

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: P518023

Luminaire Tested: HVL8-4-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: P518023
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1HI-50-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4858.1 lumens
Efficiency: N/A
Efficacy: 113.0 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

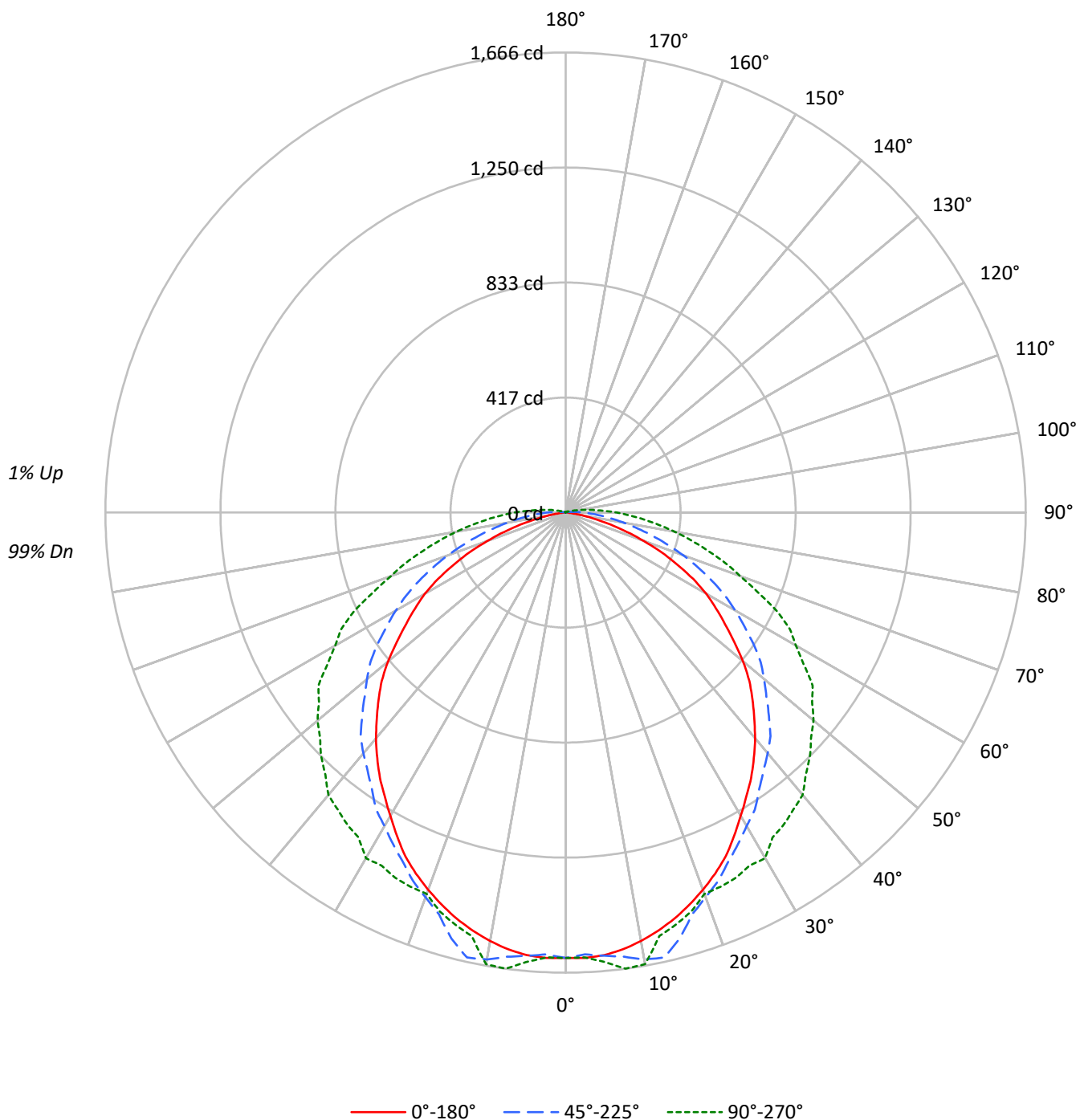
Input Watts (W): 43
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	6509	6509	6509
5°	6494	6411	6477
10°	6409	6498	6517
15°	6292	6322	6049
20°	6151	5922	5785
25°	6000	5666	5821
30°	5773	5459	5886
35°	5610	5263	5781
40°	5435	5116	5818
45°	5248	4926	5712
50°	5019	4727	5669
55°	4685	4514	5666
60°	4427	4222	5424
65°	3914	3874	5251
70°	3194	3422	4709
75°	2278	2874	4298
80°	1278	2322	3859
85°	474	1753	3400

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 5712 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	155.0	3.2
10°-20°	441.4	9.1
20°-30°	656.7	13.5
30°-40°	789.4	16.2
40°-50°	830.8	17.1
50°-60°	771.0	15.9
60°-70°	609.6	12.5
70°-80°	372.3	7.7
80°-90°	162.2	3.3
90°-100°	50.5	1.0
100°-110°	11.3	0.2
110°-120°	4.6	0.1
120°-130°	2.6	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°	1253.1	25.8
0°-40°	2042.4	42.0
0°-60°	3644.2	75.0
0°-90°	4788.4	98.6
90°-120°	66.4	1.4
90°-150°	69.7	1.4
90°-180°	70.0	1.4
0°-180°	4858.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1613	1613	1613	1613	1613	
5°	1609	1605	1611	1629	1634	152
15°	1523	1581	1596	1544	1545	429
25°	1373	1461	1394	1436	1460	631
35°	1172	1204	1222	1333	1379	732
45°	958	962	1041	1206	1251	738
55°	705	717	830	1012	1093	634
65°	446	461	585	774	845	442
75°	169	224	326	501	533	184
85°	15	53	127	247	283	23
90°	0	16	67	156	184	1
95°	0	4	29	86	105	0
105°	0	2	6	17	24	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°	1612.6	1612.6	1612.6	1612.6	1612.6
2.5°	1614.6	1610.3	1601.4	1610.0	1612.3
5°	1608.6	1605.4	1610.9	1629.0	1633.6
7.5°	1595.2	1607.7	1622.4	1655.3	1665.8
10°	1575.1	1598.8	1643.1	1671.1	1660.2
12.5°	1550.8	1590.9	1650.4	1595.8	1570.5
15°	1522.6	1581.1	1596.5	1543.6	1544.6
17.5°	1489.4	1572.8	1525.2	1523.9	1514.4
20°	1453.6	1545.2	1482.2	1479.6	1469.4
22.5°	1415.2	1508.8	1444.1	1438.8	1466.4
25°	1373.4	1461.2	1394.5	1436.2	1459.5
27.5°	1321.2	1398.7	1353.1	1412.2	1441.4
30°	1268.3	1334.4	1310.7	1393.2	1445.1
32.5°	1218.7	1267.0	1275.9	1385.9	1394.5
35°	1171.7	1204.3	1222.3	1333.4	1378.7
37.5°	1120.2	1129.0	1177.0	1311.4	1355.1
40°	1067.6	1062.0	1138.9	1275.2	1335.7
42.5°	1011.1	1009.1	1098.5	1257.2	1287.4
45°	957.6	961.8	1041.0	1205.9	1250.9
47.5°	902.7	908.3	986.5	1149.7	1205.6
50°	839.0	846.2	937.9	1099.8	1171.7
52.5°	770.0	783.8	890.6	1052.5	1125.1
55°	705.3	716.8	830.4	1012.1	1092.6
57.5°	646.2	653.1	768.4	961.2	1022.0
60°	588.0	589.7	709.9	904.7	962.8
62.5°	521.3	524.3	649.8	838.0	915.8
65°	446.4	460.6	585.1	774.3	844.6
67.5°	376.5	401.1	519.0	715.8	752.6
70°	301.6	343.3	454.3	647.1	673.1
72.5°	232.9	281.9	388.0	570.3	606.7
75°	168.8	223.7	326.2	501.3	532.8
77.5°	113.7	169.5	268.4	425.1	466.8
80°	68.0	123.8	216.8	354.4	401.4
82.5°	34.8	83.1	168.2	297.3	339.3
85°	15.1	52.6	127.1	246.7	283.2
87.5°	4.3	29.9	93.6	199.4	230.3
90°	0.3	15.8	66.7	156.4	184.3
92.5°	0.3	7.6	47.0	118.3	139.6
95°	0.3	3.9	29.2	85.7	104.8
97.5°	0.3	2.3	17.7	60.8	76.9
100°	0.3	2.0	10.5	40.4	54.9
102.5°	0.3	2.3	7.2	25.6	35.8
105°	0.3	2.3	5.9	16.8	23.7
107.5°	0.7	2.3	5.3	12.5	16.4
110°	0.3	2.0	5.6	9.5	12.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.7	1.6	5.3	7.9	9.5
115°	0.3	1.3	4.6	7.6	7.9
117.5°	0.7	1.0	3.6	7.6	7.9
120°	0.7	0.7	3.0	7.2	8.2
122.5°	0.7	0.7	2.3	6.6	7.9
125°	0.3	0.7	2.0	4.9	6.9
127.5°	0.7	0.7	1.6	3.9	5.3
130°	0.7	0.7	1.3	3.0	3.9
132.5°	0.7	0.7	1.0	2.3	3.0
135°	0.7	0.7	0.7	1.6	2.3
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)