

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: P517423

Luminaire Tested: HVL12-2-LD4-3STD-35-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: P517423
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-3STD-35-UNV-C-EDD-90
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4808.1 lumens
Efficiency: N/A
Efficacy: 97.9 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

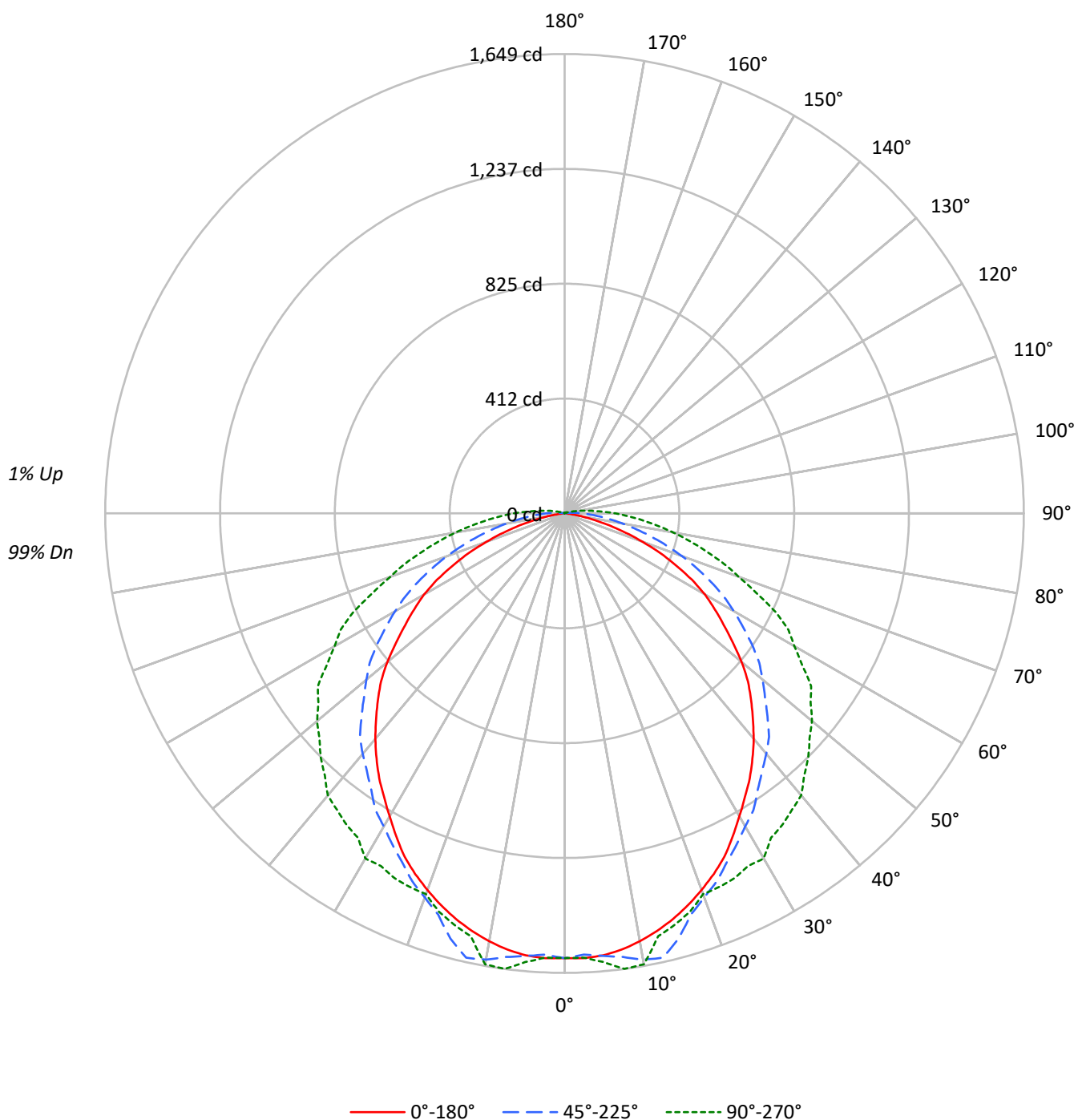
Input Watts (W): 49.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

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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°	8590	8590	8590
5°	8539	8483	8609
10°	8396	8618	8723
15°	8213	8406	8153
20°	7997	7893	7852
25°	7770	7571	7959
30°	7443	7315	8108
35°	7199	7073	8028
40°	6938	6896	8148
45°	6658	6664	8076
50°	6324	6419	8101
55°	5853	6157	8195
60°	5474	5790	7959
65°	4773	5346	7842
70°	3822	4762	7190
75°	2650	4044	6760
80°	1416	3321	6330
85°	474	2571	5955

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 8195 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.4	3.2
10°-20°	436.8	9.1
20°-30°	649.9	13.5
30°-40°	781.2	16.2
40°-50°	822.3	17.1
50°-60°	763.0	15.9
60°-70°	603.3	12.5
70°-80°	368.5	7.7
80°-90°	160.6	3.3
90°-100°	50.0	1.0
100°-110°	11.2	0.2
110°-120°	4.5	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°	1240.2	25.8
0°-40°	2021.4	42.0
0°-60°	3606.7	75.0
0°-90°	4739.0	98.6
90°-120°	65.8	1.4
90°-150°	69.0	1.4
90°-180°	69.0	1.4
0°-180°	4808.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1596	1596	1596	1596	1596	
5°	1592	1589	1594	1612	1617	151
15°	1507	1565	1580	1528	1529	424
25°	1359	1446	1380	1421	1444	624
35°	1160	1192	1210	1320	1364	725
45°	948	952	1030	1194	1238	731
55°	698	709	822	1002	1081	627
65°	442	456	579	766	836	438
75°	167	221	323	496	527	182
85°	15	52	126	244	280	23
90°	0	16	66	155	182	1
95°	0	4	29	85	104	0
105°	0	2	6	17	23	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°	1596.0	1596.0	1596.0	1596.0	1596.0
2.5°	1597.9	1593.7	1584.9	1593.4	1595.7
5°	1592.1	1588.8	1594.4	1612.3	1616.8
7.5°	1578.8	1591.1	1605.7	1638.3	1648.7
10°	1558.9	1582.3	1626.2	1653.9	1643.1
12.5°	1534.9	1574.5	1633.4	1579.4	1554.4
15°	1506.9	1564.8	1580.1	1527.7	1528.7
17.5°	1474.1	1556.7	1509.5	1508.2	1498.8
20°	1438.6	1529.3	1466.9	1464.3	1454.2
22.5°	1400.6	1493.3	1429.2	1424.0	1451.3
25°	1359.3	1446.1	1380.1	1421.4	1444.5
27.5°	1307.6	1384.3	1339.2	1397.7	1426.6
30°	1255.3	1320.6	1297.2	1378.8	1430.2
32.5°	1206.2	1254.0	1262.8	1371.7	1380.1
35°	1159.7	1191.9	1209.8	1319.6	1364.5
37.5°	1108.6	1117.4	1164.9	1297.9	1341.1
40°	1056.6	1051.1	1127.2	1262.1	1321.9
42.5°	1000.7	998.8	1087.2	1244.2	1274.1
45°	947.7	951.9	1030.3	1193.5	1238.0
47.5°	893.4	898.9	976.3	1137.9	1193.2
50°	830.3	837.5	928.2	1088.5	1159.7
52.5°	762.1	775.7	881.4	1041.7	1113.5
55°	698.0	709.4	821.9	1001.7	1081.3
57.5°	639.5	646.3	760.4	951.3	1011.4
60°	582.0	583.6	702.6	895.4	952.9
62.5°	516.0	518.9	643.1	829.4	906.4
65°	441.8	455.8	579.0	766.3	835.9
67.5°	372.6	397.0	513.7	708.4	744.8
70°	298.5	339.7	449.6	640.5	666.2
72.5°	230.5	278.9	384.0	564.4	600.5
75°	167.1	221.4	322.8	496.1	527.3
77.5°	112.5	167.8	265.6	420.7	462.0
80°	67.3	122.6	214.6	350.8	397.3
82.5°	34.5	82.3	166.5	294.2	335.8
85°	15.0	52.0	125.8	244.2	280.2
87.5°	4.2	29.6	92.7	197.3	227.9
90°	0.3	15.6	66.0	154.8	182.4
92.5°	0.3	7.5	46.5	117.0	138.2
95°	0.3	3.9	28.9	84.9	103.7
97.5°	0.3	2.3	17.6	60.1	76.1
100°	0.3	2.0	10.4	40.0	54.3
102.5°	0.3	2.3	7.2	25.4	35.4
105°	0.3	2.3	5.9	16.6	23.4
107.5°	0.7	2.3	5.2	12.4	16.3
110°	0.3	2.0	5.5	9.4	12.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.7	1.6	5.2	7.8	9.4
115°	0.3	1.3	4.6	7.5	7.8
117.5°	0.7	1.0	3.6	7.5	7.8
120°	0.7	0.7	2.9	7.2	8.1
122.5°	0.7	0.7	2.3	6.5	7.8
125°	0.3	0.7	2.0	4.9	6.8
127.5°	0.7	0.7	1.6	3.9	5.2
130°	0.7	0.7	1.3	2.9	3.9
132.5°	0.7	0.7	1.0	2.3	2.9
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)