

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: P517431

Luminaire Tested: HVL12-2-LD4-3STD-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: P517431
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-3STD-50-UNV-C-EDD-90
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5135.0 lumens
Efficiency: N/A
Efficacy: 104.6 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 2' x H: 0.17')
CIE Type: Direct

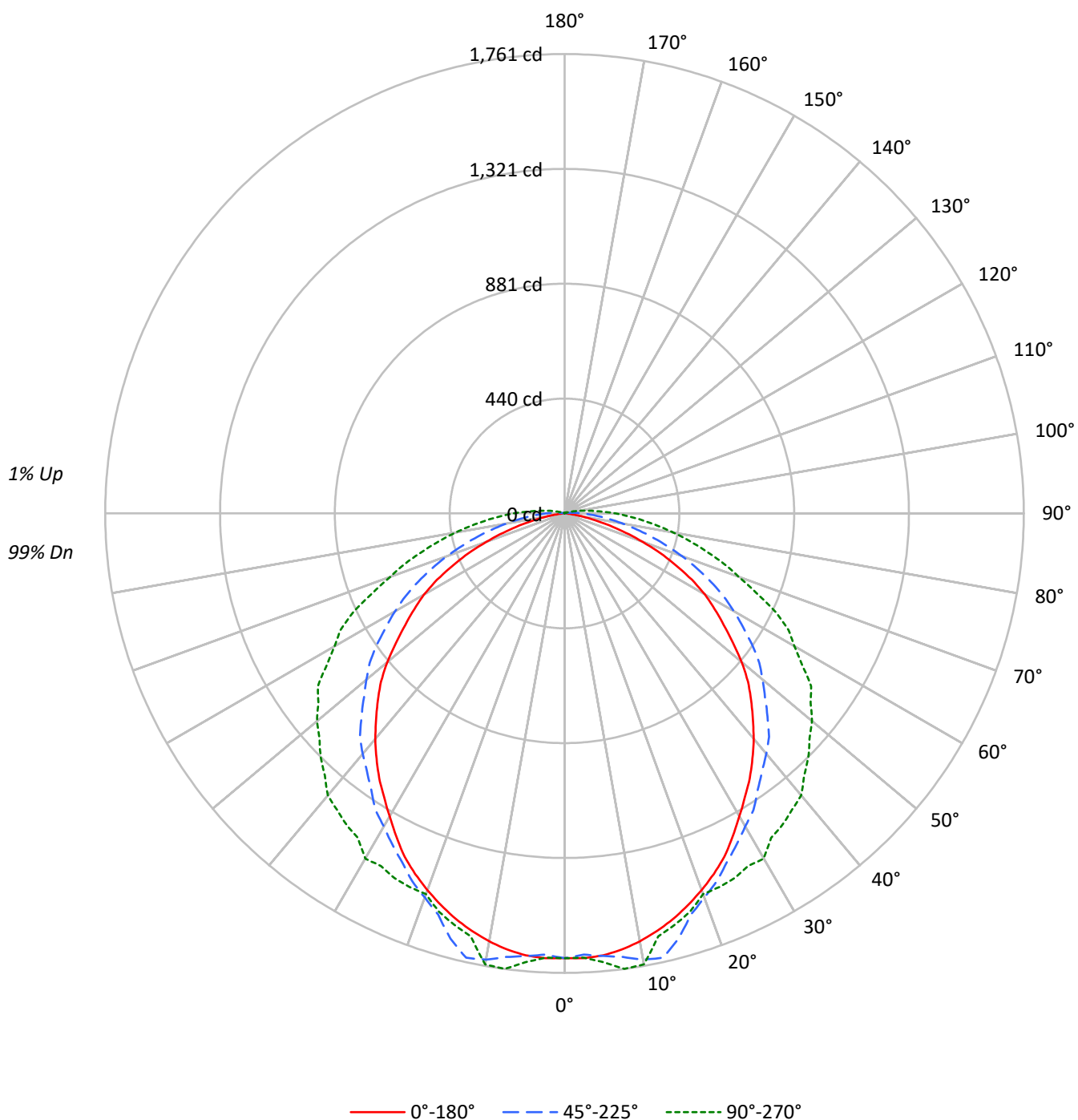
Input Watts (W): 49.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

TEST NUMBER: P517431

CATALOG NUMBER: HVL12-2-LD4-3STD-50-UNV-C-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517431

CATALOG NUMBER: HVL12-2-LD4-3STD-50-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°	9174	9174	9174
5°	9120	9059	9195
10°	8967	9205	9317
15°	8771	8977	8708
20°	8541	8431	8386
25°	8299	8086	8500
30°	7949	7812	8659
35°	7689	7553	8574
40°	7410	7365	8702
45°	7111	7117	8626
50°	6754	6855	8652
55°	6251	6576	8753
60°	5846	6184	8500
65°	5098	5710	8375
70°	4082	5086	7679
75°	2831	4320	7220
80°	1513	3547	6760
85°	506	2747	6361

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 8753 cd/sqm

TEST NUMBER: P517431

CATALOG NUMBER: HVL12-2-LD4-3STD-50-UNV-C-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.8	3.2
10°-20°	466.5	9.1
20°-30°	694.2	13.5
30°-40°	834.4	16.2
40°-50°	878.2	17.1
50°-60°	814.9	15.9
60°-70°	644.3	12.5
70°-80°	393.6	7.7
80°-90°	171.5	3.3
90°-100°	53.4	1.0
100°-110°	12.0	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°	1324.5	25.8
0°-40°	2158.9	42.0
0°-60°	3852.0	75.0
0°-90°	5061.4	98.6
90°-120°	70.2	1.4
90°-150°	73.6	1.4
90°-180°	74.0	1.4
0°-180°	5135.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1704	1704	1704	1704	1704	
5°	1700	1697	1703	1722	1727	161
15°	1609	1671	1688	1632	1633	453
25°	1452	1544	1474	1518	1543	666
35°	1239	1273	1292	1409	1457	774
45°	1012	1017	1100	1275	1322	780
55°	746	758	878	1070	1155	670
65°	472	487	618	818	893	467
75°	178	236	345	530	563	195
85°	16	56	134	261	299	25
90°	0	17	70	165	195	1
95°	0	4	31	91	111	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

TEST NUMBER: P517431

CATALOG NUMBER: HVL12-2-LD4-3STD-50-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1704.5	1704.5	1704.5	1704.5	1704.5
2.5°	1706.6	1702.1	1692.7	1701.8	1704.2
5°	1700.4	1696.9	1702.8	1721.9	1726.8
7.5°	1686.1	1699.3	1715.0	1749.7	1760.8
10°	1665.0	1690.0	1736.8	1766.3	1754.9
12.5°	1639.3	1681.6	1744.5	1686.8	1660.1
15°	1609.4	1671.2	1687.5	1631.6	1632.7
17.5°	1574.3	1662.5	1612.2	1610.8	1600.7
20°	1536.5	1633.4	1566.7	1563.9	1553.1
22.5°	1495.9	1594.8	1526.4	1520.9	1550.0
25°	1451.8	1544.5	1474.0	1518.1	1542.7
27.5°	1396.5	1478.5	1430.2	1492.7	1523.6
30°	1340.6	1410.4	1385.4	1472.6	1527.5
32.5°	1288.2	1339.3	1348.6	1465.0	1474.0
35°	1238.6	1272.9	1292.0	1409.4	1457.3
37.5°	1184.0	1193.4	1244.1	1386.1	1432.3
40°	1128.5	1122.6	1203.8	1347.9	1411.8
42.5°	1068.8	1066.7	1161.1	1328.8	1360.8
45°	1012.2	1016.7	1100.4	1274.7	1322.2
47.5°	954.2	960.1	1042.7	1215.3	1274.3
50°	886.8	894.5	991.3	1162.5	1238.6
52.5°	813.9	828.5	941.3	1112.5	1189.3
55°	745.5	757.7	877.8	1069.8	1154.9
57.5°	683.0	690.3	812.2	1016.0	1080.2
60°	621.5	623.3	750.4	956.3	1017.7
62.5°	551.1	554.2	686.8	885.8	968.1
65°	471.9	486.8	618.4	818.4	892.7
67.5°	397.9	424.0	548.6	756.6	795.5
70°	318.8	362.9	480.2	684.0	711.5
72.5°	246.2	297.9	410.1	602.8	641.3
75°	178.5	236.5	344.8	529.9	563.2
77.5°	120.1	179.2	283.7	449.3	493.4
80°	71.9	130.9	229.2	374.7	424.3
82.5°	36.8	87.8	177.8	314.2	358.7
85°	16.0	55.6	134.4	260.8	299.3
87.5°	4.5	31.6	99.0	210.8	243.4
90°	0.3	16.7	70.5	165.3	194.8
92.5°	0.3	8.0	49.7	125.0	147.6
95°	0.3	4.2	30.9	90.6	110.8
97.5°	0.3	2.4	18.8	64.2	81.3
100°	0.3	2.1	11.1	42.7	58.0
102.5°	0.3	2.4	7.6	27.1	37.8
105°	0.3	2.4	6.3	17.7	25.0
107.5°	0.7	2.4	5.6	13.2	17.4
110°	0.3	2.1	5.9	10.1	13.5

TEST NUMBER: P517431

CATALOG NUMBER: HVL12-2-LD4-3STD-50-UNV-C-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.7	1.7	5.6	8.3	10.1
115°	0.3	1.4	4.9	8.0	8.3
117.5°	0.7	1.0	3.8	8.0	8.3
120°	0.7	0.7	3.1	7.6	8.7
122.5°	0.7	0.7	2.4	6.9	8.3
125°	0.3	0.7	2.1	5.2	7.3
127.5°	0.7	0.7	1.7	4.2	5.6
130°	0.7	0.7	1.4	3.1	4.2
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)