.6	1683.6	1683.6
2.5°	1685.7	1681.2	1672.0	1680.9	1683.3
5°	1679.5	1676.1	1681.9	1700.8	1705.6
7.5°	1665.5	1678.5	1693.9	1728.2	1739.2
10°	1644.5	1669.2	1715.5	1744.7	1733.4
12.5°	1619.2	1661.0	1723.1	1666.1	1639.7
15°	1589.7	1650.7	1666.8	1611.6	1612.6
17.5°	1555.0	1642.1	1592.4	1591.0	1581.1
20°	1517.6	1613.3	1547.5	1544.7	1534.1
22.5°	1477.5	1575.3	1507.7	1502.2	1531.0
25°	1433.9	1525.5	1455.9	1499.5	1523.8
27.5°	1379.4	1460.4	1412.7	1474.4	1504.9
30°	1324.2	1393.1	1368.4	1454.5	1508.7
32.5°	1272.4	1322.8	1332.1	1447.0	1455.9
35°	1223.4	1257.3	1276.2	1392.1	1439.4
37.5°	1169.5	1178.8	1228.9	1369.1	1414.7
40°	1114.6	1108.8	1189.1	1331.4	1394.5
42.5°	1055.7	1053.6	1146.9	1312.5	1344.1
45°	999.8	1004.2	1086.9	1259.0	1306.0
47.5°	942.5	948.3	1029.9	1200.4	1258.7
50°	875.9	883.5	979.2	1148.3	1223.4
52.5°	803.9	818.3	929.8	1098.9	1174.7
55°	736.4	748.4	867.0	1056.7	1140.7
57.5°	674.6	681.8	802.2	1003.5	1067.0
60°	613.9	615.6	741.2	944.5	1005.2
62.5°	544.3	547.4	678.4	874.9	956.2
65°	466.1	480.8	610.8	808.4	881.8
67.5°	393.0	418.8	541.9	747.3	785.7
70°	314.8	358.4	474.3	675.6	702.7
72.5°	243.2	294.3	405.0	595.4	633.5
75°	176.3	233.6	340.6	523.4	556.3
77.5°	118.7	177.0	280.2	443.8	487.4
80°	71.0	129.3	226.4	370.1	419.1
82.5°	36.4	86.8	175.6	310.4	354.3
85°	15.8	54.9	132.7	257.6	295.6
87.5°	4.5	31.2	97.7	208.2	240.4
90°	0.3	16.5	69.6	163.3	192.4
92.5°	0.3	7.9	49.0	123.5	145.8
95°	0.3	4.1	30.5	89.5	109.4
97.5°	0.3	2.4	18.5	63.4	80.3
100°	0.3	2.1	11.0	42.2	57.3
102.5°	0.3	2.4	7.5	26.8	37.4
105°	0.3	2.4	6.2	17.5	24.7
107.5°	0.7	2.4	5.5	13.0	17.1
110°	0.3	2.1	5.8	9.9	13.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.7	1.7	5.5	8.2	9.9
115°	0.3	1.4	4.8	7.9	8.2
117.5°	0.7	1.0	3.8	7.9	8.2
120°	0.7	0.7	3.1	7.5	8.6
122.5°	0.7	0.7	2.4	6.9	8.2
125°	0.3	0.7	2.1	5.1	7.2
127.5°	0.7	0.7	1.7	4.1	5.5
130°	0.7	0.7	1.4	3.1	4.1
132.5°	0.7	0.7	1.0	2.4	3.1
135°	0.7	0.7	0.7	1.7	2.4
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)